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Poster Topic: Arthroplasty – Ankle / Foot

Abstract number: 26151

MID-TERM RESULTS OF ARTHROPLASTY OF I.MTP JOINT BY SYSTEM TOEFIT-PLUS

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PURPOSE: In the present study we evaluate results of total replacement of I. metatarsophalangeal joint by system Toefit-Plus. METHODS: Between March 2004 and September 2009 we performed 46 procedures of arthroplasty of I.MTP joint.In all cases we used system Toefit-Plus. It is cementless prothesis. Our group included 30 men et 16 women. Average mean age at surgery was 46 years (35-60) The indication was III.-IV.degree of hallux rigidus. Primary arthrosis was indicated in 28 and secondary/posttraumatic/ in 18 cases. The indication was III.-IV.degree of hallux rigidus. The contraindication was serious axial deviance of hallux, pure quality of bone, neuromuscular disease, and obesity. Clinical evaluation was conducted using Hallux-Metatasophalangeal-Score by Kitaoka AOFAS. Imaging studies: AP, lateral view. RESULTS/DISCUSSION: Patients were followed for an average 36 months postoperative (3-62 months). The average postoperative Kitaoka score for objective was 50 points (max.60p) and for subjective was 35 points (max.40p). No patients were lost to follow-up. There were no cases of deep infection, wound dehiscence or dislocation. We note any correlation in clinical results to age or sex of patients. No loosening of implants noted. CONCLUSION: Mid-term results are encouragingly. The advantage of this procedure is painless mobile joint against to arthrodesis. The patient selection must be strict regarding. Due to results of our study, we can advise this method.

Poster Topic: Arthroplasty - Elbow

Abstract number: 24526 FASCIAL INTERPOSITION ARTHROPLASTY - A DYING ART

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Three patients with mean age of 13.6 yrs presented with neglected fractures around the elbow were treated since 2008. All three presented with post-traumatic arthritis with varying degree of ankylosis of the elbow joint & substantial loss in the elbow ROM with mean delay in onset of treatment of 21 weeks. All patients were treated with autologous fascial graft from ipsilateral tensor facia lata and radial head excision. All three patients were subjected with supervised assisted physiotherapy and showed immediate improvement in the elbow ROM initially with increased strength eventually. Assessment of mid-term results after elbow arthroplasty yielded good clinical and subjective results. Some instability of the joint was observed in the early phase of rehabilitation. No bony resorption or loss of joint space was observed at 2 yr follow up. Despite the functional deficits patient satisfaction was high and quality of life could be regained significantly. It is relatively economical treatment for patients in developing country and serves as an excellent option to delay elbow replacement surgery.

Poster Topic: Arthroplasty – Hand / Wrist

Abstract number: 23832 INTERPOSITION ARTHROPLASTY OF THE 1ST CARPAL-METACARPAL JOINT USING SUTURE ANCHOR AND POLYDIOXANONE RIBBON.

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Background: Osteoarthritis of the 1st CMCJ is common and there are a number of procedures described to deal with it. We describe a technique used in our practice and evaluate the outcomes. Methods: We performed a total of 5 operations in 4 patients using this technique. All patients had preoperative levels of arthritis of grade 3 on the Eaton classification. A trapeziectomy is performed. We create a osteotomy in the base of the 1st metacarpal. We then insert a suture anchor into the scaphoid. We take a length of polydioxanone ribbon and use this as a sling between the two bones. The excess ribbon is then packed lightly into the space vacated by the trapezium. At follow up of at least 2 years we reassessed patients and asked them to complete a DASH questionnaire detailing their symptoms before and after the surgery. We also measured clinical position of the digits and assessed pinch grip. Results: There was a significant improvement in DASH scores in these patients Average score preoperatively was 133.4. Average score at follow up was 69.7. Pinch grip was found to be good and the contour of the base of the thumb was maintained with no complaints of instability. Conclusions: This is a short case series, however our results here are promising and we suggest that this procedure may be useful in providing extra stability to the base of thumb after a trapeziectomy and may aid in the initial rehabilitation of the patient.

Poster Topic: Arthroplasty - Hand/Wrist

Abstract number: 26451 TOTAL DRUJ- ARTHROPLASTY AS SALVAGE FOR SALVAGE PROCEDURES, 4- YEAR REPORT

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INTRODUCTION: There are few treatment alternatives for severe DRUJ problems. When primary repair fails surgeons are often forced to choose between unpredictable methods like Partial or complete caput ulna resection as well as Sauve-Kampandji arthrodesis. Subsequently it is not uncommon that the patient and the surgeon find themselves in an even worse situation with both damaged joint surfaces and instability. In the last decade several new implants has entered the market, among them the Aptis (Scheker) DRUJ prosthesis which is a constrained type of total joint arthroplasty. PATIENTS AND METHODS: During spring 2006 the author operated four patients with the Aptis prosthesis. Complaints and indication were as follows; Painfull instability; after complete caput ulna resection; in a Sauve-Kampandji wrist; in wrist and elbow following Essex-Lopresti injury Aching and total lack of forearm rotation due to DRUJ synostosis following forearm fracture (patient 4) RESULTS: Due to the complete difference in patient characteristics there are few statistical conclusions to be made from the clinical outcome. However some results are worth mentioning. X-rays shows no signs of loosening in any patient Mean values decrease, DASH 33% (22 points), VAS-pain 85%Mean values, increase in grip strength, (Jamar) 33%, lift-strength 47%, torque-supination 166%, torque-pronation 96%Patient 4 went from 0-150 degrees in forearm rotation while there was no relative change in the other patients DISCUSSION Follow up indicates that The Aptis DRUJ arthroplasty is a safe and effective solution in the severely damaged DRUJ joint.

Abstract number: 22918

CLINICAL AND RADIOGRAPHIC EVALUATION OF 300 CEMENTLESS HIP PROSTHESIS: AVERAGE SEVEN AND A HALF YEAR CLINICAL AND RADIOGRAPHIC FOLLOW-UP OF THE "NATURAL HIP" ...

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The Zimmer Natural Hip stem is an uncemented tapered, split tip, proximally porous in-growth femoral stem that attempts to address shortcomings noted in earlier uncemented femoral stem designs. This study proposes to evaluate the outcome of hip arthroplasty with the use of the Natural Hip femoral component in patients who had been followed for seven and a half years postoperatively. Three hundred consecutive primary hip arthroplasties were performed by a single surgeon in 263 patients using the Natural Hip from 1993 to 2001. One hundred eighteen patients were excluded leaving 182 cases in 156 patients were included in the final review. There were 15 revisions, only one was deemed to be stem related. Two stems were revised for infection. One hip was revised for polyethylene cup wear issues and seven hips were successfully revised (cups only) for recurrent dislocations. The infected revision cases were revised with minimal bone loss and received a primary stem as the definitive implant. Harris Hip Scores improved from an average of 68 pre-operatively to an average of 99 at last follow up. There were six cases of subcollar calcar erosion and 5 cases of calcar round off. Primary total hip arthroplasty and hemiarthroplasty with the tapered, collared, split tip, proximal in-growth Titanium uncemented femoral component is associated with a low rate of aseptic loosening, osteolysis and thigh pain at a mean follow-up of 7.5 years.

Abstract number: 23027

WITH CONSTRAINED LINERS OR DUAL MOBILITY OUTCOMES OF TOTAL HIP ARTHROPLASTY ARE SIMILAR FOR PATIENTS WITH DISPLACED FEMORAL NECK FRACTURES AND OSTEOARTHRITIS

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This study attempted to evaluate whether total hip arthroplasty (THA) for displaced femoral neck fractures had significantly different outcomes when compared with THA for osteoarthritis. 1800 patients had THA between 1999 and 2005. Six hundred patients (mean age, 79.7 years) had THA for displaced femoral neck fractures; 1200 patients (mean age, 76.9 years) were treated with total hip arthroplasties for osteoarthritis. 75 per cent with fractures and 60 per cent with OA had a preoperative medical comorbidity including neurologic and vascular diseases. All THAs were done using postero lateral approach and cemented implants. Standard liners were used for OA. Constrained liners or dual mobility were used to avoid dislocation in fractures. Patients had radiographic assessment, physical examination, and evaluation with the Harris hip score. The mean followup was 7 years. The mean Harris hip score for patients treated with a total hip arthroplasty for a femoral neck fracture was 85 points; the mean hip score for patients treated with a total hip arthroplasty for osteoarthritis was 87 points. Patients who were treated with a total hip arthroplasty for a femoral neck fracture did not have increased perioperative morbidity compared with patients who had a total hip arthroplasty for osteoarthritis. The rate of dislocation was 2 per cent and not significantly different between the two groups. This study suggests that with selected liners the outcomes for total hip arthroplasties in this consecutive series of patients treated for displaced femoral neck fractures and osteoarthritis are comparable.

Abstract number: 23164 LEG LENGTH DISCREPANCY IN CEMENTLESS TOTAL HIP ARTHROPLASTY

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The use of cementless total hip arthroplasty (THA) is increasing, but in order to achieve rotational and axial stability larger implants may be required than originally templated for. This could potentially result in greater limb length inequality. Our objective was to determine whether there is greater inequality in limb length postoperatively in cementless THA compared with cemented. 136 consecutive patients undergoing elective THA between June 2007 and May 2008 were included in this retrospective study. Post-operative, digital radiographs were examined and limb length inequality was calculated as the difference between perpendicular distance between the inter-teardrop line and the most prominent points on the lesser trochanter of each limb. Of the 136 patients 27 (20%) underwent a cemented procedure and 109 (80%) a cementless procedure. Post operatively in the cemented group seven patients (26%) had some degree of shortening, 19 (70%) had some degree of lengthening. In the cementless group 32 patients (29%) had some degree of shortening, 67 (61%) had some degree of lengthening. There was no significant difference between these proportions (P = 0.949). In the cemented group the mean leg length discrepancy was 7.3 mm (range 19 mm short to 21 mm long). In the cementless group the mean measured leg length discrepancy was 6.3 mm (range 18 mm short to 23 mm long). There was no significant difference between the two groups (P = 0.526). This study shows that with accurate pre-operative templating, both cemented and cementless procedures produce comparable and acceptable limb length discrepancies.

Abstract number: 23225 ROLE OF LARGE FEMORAL HEADS (≥36 MM) ON DISLOCATION RATES

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Background: Hip dislocation still remains a common complication after Total Hip Replacement (THR) and a cause for a revision surgery. The outcomes for dislocated hips are substantially worse compared to non-dislocating hips. Advances in surgical techniques and implant designs have lowered the dislocation rates to 1-3%. Various implants such as constrained prosthesis, Tripolar Bearing Surfaces, and using large heads are available options to treat this condition. The purpose of this study was to assess incidence of dislocation in patients receiving a 36 mm head with a minimum of 1 yr follow-up. Methods: Two groups of patients (from 2004 to 2008) that underwent THR were enrolled in this study. First group included 188 patients with ceramic head component and high cross linked poly (HXLP) and second group was 188 cases with metal head implant and HXLP. Both patients were followed for at least one year after surgical procedure. All patients had a posterior approach with repair of posterior capsule and proper myofascial tension. Rate of dislocation was noted at the time of follow-up.Results: First group (188 patients with ceramic on HXLP) included 139 males and 49 females. Mean age was 60.8 years old (range 34 to 82). In all cases a ceramic head size of 36 mm was used. At the time of 1 year follow-up, we did not have any cases of dislocations. In second group (108 patients with metal on HXLP) that included 51 males and 57 females, mean age was 75.3 years old (range 50 to 92). In all patients a metal head size of 36 mm of greater was used. At the 1 year follow-up, we had only one case of hip dislocation which was in an elderly patient and associated with dementia. Conclusion: Several studies have shown that large head size implants reduces the dislocation rate regardless of bearing type surfaces. This is due to the fact that a with large head size, a greater range of motion is needed before the femoral neck impinges on the acetabular component and start to sublux or dislocate. Although rate of hip dislocation with posterior approach is twice as anterior, our data on using a large head size of 36 mm or larger showed no dislocation with ceramic on HXLP and only 0.9% rate with metal on HXLP.Several key factors to reduce the dislocation rate include restoration of anatomic geometry and center of rotation, maintaining or increasing the offset, preventing leg length discrepancy and proper repair of posterior capsule. Large head sizes can not eliminate dislocations. Other issues such as dementia, non-compliancy and hypermotility should be considered as well.

Abstract number: 23236

A NOVEL EVALUATION OF IN VIVO EDGE LOADING DURING FUNCTIONAL ACTIVITY IN METAL-ON-METAL HIP RESURFACING PATIENTS WITH PSEUDOTUMOURS

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Edge-loading has been suggested to increase wear in metal-on-metal hip resurfacing arthroplasty (MoMHRA). Pseudotumours (soft-tissue mass relating to the hip joint) have been associated with elevated serum and hip aspirate metal ion levels. This study aimed to investigate in vivo edge-loading in MoMHRA patients with pseudotumours by quantifying dynamic loci of the hip joint segment force relative to the acetabular component during functional activities. A total of 21 MoMHRA patients in two groups were investigated: (1) 6 patients with pseudotumours detected using ultrasound/MRI; (2) 15 patients without pseudotumours. Three-dimensional lower limb motion analysis (12 camera Vicon system) was performed to estimate hip joint segment force during walking, chair-rising and stair-climbing. CT scans were used to determine each patient's specific hip joint centre and acetabular component orientation. Edge-loading was defined to occur when a hip joint segment force vector/cup intersection was located within 10% of the cup radius from the edge of the cup. Edge-loading in the pseudotumour group occurred with significantly (p=0.02) longer (4-fold increase) duration as well as greater magnitude (7-fold increase) of force, compared to the non-pseudotumour group. The duration and force of the edgeloading were activity-dependent, with proportionally greater difference observed during stair climbing. The results of this novel in vivo study suggests that edgeloading is an important in vivo mechanism responsible for localised high wear, and subsequent elevation of metal ion levels, in MoMHRA patients with pseudotumours during functional activities.

Abstract number: 23266

DEMOGRAPHIC FACTORS AND THEIR INFLUENCE INRESULT OF THA

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The role of different surgical approaches and types of implant, surgical technique, patient's age, activity level, weight and other demographic factors have been investigated in a lot of studies. The aim of this study is to assess the effect of demographic factors as well as the effect of traditional life-style in patients who had total hip arthroplasty (THA) in our center within the past 20 years. We reviewed the average Harris Hip Score (HHS) and the prosthesis survival in 210 patients including 235 THAs and 49 revisions between 1985-2005. The mean F/U was 6.1 years and average HHS was 78.08±15.7. 26 patients were dead and 17 were inaccessible. The effects of traditional life-style and daily activity level on implant loosening were also Multivariable analysis showed that patient's sex, surgical technique, considered. surgeon, BMI, use of cement weren't related to either implant loosening or HHS. We had 25 prosthesis dislocations, which all happened by trauma. Considering revision surgery as the end point, the following 10-year-survivals were calculated; cemented cup 60%, uncemented cup 85% and both cemented/uncemented stems 80%. Considering radiographic evidence of loosening as the end point, the 10-yearsurvival of cups was 80% and that of cemented, uncemented stems was 60% and 70%. Delay in performance THA resulted in more limping (because of anatomy deterioration and muscles weakness) and lower HH. scores. Additionally, the survival of ourTHAs were generally shorter than literature.

Abstract number: 23324

WEAR OF CERAMIC-ON-METAL TOTAL HIP REPLACEMENTS. A HIP SIMULATOR STUDY.

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Since the mid-nineties, research focused on hard-hard bearings like metal-on-metal (MOM) or ceramic-on-ceramic (COC) for total hip replacement. However, concerns remain about failure of the ceramic components or biological reactions to metallic wear debris. A new approach to reduce wear with a minimized risk of failure may be the use of a metallic cup in combination with a ceramic head, the ceramic-on-metal bearing (COM). The aim of this study was to estimate the wear behaviour of this COM bearing type in comparison to COC bearings. Four COM and COC bearings were investigated using a hip simulator for 2.4*10^6 cycles. Wear measurements were performed in intervals of 0.2x10⁶ cycles using a gravimetric method. The overall wear the COC implants ranged from 0.081mm³ to 0.167mm³, with a mean of 0,118 mm³. A high variability in wear progression was found for the four COM implants. The overall wear of the COM implants ranged from 0.017mm³ to 0.212mm³, with a mean of 0.129 mm³. The COM implants showed very low wear levels that were similar to the COC bearings and far below wear levels of conventional MOM bearings. The results of this study are promising and can support limited clinical use of COM implants.

Abstract number: 23403 USE OF ULTRASOUND IN DIAGNOSIS OF ADVERSE REACTIONS TO METAL DEBRIS (ARMD) FOLLOWING METAL ON METAL HIP REPLACEMENT Kiran SINGISETTI, P RAJU, A NARGOL

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INTRODUCTION: Persisting groin pain following a metal-on-metal hip replacement can be due to several causes. A detailed clinical examination and investigations are required to evaluate the cause of such pain. METHODS: We describe our experience with 25 patients of large metal on metal hip replacements presenting with groin pain, where ultrasound proved to be a useful diagnostic tool. RESULTS: Ultrasound proved to be useful in diagnosis of iliopsoas bursitis, trochanteric bursitis, adductor tendonitis, femoral hernia and fluid collections as the cause of pain following metal on metal hip arthroplasty. Floating echogenic reflections and large cystic swellings were diagnosed as suggestive of Adverse Reactions to Metal Debris (ARMD) or ALVAL (aseptic lymphocytic vasculitis associated lesions). These cases were later confirmed by histological examination.

DISCUSSION: Ultrasound is a cheap, non-invasive and dynamic study which can be used as a diagnostic tool to diagnose groin pain following metal on metal hip replacements.

Abstract number: 23441

THE USE AND COMPLIANCE OF RIVAROXABAN FOR THROMBOPROPHYLAXIS IN ELECTIVE HIP ARTHROPLASTY Sioned PHILLIPS, Benedict ROGERS, Khalid DRABU

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Introduction: The peak incidence of venous thromboembolism is at 21 days following hip arthroplasty and current guidelines proposed that thromboprophylaxis should continue for 4 weeks post surgery. This study compares the length of treatment and satisfaction for patients prescribed low molecular weight heparin (LMWH) or rivaroxaban, a new oral factor Xa inhibitor, following elective hip arthroplasty. Methods: A prospective study was performed of one hundred consecutive hip replacements with fifty patients prescribed 10mg once daily of oral rivaroxaban and fifty prescribed 40mg once daily of subcutaneous enoxaparin. Thromboprophylaxis was planned for 6 weeks in both groups. From the medical records and patient survey, the compliance, satisfaction and complications for both groups was quantified. Results: The prescription of rivaroxaban was associated with greater compliance over the first four weeks following surgery (88 % vs 5%, p<0.05) with a superior patient satisfaction. There was no difference in the incidence of bleeding or thrombotic complications. Discussion: The results of this study show that oral rivaroxaban affords a superior patient compliance compared with subcutaneous LMWH, thus ensuring that patients receive thromboprophylaxis for the current recommend period of time.

Abstract number: 23617 LONG-TERM RESULTS FOR UNCEMENTED TOTAL HIP ARTHROPLASTY WITH THE CLS SPOTORNO SYSTEM.

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BACKGROUND: There are no published non-designer long-term results of the cementless CLS-Spotorno total hip arthroplasty (THA) system. In this prospective study, we present 10-17 years results. METHODS: We studied 102 consecutive minimal follow-up of 10 years. THA's with a Merle-d'Aubigné score. polyethylene(PE)-wear, and radiographic status were recorded at regular moments.Survival analyses, repeated measurements analysis of variance, and a nested case-control study (cases: revision for aseptic cup-loosening within 10 years, controls: no revision) were used for evaluation. RESULTS: 15-Years Kaplan-Meier survival-rates were 78.4% (95%-CI = 63.9-92.9) for revision for any reason, 81.6% (95%-CI = 66.7-96.5) for revision for aseptic acetabular component loosening, and 99.0% (95%-CI = 97.0-100.0) for revision for aseptic stem-loosening. Factors with significant effect sizes on PE-wear (mm) were older age (-0.03 per year increase, p=0.001) and head component size (0.53, p<0.0001, 32 vs. 28 mm). Male gender had an effect size of -0.7 (p=0.06) on final clinical score.With 0.31 vs. 0.16 mm/year (p<0.001), PE-wear rate was higher in cases (n=4). CONCLUSIONS: Results of this CLS system are comparable to other cementless systems. Nevertheless, the incidence of aseptic cup loosening in the second decade demonstrates a potentially substantial problem for the long-term results of this system. Higher rate of PE-wear, male gender, younger age and 32 mm head component size are related with inferior clinical outcome.

Abstract number: 23652

THE VALIDITY AND RELIABILITY OF THE DUTCH SELF-REPORTED HARRIS HIP SCORE AFTER TOTAL HIP ARTHROPLASTY.

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Background: The Harris Hip Score (HHS) is a widely used standardized outcome instrument in Total Hip Arthroplasty (THA). A self-administered version could give the possibility to save time and improve the effectiveness of clinical follow up in THA. Methods: A Harris Hip Score was obtained from 80 patients at a routine clinical follow up by a physician. These patients completed the newly created self reported HHS 2 and 4 weeks after their clinical follow up together with a HOOS and RAND-36 questionnaire. The agreement, correlation and test-retest reliability between the 2 versions of the HHS and the Quality of Life questionnaires was established.Results: A good agreement was established between the total scores of the self-reported and physician administered version of the HHS. The correlation between the self-reported HHS and the Quality of Life questionnaires was good as was the test-retest reliability for the two versions of the HHS. Conclusion: The newly created, self-reported version of the HHS is a valid and reliable standardized outcome instrument and as such is a good alternative for the physician-administered version. This could save time and improve the efficacy of clinical follow up.

Abstract number: 23663 MID TERM CLINICAL AND RADIOLOGICAL EVALUATION OF REVISION TOTAL HIP ARTHROPLASTY EITH CEMENTLESS STEM

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The revision of failed total hip artrhroplasty (THA) is a difficult challenge in reconstructive hip surgery due to severe femoral bone loss. Our Study describes 138 hips that underwent to cementless femoral revision arthroplasty between 2004 and 2009 with a proximal porous coated, modular titanium alloy stem (S-ROMJohnson&Johnson). According to Paprosky's femoral defect classification, the patients were classified in: type I (17 %) type II (39%) type III (33%) and type IV (11%). All patients patients were present for the final follow-upevaluation and were evaluated clinically (HHS, WOMAC, SF-12 and Satisfaction Test), comparing prewith postoperative results. Radiographic analysis was performed based on the Engh's criteria. HHS improved from 32.8 to 76.2. 132 stems presented stable bony ingrowth, 6 was stabilized by fibrous tissue. Mechanical failure rate and re-revision rate were zero. Eight years survival rate was 100%, with re-revision as endpoint. Evaluation of bone loss and residual bone stock before surgery are indicative to determine the best surgical choice. No complications were imputable to the S-ROM implant that demonstrates to be an effective implant to reduce pain and restore hip function in revision hip arthroplasty surgery.

Abstract number: 23664

ROUTINE USE OF ANTICOAGULANT CHEMOPROPHYLAXIS IN JOINT REPLACEMENT ARTHROPLASTY - DOUBLE OR SINGLE EDGED DEADLY WEAPON? TIME TO WAKE UP!

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Background: To evaluate the routine prophylactic use of low molecular weight heparin (LMH) in patients undergoing joint replacements. Material & Methods: A prospective cohort of 200 patients undergoing hip or knee replacements who did not receive any prophylactic LMH and a retrospective cohort of 200 patients who received routine prophylactic LMH were included in two groups A & B respectively. Colour Doppler was done 100 patients from group A in the preoperative period and on 4th postoperative day. Results: No symptomatic DVT was found in any patient. Doppler ultrasound showed DVT in two of 100 cases from group A however these two patients had no signs or symptoms of thromboembolism. Out of 200 cases of group B, post operative excessive bleed loss in wound drain was seen in 24 (12%) cases, wound hematoma and surrounding tissue staining were seen in 52 cases (26%), postoperative infection was seen in 10 cases (5%), epidural bleeding was seen in 4 cases (2%) and nonfatal intracranial bleeding was seen in one patient (0.5%). From group A only two patients had post operative infection (2%) and no other significant complications were seen in this group. Conclusion: Routine prophylactic use of LMH in patients with joint replacements is associated with transfusion of more units of blood, drainage of persistent wound hematoma, delayed wound healing and wound infection. Therapy is expensive; it increases hospital stay and does not change the incidence rate of fatal pulmonary embolism.

Abstract number: 23666

COMPARISON OF PERI-OPERATIVE MORBIDITY FOLLOWING PRIMARY TOTAL HIP REPLACEMENT WITH CEMENTED AND UNCEMENTED PINNACLE® PROSTHESIS

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The aim of this retrospective cohort study was to compare the peri-operative morbidity between cemented and uncemented prosthesis following primary total hip replacement. Two hip surgeons at our hospital changed their operating practice from a cemented to an uncemented prosthesis in January 2009. All elective primary total hip replacements performed by these two surgeons at our hospital between 1st August 2008 and 31st July 2009 were reviewed. We focused on three aspects: Surgical operating time, Post-operative hospital stay, and Post-operative transfusion requirement. Statistical analysis was via Students T-Test and Pearson's chi-squared A total of 68 hip replacements were analysed, 35 cemented and 33 test. uncemented. The groups were matched for age, ASA grade and sex. The same operating theatre, surgeons, and surgical approach were used throughout.We showed there to be a statistically lower operating time of an average of 33 minutes in the uncemented prosthesis when compared to the cemented prosthesis (p<0.005). There was no change in post-op hospital stay or transfusion requirement. It cannot be denied that an approximate reduction of half an hour in surgical time for each primary total hip replacement is significant. This has implications for the number of procedures that can be completed in a theatre session, and will benefit operating waiting lists accordingly.

Abstract number: 23707 OPTIMAL BEARING SURFACES FOR TOTAL HIP REPLACEMENT IN THE YOUNG, ACTIVE PATIENTS

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Although there is general consensus about the efficacy of total hip replacement (THR) in young patients, the most appropriate bearings in young patients remain highly debated. The three most popular bearings in use include metal-on-poly (MOP), metal-on-metal (MOM) and ceramic-on-ceramic (COC). We conducted a systematic review and meta-analysis of literature to summaries the best available evidence on relative success of the three most popular bearings used in THR in young active patients. Our findings support the use of MOM bearings in the management of the young arthritic hip. These findings, largely based upon observational studies should be taken in context to the limitations of such non-randomized study designs.

Abstract number: 23717 FOUR YEAR FOLLOW UP RESULTS OF PINNACLE METAL ON METAL TOTAL HIP REPLACEMENT AT A DISTRICT GENERAL HOSPITAL

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Introduction: Metal-on-metal cementless total hip replacement (THR) has been widely used as an alternative to cemented total hip arthroplasty. It has several benefits including greater range of motion and reduced risk of dislocation. We performed a study in our hospital to find out 4-year follow-up clinical results of uncemented hips operated between June 2005-June 2009 with an emphasis on 2 year follow up results of cementless pinnacle implants.Patients & Methods: The medical records of 73 consecutive patients who underwent cementless THR between June 2005 and June 2009 were evaluated retrospectively. The clinical data including implant used and post-operative complications was collected. Harris Hip and D'Aubigné & Postel hip scores were used for functional assessment. Results: 52% were females and 48% were males in the age group of 55-81 years with a mean age of 66. The overall mean for postoperative Harris hip score was 84 and 15 for D'Aubigné & Postel hip score. 55 Pinnacle and 18 Zimmer implants were used. There was no difference in the follow up x rays of the patients with good and poor functional outcomes. Conclusion: Our study has shown very good postoperative results using metal-onmetal total hip replacements with minimal complications. Survival rate at the end of four year was 100% for both femoral and acetabular component. This is just two year follow up but it would be valuable to report the midterm results (5-10 years) of cementless pinnacle hip implant. Harris hip scores should be introduced routinely in pre op assessments.

Abstract number: 23740 THE EFFECT OF FEMORAL COMPONENT ALIGNMENT WITH BIRMINGHAM MID-HEAD RESECTION

THE

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The Birmingham Mid-Head Resection (BMHR) is a short-stem alternative to hip resurfacing for patients with compromised femoral head anatomy. It is not known if femoral neck fracture risks associated with hip resurfacing pose the same risk to midhead resection arthroplasty. The current study investigated the effect of coronal alignment on proximal femoral strength with the BMHR.Sixteen pairs of fresh-frozen cadaveric femurs were divided into two equal groups. Individual pairs were divided into control and experimental specimens. The first alignment group prepared experimental specimens in 10 degrees of relative valgus alignment while the second group prepared experimental femurs in 10 degrees of relative varus. Control specimens were prepared with the implant aligned with the native femoral neck-shaft angle. Femurs were tested in axial compression in single-leg stance. Failure testing revealed no significant differences in peak failure loads between matched paired femurs prepared in relative varus (mean 4324 N, SD 2207) and controls (Mean 4114, SD 2153, p=0.996) or femurs aligned in valgus (mean 4623, SD 1608) compared to controls (Mean 4761, SD 1290, p=0.999). Femurs were well matched for BMD and anatomical parameters. The findings of the current study are in contrast to previous studies investigating implant alignment in hip resurfacing. A valgus aligned implant did not appear to strengthen, nor a varus implant weaken, proximal femoral strength compared to a neutrally aligned implant. Failure of the proximal femur implanted with a BMHR appears less sensitive to variations in implant alignment than a typical hip resurfacing.

Abstract number: 23745 METAL SENSITIVITY AFTER ARTHROPLASTY - A CONCERN REVISITED

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Introduction: Although metal sensitivity to orthopaedic implants has been reported several times, it still remains poorly understood. Metal implants frequently used in Orthopaedic surgery are alloys of cobalt, chromium and molybdenum. Metal implants have caused concerns as they are known to be potential allergens for the general population. Incidencelt is estimated that metal sensitivity affects about 10-15% of the population. The reported immune reactions are usually eczema, redness and itching. It is thought that following corrosion of the implants the electrochemical changes trigger the immune system causing these reactions. The incidence of contact allergy to nickel was 12% in females and 4% in males. Current literature Many still consider metal sensitivity to be a contributing factor for implant failure and recommend the removal of implants that have served its purpose. Other studies have suggested that a history of metal allergy or sensitivity is not reliable and recommends those patients about to undergo an arthroplasty have a patch testing pre operatively. After assessing currently available literature we agree with that until well designed studies are done to specifically look into the role of metal sensitivity in implant failure the risk is considered to be minimal.Summary: Even though metal sensitivity to Orthopaedic implants have been reported in arthroplasty, current available literature suggests that with use of metal on plastic prosthesis, the occurrence of allergy is minimal. Pre operative testing may be beneficial in those with positive history.

Abstract number: 23752 HOW USEFUL IS THE INTRAOPERATIVE AUTOTRANSFUSION SYSTEM IN TOTAL HIP ARTHROPLASTY? - A COMPARATIVE STUDY

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This study evaluates how useful is the intraoperative autotransfusion system for total hip arthroplasty. 82 patients, who were treated with total hip arthroplasty participated in this study. We used postoperative autotransfusion system for all and in 24 patients was used moreover intraoperative auto transfusion system. We evaluated the preoperating values of hematocrit, haemoglobin, platelets and indicators of coagulability and the quantities of transfusion with the intraoperative and postoperative autotransfusion systems, the need of heterologous blood transfusion and the hematocrit and haemoglobin values first and the fourth postoperative day. Results The patients with the intraoperative auto transfusion system (Group A) were transfused with 258,1 ml from this system, with 363,9 ml from the postoperative auto transfusion system and 828,5 ml (2,37 U). The patients of (group B) were transfused on average with 383,4 ml from the postoperative auto transfusion system and 858,3 ml (2,46 U). The patients of the group A had better hematocrit and haemoglobin values the first postoperative day (32,3/11,3), in comparison with the group B (30,5/9,63), but similar values the fourth postoperative day. There were not any complications during or after the blood transfusion. Conclusions According to these results, the intraoperative autotransfusion system don't decrease statistically the needs of blood transfusion after total hip arthroplasty (p=0,872). The values of hematocrit and haemoglobin the first postoperative day were statistically better (p <0,001), but not the fourth postoperative day (p=0,891).

Abstract number: 23764

DOES "QUANTITATIVE MARROW ASPIRATE" FROM "SUPEROLATERAL PART OF

FEMUR HEAD" PREDICT FEMORAL HEAD OSTEONECROSIS?

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Background: Early diagnosis of avascular necrosis of femoral head is crucial to prevent morbidity associated with its eventual outcome. The aim of this study is to find out whether intra-operative marrow aspiration volume from the supero-lateral part of femur head can be considered as an early diagnostic sign of avascularity of femur head after hip dislocation. Methods: In a one year prospective study, 22 cases of hip dislocation/fracture dislocation that had presented unreduced at more than 12 hours post injury were included. Intraosseous aspiration, marrow fluid analysis and core biopsy histological analysis was performed from the supero-lateral (test group) and central part (control group) of femur head. After appropriate surgical treatment and postoperative management, these patients were followed up till the end of 2 vears by clinical, radiological and magnetic resonance imaging evaluation of the affected hip. Results: Eventually 8 patients developed avascular necrosis (AVN) of femoral head. The analysis of test group samples revealed, 9 patients had aspirate volume of <1cc; marrow morphology of 11 hips showed necrotic cells; 12 patients had core biopsy histology suggestive of dead osseous fragments and necrotic osteocytes. In contrast, all the control samples had volume of >1cc and showed viable cells on histology. Conclusion: Intra-operative assessment of marrow-aspirate volume (<1cc), marrow morphology and histological analysis of core biopsy from the superolateral part of femur head can fairly predict development of subsequent AVN in femoral head after trauma and the correlation is statistically significant (p < 0.05). Key words: Marrow-aspirate; Osteonecrosis; femur head

Abstract number: 23783 THE EFFECT OF ACETABULAR CUP PLACEMENT ON HIP JOINT FUNCTION OF CROWE TYPE 3 AND 4 HIPS

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PURPOSE: Total hip replacement (THR) is more complicated with patients with coxarthrosis due to developmental displasia of the hip (DDH) than patients with primary coxarthrosis. We studied radiological and functional results of patients with crowe type 3 and 4 hips which received acetabular cup placement for THR. MATERIAL and METHOD: 10 hips (8 female, 2 bilateral, 5 right, 5 left) that received THR were evaluated. The average age was 52,4 (36,9 - 65). Preoperatively 4 hips were evaluated as type 3 and 6 hips type 4 according to the Crowe classification. In the final evaluation functional results were evaluated using Harris Hip Score (HHS), Oxford Hip Score (OHS) and Visual Analog Score (VAS). For 3 hips the acetabular component was placed in the high hip rotation center with extensive soft tissue release and no femoral shortening. For 7 hips the component was placed in the normal rotation center and 4 of these patients received femoral shortening. The average follow up was 66.3 months (17 - 97). RESULT: In the final control OHS was an average of 17.5, and HHS was an average of 89.7. The preop average VAS was 9.2, postop was 2. CONCLUSION: Femoral shortening for Crowe type 3 and 4 patients may be necessary for acetabular placement in the normal hip rotation center. However, patients who received the acetabular component placement in the high hip rotation center compared to normal rotation placement patients showed no difference in their radiological and functional mid term results.

Abstract number: 23822 HEALTH RELATED QUALITY OF LIFE FOR PATIENTS ELIGIBLE FOR TOTAL HIP REPLACEMENT

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In this study we hypothesized that health related quality of life (HRQoL) decreases during waiting time for total hip replacement (THR). To examine the change in HRQoL we used the EQ-5D self assessment questionnaire which was administered when the patient was put on waiting list for surgery and immediately preoperatively. 1270 patients (1296 hips, mean age 68.5 years, 57.1% females) completed both questionnaires. Mean waiting time for surgery was 100 days (SD 89.3). The cohort was representative with regard to age, gender, diagnosis and comorbidity as reported to the Swedish Hip Arthroplasty Register. Mean EQ-5D index, when the patient was put on waiting, list was 0.33 and preoperatively 0.40 (p>0.001). Among all patients 47% reported higher EQ-5D index preoperatively, while 22% had unchanged index and 31% reported lower index. The results did not support our hypothesis. There are probably several explanations for this. The decision about surgery could inspire the patients with courage which brings positive effects on HRQoL. Furthermore, the consultation where the decision about surgery was made probably resulted in actions such as physiotherapy, change of medication, prescription of walking aid and information about the disease. Another explanation could be that patients tended to exaggerate the impact of disease on HRQoL at the consultation where the decision about surgery was supposed to be made.

Abstract number: 23866 CLINICAL RESULTS OF MINIMALLY INVASIVE TOTAL HIP ARTHROPLASTY VIA THE ANTEROLATERAL APPROACH IN THE SUPINE POSITION

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Since 2007, we performed a minimally invasive total hip arthroplasty (MIS-THA) for a consecutive series of 137 patients. Clinical results in MIS-THA were compared with those of in a series of 147 conventional THA (c-THA) before 2007. The purpose of this study was to determine whether MIS-THA is less invasive than c-THA. In both groups, patients underwent THA through the anterolateral approach in the supine position. In MIS-THA, no muscles were detached. Averages of operative times, total blood loss, post-operative values of creatinine kinase were significantly smaller in MIS-THA than c-THA (p<0.05). The mean time to permit full weight bearing was 1 day in MIS-THA and 26 days in c-THA. In MIS-THA, the mean time to walk with two crutches, walk with one stick, go up and down the stairs, stand on operated leg, walk with no assistive device were 3.6 days, 9.0 days, 8.5 days, 12.5 days, 14.5 days, respectively. At the time of leaving hospital, the mean time to walk 50 meters with one stick, walk 20 meters with no assistive devices were 60 seconds, 24 seconds, respectively. No serious complications in MIS-THA were recognized except five temporary femoral nerve palsies. In c-THA, one temporary femoral nerve palsy and five early dislocations were happened. This MIS-THA is superior to c-THA in soft tissue damage and it allows early rehabilitation in terms of weight bearing.

Abstract number: 23886

BONE REMODELING IN PROXIMAL HA-COATED VERSUS UNCOATED CEMENTLESS SL-PLUS® FEMORAL COMPONENTS. A 5-YEAR FOLLOW-UP STUDY.

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Background and purpose: Bone resorption at the femoral stem due to stress shielding has been particularly observed secondary to cementless hip replacement. This prospective study of 126 total hip replacements was performed to examine clinical outcomes and changes in periprosthetic bone density after implantation of a double-tapered cementless femoral component manufactured with versus without hydroxyapatite coating.Methods:67 femoral components with and 59 femoral components without proximal hydroxyapatite coating were implanted and examined after a mean follow-up of 5.8 (SD 1.1, 2.8-7.8) years. The Harris hip score (HHS) and plain radiographs were used for clinical and radiological follow-up evaluations. Possible changes in periprosthetic bone mineral density were measured by dual-energy x-ray absorptiometry (DEXA). Results: Clinical outcome, measured by HHS, was similar in both groups. On plain radiographs, significantly less radiolucent lines were observed for the coated implants. DEXA revealed a significant increase in bone mineral density at the proximal zones, along the medial side, and at the stem tips in the coated compared to the non-coated implants. Interpretation: Hydroxyapatite-coated implants yield favorable radiographic characteristics, but no greater clinical benefit after five years' implantation.

Abstract number: 23899

A PROSPECTIVE TWO-YEAR FOLLOW-UP OF THE CLINICAL AND RADIOLOGICAL OUTCOME OF A NEW UNCEMENTED TOTAL HIP STEM Philipp BERGSCHMIDT¹, Rainer BADER¹, Ellenrieder MARTIN¹, Ralf SKRIPITZ¹, Susanne FINZE¹, Isabella TOKAR¹, Günther KUNDT², Wolfram MITTELMEIER¹ ¹Dep. Orthopaedic Surgery University of Rostock, Rostock (GERMANY), ²Department of Medical Informatics and Biometry University Rostock, Rostock (GERMANY)

Purpose of this prospective clinical study was to evaluate the outcomes of the newly introduced cementless Hipstar stem, made of a ß-titanium alloy (TMZF) for allowing optimal osseous integration. Furthermore the variables BMI, gender, preoperative function and age were explored as predictors for recovery after THA. Clinical and radiological evaluations of 100 patients were undertaken preoperatively and at 6, 12 as well as 24 months postoperatively using the HHS-Score, WOMAC-Score, SF-36-Score and standard anterior-posterior and lateral X-rays. The HHS-Score increased significantly from 53.6±14.5 points to 82.8±15.4 at the postoperative evaluations at 24 months (WI-test p<0.001). Analogous to the HHS-Score a significant improvement was evaluated in the WOMAC-Score and SF-36-Score. Deminished preoperative function leads to a lower postoperative outcome, whereas BMI, age and gender can not be considered as predictors for clinical and radiological outcome. Due to stressshielding the straight Hipstar revealed radiolucent lines of between 41.5% and 68.5% in the proximal Gruen zones. The short-term clinical results of the Hipstar stem are comparable with other well-functioning straight stem designs, which revealed radiolucent lines up to 80%. Therefore high primary and secondary stability by enhanced osseous integration can be assumed for the Hipstar stem. Although there are no valid indications for the optimal date of total joint replacement, our data indicates that timing of surgery may be more important for good long-term results than previously assumed. Poor preoperative function seems to be a negative predictor of recovery of postoperative functionality.

Abstract number: 23965

THE INFLUENCE OF THE SHELF AGEING OF GAMMA-IRRADIATION STERILIZED ULTRA-HIGH MOLECULAR WEIGHT POLYETHYLENE IN BIPOLAR HEMIARTHROPATHY FOR HIP OSTEOARTHRITIS

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This study aimed to elucidate the relationship among the shelf ageing of gammairradiation sterilized ultra-high molecular weight polyethylene (UHMWPE) and the acetabular change and the migration of bipolar head in bipolar hemiarthropathy for hip osteoarthritis. 43 consecutive patients underwent bipolar hemiarthropathy for hip osteoarthritis with IBC (3M). Their mean age was 60.2 years. The mean body height was 149.7cm and their mean body weight was 53.1kg. The mean follow-up period was 96 months. Fifteen hips were revised. The patients were classified into 2 groups - SDS group (short duration stored group, < 30 months) or LDS group (long duration stored group, 30 months) - on the basis of the duration from gamma-irradiation sterilized UHMWPE to use. The following parameters were analyzed, body weight, the size of outer head, the thickness of UHMWPE, the appearance of osteolysis and the migration distance of bipolar head. The mean migration distance of bipolar head in LD group were more than those in SD group with significant differences (p<0.05). On the other hands, there were no significant differences in the other parameters among groups. IBC is composited of CoCr alloy and UHMWPE and they were sterilized by 2.5M rad gamma-irradiation and stored in normal atmosphere. This condition accelerated the oxidation of UHMWPE. It is expected that the shelf ageing of gamma-irradiation sterilized UHMWPE progresses the deterioration of the UHMWPE wear tolerance and influences the migration of bipolar head and the wear speed of UHMWPE after bipolar hemiarthropathy for osteoarthritis.

Abstract number: 24047

THE S-ROM STEM IN THE MANGEMENT OF MULTIPLY OPERATED NON UNIONS OF SUB TROCHANTERIC FRACTURES - A PROSPECTIVE STUDY

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Sub-trochanteric fractures have a high rate of non-union and implant failure which is attributed to stress concentration and devitalisation of fracture fragments during surgery. It is genreally agreed that failed screw-plate fixations should be treated with intramedullary fixation and bone grafting (Haidu kewych and Berry). This prospective study was performed on 12 patients who had unsuccessful side plate as well as intramedullary fixation with implant breakage. Instead of a third fixation surgery, they were subjected to Total Hip Replacement using a modular long non-cemented stem. The mean age of the patients was 46.8 years with a female preponderance. The average duration of the non-union was 1.4 years after sustaining the fracture. The S-ROM stem was selected to have a hold on the proximal fragment with an apatite coated sleeve and the distal fragment with a fluted pronged stem. The neck length, offset and versions modularity helped in restoring soft tissue balance and Hip stability. Post operatively, the patients were allowed guarded weight bearing and exercises. All patients were able to walk with support on the second post operative day and without walking aids after 3 months. Pain was absent in 10 patients and 2 needed occasional analgesics. The fracture united in 10 cases. Total Hip replacement with a modular S-ROM stem is a staisfactory method of treatment in patients with non united subtrochanteric fractures with repeated failed surgeries and implant breakage.

Abstract number: 24048 RESULTS OF TWO-STAGE TOTAL HIP REPLACEMENT IN ADVANCED TUBERCULOUS ARTHRITIS OF THE HIP Buddhadeb CHATTERJEE

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Tuberculous arthritis of the hip is an extremely debilitating disease with painful limitation of the movements, ending up with a fibrous ankylosis causing permanent deformity and limp. This prospective study was done in 14 patients with advanced tuberculous arthritis of a single hip. The diagnosis was established by X-Ray, ESR, Mantoux test, ELISA and Histopathology. They were subjected to a two stage surgery with concommittant 4-drug anti-tuberculosis therapy. In the first stage, the joint was debrided of all granulation tissue and sequestrated bone and cartilage. The head of the femur was resected and the patient kept on traction for 6 weeks. After six weeks, the joint was re visited and a cemented Total Hip Replacement was performed. Post operatively, the patients were mobilised with walker support and were able to walk unaided after 3 months. There was satisfactory pain relief, improved range of movement and significant improvement of hip scores.

Abstract number: 24083

A NEW CONCEPT OF CEMENTLESS STEM FIXATION IN TOTAL HIP ARTHROPLASTY: A RADIOSTEREOMETRIC ANALYSIS

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OBJECTIVES: Total hip arthroplasty is successful procedure, but revision burden remains high, particularly in young patients. Scyon Orthopaedics, Au, Switzerland, has developed a novel concept of cementless stem fixation that reduces long - term influence of stress shielding on stability of THA. The Scyon THR Stem provides anchorage through bony ongrowth from the medial cortex without coupling to the lateral cortex. This results in near-physiological loading of the proximal femur that diminishes stress shielding. Stability required for ongrowth is implemented by locking mono-cortical screws tapped through the medial cortex and locked into the stem. The aim of the study is to evaluate the stability of the Scyon THR Stem in- vivo. METHODS: During implantation of the THA, insertions of Tantalum beads into specific areas of pelvic bone and femur were performed for the purpose of RSA.Patients were invited for follow-up examinations at 6 weeks, 6 months, 1 and 2 years after surgery. At follow-up examinations patients underwent RSA as well as standard x-ray evaluation. RESULTS: The follow-up results of 8 patients have shown excellent functional recovery and radiographically notable bony ongrowth from the medial cortex without additional bony integration from the lateral cortex. RSA shows that the stem subsidence is below the level of detection for the method (0.40 mm) with p< 0.05 by two-tailed t-test with 80% power. CONCLUSION: This implant may decrease aseptic loosening of THA by a reliable and consistent fixation of the femoral stem, which additionally diminishes stress shielding of the proximal femur.

Abstract number: 24091 HIP HEMIATHROPLASTY IN FEMORAL NECK FRACTURES UNIPOLAR VERSUS BIPOLAR - A RETROSPECTIVE STUDY

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Several variables interplay in the decision between a unipolar and bipolar prosthesis for use in hemiarthroplasty. Theoretical decrease in articular cartilage wear and increased range of motion between the bipolar devices are frequently cited as benefits obtained by choosing a bipolar design. Most frequently, cost containment is cited as primary indication for use of unipolar device.We had reviewed 309 cases of fracture neck femur treated with hemiarthroplasty in last four years. Patient age group varies from 60 years to 102 years. Average follow up was 3 years. Of the total 309 cases 247 patients were operated by unipolar (Austin Moore and Thompsons) And 62 with bipolar (regular and modular). 299 cases were operated in posterior approach of Southern Moore while 10 cases in anterolateral (Modified Harding's). All these cases were analysed on the basis of post operative pain, gait pattern and the time taken for the return to normal activity. Radiological assessment with regard to protrusio is also taken into consideration. More than 70% of the people in the unipolar group regain pre fracture level of ambulation, 80% reported mild pain or no pain one year following surgery. Up to 80% survivorship in 3 years. There have been indications that stiffness, groin pain, cartilage degeneration, and acetabular protrusio are more frequent with unipolar designs when compared to bipolar designs. As noted an increase in stability may be conferred by the bipolar design.

Abstract number: 24097 STEM REVISION OF THE HIP USING AN UNCEMENTED MODULUS SYSTEM AND ACCORD PLATE

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Since 2006, we have used an uncemented modulus system (Lima Co.) with Accord plate (Smith & Nephew Co.) for stem revision in 14 hips. These cases involved loosening in the femoral component in 8, recurrent dislocation in 2, periprosthetic fracture in 2, and infection with pain of unknown cause in the other 1. Methods: The surgical approach was transtrochanteric according to Charnley in 2, Charnley and fenestration of the femoral shaft in 2, transfemoral according to Wagner in 9, and extended transtrochanteric according to Gundolf in the other 1. Preoperative radiographical findings were classified according to Paprosky (2003), as type II in 2, type IIIA in 11, and cement spacer in 1. The postoperative management was bed rest for 2 days, sitting and moving in a wheelchair from day 4, partial weight bearing gait from week 4, and full weight bearing gait from week 8. Results: Painless walk was achieved in all cases. There were some complications; stem subsidence in 2, hip dislocation in 1, but no infection and no deep vein thrombosis. No revision was needed. Conclusions: 1. The modulus revision stem was too large in the metaphysis of the femur for some revision cases of small Japanese old women. 2. Combination with the Accord plate was performed via the transfemoral approach which was easy for removing the femoral component. 3. Combination with the Accord plate permitted earlier recovery even after invasive revision.
Abstract number: 24140

DOES THE POSITION OF THE HIP INFLUENCE MEASUREMENTS OF WEAR? Georgios DIGAS¹, Johan KARRHOLM², Per-Erik JOHANSSON² ¹Orthopaedic Department, Xanthi (GREECE), ²Surgical Science, Gothenborg (SWEDEN)

The influence of changed position of the hip, and asymmetrical wear on the spatial relation between the femoral head and the socket of a total hip arthroplasty (THA) is poorly known. We studied the position of the femoral head centre in 2 patient groups (Group 1: 5 females, 4 males, median age 50; Group 2: 4 females, 5 males, median age 62 years) 2 years after a cemented THA during active abduction of the hip from 0 to 20° (Group 1) and during weight-bearing hip extension from 30 to 0° (group 2) using radiostereometric analysis based on sequential exposures. During the active abduction the femoral head centre displaced median 0.22 mm medially (p = 0.008). Wilcoxon signed Ranks test), 0,01 mm distally (p = 0,7) and 0,07 mm posteriorly (p =0,9).During weight-bearing extension from 30 to 0°, the head centre moved median 0.03 mm medially (p = 0.4), 0.07 mm proximally (p = 0.014) and 0.18 mm anteriorly (p = 0.3). A previous study (1) found a small (0.05 mm) but significant change of the medial/lateral position of the femoral head centre between supine and standing position. We observed a higher change during active abduction. The influence of hip motions on the proximal/distal position of femoral head centre was small indicating no or minimum influence on determination of proximal wear rates up to 2 years after the operation. (1) Bragdon et al: Clin Orthop Relat Res. 2006 Jul; 448:46-51

Abstract number: 24152 CUP POSITIONING AT A TERTIARY HOSPITAL: RISK FACTORS FOR MALPOSITIONING

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Introduction: This study was performed to determine if a correlation exists between patient and surgical factors and acetabular component position. Methods: Post-op anteroposterior (AP) pelvis and cross-table lateral radiographs were obtained for 2061 patients receiving a total hip arthroplasty or hip resurfacing from 2004-2008. The AP radiograph was measured using Hip Analysis Suite to determine cup inclination and version angles, using the lateral film to determine version direction. Acceptable ranges were defined for abduction (30-45°) and version (5-25°). Correlations between factors and cup angles were determined using a multivariate logistic regression. Results: From 1952 qualifying hips, 1823 had both version and abduction angles. Of those, 1144 (63%) acetabular cups were within the abduction range, 1441 (79%) were within the version range, and 917 (50%) were within the range for both. Multivariate analysis showed that surgical approach (p<0.001), surgeon volume (p<0.001), and obesity (BMI >30, p=0.01) were independent predictors for malpositioned cups. Comparison of low versus high volume surgeons, MIS versus posterolateral approach, and obesity versus all other BMI groups showed a 2 fold (1.5-2.8), 6 fold (3.5-10.7), and 1.3 fold (1.1-1.7) increased risk for malpositioned cups respectively. Conclusions: Factors correlated to malpositioned cups included surgical approach, surgeon volume, and BMI with increased risk of malpositioning for MIS approach, low volume surgeons, and obese patients. Further analyses on patient and surgical factors influence on cup position at a lower volume medical center would provide a valuable comparison.

Abstract number: 24166 RESULTS OF LARGE DIAMETER HEAD IN TOTAL HIP ARTHROPLASTY IN INDIAN PATIENTS

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Background: Larger diameter femoral heads have emerged as a valuable tool in the arsenal against dislocation in total hip arthroplasty. Large head improves hip function by joint restoration that is closer to its natural anatomy, maximizing the range of motions and reduced potential for postoperative dislocation. Material & Methods: We reviewed 120 patients (140 hips) retrospectively with varying diagnoses and indications but all of whom received large-diameter femoral head either as a metalon-metal or metal on high cross linked polyethylene prostheses. Posterior approaches was used in al the cases. Results: Average age at time of surgery was 40.9 years and average follow-up was 9 months. There were 133 (96.4%) primary procedures, 5 (3.57.0%) conversion procedures, and 2 (1.42%) revisions. The most common preoperative diagnoses included osteoarthritis (92 hips). Rheumatoid arthritis (20 hips), ankylosing spondylitis (20 hips) and avascular necrosis (8 hips). The average preoperative Harris Hip Score was 37.5 points and was 90.8 points at final follow-up. 135 hips were radiologically stable and 5 hips had dislocation, which were managed by revision of acetabular components. Loosening, migration, or osteolysis was not observed in any patients. Conclusion: Our experience has shown good early results with large heads in total hip arthroplasty. Large heads with greater stability and improved range of motions are promising solution for mobile hip in Indian patients, who can not afford revision surgeries and require extra movements for religious activities.

Abstract number: 24208 PREOPERATIVE BONE QUALITY AS A RISK FACTOR OF UNCEMETED ENDOPROSTHETIC COMPONENTS FAILURE.

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Introduction: The outcome of uncemented total hip arthroplasty can be influenced by many factors. Aim: Our aim was to determine if there was a difference in the quality of the bone in patients with and without loosening of a hip replacement and to establish if there were any simple methods for predicting those hips which were likely to develop loosening. Methods: We matched 32 patients with a loose uncemented total hip replacement by age, gender, race, prosthesis and time from surgery with 44 patients with a wellfixed stable uncemented hip replacement, to determine if poor bone quality predisposes to loosening. Clinical, radiological, biomechanical and bone mineral density indicators of bone quality were assessed. Results: Of 70 patients with preoperative radiographs available 32% had atrophic, 62%, normotrophic and 6% hypertrophic OA. Patients with loose endoprosthetic components had more pain, were more likely to have presented with atrophic arthritis. The cortex ratio was significantly less in those with loosening compared with those with a stable THR. The mean peri-prosthetic BMD was significantly lower in patients with signs of loosening; they also tended to be smokers. Vitamin-D deficiency was common, but not significantly different between the two groups. Conclusions: In conclusion patients with risk factors for loosening should be warned about the increased risk of loosening and encouraged to attend for radiological surveillance. To ensure longer durability of THAs, these factors should be assessed further and efforts, especially biological initiatives, should be made to resolve them.

Abstract number: 24209 PRIMARY AND REVISION HIP ARTHROPLASTY: QUALITY OF LIFE AFTER 4 YEARS

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Introduction: Revision hip arthroplasty is associated with less favorable short and long term results than primary total hip arthroplasty. In this context, we evaluated quality-of-life and patient satisfaction 4 years after implantation, comparing revision THA versus primary THA. Methods: The study included patients who underwent primary (n = 248) or revision THA (n = 84) at the Universitary Clinic of Orthopaedics and Traumatology, Tg. Mures between 2002 - 2004. 4 years postoperatively, guality of life was measured by Harris Hip Score, WOMAC Index. Patient satisfaction, assessed on a Visual Analog Scale (VAS) from 1 to 10. Results: Patients undergoing a revision were older (76 years versus 61 years), more often obese (BMI: 36%) versus 18%), and presented more medical and Orthopaedic comorbidities. Four years after surgery, 202 patients with primary THA and 64 with revisions were available for follow-up. Quality of life and satisfaction were significantly lower after revision (Harris Hip Score 74,2 vs 91,4; WOMAC pain 64.7 vs 78.3; satisfaction 7.1 vs 9.1). Adjustment for the preoperative status attenuated these differences which nevertheless remained significant. The influence of age, comorbidities, and preoperative function on 4-year outcomes did not substantially differ for the 2 intervention groups. Obesity was associated with a stronger negative effect on revision surgery. Discussion: Functional outcome and satisfaction were lower after revision THA than after primary THA. Conclusion: Considering the risks and benefits of revision surgery, it is important to recognize not only the surgical factors but also the characteristic features of the patients.

Abstract number: 24244

STABILITY OF UNCEMENTED ACETABULAR CUPS - WITH AND WITHOUT BONE GRAFT

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Introduction: The use of cement is believed to be an essential supplement to extensive impaction bone grafting in hip surgery. This study aimed to compare the stability of uncemented and cemented acetabular components. Materials and Methods: Two types of uncemented cup (TrabecularMetal(TM) & Trilogy) and cemented cup were compared. The cups were tested without bone graft and on 100% graft bed. Cavitary defects were then introduced and repaired with the graft with cups making contact with 30:70, 50:50 and 70:50 graft/host bone respectively. These were then tested under physiological axial and torsional loads with an Instron testing machine measuring maximum torgue. Results. Trabecular and cemented cups were significantly more stable then Trilogy cups when mounted directly onto host bone (p<0.01), with no significant difference between TM and cemented cups (p>0.1). On 100% graft bed, there was no difference between all three cup types (p>0.1). Incremental cavitary defects resulted in gradually reducing stability, although again there was no difference between TM and cemented cups (p>0.1). Discussion: Uncemented cup integration with living bone is known to be excellent, but takes a few weeks to develop. A scratch-fit design of TM provides a satisfactory initial stability in bone graft constructs, when compared to cemented cups. This study suggests that TM and cemented types of cup fixation perform similarly. Further testing is currently undertaken to determine the ratio of graft/host bone contact required for stability with segmental defects.

Abstract number: 24285

LOW VALIDITY OF THE CHARNLEY CLASSIFICATION USED AS A COMORBIDITY INDEX

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The Charnley classification is based on the status of the contralateral hip as well as the presence of significant comorbid diseases. This implies that the status of other major joints as well as the presence of comorbidities modulates outcome after total hip arthroplasty. In this study, we investigated whether the preoperative status of other major joints and comorbidities influenced outcome as measured by Harris Hip Score (HHS). Methods and material: 215 patients were treated with total hip arthroplasty in a prospective trial. Preoperatively we obtained information on the status of the contralateral hip, both knees and spine, which were classified as healthy or diseased. We also noted the presence of comorbid disease. We performed a linear regression analysis and included age, gender and preoperative Body Mass Index as variables. Results: Age and the presence of comorbid diseases significantly predicted Harris Hip Score at six months, two years, five years and ten years. Joint condition did not predict HHS at any time point. Conclusion: The condition of other major joints does not influence outcome after total hip arthroplasty in the short or long run. The Charnley classification should be replaced by a reliable and valid comorbidity index.

Abstract number: 24290 PHYSICAL FUNCTIONING AND HEALTH-RELATED QUALITY OF LIFE AFTER TOTAL HIP REPLACEMENT

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Total hip replacement (THR) is an effective surgical intervention for treatment of endstage arthritis. Clinical outcome can be assessed in many different ways by both patient and surgeon. Health-related quality of life is acknowledged to be the primary aim of surgical treatment and various authors have recommended that selfadministered tools should be included when evaluating results. Aim: Evaluation of effect of THR on physical functioning and health-related quality of life.Material and methods: 63 patients hospitalized for elective hip replacement were evaluated with Short Form 8 Health Survey (SF-8) and Western Ontario and McMaster University Osteoarthritis Index (WOMAC). Harris hip score was used for surgeon's assessment of clinical result. The mean follow up period was 3 years. Results: The eight domains of SF-8 as well as the other two instruments showed significant improvement at three months after surgery that lasted till the final follow-up. We established good correlation between the instruments. Patients with poor preoperative function measured with WOMAC had greater improvement, however, less optimal outcome. Discussion and conclusions: Our findings confirm the effectiveness of THR outcomes in terms of physical functioning and health-related quality of life measured by selfadministered disease-specific (WOMAC) and generic health instruments (SF-8). Expectations of patients on outcome after treatment are ever higher and this raises the standard of outcome after surgical treatment. Use of subjective and objective instruments improves assessment of the benefit of THR.

Abstract number: 24322

CAN RISEDRONATE GIVEN ONCE A WEEK FOR SIX MONTHS PREVENT PERIPROSTHETIC BONE RESORPTION UP TO TWO YEARS AFTER TOTAL HIP ARTHROPLASTY? A RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED, PROSPECTIVE TRIAL

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Background: Postoperative bone loss due to stress-shielding around uncemented femoral stems used in total hip arthroplasty is a well-known phenomenon. Randomized clinical trials have shown that it is possible to reduce the bone loss using bisphosphonates, but there are conflicting evidence regarding the effect of risedronate for this indication. We performed a randomized clinical trial with risedronate given once weekly in patients receiving a primary total hip arthroplasty. Methods: 70 patients (43 females) age mean (range) 61 (41-69) years with osteoarthritis were randomized to either placebo or risedronate 35 mg once weekly for 6 months after a total hip arthroplasty. Dual-energy x-ray absorptiometry was used to measure change in bone mineral density and Ein-Bild-Roentgen-Analyse to measure migration. Primary outcome variable was change in bone mineral density and migration of the uncemented femoral stem up to 2 years postoperatively. The analysis was done according to the intention-to-treat principle. Results: The results will be presented. Discussion: Bisphosphonates have earlier been shown to reduce bone resorption around uncemented femoral stems and to reduce migration of knee prosthesis. The effect of risedronate on bone metabolism and periprosthetic bone resorption after total hip arthroplasty have earlier only been studied with a low number of patients, short follow-up (1) and not according to intention-to treat.1. Yamasaki S, Masuhara K, Yamaguchi K, Nakai T, Fuji T, Seino Y. Risedronate reduces postoperative bone resorption after cementless total hip arthroplasty. Osteoporos Int 2007;18-7:1009-15.

Abstract number: 24337 COST EFFECTIVENESS OF CONSTRAINED LINERS

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Aim - Demonstrating cost effectiveness of uncemented acetabular component with constrained liners during primary hip replacements on patients with potential risk of dislocation of prosthetic hip. Method - Retrospective analyses of total hospital expenditure for 12 patients operated with constrained liners were undertaken & compared with total cost of closed reduction of prosthetic hip dislocations on 15 patients during 2007-2009. Baseline was hospital cost of standard primary hip replacement with uncemented acetabular components. Results Cost of operations was calculated as total of costs of femoral stem, acetabular component, hospital stay, theatre, pharmacy, x-rays & physiotherapy. A primary hip replacement with uncemented acetabular cup cost £3727.60 while that with a constrained acetabular liner cost £4338.00 - thus constrained liners increase cost by 16.37%. Mean follow up of 12 months on patients with constrained liners showed no dislocations. Each closed reduction (extra procedure with irredeemable costs) cost £1313.00, increasing total cost by 35.22%. Conclusion - Constrained liners increase cost of primary hip replacement but risk of dislocation is reduced. Closed reductions of dislocated hip increase cost more than that of constrained liner replacement. While closed reductions have potential for further future dislocations, constrained liners used for appropriate patients decrease long term cost of care.

Abstract number: 24342 RESULTS AFTER TOTAL HIP ARTHROPLASTY WITH A LARGE HEAD AND

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The authors studied the short-term outcomes of total hip arthroplasty (THA) performed using large diameter femoral heads or bipolar arthroplasty (BA) in physiologically active elderly patients with displaced intracapsular femoral neck fractures. The THA group included 14 males and 66 females of mean age 75.5 years, and the BA group included 16 males and 73 females of mean age 77.6 years. Surgical procedures were performed by one surgeon using a modified Hardinge approach. Mean operation times were longer in the THA than BA groups. Pain, mobility, and walking ability scores were significantly better in the THA group than in the BA group. Despite no range of motion limitation during the early post-operative period, no dislocation was encountered in either group. The present study suggests that for displaced femoral neck fractures, THA with a large diameter femoral head results in less pain and better function than BA.

Abstract number: 24413 HIP REVISION SURGERY USING A CEMENTLESS STRAIGHT TAPERED STEM: MINIMUM 10-YEAR RESULTS

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This study was designed to evaluate the minimum 10 year results of a cementless straight tapered stem with rectangular cross-section for revision. Between October 1991 and the end of 1998, 129 patients (138 hips) underwent revision surgery. 51 patients (54 hips) died during the follow-up time. Their implants had been followed radiographically. Four of them had been revised again, 3 for aseptic loosening and one because of a periprosthetic fracture. 13 patients refused to come to follow-up because of poor cooperation or advenced age. None of these patients were revised. Five patients were lost to follow-up. Seven patients had to be revised 1.4 to 11 years post surgery, 6 for low-grade infection and one for periprosthetic fracture. This left a total of 59 hips (54 patients) for analysis at a follow-up time of 10.0 to 16.9 (mean 12.3) years. For radiographic FU, monitor-guided ap and axial radiographs were recorded. These were analyzed according to Gruen. From a total of 59 hips reviewed more than 10 yeas postop. 56 were classified as stable. Two patients were at risk, both presented with osteolytic lesions, one of them with metal-on-polyethylene and one with metal-on-metal articulation. One patient was revised because of aseptic loosening after 14 years. Again a cementless revision stem was inserted. The results of the study are showing that the SLR-revision stem is a valuable implant for cementless fixation in revision surgery.

Abstract number: 24499 AETIOLOGY OF INTRA-PROSTHETIC DISLOCATION

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Dual mobility significantly reduces the risk of prosthetic instability. This mechanical complication occurs when the prosthetic head moves out from the retentive polyethylene liner, such phenomenon called intra-prosthetic dislocation reports a tenyear incidence of 2% in the literature. We prospectively analysed all intra-prosthetic dislocations having occurred since 1985 in our department in order to investigate patient- and implant-related risk factors.91 intra-prosthetic dislocations occurred with NOVAE (SERF) cups in 85 patients of mean age 50.7 years. Intra-prosthetic dislocation occurred after a mean period of 8.8 years. A PRO (SERF) stem was implanted in 56 cases and a PF (SERF) stem in 35. The stems were different from one another in their neck diameter and material: 13 mm titanium neck and 16 mm stainless steel neck respectively. When taking both prosthetic features into account, no significant difference could be established regarding the time between implantation and dislocation. Comparison between these two prosthetic features was performed by means of two continuous homogeneous series which included 240 patients implanted with PF stems and 382 patients with PRO stems. At a mean 15year follow-up, the two series reported a non-statistically different intra-prosthetic dislocation rate of 4%. In both series, young age and large diameter cups were considered predisposing factors for intra-prosthetic dislocation. Therefore, unlike suggested by several authors, prosthetic neck material and diameter do not appear as the main predictors for intra-prosthetic dislocation which is highly promoted by patient-related features.

Abstract number: 24504

THE TITANIUM DUAL MOBILITY CUP, WITH MORE THAN TEN YEARS FOLLOW UP

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The concept of stainless steel dual mobility cups in total hip arthroplasty has demonstrated very low long-term instability rates and a 98% survival rate after 12 years. We systematically implanted titanium alloy acetabular cups during a one year period. The purpose of our retrospective study was to report the 18-year clinical outcome data in a homogeneous and continuous series of 103 primary total hip replacements after implantation of a cementless titanium cup. All patients were implanted with NOVAE Ti (SERF®) cups made of titanium alloy combined with a retentive polyethylene liner and a 22.2 mm cobalt chrome prosthetic head. Mean patient age at the time of surgery was 53 years. All patients were clinically and radiographically evaluated. The overall 18-year actuarial cup survival rate with a 95% confidence interval was 87.4%. At last follow-up, there was no evidence of implant instability whereas acetabular aseptic loosening was reported in one case and high wear of the retentive liner in 9. The results of this investigation confirmed the longterm stability of dual-mobility implants. The main limitation of this system was early wear of the polyethylene liner in contact with the titanium metal back and reaction with third body along with loss of liner retentivity. In our study, titanium demonstrated favourable osteointegration properties but poor tribologic characteristics, therefore suggesting its interest at the bone-cup interface only.

Abstract number: 24505 THE INTEREST OF TOTAL HIP ARTHROPLASTIES USING A DUAL-MOBILITY SYSTEM IN PATIENTS UNDER 50 YEARS OF AGE.

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Dual-mobility was developed in 1974 and has proven to be performing favourably in primary THA by reducing the risk of dislocation as well as in revision surgery since it is considered the treatment of choice in chronic prosthetic instability. The aim of our study was to assess the 12-year survival rate of dual-mobility cups in a homogeneous and continuous series of 84 patients under the age of 50. The mean follow-up period was 12.4 years. Mean patient age at surgery was 39.8 years. The main diagnosis was primary osteoarthritis. All patients were implanted with NOVAE I (SERF) dual-mobility cup combined with a cobalt-chromium prosthetic head and a PROFIL type screwed stem. They were all clinically and radiographically evaluated. The Postel Merle d'Aubigné score improved from 4.6 preoperatively to 14.1 at last follow-up. The reported complications at last follow-up included aseptic loosening in 3 cases and high wear of the retentive liner in 2 whereas no case of postoperative prosthetic instability was observed. The 12-year actuarial cup survival rate was 93.8%. The reported survival rate of non-cemented cups in the literature ranges from 95 to 100%, the NOVAE I (SERF) cup being slightly below these rates. However, these findings are counterbalanced by the favourable results in terms of postoperative stability. Therefore, the outcome of our series strongly supports the use of dual-mobility in patients under 50 years of age with a high risk of postoperative dislocation.

Abstract number: 24542

EVALUATION OF HARRIS HIP SCORE FOLLOWING TOTAL HIP ARTHROPLASTY: A REPORT OF SHORT TERM RESULTS OF USING SHORT STEM HIP PROSTHESIS

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Introduction: Total hip arthroplasty has become a successful procedure in Orthopaedic surgery. A wide variety of modifications have been made to traditional approaches to improve outcomes. One of these modifications is to apply short stem implants instead of standard long implants. In this study we compared short-term outcomes between patients undergoing THA with either of these kinds of implants. Methods: Between 2007 and 2008, we had about 52 cases of osteoarthritis (OA) which were candidates for THA. Standard long-stem implants were applied in 30 cases while short stem implants were used in remaining 22 cases. All implants were Cementless and posterior approach was applied in all cases by the same surgeon. Mean age of cases were between 48-76 yrs old. Results: Mean preoperative Harris hip score was 42.5 (± 0.5) in the long stem group and 44.7 (± 0.3) in short stem group. Mean postoperative score was 91 (±0.4) in short stem group while it was 86.3 (\pm 0.2) in long stem group. The comparison between two groups showed that improvement in Harris score was significantly greater in short stem group (P value <0.05).Conclusion:Regarding results of our study, short stem implants have shown acceptable and encouraging outcomes when compared with traditional long stems in THA. Previous studies showed that careful patient selection is needed when using this type of implants. More studies are needed in this field for supporting their use and specifying their exact indications.

Abstract number: 24586 EARLY RESULTS OF METAL ON METAL REVISION HIP ARTHROPLASTY

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Aim: To report the results of Revision hip arthroplasty using large diameter, metal on metal bearing implants- minimum 2 year follow up. Methods: Single centre retrospective study of 22 consecutive patients who underwent acetabular revision using metal on metal bearing implants. Birmingham hip resurfacing (BHR) cup was used in all patients uncemented in 16 cases and cemented within reinforcement or reconstruction ring in 6 cases. Femoral revisions were carried out as necessary. Results: There were 16 men and 6 women with a mean age of 71 years (51-83). Revision was performed for aseptic loosening in 10, infected hip arthroplasty in 9, and Peri-prosthetic fracture with loosening in 3 patients. 2-stage revision was performed for all infected hips. One patient died and the remaining 21 patients had clinical and radiological assessment at a mean 35 months (24-60). The mean Harris hip score was 75(23-98) with 50% good to excellent results. 1 patient had further revision in 2 stages for recurrent infection at 24 months. There were 2 recurrent infections (both revised for septic loosening) and 1 non-union of trochanteric osteotomy. There were no dislocations in the group. No radiological loosening of implants or metal ion complications seen at last follow up. Conclusions: We believe this is the first reported series on the use of large diameter metal on metal bearing surfaces for revision hip arthroplasty. This shows satisfactory short to medium term results with no component loosenings, despite monoblock cups and no dislocations.

Abstract number: 24592

ACETABULAR RECONSTRUCTION USING REINFORCEMENT RING AND CEMENTED METAL ON METAL CUP FOR REVISION HIP ARTHROPLASTY Inder GILL, Murali KRISHNAN, Mike REED, Paul PARTINGTON

Wansbeck General Hospital, Newcastle Upon Tyne (UNITED KINGDOM)

Aim: To report the short to medium term results of acetabular reconstruction using reinforcement/reconstruction ring and cemented metal on metal cup. Methods: Single centre retrospective study of 6 consecutive patients. The acetabulum was reconstructed using morcellised femoral head allograft and reinforcement or reconstruction ring fixed with screws. The Birmingham cup designed for cementless fixation, was cemented into the ring. Uncemented stem with metal on metal modular head was used for reconstructing the femur. Our previous in-vitro study has shown good pull out strength of a cemented Birmingham cup.Results: There were 2 men and 4 women with a mean age of 75 years (57-83). Revision was performed for aseptic loosening in 2, septic loosening in 2 and peri-prosthetic fracture with loosening in 2 patients. All patients were reviewed at a mean of 36 months (24 - 42 months). Revision was not necessary in any patient for failure of acetabular or femoral fixation. 1 patient had revision for recurrent infection and osteomyelitis at 24 months, excluded from final analysis. The mean Harris hip score at follow up was 79(range 70-89). Radiographs revealed good graft incorporation and no signs of loosening or cup/ring migration.No dislocations or metal ion problems were recorded. Conclusions: We believe this is the first series using cemented metal on metal cups within a reinforcement/reconstruction ring for revision hip arthroplasty. Excellent cemented fixation of the cup, manufactured for cementless fixation, was obtained with no evidence of loosening or dislocations at minimum 24months follow up.

Abstract number: 24608 A FRACTURE THROUGH THE NECK OF A CHARNLEY ELITE-PLUS FEMORAL COMPONENT: A CASE REPORT

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Fracture of the femoral stem component, following hip arthroplasty, is an uncommon but recognised complication. Fracture of the neck of femoral stem, however, is rare with only a few cases reported in the literature. We present the first case of a fracture through the neck of a Charnley Elite Plus femoral stem and review the factors causing femoral stems to fail in this manner

Abstract number: 24935 TOTAL HIP ARTROPLASTY IN PATIENTS AFTER OSTEOTOMY OF PROXIMAL FEMUR.

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Since 1995 to 2008 the comparison of a clinicoradiologic pattern and a static handling of total hip arthroplasty (THA) results were made. There were examined 92 patients (104 hip joints) who had in the past history an osteotomy of a proximal part of a femoral bone and 83 patients from the control group (87 hip joints) who did not have any surgical treatments before. In all cases the femoral component of the patients with osteotomy was placed usually in compelled valgus position without making a reosteotomy for the correction of the bone shape. The femoral component of the patients from the control group was implanted in neutral position. The middle age of the patients was 47,4 years (from 18 till 73 years). The medium term of the observation was 7.3 years(from 0.5 till 13 years). The medium term from the moment of making an osteotomy of the proximal part of the femoral bone to THA was 14,5 years (from 1 till 36 years). The radiologic analysis did not reveal significant statistical difference betwin two groups. The clinical results according to the method of Harris among the patients with osteotomy: 20,9% of excellent results, 53,7% of good results, 19,4% of satisfactory and 6% of unsatisfactory results. In the control group: 19,6% of excellent results, 55,3% of good results, 20,1% of satisfactory results and 5% of unsatisfactory results. Thereby, the clinicoradiologic results of the THA in both groups are significantly comparable.

Abstract number: 24989 POSSIBILITIES OF ACETABULAR RECONSTRUCTION IN THE ABSENCE OF OSSEOUS GRAFT

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Purpose: The use of some acetabular revision components in the hip revision arthroplasty involving severe acetabular loosening, allowing the recovery of the local relief in the absence of bone grafts, followed by early mobilization with full bearing.Material and method: In the Orthopaedics & Traumatology Clinic of the Bucharest Emergency Universitary Hospital, between 2007 - 2009, 22 surgical operations of revision of some heap prosthetic appliances with no use of bone graft for the recovery of the acetabular bone deficiency were effected. Ages: between 68 and 83. Sex ratio: M/F=9/13. We used many types of acetabular implants, cemented, uncemented, locked or unlocked. In all cases there was a preoperative planning to use the most adapted implant for the local bone quality. Femoral components were cemented or uncemented. Results: These types of prosthetic appliances of revision of the acetabular component offer a good primary stability, permitting an early post operatory mobilisation of the patient. The varying design of these prosthetic appliances, with the extension piece located at the upper pole, offers the possibility of elimination of the cavities formed by the degradation of the prosthetic appliances previously inserted. The decision of fixing by screws or by cimentation is taken according to the quality of the remaining bone. Conclusions: The use of special revision prosthetic appliances in the cases with big acetabular distruction, with poor bony capital allows the obtaining of a very good post-operatory result even in the absence of osseous graft.

Abstract number: 24990

MID-TERM RESULTS OF REVISION HIP ARTHROPLASTY WITH STABLE STEM RETAINED DURING ISOLATED ACETABULAR REVISION

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INTRODUCTION: The purpose of the present study was to evaluate the mid-term results of retained stable stem during revision of the acetabular component. MATERIAL AND METHODS: We retrospectively reviewed the clinical and radiographic results for 21 patients (22 hips) who underwent revision of the cementless acetabular component without removal of a stable stem between July 2001 and September 2006. There were 4 men (4 hips) and 17 women (18 hips). The mean age at the time of the revision was 63 years with the mean weight of 56 kg. The mean follow-up after the acetabular revision was 5.3 years (3-8 years) and the mean follow-up after the initial operation was 14.4 years (6-21 years) Radiographs at the time of the revision were used to determine the degree of femoral bone loss according to the classification system of Paplosky. The defects included 18 Type I, 4 Type II. RESULTS: The mean Japanese Orthopaedic Association score significantly improved from 55 to 78 points. Twenty-one (95%) of the primary stem were judged to be stable and well-fixed at the final follow-up. Only one stem (5%) was unstable fixation because of progresive subsidence. At the prerevision radiological findings, 11 hips exhibited osteolysis, 8 hips exhibited stress shielding (grade II). At the final follow-up, one hip had been appeared osteolysis and one hip had evidence of progressive stress shielding. CONCLUSIONS: Clinical results of this study suggested that a stable fixed stem could be retained successfully in the revision hip arthroplasty.

Abstract number: 25010 CONTEMPORARY VIEW AT THR USING METAL-ON-METAL BEARINGS OF ANATOMICAL SIZES

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More than 575 publications have been made in the leading forums and journals from 2004 to 2005 concerning THR with metal-on-metal bearings using modular components of anatomical sizes. Older designs of THR implants do not meet the expectations placed upon them by increased demands. New technologies enable the achievement of equal or better characteristics of MoM bearings, than UHMWPE and ceramic bearings. This has led to extended indications for THR and an increase in the number of procedures, using metal-on-metal bearings of anatomical sizes. In Sweden, the number of patients younger than 50 years old undergoing primary THR rose 6% from 2002 to 2004. In Canada, there was an increase of 11% of primary THRs in patients younger than 45 years of age in 2002 in comparison with 1994. On the down side, metal-on-metal bearings are susceptible to galvanic corrosion, abrasion and fretting. While the volumetric wear of polyethylene is greater than that of MoM bearings, the smaller metallic wear particles produce soluble metallic ions. High serum levels of metallic ions such as cobalt, chrome and molybdenum may have a cytotoxic, mutagenic, cancerogenic and immune-modulating effect, although currently there is no consensus on the matter. In our Clinic we widely use MoM bearings for THR in the younger, high-demand patients since for the time being the pros outweigh the possible cons. On the other hand, we refrain from using these bearings in patients with systemic diseases, altered immune status, renal insufficiency, women of childbearing age, until more data becomes available.

Abstract number: 25144 DIGTAL TEMPLATING IN TOTAL HIP ARTHROPLASTY: A MULTI CENTRE TRIAL USING 2 DIFFERENT TEMPLATING SYSTEMS

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Templating in total hip arthroplasty (THA) is not new and it has long been used with traditional radiographic films and printed templates (acetates). Digital templating has become possible with the introduction of digital radiography and computers into clinical practice. We present our experience in using digital templating in 100 patients who underwent hip replacement in 3 centers using 2 different software systems; Endopmap (Siemens) and Merge Ortho (Cedara). We used 6-step technique for templating including; radiographic assessment, correction of magnification, measuring leg length discrepancy, templating acetabular component, templating femoral component, correction of leg length discrepancy and measuring length of neck resection. The technical and outcome differences of the two software systems were compared. We found several pitfalls of templating such as radiographic magnification and abnormal positioning of the patient. External Rotation gave a false impression of valgus leading to underestimation of the femoral offset. Internal rotation gave a false impression of varus leading to overestimation of the femoral offset. Abduction resulted in apparent lengthening and adduction resulted in apparent shortening. Digital templating is a simple and less expensive form of computer assisted surgery. It proves to be useful in identification of difficult or problematic cases and prediction of component sizes, correction of leg length discrepancy, restoration of normal hip centre, and optimization of femoral offset

Abstract number: 25174 EARLY AND MIDTERM RESULTS OF ASR RESURFACING THR - INDEPENDENT SINGLE SURGEON SERIES

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Introduction: We report our early results after ASR (Depuy) resurfacing THRs performed between 2005-2008 by senior author. Method and materials: 120 ASR hip resurfacing replacements were performed on 107 patients (13 patients were bilateral). The mean age at surgery was 55.67 years (range: 39 - 72 years), male: female ratio was 66:54 and R: L side was 53:67. The average follow-up period was 26.57 months (range: 10 - 52 months). The diagnosis was follows: OA -111, AVN- 2, SUFE -2, DDH -2, Perthes -1, coxa vara -1, protrusio -1. Results: The mean pre-op OHS was 40.44 (range: 27 - 55), which improved to a mean post-op OHS of 21.58 (range: 12 - 40) (p<0.05). The follow-up radiological assessment showed nonprogressive lucency on the neck in 1 patient, notching in 2 (non progressive) and neck fracture in 1 patient, which was revised to uncemented THR. Complications: superficial wound infection in 2 patients, notching of the neck in 2, DVT - 3, PE -1, trochanteric bursitis -3, LLD -1, impingement -1, ALVAL - 1, fracture -1, HO - 1. 3 patients had revisions (Revision rate: 2.5% at a mean of 2 years). 2 patients with ALVAL and 1 patient with post-operative neck fracture were revised to uncemented THR. Conclusion: ASR hip resurfacing replacements give good functional results at early follow-up with no deep infection. The complication rates were comparable with Birmingham Hip replacements with no deep infection, neurovascular problem or dislocation.

Abstract number: 25178 MID-TERM RESULTS OF BHR RESURFACING HIP REPLACEMENTS - SINGLE SURGEON SERIES

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Introduction: We report our mid term results of BHR resurfacing hip replacements followed up from 2002 till 2009 (single surgeon series). Method and materials:152 Birmingham Hip Resurfacing (BHR) replacements were performed on 137 pts (15 were bilateral). The mean age at surgery was 54.47 months (range: 32 - 75 months). There were 97 males and 55 females and the right side was affected in 71 patients and left side in 81 patients. The mean follow-up period was 53.49 months (range: 15 - 89 months). The reason for surgery was as follows: OA -133, SUFE - 6, DDH -7, AVN -3, PTOA - 1. 5 patients had DEXA scans to rule out osteoporosis and 1 had bone scan.Results:7 patients had Hardinge approach, rest had posterior approach. The patients were followed up with Oxford Hip Scores and radiological assessment. The mean pre-op OHS was 38.48 (range: 23 - 50), that improved to a mean post-op OHS of 16.20 (range: 12 - 40) (p<0.05). Complications: neck fracture in 2, notching in 1, HO in 3, LLD in 2, nerve palsy in 3 (common peroneal nerve - 2 (1 recovered), femoral nerve-1), superficial wound infection -1 settled with antibiotics, bursitis- 2, psoas tendonitis -2, ALVAL -2, DVT -1, impingement -1. 6 patients had revision surgery: ALVAL - 2, neck fracture -2, loose cup - 2 with a revision rate: 3.94% at a mean of 4.5 years. Conclusion: BHR hip resurfacing replacements give good medium term results comparable to published series.

Abstract number: 25223

TWO-STAGE ARTHROPLASTY USING A FUNCTIONAL TEMPORARY PROSTHESIS TO TREAT INFECTED TOTAL HIP ARTHROPLASTY & SEPTIC ARTHRITIS OF THE HIP-A MODIFIED TECHNIQUE Ahmed SALEM, Ibrahim ELGANZOURY

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Introduction: Two-stage revision arthroplasty is the gold standard for treatment of infection at the site of a total hip Arthroplasty. The staged technique, as well, is a good approach in dealing with end stage septic arthritis of the hipMethods: 8 patients with infected total hip arthroplasty and 6 patients with adult native joint septic arthritis of the hip were treated with two-stage revision. We utilized an inexpensive modular femoral component coated with antibiotic-impregnated polymethylmethacrylate articulating with a polyethylene acetabular liner inserted using a modified technique. The construct functions, temporarily, as a conventional total hip prosthesis inbetween the two stagesResults: 12 patients were followed for an average of 18 months. 2 patients were excluded (no second stage). No patient was lost to follow-up evaluation from those included. No patient had recurrence of infection. No clinical, laboratory, or radiographic evidence of infection at the final follow-up. 9 patients (75%) had an improvement of Harris hip score of at least 30 points. Conclusion: functional temporary construct formed of inexpensive femoral component articulating with polyethylene acetabular liner can be used safely and successfully allowing range of movement, weight bearing, with little cost as a joint-preserving spacer in the awaiting period between the two stages in management of infected total hip arthroplasty and septic arthritis of the hip

Abstract number: 25257

PERIACETABULAR OSTEOTOMY FOR THE TREATMENT OF COXARTHROSIS WITH HUGE CYSTS -PROSPECTIVE CONSECUTIVE SERIES WITH A 7-YEAR MINIMUM FOLLOW-UP PERIOD-

Etsuo CHOSA, Takero SAKAMOTO, Shinji WATANABE, Tomohisa SEKIMOTO, Hiroaki HAMADA, Shotaro NOZAKI, Hiroshi IKEJIRI, Yoshihiro NAKAMUA, Hajime FUKUDA

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Background: Satisfactory intermediate and long-term results of periacetabular osteotomy for the treatment of advanced coxarthrosis have been reported. The purpose of this study was to examine the results of periacetabular osteotomy in patients with advanced coxarthrosis with huge cysts secondary to developmental dysplasia of the hip.Methods: We prospectively analyzed nine hips in nine patients with bone cysts more than 1.5 cm width who underwent a Bernese periacetabular osteotomy with bone grafts by a single surgeon. The average age of the patients at the time of surgery was 45.9 years, and the average duration of clinical follow-up was 10 years. The Japanese Orthopaedic Association (JOA) hip score and overall patient satisfaction with surgery were used to assess hip function and clinical results. Plain radiographs were used to assess the correction of the deformity and progression of degenerative arthritis. Results: The mean pain score and the mean JOA hip scores improved postoperatively. Radiographic analysis demonstrated consistent deformity correction and significant improvements in the AHI and anterior acetabular head index with no recurrence of the cystic lesion. Decreased range of motion and progression of degenerative arthritis were found in some cases with relative joint space narrowing and huge cyst. Conclusions: Periacetabular osteotomy for the coxarthrosis with huge cysts improves function and may prevent delay progression of degenerative arthritis in most patients when the indication and surgical technique are appropriate.

Abstract number: 25269

THREE-DIMENSIONAL MOTION ANALYSIS OF FUNCTIONAL GAIT COMPENSATION IN PATIENTS WITH UNILATERAL HIP OSTEOARTHRITIS. Riki TANAKA¹, Masamori SHIGEMATSU², Tsutomu MOTOOKA¹, Takayuki AKIYAMA¹, masaaki MAWATARI¹, takao HOTOKEBUCHI³

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Many patients with osteoarthritis (OA) of the hip joint suffer from pain and functional impairment of the hip over a long period of time. We aimed to investigate the compensatory function in the patients with hip OA. To this end, we performed gait analysis of 50 female patients with unilateral hip OA and on a control group of 20 healthy elderly women using a three-dimensional motion analysis system (Vicon). There were significant differences in spatiotemporal gait parameters and joint The following spatiotemporal gait motions compared with healthy controls. parameters were decreased: velocity, cadence, stride length, step length on both sides, and single support duration of the involved side. The following joint motions were decreased: hip flexion-extension range of the involved side, hip abductionadduction range on both sides, knee flexion-extension range on both sides, knee rotation range of involved side, and ankle dorsiflexion-plantarflexion range of involved side. The most evident differences between the hip OA patients and the controls were increased motion of the knee varus-valgus range of uninvolved sides and pelvic tilt. The increased pelvic tilt directly correlated with the range of hip flexion (P< 0.001). Knee and low back pain would be caused by increasing these motions. We conclude that the increased motion of the knee varus-valugus range and pelvic tilt were compensatory functions. The study deepened our understanding the process to causing disorder of adjacent joints in hip OA patients.

Abstract number: 25282 MEDIUM-TERM RESULTS OF REVISION HIP ARTHROPLASTY USING A FLUTED TAPERED MODULAR STEM

Youn-Soo PARK, Seung-Jae LIM, Kyung-Jea WOO Samsung Medical Center, Seoul (KOREA)

Recent studies have shown good short-term outcomes of revision hip arthroplasty using modular distal fixation stems, but, to our knowledge, none have included clinical follow-up of greater than 5 years. We evaluated the results of 50 revision hip arthroplasties performed using a fluted tapered modular stem. The mean age of patients was 59 years (36 to 80). Five hips had Paprosky type-II femoral bone defects, 31 had type-IIIA, and 14 had type-IIIB. Extended trochanteric osteotomy was carried out in 24 hips (48%). Patients were followed both clinically and radiographically for a mean of 7.2 years (5 to 10). The mean Harris hip score improved from 41 points preoperatively to 89 points at final follow-up. Average stem subsidence was 1.5mm. Three stems subsided more than 5 mm, but all have stabilized in their new positions. During follow-up, a total of 4 hips required additional surgery. One hip underwent two-stage re-revision due to deep infection, one had liner and head exchange for alumina head fracture, and the other two underwent isolated cup re-revision because of aseptic cup loosening and recurrent dislocation, respectively. No repeat revision was performed due to aseptic loosening of femoral stem. Complications included 6% intraoperative fractures, 4% cortical perforations, and 4% dislocations. There was no stem fracture at the modular junction. Mediumterm clinical results and mechanical stability obtained with this fluted tapered modular stem were encouraging in these challenging revision situations with femoral bone defects.

Abstract number: 25283 RAPID PROTOTYPING FOR TRANSTROCHANTERIC ANTERIOR ROTATIONAL OSTEOTOMY OF THE FEMORAL HEAD.

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Transtrochanteric anterior rotational osteotomy of the femoral head (ARO) for osteonecrosis of the femoral head was invented by Sugioka. Although the operation has been provided good clinical course to these patients, the procedure is quite complex and can be considered as difficult operation. In most of the cases, femoral neck is need not only just rotation but also varus position to gain more unaffected area in load area of the acetabular. Pre-operative planning for this operation is recommended with two X-ray images of both hip joints, but inexperienced surgeons are not able to gain clear images of the movement of rotated femoral head on the paper. For better pre-operative planning we produced 3D solid hip joint models to simulate this operation pre-operatively. METHOD: From 2008 to 2006, six AROs were done at our hospital. Mean age was 40 years, twowere female and three were male patients. One male patient was done ARO in both sides. All hips were Ficat Stages 3, Enneking's Stage 4. Patients were scanned on CT at 1mm intervals along a cranio-caudal axis, with the scanning field focused on the affected hips. The DICOM format CT data were processed on PC with the 3D modellar software to the STL format CT data, and then sent off to 3D printer to make 3Dmodels. Preoperative simulations were performed with these 3D models. CONCLUSION: With full-scale 3D model, could 1) evaluate three-dimensional necrosis area easily, 2) reproduce the plan precisely, 3) gain confidence before operation

Abstract number: 25302

POLYETHYLENE WEAR IN CEMENTLESS THA WITH 22MM ZIRCONIA HEAD - COMPARISON WITH CROSS-LINKED POLYETHYLENE AND NON-CROSS-LINKED POLYETHYLENE-

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Purpose: The purpose of this study was to evaluate annual wear of cementless total hip arthroplasty (THA) composed of a 22mm ziruconia head with cross-linked polyethylene and conventional polyethylene liners retrospectively. Materials and Methods: We studied 38 THAs with non-cross-linked PE (N) and 37 THAs with crosslinked PE (C). The average age at surgery were 57.8 (N) and 61.2 years (C). The average BMI was 23.2(N) and 23.0(C). Anteroposterior radiographs were used to calculate annual linear and volumetric wear ratio as reported previously. The average follow-up period was at least 5 years. Clinical outcomes were assessed by Japan orthopaedic association (JOA) score.Results JOA score were recovered from 46.7 to 81.7 (N) and from 45.0 to 82.3 (C). In the N group, linear wear was gradually increased from 0.26 to 1.0 mm and volumetric wear was increased from 77.1 to 333 mm3 collectively. There were not significant amount of linear and volumetric wear detected after the first postoperative year in the C group. Total wear rate were 0.12mm/y, 40.7 mm3/y in C group and 0.01 mm/y, 2.5 mm3/y in N group. Conclusion: The results showed that radiographic measurements of polyethylene wear in cross-linked polyethylene were significantly less than that of conventional PE. Cross-linked PE can lead to reduction and stabilization of free radicals in polyethylene so that THA could be indicated for younger and more demanding population.

Abstract number: 25329 INFLUENCE OF ETHNICITY ON PATIENT REPORTED OUTCOME AFTER TOTAL HIP REPLACEMENT

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We hypothesized that patients born abroad and patients with low income report lower quality of life according to EQ-5D and benefit less from the surgical procedure. Preoperative and one-year post-operative data from Swedish Hip Arthroplasty Register, including 1309 patients (1317 hips) with primary osteoarthritis of the hip operated between years 2002 and 2006 were analyzed. All patients completed the EQ-5D form, filled in a VAS scale about pain and Charnley class pre-operatively and at one year post-operatively, when a VAS scale about overall satisfaction was added. Information about country of birth, living alone/married or cohabiting and income was provided by the Swedish tax office.Patients born in Sweden had better life quality and less pain and were more satisfied one year after the operation than those born abroad (p<0,03). The gain values (pre-postoperative) for EQ-5D and pain did, however, not differ. After adjustment for age, gender, diagnosis, Charnley class, income and living alone/married or cohabiting only pain at 1 year turned out to be more pronounced in the group born outside Sweden.Inferior life guality and increased pain in patients born abroad before hip replacement surgery could to various degree be explained by demographic and socioeconomic factors, whereas increased amount of remaining pain one year after the operation could not. This finding suggests that this patient group could benefit from improved pre- and postoperative information and other measures to facilitate and improve their rehabilitation.

Abstract number: 25339 EFFICACY OF MULTIMODAL PAIN CONTROL PROTOCOL IN THE SETTING OF TOTAL HIP ARTHROPLASTY

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Background: This study evaluated the benefits and safety of a multimodal pain control protocol, which included a periarticular injection of local anesthetics, in patients undergoing total hip arthroplasty. Methods: Between March 2006 and March 2007, 60 patients undergoing unilateral total hip arthroplasty were randomized to undergo either a multimodal pain control protocol or a conventional pain control protocol. The following parameters were compared: the preoperative and postoperative visual analogue scales (VAS), hospital stay, operative time, postoperative rehabilitation, additional painkiller consumption, and complication rates. Results: There was no difference between the groups in terms of diagnosis, age, gender, and BMI. Although both groups had similar VAS scores in the preoperative period and on the fifth postoperative day, there was a significant difference between the groups over the four-day period after surgery. There were no differences in the hospital stay, operative time, additional painkiller consumption, or complication rate between the groups. The average time for comfortable crutch ambulation was 2.8 days in the multimodal pain control protocol group and 5.3 days in the control group. Conclusions: The multimodal pain control protocol can significantly reduce the level of postoperative pain and improve patients' satisfaction, with no apparent risks, after total hip arthroplasty.

Abstract number: 25365

CLINICAL RESULT AND RADIOGRAPHIC FEATURES AFTER CEMENTLESS BIPOLAR HIP ARTHROPLASTY FOR FEMORAL NECK FRACTURE

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Background: Though elderly patients with hip fracture were once operated with cemented bipolar hip arthroplasty (BHP) under management by anesthesiologists, Orthopaedic surgeons recently have to do both management and operation under spinal anesthesia except for high-risk patients due to the shortage of anesthesiologists. In the effort to reduce intraoperative risk caused by using bone cement, we have been using cementless BHP. The aim of this study is to clarify clinical results and radiographic features regarding to the cementless BHA in the osteoporotic patients. Methods 79 patients were evaluated since August 2007 when cementless BHA under spinal anesthesia started. Postoperative evaluation was undertaken as to clinical parameters (age, postoperative ADL and such) as well as radiographic features (canal flair index, subsidence of femoral stem, spot weld, etc.)Results: The mean age at surgery was 78.7 years. The mean canal flair index was 3.7. The mean subsidence of femoral stem was 4.4 mm. One hip was dislocated for postoperative significant subsidence of femoral stem and needed re-operation with cemented BHA. Postoperative ADL could attain to walk at 79% and to transfer to chair at 17%. Discussion: Postoperative subsidence of femoral stem was greater than expected. However, postoperative ADL have been also acceptable results for the cases of significant subsidence. There was no significant relationship between preoperative parameter and postoperative excessive subsidence. Conclusions: Acceptable clinical results were provided with cementless BHA for elderly osteoporotic hip fracture. Nevertheless, the possibility of causing serious postoperative complications is yet to be solved.

Abstract number: 25373 SURGICAL TREATMENT IN PROXIMAL FEMORAL PERIPROSTHETIC FRACTURES

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Background: Fracture around the femoral stem is a serious complication of total hip arthroplasty, which is now on the rise. Such fractures can range from being minor, with minimal or no effect on the outcome, to being catastrophic and possibly creating an unreconstructable problem with an immense effect on the patient's function. Material and methods: 34 patients with periprosthetic proximal femoral fractures, 23 men and 11 women, with a mean age of 61.4 years were included in this study. According to Vancouver classification system 15 fractures were type B1, 9 type B2, 4 type B3 and 6 type C. In cases associated with a well fixed stem (B1, C) we used internal fixation with cerclage wires or cables, screws and plates. All types of fractures associated with a loose femoral component (B2, B3) were treated by a revision arthroplasty using a long femoral stem inserted with or without cement. combined in 4 cases with cancellous bone-grafting. Results: The fractures healed between 10 to 24 weeks (average, 15.6 weeks). At the time of the latest follow-up (mean, 3.5 years), all patients were able to walk and had minimal or no pain, with good functional results. There were no non-unions. malunions or infections.Conclusion: Periprostethic femoral fractures can be managed by a wide variety of treatment options. Classification of the fractures with a correct evaluation of its location, fixation of the stem and bone quality allows a rational choice of reconstructive options.
Abstract number: 25380 HYPERSENSITIVITY AGAINST METAL AFTER TOTAL HIP ARTHROPLASTY

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Background: Aseptic lymphocytic vasculitis-associated lesion (ALVAL). а complication of metal-on-metal arthroplasty, is a late hypersensitivity reaction mimicking infection. Case: A 71-year-old woman who underwent metal-on-metal total hip arthroplasty (THA) for hip osteoarthritis (OA) complained of hip pain aggravated during walking and consequent difficulty in walking at 6 months postoperatively. The left hip motion was limited to 65° flexion and -40° extension. Radiography revealed a well-seated metal-on-metal total hip prosthesis without any loosening, osteolysis, or implant failure. Magnetic resonance imaging showed no abscess formation or liquid retention. The C-reactive protein level was 23 mg/L; white blood cell count, 5.2 x 103/mm3 (eosinophil; 4.6%). A skin patch test against cobalt chromium was positive. A revision surgery performed for severe, 8-month-long pain showed thickened scar tissue over the implants, suggesting chronic inflammation. Since we suspected metal hypersensitivity, we replaced the metal liner with a polyethylene liner and inner head. Pathological examination of the scar revealed lymphocytic infiltration with granuloma, which is consistent with metal hypersensitivity. Culture examination was negative. Five months after the second operation, she can walk with a cane without pain. Discussion: Hypersenstivity reactions are being reported as an important complication of metal-on-metal arthroplasty in Caucasians but rarely in the Japanese, probably because this disease entity is not widely acknowledged in the Japanese. Conclusion: We report a Japanese case of metal hypersensitivity after a metal-onmetal THA. Metal hypersensitivity should be taken into account when unexplained pain after metal-on-metal THA is observed.

Abstract number: 25389

ASSESSMENT OF PROXIMAL FIXATION FEMORAL STEMS FOR PRIMARY THR.

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Our study is based on the results of 147 patients, treated by THR, using 189 proximal fixation femoral components: 60 cases of Versys ET (Zimmer, USA), 43 - Versys FM (Zimmer, USA), 33 - Mallory Head (Biomet, USA) and 11 cases of Bicontact (Aesculap, Germany). Functional and statistical methods were applied to assess the condition of the operated joint. The Versys ET group included 19 women and 41 men; Versys FM - 13 women and 30 men; Mallory Head - 16 women and 17 men and Bicontact - 3 women and 8 men. Mean age was: Versys ET -57,1 ±10,3 years; Versys FM - 56,7 \pm 8,4; Mallory Head - 58,4 \pm 11,9 and Bicontact - 57,1 \pm 9,6. The indications for THR were: primary coxartrosis, dysplastic coxartrosis and AVN.After careful study of post-op X-Rays at the final follow up, we noted only 3 cases of proximal stress shielding. The possibility of micromotion at the distal end of the stem allows for more physiological distribution of loading in comparison with intermediate and distal fixation stems. There were no cases of radiographic or clinical manifestation of aseptic stem instability in any of the studied groups. The survival rate at 6 years for all groups was 100 % with stem revision as the end-point. In all groups with a maximum of 6 years follow up, we noted 95% good and excellent results.

Abstract number: 25431

THE EFFECT OF PERI OPERATIVE HIGH VOLUME LOCAL ANAESTHETIC INFILTRATION FOLLOWING PRIMARY TOTAL HIP REPLACEMENT

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Pain relief after lower limb joint replacement surgery has been a major limiting factor affecting post operative mobilisation and length of hospital stay. Multimodal local wound infiltration with local anaesthetics, adrenaline with non steroidal anti inflammatory agents can lower the opiate intake, reduce the length of stay and enhance early mobilisation in hip replacement patients. A retrospective review of 30 patients undergoing primary total hip replacement was undertaken. All patients' wounds were infiltrated with ropivacaine, adrenaline and ketorolac by the operating surgeon, intra operatively. Subsequently, a 16 G wound catheter placed into the hip joint. They received two further top up doses of the same combination at 10 hours and 20 hours postoperatively. This group was compared with a control group of 30 patients who did not receive any local infiltration. Both groups were comparable in terms of BMI and ASA grades. Post operative opiate drug consumption in first 48 hours after surgery and length of hospital stay were recorded. There was significant reduction in opiate consumption in the treatment group with an average consumption of 37.23 mg of morphine compared to 62.73 mg in the control group (P=0.002). The length of hospital stay was significantly reduced from 5.2 days in the control group to 4.4 days in the treatment group (P=0.02). The patients in the treatment group mobilised six hours earlier. However, this was not found to be significant statistically. There were no significant complications in either group.

Abstract number: 25443 USE OF EXTENDED TROCHANTERIC OSTEOTOMY IN REVISION OF INFECTED HIP ARTHROPLASTY

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Extended trochanteric osteotomy (ETO) was known as a useful method to remove implants and cements during revision surgery. The purpose of this study was to evaluate the safety and efficacy of using ETO on the treatment of prosthetic hip infections. We reviewed 23 patients who had undergone two-stage exchange procedures using ETO for periprosthetic hip infection. Control group was 46 patients who had undergone revision hip arthroplasty using ETO for aseptic loosening. Study group consisted of 11 men and 12 women with a mean age of 59 years (33 to79). Mean follow-up was 49 months (24 to105). Control group consisted of 21 men and 25 women with a mean age of 61 years (34 to88). Mean follow-up was 54 months (24 to104). Outcome measures were Harris hip score, time to healing of ETO, femoral component stability, eradication of infection, and postoperative complications. The mean Harris hip score was improved from 36 points preoperatively to 82 points postoperatively. Periprosthetic hip infection was eradicated in 22 (96%) of 23 patient. In all cases, ETO was healed at a mean of 11 weeks. There was no aseptic loosening of femoral component. Complications included two postoperative femoral fractures, one transient peroneal nerve palsy, and one dislocation. Postoperative Harris hip scores, time to healing of ETO, femoral component stability, eradication of infection, and overall complication rates did not differ between the study and control groups. ETO can be used safely and effectively as part of two-stage revision procedures for periprosthetic hip infection.

Abstract number: 25469 DUAL ARTICULATION CUPS REDUCES DISLOCATION RATE AFTER ARTHROPLASTY FOR FEMORAL NECK FRACTURE

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Background: Hip dislocation after arthroplasty for femoral neck fractures remains a serious complication. The aim of our study was to investigate the dislocation rate in acute femoral neck fracture patients operated with a posterior approach with cemented conventional or dual articulation acetabular components. Patients and methods: We compared the dislocation rate in 56 consecutive patients operated with conventional cemented acetabular components to that in 42 consecutive patients operated with dual articulation acetabular components. All the patients were operated via posterior approach and were followed up to one year postoperatively. Results: There were 8 dislocations in the 56 patients having conventional components as compared to no dislocations in those 42 having dual articulation components (p=0.01). The groups were similar with respect to age and gender distribution. Interpretation: We conclude that the use of a cemented dual articulation acetabular component significantly reduces the dislocation rates in femoral neck fracture patients operated via posterior approach.

Abstract number: 25501 STAGING TREATMENT OF PATIENTS WITH COXARTHROSIS DEFORMANS

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Total hip replacement is one of the options for treatment of chronic degenerative and dystrophic diseases of various genesis. This operation results in certain limits on patient's motion and labor activity. Therefore, total hip replacement cannot be considered an optimal option for young people. For the majority of patients with coxarthrosis deformans stepped surgical therapy beginning with intertrochanteric osteotomy and later, if considered necessary, endoprosthesis replacement can be recommended as therapy allowing to achieve optimal endpoints. Materials and methods. Surgeons of the BelMAPE clinic of traumatology and Orthopaedics have performed 271 organs preserving reparative and recovery operations on hip joint. The postoperative supervision period made up over 10 years. Results and discussion. The results of the operations were as follows: 201 patients (74.2 per cent) with good or satisfactory results, 70 patients (25.8 per cent) with unsatisfactory results of organs preserving operation. Chirurgical treatment was not possible in cases of 27 patients (9.9 per cent) because of severe co-morbidity and/or advanced age. Hip joint replacement of 41 patients (15.1 per cent) were performed with endoprosthesis SLPS produced by Altimed JSC (Republic of Belarus).Remote postoperative supervision covered the period from 2 to 5 years for all operated patients. The patients were satisfied with the quality of operation. Both types of surgeon therapy (total hip replacement and stepped surgical therapy) are recommended for treatment of coxarthrosis deformans. Adequate application of surgical therapy helps to achieve optimal results.

Abstract number: 25505 DENSITOMETRIC ASPECTS IN CASES OF PATIENTS WITH COXARTHROSIS DEFORMANS Aleh KEZLIA

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Early detection of the disease and evaluation of the quality of bone tissue is critical for cases of osteoarthritis. On the stage of initial examination, it is important to detect derangement of metabolism in the bone tissue. The aim of the present work is research of mineral density of the bone tissue (MDBT) of the patients of different age groups with hip joint coxarthrosis of second and third stage. Materials and methods: Method of double-energy X-ray densitometry defines mineral density of bone tissue in the area of proximal part of hip and spine with estimation of T-scor value. Examination of 88 patients with degenerative and dystrophic diseases of hip joint was conducted, of which 29 patients - male at the age group 32-75 years, 59 patients - female at the age group from 40 to 75 years. Results and discussion: Examination of MDBT of proximal part of hip and lumbar spine showed decrease in T-scor value to osteopenia and osteoporosis in 46 cases (52.3 %). Decrease of Tscor value to osteoporosis value was registered in 13 cases (14.8 %). Decrease of Tscor value to osteopenia value was registered in 33 cases (37.5 %). Therefore, densitometric examination of skeleton is essential for choice of method and terms of surgical treatment of hip joint osteoarthritis (particularly endoprosthesis replacement). Timely diagnosis of mineral density of bone tissue and analysis of individual risk factors of progress of osteoporosis allows to choose adequate treatment before and after operation, suspend pathological processes that reduce strength of bone tissue.

Abstract number: 25507

HIP RESURFACING ARTHROPLASTY IN INFLAMMATORY ARTHRITIS. A THREE- TO FIVE YEAR FOLLOW-UP STUDY.

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The success of hip resurfacing in younger patients with primary osteoarthritis has paved way for trial of the procedure in patients with secondary osteoarthritis of hip. Early results in patients with osteoarthritis secondary to osteonecrosis, developmental dysplasia of hip, Perthe's disease and slipped capital femoral epiphysis have been encouraging. We retrospectively reviewed the clinical and radiological results in a cohort of 23 patients (32 hips) with inflammatory arthritis who were chosen for hip resurfacing after normalizing vitamin D levels and ruling out proximal femoral osteopenia using dual energy X-ray absorptiometry. At a minimum follow-up of three years there was one hip failed by fracture of the femoral neck attributable to osteonecrosis of the remnant head. The clinical outcome, evaluated using Harris Hip Score, was good to excellent outcome in 30 out of 31 hips. Hip resurfacing is a promising alternative in carefully chosen patients with inflammatory arthritis.

Abstract number: 25512 ANAESTHESIA AT HIP JOINT REPLACEMENT

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Application of general anesthesia at large-scale interference is limited by insufficient protection of patients, impossibility of post-surgery anesthesia without narcotic analgesic. Nerve block anesthesia is commonly used in the complex of anesthesia service providing analgesia, hyporeflexia and relaxation only in the area of surgical treatment. The aim of the present work is the study of effectiveness of nerve block anesthesia during endoprosthesis replacement for patients with coxarthrosis. Materials and methods: During the period 2007-2009 BelMAPE clinic of traumatology and Orthopaedics performed 88 hip joint endoprosthesis replacement using nerve block anesthesia including spinal or epidural anesthesia in aggregate with spinal. The hip joint replacements were performed using cemented and cementless endoprosthesis SLPS of Altimed JSC.Middle age of the patients: 69±5.5 years. The overwhelming majority of the patients had serious concomitant disease (arterial hypertension. coronary disease, heart rhythm disturbance, atherosclerotic cardiosclerosis, and widespread atherosclerosis with brain arterial involvement, kidney disease and pancreatic diabetes). Spinal anesthesia was performed at the level L2-L3 with needle 22G 0.5% with Marcaine solution dose 2-3 mL. Epidural anesthesia was performed at the level L1-L2 with standard set of BRAUN company with 0.2% Naropine solution dose 10 mL injected every 3-4 hours. Results and discussion: Regional anesthesia allowed to preserve adequate spontaneous breathing, stability of hemodynamic parameters and acid-base balance. Resorptive action of anesthetic caused moderate sedative effect and allowed to abandon medication deep sleep, prolongate the block and use pose-surgical analgesia influencing all links of surgical pain pathogenesis.

Abstract number: 25579 USE OF TRANEXAMIC ACID TO REDUCE BLOOD LOSS IN PRIMARY CEMENTLESS TOTAL HIP ARTHROPLASTY

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A prospective, randomized, double-blind study was done on 50 patients undergoing primary cementless total hip arthroplasty to determine the effect of tranexamic acid on intra- and postoperative blood losses.50 patients were randomized to tranexamic acid (15 mg/kg) given as a bolus intravenous injection or placebo (normal saline) given intravenously, 15 minutes before the incision. The intraoperative and postoperative blood loss and the number of blood transfusions required were recorded. The patients were screened for Deep Venous Thrombosis using Colour Doppler imaging on the 10th postoperative day. Hemoglobin level was measured preoperatively and on 3rd postoperative day. The D-dimer levels were measured preoperatively and 24 hrs postoperatively. Patients receiving tranexamic acid had a mean intraoperative blood loss of 410 ml (300-510 ml) vs 615 ml (515-750ml) (p <0.05) in patients receiving placebo, a postoperative blood loss of 210 ml(150-325ml) vs 490 ml(,370-540ml) (p <0.05), and a total need for 8 blood transfusions versus 30. 6 of 25 patients in tranexamic acid group and 18 of 25 patients in the placebo group required transfusion. In placebo group the mean fall in hemoglobin was 2.9g/dl (2.5-3.2) as compared to 1.6 g/dl (1.3-2) (p<0.05) in the tranexamic group. At 24 hrs postoperatively, mean plasma D-dimer concentration in the Tranexamic group was half of that in the control group. No patient in either group had any evidence of deep vein thrombosis. Tranexamic acid reduces blood loss in primary cementless THR.

Abstract number: 25626

A SHORT-TERM FOLLOW-UP OF UNCEMENTED THR FOR HIP DYSPLASIA USING THE 1ST GENERATION WAGNER (ZIMMER, WARSAW, IN USA) FEMORAL STEM.

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In a retrospective study, 138 unselected consecutive uncemented hip arthroplasties were performed on 133 patients between January 2005 and November 2009 diagnosed with Developmental or Congenital Dysplasia of the Hip using the Wagner femoral stem. Grades of Dysplasia were from 1 to 3rd as described by Hartofilakides et al. The mean age of the patients at the time of the operation was 49,4 years (20 to 81). None were lost to follow up, with revision for stem instability as the end point. Only two femoral components (1.45%) were revised, due to periprosthetic fractures. In our cohort, there were no cases of aseptic loosening or infection. The operations were performed by three experienced orthopaedic surgeons through an anterolateral approach. No prophylaxis was given to prevent heterotopic ossification. All patients were partially weight-bearing for six weeks post-operatively, and thereafter as tolerated. In no case was there performed an osteotomy of the acetabulum or of the femur. The maximum leg length discrepancy which was restored was 6cm. There were 2 cases of transitory neuropathy of the fibular nerve, both cases resolved by the time of first year follow-up. This study indicates that the Wagner femoral stem has reliable good and excellent short-to-mid term results and can be used in cases of dysplasia of the hip. Disclaimer: The authors did not receive any outside funding or grants in support of their research for or preparation of this work.

Abstract number: 25627 MIDTERM SURVIVAL OF THE PINNACLE MULTI-LINER ACETABULAR CUP IN A RETROSPECTIVE STUDY

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-PURPOSE OF THE STUDY - To evaluate the results of primary total hip replacement with Pinnacle (Depuy) acetabular hip at a minimum of 3 years of followup. - MATERIAL AND METHODS - A total of 48 patients, with 48 hips, undergoing hip arthroplasty with the use of Pinnacle hip between 2007 and 2009 were evaluated. The group comprised of 25 men and 21 women with an average age of 67 years (range, 48 to 81) at the time of surgery. The clinical outcome was assessed by the Merle d'Aubigné and Postel score and the Harris hip score, and the radiological results were evaluated on anterior posterior X-ray films of the pelvis and the affected hip.- RESULTS - The average follow-up was 2.5 years. The average Merle dAubign and Postel score and Harris hip score was 15 and 85 post-operatively. No complications were seen. - DISCUSSION - Benefits of using Pinnacle hip system are 1. Range-of-Motion-allows for use of a larger femoral head providing for greater range of motion. 2. Stability-use of larger femoral head also lowers risk of dislocation. 3. Longevity-offers a lower risk of inflammation and implant loosening. -CONCLUSIONS - The Pinnacle hip system shows good results at 3 year follow-up period. The current standard for hip resurfacing is a metal-on-metal bearing with fixation of the femoral component with cement and cementless acetabular fixation. It would be valuable to report the midterm results (at an average of seven years) of cementless Pinnacle hip resurfacing.

Abstract number: 25661 FEMORAL REVISION USING LONG HYDROXYAPATITE-COATED INTERLOCKING STEM

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Introduction: The IOTA interlocking femoral stem is a hydroxyapatite coated stem with the option of interlocking the stem distally. Materials and Methods: We retrospectively reviewed the results of 18 total hip arthroplasties in 17 patients using the IOTA interlocking stem. The bone deficiency was classified based on the AAOS Radiographs at the final follow up were evaluated by the criteria classification. described by Engh et al. Results: Average age at the time of revision was fifty-seven years. Preoperatively five femora showed type I deficiency, type II deficiency in three, Type III in nine and Type IV deficiency in one femur. In five hips the calcar replacing prosthesis was implanted and in one hip allograft was used to reconstruct the calcar. One patient sustained intraoperative fracture of shaft of the femur while implanting the trial prosthesis and one patient had perforation of the posterior cortex of femur while trying to remove the cement. The mean follow up period was 33.5 months. The mean preoperative Harris Hip Score was 36, which improved to 77 at the time of final follow up. No stem required revision and at minimum 27 months follow up, bony ingrowth was noted in 83.33% of the stems. Conclusion: IOTA interlocking stem has shown promising short-term results for femoral revisions. The advantages are initial axial and rotational stability and consistent bony in growth owing to hydroxyapatite coating. The calcar replacing option of the stem is useful in patients with deficient calcar as a substitute for the allograft.

Abstract number: 25664 A PROSPECTIVE OBSERVATIONAL STUDY OF OSTEOARTHRITIS TOTAL HIP REPLACEMENT PATIENTS

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Prospectively 15 consecutive osteoarthritis total hip patients were treated with a new type of total hip reconstruction (TriboFit® Hip). The acetabular component consisted of a 3 mm soft, pliable polycarbonate-urethane (PCU) polymer that was snap-fit directly into the acetabular bone after minimal reaming of cartilage (6) or into a metal shell (9). The average age was 75 in the no shell group and 72 in the metal shell group. The female/male distribution was 4/2 in the no shell group and 8/1 in the shell group. The left/right distribution was 1/5 in the no shell group and 6/3 in the shell group. Of the 15 total patients, 2 could not be followed--1 patient in the no shell group was unavailable because of a traumatic acetabular fracture shortly after surgery and 1 patient in the shell group died of mesenterial ischemia within a month of surgery. The no shell group average time after surgery is 28 months and the shell group 21 months, giving an average of the two at 24 months. The Harris Hip Score for the no shell group was 54 pre-operatively and 83 at 12 months. In the shell group, the Harris Hip Score was 37 pre-operatively and 89 at 12 months. No patient was revised, became dislocated, or developed an infection. The results to date appear to favor the metal shell group, but a longer term follow-up with more patients is needed.

Abstract number: 25666 -RESULTS OF TOTAL HIP REPLACEMENT IN PATIENTS HAVING POST TRAUMATIC ARTHRITIS FOLLOWING ACETABULAR FRACTURES

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Twenty total hip arthroplasty were performed with use of a cementless cup in 17 patients and cemented cup in a cage in 3 patients for the treatment of posttraumatic osteoarthritis following acetabular fracture. The average age of the 4 women and 16 men was 49 (range, 26 to 86 years) at the time of the arthroplasty. The median interval between the time of injury and the total hip arthroplasty was 37 months (range, 8 to 144 months). The average operative time was 120 minutes and average intraoperative blood loss was 700 ml. Eight patients had previous open reduction and internal fixation of the acetabular fracture and twelve had been treated nonoperatively. Following total hip replacement, each patient was evaluated clinically and radiographically at six weeks, three months, six months and twelve months, and then yearly following total hip replacement. The average duration of clinical and radiographic follow-up was 40 months (range, 26 to 60 months). At the time of final follow-up, of twenty acetabular components, 10 had no evidence of periacetabular radiolucency, 7 components had a partial radiolucency that was <1 mm wide, 2 had a complete radiolucency <1 mm wide and 1 component was surrounded by a complete radiolucency of >2 mm in width without showing component migration. According to Engh's criteria, 16 (80%) femoral stems had bony ingrowth and 4 (20%) stems had stable fibrous ingrowth. The average preoperative Harris hip score improved from 35 points to 78 points at the time of final follow-up.

Abstract number: 25670

A NEW CONCEPT OF CEMENTLESS STEM FIXATION IN TOTAL HIP ARTHROPLASTY: A RADIOSTEREOMETRIC ANALYSIS

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BACKGROUND: Total hip arthroplasty is successful surgical procedure, but revision burden remains high, particularly in young patients. Scyon Orthopaedics, Au, Switzerland, has developed a concept of cementless stem fixation that reduces influence of stress shielding on stability of THA. The Scyon THR Stem provides anchorage through bony ongrowth from the medial cortex without coupling to the lateral cortex. This results in near-physiological loading of the proximal femur that diminishes stress shielding. Stability required for ongrowth is implemented by locking mono-cortical screws tapped through the medial cortex and locked into the stem. The aim of this study is to evaluate the stability of the Scyon THR Stem in-vivo. METHODS: During implantation of the THA, insertions of Tantalum beads into specific areas of pelvic bone and femur were performed for the purpose of radiostereometric analysis.Patients were invited for follow-up examinations at 6 weeks, 6 months, 1 and 2 years after surgery. The planned schedule includes evaluation of the mid - term results up to 5 years. All patients underwent RSA as well as standard x-ray evaluation. RESULTS: The follow-up results of 8 patients have shown excellent functional recovery and radiographically notable bony ongrowth from the medial cortex without bony integration from the lateral cortex. RSA shows that the stem subsidence is below the level of detection (0.40 mm). CONCLUSION: We believe that this implant may decrease aseptic loosening of THA by a reliable and consistent fixation of the femoral stem, which additionally diminishes stress shielding of the proximal femur.

Abstract number: 25730 ENDOPROSTHESIS REPLACEMENT AT CERVICAL HIP FRACTURE FOR PATIENTS OF ELDERLY AND OLD AGE.

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Cervical hip fracture is a topical issue since results of its treatment are often unsatisfactory. Effectiveness of osteosynthesis for patients of elderly and old age is substantially reduced because of difficulties with rehabilitation. This work is aimed at improvement of the results of cervical hip fracture treatment for patients of elderly and old age with the help of endoprosthesis replacement. Material and methods: During the period 2004-2009 126 patients were operated with the use of cemented hip joint endoprosthesis produced by Altimed JSC, of which 36 patients were male, 90 - female. Average age of the patients - 75±0.4 years. All patients had serious concomitant disease (arterial hypertension, coronary disease, atherosclerosis with brain arterial involvement, kidney disease and pancreatic diabetes, atherosclerotic and post-hypertensive cardiosclerosis, chronic bronchitis). Results and discussion: Intra-operational complications were registered in 10 cases, of which two cases of hip diaphysis fracture, eight cases of trochinter fracture. Post-operational complications were registered in 20 cases, of which 6 cases of endoprosthesis hip dislocation, 6 cases of phlebothrombosis, 8 cases of hypostatic complications. Average bed-day was 18.5 days. All patients were discharged in good level of health. Hip joint endoprosthesis replacement with cemented endoprosthesis produced by Altimed JSC is good option for patients of elderly and old age. Endoprosthesis of Altimed JSC are produced from materials corresponding to the highest international standards, using the most recent technologies. This type of treatment allows to facilitate rehabilitation of patients after operation and substantially improves the quality of life of patients.

Abstract number: 25782 TRANEXAMIC ACID IN TOTAL HIP REPLACEMENTS: A META-ANALYSIS

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Background: Total hip replacement (THR) is one of the commonest operations in orthopaedic practice. Although safer than ever, allogeneic transfusion is still associated with risks for the recipient. Tranexamic acid (TXA) has been popularised as an effective way to reduce blood loss and subsequent blood transfusion. Objectives: To investigate the value of TXA in reducing blood loss and blood transfusion after THR and other clinical outcomes such as deep venous thrombosis (DVT), pulmonary embolism (PE), ischaemic heart diseases and mortality. Patients and Methods: A systematic review and meta-analysis of published randomised and quasi-randomised trials which used TXA to reduce blood loss and transfusion in THR were conducted.Results: Blood loss: Seven studies (350 patients) were eligible for this outcome. Using TXA reduced intraoperative blood loss by an average of 104 ml (P-value 0.0006, 95% CI-164,-44, Heterogeneity I2 0%), postoperative blood loss by an average of 167 ml (P-value < 0.00001, 95% CI -214, -119, I2 63%) and total blood loss by an average of 291 ml (P-value <0.00001, 95% CI -388,-195, I2 54%). Blood transfusion: Seven studies (346 patients) were eligible for this outcome. TXA led to a significant reduction in the proportion of patients requiring allogeneic blood transfusion (Risk Difference -0.20, P-value < 0.00001, 95% CI -0.29, -0.11, I2 15%). Other outcomes: There were no significant differences in DVT, PE, infection rates or other complications. Conclusion: TXA appears effective and safe in reducing blood loss and allogeneic blood transfusion in primary THR.

Abstract number: 25825

DETECTION OF PERIACETABULAR OSTEOLYSIS AROUND UNCEMENTED CUPS COMPUTED TOMOGRAPHY VS CONVENTIONAL RADIOGRAPHIC EXAMINATION

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Pelvic osteolysis is a major concern after total hip replacement (THR). This is often an asymptomatic process leading to severe bone loss and complicated revisions. Radiographic examination is the standard method to follow these patients. Computed Tomography (CT) has been shown to be more sensitive in detection of osteolysis.We compared CT and conventional radiographic examination in asymptomatic patients operated with uncemented THR. We investigated 207 patients with uncemented cups with radiographic examination and CT scan and evaluated with a custom made protocol. The patients were selected from the Swedish Hip Arthroplasty Registry. They were all asymptomatic, average age 53 years (19-67), time from operation 10 years (7-14). The images were evaluated independently by one orthopaedic specialist and a radiologist. Kappa statistics was used to measure inters and intra observer reliability. Osteolytic lesions were found on radiographic examination in 14 of 207 patients compared to 185 on the CT examinations. According to Landis & Koch evaluation for Kappa coefficients, inter reliability was good (K = 0.64) and intra reliability was very good (K = 0.81) In those cases where the two observers disagreed, the images were investigated again and discussed. We found that radiographs can both under- and over estimated osteolysis. The CT volumes could be severely distorted by the metal artefacts. We chose not to use any filters as the scanners have improved the last years and filters can destroy information in the volumes. In most cases, CT scans reveal much more information concerning osteolysis than plain radiographs.

Abstract number: 25845

DOES THE WEATHER INFLUENCE PAIN SEVERITY IN OSTEOARTHRITIS? Stephen BRENNAN, Tom HARNEY, Norazila ABDUL RAHIM, Fintan SHANNON *UCHG, Galway (IRELAND)*

Patients often attribute increasing pain in an arthritic joint to changing weather patterns. Studies examining the impact of weather on pain severity have yielded equivocal and sometimes contradictory results. The relationship between subchondral pseudocysts and the role they play in this phenomenon has not been explored. Fifty-three patients with end stage osteoarthritis of the hip completed daily pain severity visual analogue scores over a one month period. Radiographs were reviewed to determine the presence of pseudocysts. Data pertaining to precipitation, atmospheric pressure and temperature was collected from the most proximate weather station. A generalized linear mixed model was used to explore the relationship between weather variables, cysts and pain severity. Pain levels increased as a function of absolute change in atmospheric pressure from one day to the next. Precipitation, temperature and the presence of subchondral pseudocysts were not shown to influence pain severity. Severe deterioration in weather is associated with marked fluctuations in atmospheric pressure. Although patients are not aware of the pressure differential they will associate their increasing pain with any precipitation that may take place in association with this weather front, and hence believe they can predict changes in weather patterns. This study supports the belief held by many osteoarthritic patients that changing weather influences their pain severity.

Abstract number: 25866 UNUSUAL NECK OF FEMUR FRACTURE AFTER TOTAL HIP REPLACEMENT- A CASE REPORT

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We present an unusual case of fracture at the neck of the implant following a total hip replacement. A 72 year old gentleman underwent cemented total hip replacement for primary osteoarthritis of the hip. The post operative period was uneventful and he was mobilising well without any post operative complications of infection or dislocation. He presented to accident and emergency following a mechanical fall from a standing height on to his hip and inability to mobilise two years following the hip replacement. Clinical examination revealed a tender hip, with the leg shortened, flexed, abducted and externally rotated. He had no distal neurovascular deficits. All movements of the hip were restricted with pain. Radiographs revealed a fracture through the neck of the femoral stem in a cemented THR. The components were well cemented with no evidence of loosening. He underwent a revision total hip replacement. We performed an extended trochanteric osteotomy to remove cement and extract the broken implant. He was revised to a longer stem with secondary stabilisation with cables. He recovered uneventfully following the operation and was mobilising independant when he was discharged from the hospital. This case highlights the need for awareness of the possibility of a broken implant following THR.

Abstract number: 25884

LONG-TERM RESULTS OF TOTAL HIP ARTHROPLASTY WITH AN EXTENSIVELY POROUS COATED STEM IN PATIENTS YOUNGER THAN 45 YEARS OLD

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Purpose: This study analyzed the long-term results of cementless total hip arthroplasty using an extensively porous coated stem in patients younger than 45 years old. Materials and Methods: The clinical and radiographic results of 45 hips from 38 patients who underwent cementless total hip replacement arthroplasty with an AML prosthesis were reviewed retrospectively. The average follow-up was 12 years (range, 10-15years). Results: The average Harris hip score at the time of final follow-up was 87.3(range 77-94) points. Forty-two hips (93.3%) showed excellent and good clinical results. Osteolysis occurred around the stem in 20 hips (44.4%) and around the cup in 26 hips (57.8%). Stress-mediated femoral resorption was observed in 33 hips (73.3%) at 10 years. There was no incidence of resorption progressing after 5 years postoperatively. There was no stem loosening. Five hips were revised for osteolysis, cup loosening and polyethylene wear. Conclusion: The long term results of total hip arthroplasty using an extensively porous coated stem were acceptable, and there was no case involving the progression of proximal bone resorption. Key Words: Cementless total hip arthroplasty, Extensively porous coated, Polyethylene wear, Osteolysis.

Abstract number: 25886

A SURVEY OF PREFERRED METHOD OF DIRECT LATERAL APPROACH TO THE HIP

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The Hardinge approach to the hip was originally described in 1982. Since then subsequent modifications have been described by several authors. In our region, the senior author has encountered an increasing number of bald trochanters at revision hip surgery, of which primary surgery was by the modified Hardinge approach. We conducted a survey of all Orthopaedic trainees in the Wales and Oswestry orthopaedic higher specialist training programme by email questionnaire. A total of 84 trainees were contacted with a response rate of 45%. Of those who responded, 98% preferred the modified Hardinge approach to the hip compared to 2% who preferred the Hardinge approach. From the sample survey in these two training regions it is clear that trainees favour the modified Hardinge approach. We have reviewed the literature to highlight the scientific basis for the superiority of the hardinge approach as originally described. It is our view Trainees should be more familiar with, and have more exposure to this technique.

Abstract number: 25893

OSTEONECROSIS OF THE FEMORAL HEAD: MRI FOR PREDICTION OF EARLY COLLAPSE AFTER TREATMENT WITH CORE DECOMPRESSION AND AUTOILIAC CANCELLOUS BONE GRAFT COMBINED WITH AN IMPLANTATION OF AUTOLOGOUS BONE MARROW CELLS

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Purpose: To retrospectively evaluate whether the imaging finding of MRI has prognostic value for prediction of early collapse osteonecrosis of the femoral head (ONFH). Materials and Methods: Retrospective review was done for MRI of 62 hips in 55 patients with ONFH treated with autoiliac cancellous bone graft after core decompression combined with a implantation of autologous bone marrow cells. Following factors were analyzed: location, size, preoperative staging, the necrotic angle of mid coronal image, bone marrow edema, signal intensity of necrotic area, containment of necrotic area, presence of subchondral fracture, and presence of collapse. Statistical analyses were conducted to evaluate the relationship between those factors and early collapse within a year. Results: Twenty hips were developed early collapse at the treatment site within a year. Only the necrotic angle of mid coronal image was associated with early collapse (P = 0.005). The cut- off value of necrotic angle of 100% of sensitivity (C.I: 58.9, 100) is more than 98 degrees and of 100% specificity (C.I: 78.0, 100) is more than 150 degrees. The early collapse within a year was related to mid-term poor prognosis (P = 0.01). Conclusions: The necrotic angle is strongly correlated with early collapse of ONFH after treatment with core decompression and autoiliac cancellous bone graft combined with an implantation of autologous bone marrow cells. The early collapse could be poor prognostic factor in mid- term follow-up.

Abstract number: 25935

THE EFFECT OF THE FEMORAL COMPONENT SHAPE TO COAGULATION SYSTEM IN TOTAL HIP ARTHROPLASTY.

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Purpose: As a prevention of venous thromboembolism (VTE) in total hip arthroplasty (THA), postoperative mechanical/pharmacological prophylaxis was employed. However, it would be insufficient to prevent VTE which occurs intraoperatively or immediately after the operation. We hypothesized that femoral component shape affects incidence of VTE, and compared perioperative change of coagulation system between different types of femoral components. Materials and methods: In 41 cases undergoing primary unilateral THA without cement for osteoarthritis, bone-preserving type stem (Accolade®; Stryker) was used in 22 cases (preserving group), and fit-andfill type stem (VerSys®; Zimmer/S-ROM-A®; Depuy) was used in 19 cases. Markers of coagulation system (PT-INR, Fbg, D-Dimer, FDP, TAT, PIC) were measured preoperatively and immediately after operation. D-Dimer and FDP were measured also on 7th postoperative day. These values were compared between 2 groups. Result: Preoperatively, none of the markers was significantly different between 2 groups. Immediately after operation, D-Dimer, FDP, TAT were significantly lower in preserving group, PIC was lower in preserving group and difference was marginally significant, PT-INR and Fbg were not significantly different. D-Dimer and FDP on 7th postoperative day were not significantly different. Discussion: It was reported that intramedullary reaming and insertion of the femoral component stimulates coagulating system. In use of bone-preserving type stem, intramedullary reaming is less than fit-and-fill type stem, and cancellous bone remains around femoral component during implantation. Although further studies especially on imaging assessment such as ultrasonography are needed, these results suggested that the shape of femoral component affects latent risk of perioperative VTE.

Abstract number: 26012

A RETROSPECTIVE ANALYSIS OF REVISION THR FOR COMPONENT INSTABILITY

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A retrospective analysis of revision THR performed for various kinds of instability from January 2005 till December 2009 by three experienced surgeons was carried out at our institute. During the specified period, 2170 THR were performed on 1862 patients. Among them were 67 (0.035 %), revision THR. The mean age of the patients at the time of the operation was 59 years (41 to 90). The cohort included 44 women and 23 men. The time that had passed from primary implantation until revision varied from 3 days up to 32 years. Implants that were revised included: Mura-TSITO (USSR), the Movshovich-Gavrjushchenko prosthesis (USSR), the Sfen (Implant-MT, RUSSIA), Elite (Implant-MT, RUSSIA), CLS (Sulzer, Germany), Mueller (Zimmer, USA) Versys ET (Zimmer, USA), Beznoska (Chm, Poland), McKee Farrar (USA), and 3 cases unknown implants were removed. At revision, we used the following stems: Ilza (Implant-MT, RUSSIA), Cerafit (Ceraver, FRANCE), Corail (De-PUY, USA), Mueller (Zimmer, USA), Taperlock (Biomet, USA), Wagner revision Stem (Zimmer, USA) were implanted. The indications for revision included: dislocation of the ceramic inlay - 2, leg length discrepancy due to shallow placement of the acetabular component- 1, acetabular instability-16, femoral instability-9, instability of both components-20, periprosthetic fractures-3, recurrent dislocations-16. Analysis indicates that further development of implant design and manufacturing technology is needed in order to improve the tribological and functional properties of implants, in order to provide better care for our patients.

Abstract number: 26024 REVISION SOCKET FOR ACETABULAR DEFECTS IN THP

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New type of implant for irregular deformity of acetabulum has been developed 5 years ago. It is used for revisions surgery in defected acetabulum Paprosky 2B, 2C and 3A in 40 patients with follow-up more than 4 years. Clinical objective, using modified HHS score, subjective and radiological examination has been provided in 40 patients. More than 93% satisfied patients with average improvement of HHS from 42 points to 83 points allow us to recommend this type of revision socket for treatment of large defects in acetabulum after total hip prostheses loosening.

Abstract number: 26033 CEMENTLESS TOTAL HIP REPLACEMENT IN PATIENTS OLDER THAN 60 YEARS OF AGE

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We reviewed 38 patients (45 hips) who were older than 60 years old in the moment of cementless total hip replacement (THR). The mean age of patients was 67 years (60 to 76) and the mean follow-up was 29.1 months (28 to 35). The diagnosis was primary hip osteoarthritis in 55% of cases, avascular necrosis of femoral head in 12% of cases and miscellaneous in the rest of the remaining 33% of cases. We used Corail (DePuy, Johnson and Johnson), Omnifit (Stryker) and Versys (Zimmer) stems and a variety of cementless acetabular components. Average preoperative Harris hip score was 57.2 points and average postoperative score at the latest follow-up was 88.7 points. In one hip we found radiolucent line wider than 2 mm in Gruen zones 1 and 7; two patients complained of thigh pain, without any radiographic evidence of components loosening; one patient sustained a traumatic periprosthetic fracture of the femur treated with periprosthetic osteosynthesis (cables) 8 months after operation. One dislocation occured 2 months after surgery and was conservative treated. Comparison of the mean preoperative and postoperative Harris hip score (at the latest follow-up) showed a major improvement and demonstrated a good effect of cementless THR even in an elderly population.

Abstract number: 26144

METAL ION LEVELS AND ASSOCIATED CHROMOSOME ABERRATIONS IN METAL-ON-METAL TOTAL HIP ARTHROPLASTIES

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Metal-on-metal arthroplasties are being increasingly inserted in younger patients due to the increased durability and reduced requirement for revision in these implants. Recent studies have raised many concerns over possible genotoxicity of MoM implants. This is a prospective study of patients who have undergone elective total hip replacement, they were selected and then randomised into two groups. Group A received a MoP implant and group B received a MoM implant. Patients are reviewed pre-operatively (control group), at 3 months, 6 months, 1 year and 2 years postoperatively. Blood tests are taken to quantify metal ion levels (chromium, cobalt, titanium, nickel and vanadium) using HR-ICPMS method and chromosome aberrations in T lymphocytes using 24 colour fluorescent in situ hybridisation (FISH). 53 patients have been recruited to date. 24 of whom had MoP prosthesis and 29 a MoM. 34 of these have had their one year follow-up with blood analysis and 10 have had 2 year follow up. Cobalt and chromium concentration increased during the first 6 months in both MoM and MoP groups, in the MoM group the chromium levels were twice that of MoP group and 12x that of the preoperative samples. Chromosome aberrations occurred in both groups. At 6 months both the MoM and MoP groups showed increase frequency of aneuploidy aberrations with further increases after one year. Structural damage in the form of translocations occurred in the MoM group after one year, but not in the MoP group, by two years there was a profound increase in translocations

Abstract number: 26178 OUTCOME OF MODERN REVISION HIP ARTHROPLASTY FOR ASEPTIC LOOSENING.

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Introduction: Complications associated with revision hip arthroplasty were historically reported to be higher than primary hip arthroplasty. Approximately 10% risk of surgical site infection, 15% risk of dislocation, 10% risk of intra operative fracture and 3% risk of sciatic nerve injury were identified as the main complications. In modern revision hip arthoplasty, advance surgical technique, availability of modular prosthesis and improved anti sepsis, we questioned the validity of these figures. Patients and Methods: Patients were prospectively identified and follow up from our hip arthroplasty registry. Only patients undergoing revision for aseptic loosening were recruited. Demographic data, surgical approaches, implant types, position and complications were collected. Surgical site infection, intra or postoperative fracture, dislocation and sciatic nerve injury were used as outcome end points. Harris hip score was used as a measure for clinical outcome. Results: 52 patients were identified and follow up. All hips were revised from a posterolateral approach. Extended trochanteric osteotomy was used if cement removal required. Cement in cement technique was used if cement mantle was satisfactory. Femoral head allograft and trabecular metal were used for augmentation of bone stock. The incidence of surgical site infection, dislocation, fracture and sciatic nerve injury were 3.2%, 1.7%, 0.4% and none respectively. Conclusion: With improvement in surgical technique, prosthesis modularity and anti sepsis regime; complications such as surgical site infection, dislocation, fracture and nerve injury is less than previously reported. Utilising appropriate surgical approach, implant combinations will provide optimal stability and satisfactory outcome.

Abstract number: 26179

REVISION RATE AFTER TOTAL HIP ARTHROPLASTY – SOME COMBINATIONS OF

IMPLANT AND SURGICAL APPROACH ARE MORE FAVOURABLE

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Aim: The aim of the following study was to analyse if there is a relation between type of surgical approach and revision rate for total hip arthroplasty (THR). Material and methods: Data from the Swedish Hip Arthroplasty Register was used from 1999 -2008. The three most commonly used prosthesis were Charnley (13500), Lubinus SPII (73000) and Exeter Polished (30500). Risk for revison calculated as adjusted risk ratio (RR) for all causes was analysed using Cox regression with correction for gender, age, and preoperative diagnosis. In the study the anterolateral approach was compared to the posterolateral approach. Results: Posterolateral incision increased revison rate because of dislocation for all three different types of implants. The risk of revision because of infection did not vary with different approaches or implants. Posterolateral approach increased the risk of femur fracture in combination with the Exeter prosthesis but decreased in combination with the Charnley prosthesis. The risk of revision because of loosening was lower with a posterolateral approach in combination with the Charnley and Lubinus prosthesis (RR: 0,5, 95% CI: 0,4-0,7 and 0,8; 0,6-0,9) but higher with the Exeter prosthesis (RR: 2,9, 95% CI 2,0-4,0). Discussion: This study signifies that the risk of revision in different kinds of prosthesis systems varies with the surgical approach. The reason for this is perhaps that the correct positioning of prosthesis is more or less difficult when using a posterior or anterolateral approach because of the design of the prosthesis.

Abstract number: 26226

USE OF CEMENTLESS MODULAR ZMR STEM IN REVISIONAL HIP ARTHROPLASTY

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A purpose of this study is to present indications for and results of revisional hip arthroplasty with use of cementless modular ZMR stem in patients of Orthopaedic and Trauma Surgery Department, Jagiellonian University Medical College, Cracow.ZMR stem has been used in our Department since year 2003 in 59 procedures. The mean age of the 57 patients (22 males, 37 females) was 65. In 4 cases ZMR stem was used in primary hip arthroplasty. Before ZMR stem implantation 16 patients had undergone approximately 3 different revision surgeries. In 39 cases ZMR stem implantation was one and only revision surgery after standard THR. In 28 hips both components were revised. Indications for this procedure were defined after clinical examination and diagnostic imaging (standard radiographic examination, scintigraphy, etc.). Papprosky's scale was used to estimate periprosthetic bone loss. Postoperative evaluation included radiographic assessment and clinical HSS scale. According to HSS scale we had 42 very good and good, 9 satisfactory and 6 bad results. Satisfactory and bad results were associated with acetabular loosening and other big joints arthroplasty. Radiographic assessment: no new osteolytic laesions were observed. Focal osteolysis visible around primary stem and pre- or intraoperative periprosthetic femur fractures got healed after ZMR stem implantation.Modular connection between ZMR stem elements allows for independent choosing distal part and proximal body of the stem, which is important especially when unexpected intraoperative conditions make preoperative planning useless. This stem gives good proximal and distal stabilization with sufficient axial, rotational and bending forces transmission.

Abstract number: 26230

CT STUDY OF MAYO CONSERVATIVE HIP PROSTHESIS FOR HIP DISEASE

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Bone changes from simple X rays and the CT image of the case who was able to do the observation of the passage of two years or more was examined after the hip replacement arthroplasty done by using Mayo conservative hip prosthesis for the osteoarthritis and osteonecrosis of the femoral head under 55 years old.17 hips in 15 patients. Average age of the patients was 44.2 years old, with 7 women and 8 men. The average follow-up of the whole series was 33.1 months. In the cause of turning on, 12 hips were osteonecrosis of the femoral head, and 3 were osteoarthritis. We examined the appearance of spot welds and Stress shilding from simple X-ray images and the CT image. Spot welds appeared in 15 hips (88%) in 8.4 months on the average on anteroposterior X-ray, and fromed from proximal to distal of the femoral shaft. From MPR of the CT images that had done in 5.6 years of the average after the operation, spot welds were formed all. Stress shilding was formed in 4 hips (23.5%). Therefore, we considered an excellent load transmitting of this stem. It seemed that CT after the total hip arthroplasty was useful.

Abstract number: 26233

THE CLINICAL RESULTS OF MODIFIED TRANSTROCHANTERIC CURVED VARUS OSTEOTOMY FOR OSTEONECROSIS OF THE FEMORAL HEAD

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Objective: Since 2004, in addition to original curved varus osteotomy (CVO) for Idiopathic osteonecrosis of the femoral head (ION), we have intentionally performed anterior or posterior rotation without incising the articular capsule to obtain a more extensive, viable area in the loaded portion. In this study, we investigated the extent of the viable area loaded portion after original and modified CVO. Methods: The subjects were 34 patients (18 males, 16 females, 38 joints) who underwent curved varus osteotomy. From these patients, 12 patients (14 joints) underwent a modified CVO. The mean rate of the viable area for the loaded portion on anteroposterior radiographs before surgery was 33%. Investigations were performed on the percent viable area in the preoperative/postoperative weighted portion. In addition, in patients for whom transtrochanteric curved varus osteotomy was combined with anterior/posterior rotation, we measured the extent of viable area in the loaded portion when the extent of curved varus osteotomy without rotation was performed based on a schematic drawing that we prepared. Results: In this study, the combination of CVO and anterior/posterior rotation significantly increased the percent viable area from 65% to 84%. Conclusion: The modified curved varus could be a vilable approach for patients with a viable area in the anterior or posterior region. The extent of post operative viable area on the loaded portion proved to be better than the original procedure.

Abstract number: 26252

USE OF MAYO CONSERVATIVE HIP PROSTHESIS (ZIMMER) IN OSTEOARTHRITIS OF DIFFERENT ETIOLOGY

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Authors presented the results of the treatment of osteoarthritis of the hip with MAYO conservative hip prosthesis. Cementless MAYO endoprosthesis had been used 75 times beetwen 1999-2009. The age of patients was 17-60 years (average 38,2). There were 44 women and 25 men. Main causes of osteoarthritis were secondary changes to DDH, posttraumatic deformities and avascular necrosis of the femoral head. MAYO stems were connected with cementless acetabular cup (Press-fit Trilogy-65,3%) and threaded acetabular cup (Alloclassic-4,0%). Use of metal-onmetal articulation connected with MAYO stem (30,6%) has been used since 2007. Results were analyzed according to clinical Hip Harris Score and radiological assessment. After 10 years follow-up good and very good results were found in treatment of osteoarthritis especially in young people. MAYO stem causes minor damage of intertrochanteric region during procedure and has minimal effect on medullar cavity. It preserves bone stock and enables to replace femoral component with a cementless stem in case of revision surgery. Using metal-on-metal articulation preserves hip joint from luxation and its connection with short-stem prosthesis increases a range of mobility in a joint.

Abstract number: 26265

A PROSPECTIVE OBSERVATIONAL MULTI-CENTER STUDY OF DISPLACED FEMORAL NECK FRACTURES TREATED WITH A NEW TYPE OF TOTAL HIP CONTAINING A PCU ACETABULAR COMPONENT

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Nine sites in three countries prospectively studied 69 displaced femoral neck fracture patients treated with a new type of total hip reconstruction (TriboFit® Hip). 22 cases were from the first author institution. The acetabular component consisted of a single 3 mm soft, pliable polycarbonate-urethane (PCU) polymer that was snap-fit directly into the acetabular bone after minimal reaming of cartilage only and preparation of a unique groove. The average age of these patients was 80,4 (range: 66-96), the sex distribution was 55 females and 14 males, with 33 fractures of the left hip and 36 right. Of the 69 patients, 3 died of unrelated causes and 3 were lost to follow-up. Of the 63 available for follow-up, all were followed for an average of 18 months (range: 6 to 44 months). The Harris Hip Score for a subset of these fractures patients was 79 at 12 months. Of the 63 followed, 4 (6,3%) were revised, 2 of which had dislodgment of the acetabular component at 9 and 44 months. Of the revisions, 3 were from the first four surgeries, all of which had instrumentation issues with this new technique. One patients (1,6%) had a dislocation that was reduced non operatively at 15 days, 1 other (1,6%) became infected and 2 were bedridden. We believe the results with this new type of prosthesis are encouraging and comparable to if not better than other prosthetic options in the literature for this difficult-to-treat patient population.
Abstract number: 26290

SEVERE ACETABULAR REVISION SURGERY: A PERSONALIZED APPROACH

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Introduction - A patient-specific approach could prove valuable to deal with challenges such a massive bone loss and multiple revisions of the hip. Stably and thus sustainably restoring patient's mobility is the major goal of a surgical reconstruction. A patient-central view is maintained during the complete implant development process. Materials and methods - The implant concerned, supporting the acetabular component consists of a round cup with a number of flanges and is designed based on the CT-data and anatomical bone reconstruction. In case of significant pelvic bone loss, the flanges bypass the bony defects and extend onto the major bones of pelvis. A porous structure fills the bone defect; a thin porous layer is present at the interface between the implant and the bone. Optimal screw positions and lengths are pre-operatively assessed based on bone quality, and transferred into surgery using jig guiding technology. Cup orientation is anatomically analyzed for inclination and anteversion angles. A fully individualized muscle modeling and finite element simulation allows for patient-specific analysis of mechanical implant integrity and interaction with the surrounding bone. Limited throughput time and design flexibility is maintained by certified titanium additive manufacturing. Results -Currently, three clinical cases were successfully operated and show good short-term follow-up results; other are in preparation. These were designed in close collaboration with the surgeon. Personalized case documentation was incorporated, both as booklet and in poster format for intra-operative referencing. Conclusion - A completely personalized process of acetabular implant design features unique restoration in terms of anatomy, stability and mobility.

Abstract number: 26365 THE USE OF A METAL ACETABULAR SHELL WITH A PCU LINER FOR TOTAL HIP RECONSTRUCTION

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A combination prospective and retrospective review has been performed to gather clinical data on the use of polycarbonate-urethane (PCU) as an articulating bearing material inside a cobalt-chrome (Co-Cr) acetabular shell. First implanted in December 2007, this product has now been used in humans in three countries: Germany, Spain, and Italy. As of January 2010, this cobalt-chrome shell and PCU liner has been implanted into 85 total hip patients by 11 surgeons. A total of 47 were prospectively followed and 38 retrospectively followed. The indications for use were in 78 cases of osteoarthritis, 5 cases of femoral neck fracture, 1 case of idiopathic pathology, and 1 revision case. One patient had an occasional squeak and 1 patient died of mesenteric ischemia 1 month after surgery. The follow-up times were as follows: 17 patients at 6 months or less, 47 patients at 12 months, and 21 at 24 months, for an average follow-up time of 14 months. None of the cases has had a dislocation, revision, dislodgement, or infection. A detailed review of the clinical data of these patients shows that PCU liner inserted into a Co-Cr acetabular shell is as safe and effective as other commonly used acetabular shells in other total hip systems currently available. No new or unintended adverse or device related events were discovered with the clinical use of PCU in a Co-Cr acetabular shell.

Abstract number: 26473 ASSESSMENT OF LOW RESOLUTION DIGITAL DETECTORS FOR RADIOSTEREOMETRY

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Radiostereometry (RSA) is an important method for assessing migration and inducible movement of orthopaedic implants. Direct digital imaging offers potential enhancements; however suitable detector choice remains problematic due primarily to either large size or low resolution. A compact detector of similar proportions to hip film cassettes is available; however its resolution is only 160 dpi, which is below that recommended for RSA. We investigated whether with improved marker analysis methods such detectors could measure markers with sufficient precision and accuracy. A phantom was constructed with a reference grid of 1400 spherical 2mm markers arranged in a 10mm spaced grid format. Additionally 25 tantalum markers each of diameter 1.0, 0.8 and 0.5 mm were added within a 40mm square. The phantom was imaged repeatedly with a Cannon CXDI50C detector with small movements between each scan. Marker positions were measured using model based fitting, and registered to the reference grid identifying measurement error.Additionally, RSA image pairs from a hip study were reanalysed at half resolution (150dpi) and compared to the originals. With the phantom, median (max) radial error was 4 (22), 5 (29), and 4 microns for marker diameters 1.0, 0.8 and 0.5mm respectively. For the 56 RSA image pairs, median (95%ile) marker deviation was 2 (9) microns, segment movement 5 (12) microns and 0.01 (0.03) degrees, and rigid body fitting mean error 8 microns. We conclude the application of 160 dpi detectors will not significantly degrade precision when applied to RSA.

Abstract number: 26509 TISSUE ADHESIVE AS AN ADJUVANT TO WOUND CLOSURE IN TOTAL HIP REPLACEMENT

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Background: Post operative in total hip replacement may require repeated change of dressing secondary to wound leak. Using a simple tissue adhesive may help provide an initial seal to the wound improving wound care. Objective: This study sought to assess the use of tissue adhesive on wound closure in hip replacement patients. Methods: Patients undergoing hip replacement were randomly selected to receive either subcuticular monocryl stitch, tissue adhesive and tegaderm dressing (Group I), or subcuticular monocryl stitch and tegaderm dressing only (Group II) for wound closure. Wounds were inspected over the following 5 days and documented how many dressing changes were required. Both groups were assessed using Hollander score and patient satisfaction score at 3 month follow-up. Results: 50 patients participated in this study; 25 received adhesive and 25 received no adhesive. At 5 days post operatively, patients in Group I required minimum dressing change (average 0.22) as compared to patients in Group II a minimum of 2 dressing change (average 3.4). 70% of patients in Group I required no dressing changes as opposed to 20% of patients in Group II. There was no difference in the cosmetic appearance of scars, Hollander scores were similar at an average of 4.5 (range 0-6) in both groups. Patient satisfaction (range 0-10) was higher (score 9) in Group I as opposed to Group II (score 7) (p<.05). None of the patients had wound complications. Conclusions: Tissue adhesive helps reduce post operative dressing changes in total hip replacement.

Abstract number: 26565

INFLUENCE OF THE FIXATION LENGTH ON MICROMOTION OF FEMORAL HIP REVISION IMPLANTS: AN EXPERIMENTAL STUDY

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Revision surgery of femoral hip endoprostheses is on the rise due to decreasing primary implantation ages and current demographic changes. Long term results depend on the level of secondary stability of the implant, which by itself depends on a sufficient primary stability and bony reaction after surgery. Aim of this study was to evaluate the influence of bone defects on micromotions in the bone-implant interface of a modular revision hip stem by means of experiments. Five composite femora (Sawbones, Sweden) were implanted with modular hip revision implants (Restoration Modular, Stryker Orthopaedics, Duisburg) embedded and attached to a servo hydraulic testing machine. A sinusoidal axial cyclic load of 1000 N, oriented according to the information of Bergmann et al., was applied to the implant with a frequency of 1 Hz (R = 0.1). Micromotions were measured by a mechanical testing device with 4 degrees of freedom using LVDTs. Load was applied in 3 x 500 cycles while the relative motion between implant and surrounding bone was measured. Seven reproducible bone defects, three according to the classification of Paprosky and four total bone resections at different heights, were generated successively and micromotions were measured during 3 x 500 cycles for each defect. Observed micromotion kept below the bony integration threshold of 150 µm, while the motion fraction associated to implant migration increased with decreasing fixation length. Even though composite femora offer the opportunity of repeatable and reproducible experiments by means of geometry and bone material, results need validation with human samples.

Abstract number: 26572 TOTAL HIP REPLACEMENT. ADVANTAGES OF THE USE OF FEMORAL STEM WITH MODULAR NECK

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OBJECT: The purpose of this study was to demonstrate the benefits and effectiveness of the use of the femoral stem with modular neck for treatment of hip osteoarthritis. MATERIAL-METHOD: 85 patients suffering hip osteoarthritis treated with total hip replacement. We used the Lineage® (WRIGHT Medical Technology, Arlington, TN) acetabular cup system and the Profemur® E (WRIGHT Medical Technology, Arlington, TN) porous coated femoral stem with modular neck. All operations performed by the same surgical team, technique and approach. RESULTS: All patients followed the same rehabilitation programme. Mean follow up 22 months. Mean Harris hip score 92. 3 patients (3.5%) suffered recurrent dislocations of the total hip replacement due to excess femoral anteversion. Treatment of choice was minimal revision with replacement only of the modular neck with one in 8° of retroversion. CONCLUSION: The use of femoral stem with modular neck approved very effective because, in case of recurrent dislocation of total hip replacement, gives the beneficial opportunity of minimal revision with a modular neck in anteversion/retroversion accordingly that provides stability.

Abstract number: 26598

FIFTEEN YEARS FOLLOW-UP WITH A SHORT PROSTHESIS WITH LATERAL FLARE AND CIRCUMFERENTIAL LOAD DISTRIBUTION

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Implant fixation with a valid periprosthetic bone ingrowth is not the unique requirement for a good result. Periprosthetic bone stock preservation and a physiological transfer of the load are fundamental requirements for the longevity of the implant also in view of apossible future revision. For 15 years we began to use a new type of stemless prosthesis with a well defined lateral flare. This stem was born following the Fetto's, Gallinaro's, studies that showed that, taking in account not only the load stresses on the bone but also the muscular forces, compressive stresses are distributed also in the in lateral part of the proximal femur. Walker confirmed that in an implant with a lateral support all the stress is transmitted proximally, no load is transferred by the stem. This implant with a pronounced lateral flare was realized as a custom made implant the first time in 1995.

In 2005, a standard implant with the same features as Custom Made type, (the Proxima hip) came to be. In this paper we present clinical results obtained by the author on over 500 patients of age varying between 30 and 91 years. Such results have been remarkably good, only two septic revisions where required, no cases of thigh pain ever reported. Radiographic imaging has consistently shown absence of stress shielding and evidence, at one year, of strengthening in progress of the trabecular bone around the implant with better periprosthetic bone stock that is demonstrated also in DXA longitudinal studies.

Abstract number: 26672 MID-TERM STUDY WITH BIOLOX FORTE BEARING COUPLES

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Our experience of a ceramic on ceramic surface bearing combination with noncemented hip prosthesis starts from 2001, number of patients: 37. Retrospective clinical and radiological analyses were performed on 37 patients with femoral SRL (Zweymuller) prosthesis stem in combination with Biolox forte head and press fit Duraloc (DePuy) metal backed acetabular component matched with ceramic Biolox forte insert. Patients age groups 18-30 years (3 pts), 31-40 years (7 pts), 41-50 years (13 pts), 51-60 years (10 pts), 61-70 years (4 pts). Clinical evaluation - Harris hip score pre operation, 1-3 and 4-6 years post operation. Radiological evaluation - AP and LL X-ray early, 1-3 years and 4-6 years post operation. Average Harris hip score result before operation was 40-60 points, 1-3 years after operation 96-98 points, 4-6 years after operaton 94-96 points. No signs of osteolytic changes around the acetabular component in patients groups 1-3 and 4-6 years after operation were found according to Charnley De Lee zones, and the abscence of radiolucent lines is characteristic for prosthesis stems in both patients groups. Combination noncemented hip implant and ceramic on ceramic bearings can be reasonably proposed for younger patients who are looking for minimal restrictions in the quality of life by reducing the number of revisions as far as possible.

Abstract number: 22826 POSTERIOR STABILISED IMPLANTS IN PRIMARY TOTAL KNEE REPLACEMENT

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Introduction: The purpose of this consecutive multicentre prospective case series study was to evaluate the short term clinical, functional, and radiological outcome of a posterior stabilised primary total knee arthroplasty (balanSys® PS, Mathys Ltd Bettlach, Bettlach, Switzerland). Methods: 256 (244 monolateral, n=6 bilateral) consecutive patients were treated for osteoarthritis with a posterior stabilised total knee arthroplasty in 4 centres. The follow-up consisted of clinical as well as radiological evaluations, preoperatively, and at 6 weeks, 6 months, 1 and 2 years postoperative.Results: Follow-up information is until now available for 236 cases. The mean follow-up time was 14.9 months (range 1.3-30.3 months). Most striking with this design was the rapid recovery of the patients : - KSS, preoperative : 110, 3m :150, 6m : 170-Knee score, preoperative : 57, 3m : 86, 6m : 93-VAS pain, VAS satisfaction, preoperative : 3.1, 3m : 7, preoperative : 7.9, 3m : 3, 6m : 1.3-6m : 8 Statistical analysis used the Wilcoxon 2 sided test and the Chi-square-test. As major complications we had to revise two patients for instability. 12 patients showed limited mobility and 1 patient is suspected of a radiological loosening. Conclusion: This type of posterior stabilised total knee prosthesis in combination with the described surgical techniques shows promising radiological and clinical short term results, with a rapid recovery and with an acceptable rate of adverse events.

Abstract number: 22915

INTRAOPERATIVE PLATELET GEL EFFECTS ON POST-SURGICAL COMPLICATIONS FOLLOWING TOTAL KNEE ARTHROPLASTY

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Autologous plasma preparations, commonly referred to as platelet gel, have been reported to have a wide range of benefits, with few reported complications. This retrospective review of consecutive primary total knee arthroplasties compares knee manipulation rates, post surgical range of motion, change in hemoglobin, differences in transfusion rates, and complications between one group receiving a platelet gel preparation (135 cases), and an equivalent group receiving no platelet gel preparation (135 cases). No difference was found between groups in manipulation rates, knee range of motion or changes in hemoglobin (p > 0.05). The data reflects a reduction of wound hematomas requiring surgical evacuation in patients receiving platelet gel. (p = 0.04)

Abstract number: 23147 PATELLAR RESURFACING

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Plastic patella resurfacing has functioned well in most CR and PS designs but there are still some residual problems of suprapatellar soft tissue catching in the intercondylar femoral groove, particularly with PS designs. Overall, short-term problems with both designs are usually associated with inadequate technique the long-term, accumulation of wear particles can cause osteolysis and component loosening. Pearls: Don't Over Stuff PF Joint. Soft tissue balance in flexion and extension. Maintenance of Joint Line Deep Trochlear Groove (R & L) Appropriate sizing and avoid anterior placement of femoral component. Lateralization of femoral and tibial componentMeta-analysis of patella resurfacing 14 Trials: Anterior Knee Pain was significantly higher in non-resurfaced group. Overall Patient Satisfaction was significantly less. Secondary resurfacing for anterior knee pain in 8.7%. Conclusion: All patellae should be replaced!

Abstract number: 23148 PAIN MANAGEMENT AFTER JOINT REPLACEMENT

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INTRODUCTION: Uncontrolled pain after total knee replacement has a deleterious effect on recovery of function, including decreased range of motion (ROM), higher complication rates, and poorer overall outcomes. MATERIALS AND METHODS: From October 1, 2003 through June 30, 2004, 36 patients (52 knees) underwent total knee replacement at our institution with an advanced postoperative pain Preoperatively, all patients received Vioxx, 50 mg; management protocol. Oxycodone, 20 mg; and Coumadin, 5 mg. All patients were given spinal anesthesia. Intraoperatively, a local mixture of Marcaine. 80 mg; Depo-Medtrol, 40 mg; Morphine, 4 mg; Epinephrine, 300 mcg; Zinacef 750 mg; and clonidine, 100 mcg, was injected into the periarticular ligamentous attachments, posterior capsule, and quadriceps Patients were followed with postoperative pain scales, tendon arthrotomy site. patient assessment questionnaires, and monitored for narcotic requirements. RESULTS: During the study period, narcotic pain requirements, manipulation rates, and the need for prolonged physical therapy were significantly reduced compared to historical controls. Recovery of function and ROM were achieved at an earlier period. DISCUSSION: A relationship appears to exist between acute postoperative pain and the development of arthrofibrosis. By controlling acute pain in the critical early postoperative period following TKR (three days), the presented pain management protocol allowed for improved recovery of knee ROM and function with lower rates for manipulation and prolonged rehabilitation.

Abstract number: 23150 CORRECTING VARUS DEFORMITY DURING TOTAL KNEE ARTHROPLASTY: THE "INSIDE-OUT" TECHNIQUE

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INTRODUCTION: In 1979, our senior author described this technique for correcting a flexion contracture during total knee arthroplasty (TKA) by additional resection of the distal femur and posterior capsular release. Our hypothesis is that this technique effectively corrects both deformities, while reducing the complications related to the more traditional techniques. We describe this technique and assess its effectiveness in a series of 31 consecutive patients. TECHNIQUE: Highlights of this technique are as follows: 1. An osseous resections of 10mm from the level of the uninvolved surfaces of the femur and tibia. 2. A transverse release of the contracted posterior capsule is performed with electrocautery at the level of the tibial resection from the posterior margin of the superficial medial collateral ligament (MCL) to the posterolateral corner of the tibia. 3. A controlled lengthening of the superficial MCL by pie-crusting. RESULTS: Over a 12 month span, we have corrected these biplanar deformities in 31 knees without residual instability. There were no residual flexion contractures greater than 5 degrees. The maximum varus corrected was 30 degrees, and the maximum flexion contracture corrected was 20 degrees. The mean coronal plane correction was to 5.5 degrees of valgus (range: 1 to 9 degrees). DISCUSSION: In a series of 31 consecutive patients, this technique was effective in correcting both deformities. We achieved a mean range of motion of 115 degrees, while avoiding elevation of the joint line or instability. While we report good early results, further studies are needed to better evaluate this technique.

Abstract number: 23152 RPF HIGH-FLEXION KNEE DESIGN: SAFETY AND EFFICACY

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Background: Implants designed for enhanced flexion offer the prospect of improved function after total knee replacement (TKR), but there exists little published data regarding the level of function that can realistically be anticipated. Methods: Eightythree patients (100 knees) were prospectively followed for one year after TKR with a rotating-platform posterior-stabilized high-flexion prosthesis. A questionnaire evaluated function in high-demand and high-flexion activities. Knee Society scores were obtained and range-of-motion was measured. Results: Whereas 63% of patients reported no limitation in their ability to perform high-demand activities, 22% reported significant limitation. Twenty percent could neither kneel, nor squat, nor sit on their heels. Mean Knee Society Score was 95 and mean range-of-motion was 125 degrees. Interestingly, function in high flexion did not correlate with knee flexion angle or KSS score. Conclusions: Results two year after total knee replacement with a rotating-platform posterior-stabilized high-flexion prosthesis are encouraging, but 1 in 5 patients remain significantly limited in high demand and high-flexion activities.

Abstract number: 23213 DYNAMIC AND STATIC ANALYSES OF INTERFACIAL STABILITY FOR PATELLOFEMORAL PROSTHESIS-BONE CONSTRUCT

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Introduction: From the viewpoints of minimal bone removal, the patellofemoral arthroplasty is a promising treatment for the patients with only isolated patellofemoral osteoarthritis. For the commercial system, the prosthesis is simply mounted to the resected femur by fixing pin(s) and/or bone cement. Hence, the interfacial stability is one of the major concerns. The current study is aimed to investigating the dynamic behavior and stress distribution of the patellofemoral prosthesis-bone construct. Methods: The 3D knee model with the patellofemoral prosthesis was simulated from flexion 0 to 155 degrees, and verified by femoral rollback, screw home and patellofemoral contact forces. The interfacial contact sites and forces were input into the finite element analyses. The fixing pins, bone cement and preserved bone were parameterized to evaluate the construct stability. Results: Only pin fixation induces the highly concentrated stress around the pricked bone holes. The bone cement quite significantly improves the stability of patellofemoral prosthesis. For the innovative surgery, the bone cavity milled for setup of prosthesis most effectively stabilizes the prosthesis even without cement used. If cement used or bone cavity milled, the pin design plays minor effect on the prosthesis-bone stability. Discussion: For the current patellofemoral surgery, the prosthesis was embedded in the bone resected by a saw and further fixed by pins and cement. However, the use of cement might cause an inflammatory tissue response and complications. By contrast, the structural support from the surrounding bone cavity constrains the prosthesis and serves as the stabilizer for the prosthesis.

Abstract number: 23681 TOTAL KNEE ARTHROPLASTY WITH AND WITHOUT PATELLA IMPLANT. PRELIMINARY RESULTS.

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Introduction: The goals of this study were evaluate the morbidity of this procedure and analyse the clinical and radiologic results of TKR done with or without a patella implant. Methods and materials: We performed a prospective study on a sample of 350 knees diagnosed of tricompartimental osteoarthritis and operated between 2001-2006. The election of replace or not the patella was taken during the surgery, after checking the patella surface and under the surgeon point of view. The clinical evaluation was done on the 3, 6, 12, 24 and 48 months after surgery. The statistical study was done with a p<0, 05 as significance level. Results: 140 Knees (40%) had a patella implant. Both groups were statistically comparable before surgery. There were no differences between the numbers of complications after surgery (12,5% versus 12%). The days of hospital stay (11 days versus 13 days, p= 0,034) and the number of blood transfusions (25,2% versus 29%, p= 0-02) were lower in patients with a patella implant. With an average follow-up of 19,9 months (12-65) no differences in the range of movements (p>0, 05) were shown. Men (25, 2% of the patients) had a better range of movements than women (120 ° versus 100 °, p= 0, 03). Discussion and conclusions: When there is a symptomatic femoro-patellar syndrome, a patella implant should be placed. This fact reduces the risk of suffer chronic knee pain even if the risk of failure, wear off, or damage of the implant increases.

Abstract number: 23952 REPEATED DEBRIDEMENTS AND TWO-STAGE EXCHANGE FOR INFECTED TKA PRODUCED GOOD RESULTS

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Discerning the most appropriate treatment for a given type of infection after TKA is paramount, because this step in the management process will likely define the ultimate outcome. We determined whether the management according to four types of infection after TKA would control infection and maintain functional TKA. We further asked whether multiple debridements and repeated two-stage TKA would further improve the control rate of infection. We also asked whether fixation of TKA prosthesis to host bone would be achieved. We enrolled 114 patients (116 knees) who had infection into our ongoing computerized study that was updated continuously. The minimum followup was 2 years (mean, 5.6 ± 0.92 years; range, 2-8 years). We determined control rate of infection after initial treatment and after repeated debridements and two-stage TKA. We evaluated the functional and radiographic results using KS knee scoring system. The control rate of the infection was 100% for early superficial postoperative infection, 94% for early deep postoperative infection, 96% for late chronic infection, and 86% for acute hematogenous infection. One hundred and nine of 114 patients were able to walk with no or only slight pain and maintained functioning knee prostheses. These 109 patients had stable fixation of the TKA prosthesis to host bone. Our management for infection after TKA controlled infection and maintained functional TKA with firm fixation of the TKA prosthesis for most patients. Repeated debridements and twostage TKA further improved the controlled rate of infection and functional TKA.

Abstract number: 24044 TOURNIQUET USE IN TOTAL KNEE ARTHROPLASTY

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Using intraoperative tourniquet for total knee arthroplasty (TKA) is a common practice. However, its effectiveness is still questionable. We conducted a randomized controlled trial to examine the role of using tourniquet in TKA. Eighty patients were allocated randomly to two groups (with and without tourniquet). TKAs were done without postoperative suction drainage. Blood loss was estimated with hemoglobin and hematocrit levels. We also checked preoperative and postoperative creatinine, GOT, myoglobulin, LDH, ESR, CRP for markers of soft tissue injury. Postoperative thigh pain, knee pain, limb swelling and rehabilitation status were recorded for comparison. The results revealed that hemoglobin and hematocrit levels were higher in tourniquet group in postoperative day 1 and day 2. However, the difference diminished in postoperative day 4. The tourniquet group revealed less operation time and intraoperative blood loss. There were no significant difference regarding soft tissue markers, pain and rehabilitation. We concluded that performing TKA with using tourniquet might reduce blood loss without causing significantly more soft tissue injury. Using tourniquet in TKA is still a good method to reduce blood loss and facilitate surgery.

Abstract number: 24176 THINNING PATELLOPLASTY IN TOTAL KNEE ARTHROPLASTY -PRELIMINARY RESULTS

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Total knee arthroplasty is traditionally performed either with or without patellar resurfacing. Some orthopaedic surgeons believe, however, patellar resurfacing can be avoided even in painful patella if its articular surface is properly thinned and reshaped to glide in the femoral trochlear groove. The aim of our work was to evaluate the results of thinning patelloplasty and compare them with the control group.60 total knee arthroplasties of the same type (Genesis II, Smith & Nephew) were analyzed retrospectively. In the study group (n = 30) thinning patelloplasty was performed by removing entire patellar cartilage through tangential sawing whereby the concave shape of the original patellar facets remained unchanged. Control group (n = 30) consisted of age- and gender matched individuals with the same implanted type of knee endoprosthesis, but no patelloplasty was performed and only excessive osteophytes were removed with a rongeur. In both the study group and the control group the synovium surrounding patella was thoroughly removed and cauterized. Other preoperative, perioperative and postoperative procedures were identical in both groups. There was no significant difference between the study group and the control group in terms of age, gender proportion, body mass index and radiographic index of Insall-Salvati. Clinical status of patients evaluated with the Hospital for Special Surgery Patellar Score showed the trend of less patellar pain in the group with the thinning patelloplasty. In conclusion, preliminary results indicate thinning patelloplasty may represent an alternative for painful patella management in total knee arthroplasty.

Abstract number: 24255 TENSOR-BASED DETERMINATION OF ROTATION OF THE FEMORAL COMPONENT INCREASED RANGE OF MOTION OF POSTERIOR-STABILIZED TOTAL KNEE ARTHROPLASTY

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A series of 170 primary Optetrak posterior-stabilized total knee arthroplasties in 138 patients were studied to examine effects of changes in surgical techniques on clinical results. The average patient age at operation was 72 years and 78% were in female patients. Knee disease etiology was primary osteoarthrosis in 77%. At the time of operation, all the components were cemented. The rotation of the femoral component was 3 degrees in external rotation with reference to the posterior-condylar line initially (Fixed-rotation Group; 99 knees, 58%). Since 2002, the rotation was determined to get a rectangular gap in 90-degree flexion of the knee using a tensor (Tensor-basedrotation Group; 71 knees). The Knee Society knee and patient-function scores improved significantly after surgery in each group. No case developed impending failure requiring revision. Preoperatively, there were no significant differences in the scores between the groups. Postoperatively, range of motion was statistically significantly larger in the Tensor-based-rotation Group than in the other at 3 months, 6 months, 1 year, 2 years, and the latest follow-up (5.6 years in Fixed-rotation Group, 3.5 years in Tensor-based-rotation Group, on average). The knee score was also significantly better in the Tensor-based-rotation Group than in the other at each follow-up. This study clearly demonstrates the benefits of the tensor-based determination of the rotation of the femoral component that can provide a rectangular flexion gap resulting in an increased range of motion of the knee.

Abstract number: 24287 THE INACCURACY OF PROXIMAL TIBIAL ENDOSTEAL REFERENCING IN REVISION TOTAL KNEE REPLACEMENT

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This study investigates the potential for inaccuracies of the proximal tibial cut in performing revision total knee replacement when using endosteal proximal tibial referencing due to the anatomical bowing of the tibia. The electronically stored standardised long leg alignment radiographs taken in the planning process for conversion from primary total or partial knee replacement to stemmed revision knee replacement for 76 knees were analysed. On two separate occasions two independent observers determined the mechanical axis of the tibia and that of the proximal tibia from the mid-point of the tibial plateau to the mid-point of the isthmus. The angle between these axes was measured. The intra-class correlation co-efficient was used to analyse observation variability which was found to be good for intraobserver (0.87) and satisfactory (x) for inter-observer variability. Using the mean observations, the mean difference of proximal tibial endosteal referencing gives a 1.01° (range 0.125 to 3.5) valgus proximal tibial cut. For 13 of the knees (17%) the angle was >1° and for 6 of the knees (8%) the angle was >2°. Whilst not a source of substantial error alone, we recommend obtaining pre-operative long leg alignment films as a standard investigation prior to revision knee replacement.

Abstract number: 24378

THE MODIFIED STATIC SPACERS USING ANTIBIOTIC-IMPREGNATED CEMENT ROD IN TWO-STAGE REVISION FOR INFECTED TOTAL KNEE ARTHROPALSTY. -TECHNICAL NOTE-

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We report a novel two-stage exchange arthroplasty technique using an antibioticimpregnated cement intramedullary rod for the treatment of infections after total knee arthroplasty. An antibiotic-impregnated cement intramedullary rod can be easily prepared during surgery; a 36Fr-diameter straight thoracic catheter and a 3.0mmdiameter, 22cm-length Steinmann pin were prepared for manufacturing the rod. Vancomycin (1g) was then added to the bone cement. At the late liquid stage of the cement, the antibiotic-impregnated cement was poured into the 50cc enema syringe. The Steinmann pin was inserted into the tube, and the prepared cement was delivered through the tube. The tube was rolled gently to straighten the straight rod. After the cement hardened, the tube was removed from the cement rod using a surgical knife. Finally, a 9mm-diameter, 22cm-length cement rod was obtained. The rod was inserted into the femur and tibia. The proximal medullary canal of the tibia was filled with antibiotic-impregnated cement up to the surface of the proximal tibia while proper anatomic alignment and joint space was maintained by the assistant. Then same procedure was then carried out for distal femur. The space between the cement of the distal femur and proximal tibia was filled with more antibioticimpregnated cement. The rod provides additional stability to the knee to maintain the normal mechanical axis. In addition, there is less pain between prosthesis removal and the later reimplantation. Less soft tissue contracture, less scar adhesion, easy removal of cement intramedullary nail and successful infection control are advantages of this technique.

Abstract number: 24424 OUTCOME AFTER KNEE REVISION ARTHROPLASTY USING A ROTATING-HINGED PROSTHESIS: A MINIMUM SIX YEAR FOLLOW-UP

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We evaluate the outcome of the Link Endo-model rotating-hinge total knee arthroplasties used in revision surgery due to aseptic loosening. Between 1991 and 2003, 38 patients (26 females) underwent 42 revision arthroplasties. The mean follow-up was after 8.8 (6-18) years. Complete medical histories and radiographic data were collected for all patients. 15 patients had died and 12 patients declined to participate in clinical follow-up, leaving 13 knees for clinical and radiographic followup. These patients were evaluated according to the Hospital for Special Surgery score (HSSS) and the Knee Society scores (KSS). Radiographic evaluation was performed by standardised radiographs. The mean age at revision surgery was 72 (55-88) years, and most patients had significant medical comorbidities (31 patients). 4 of 42 knees were re-revised due to aseptic loosening, 5 underwent re-revision due to other reasons. The mean HSSS at follow-up was 67 (36-90), the mean KSS-knee was 85 (73-96), and the mean KSS-function was 29 (0-100). Radiographic evaluation showed well-fixed implants without radiolucencies (n=8) or discrete radiolucent lines (n=5), and no implant was deemed to be in need of revision. With revision due to aseptic loosening as the endpoint, 10-year-survival was 89.2%. Knee function was good to satisfactory in a majority of patients, whereas global function scores were impaired. Our results indicate that revision arthroplasty of the knee with the Endomodel rotating-hinge can be performed with good results in an elderly population with a high degree of medical comorbidities.

Abstract number: 24538

POSTERIOR CRUCIATE RETAINING TOTAL KNEE ARTHROPLASTY IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Introduction: In patients with Rheumatoid arthritis (RA) who are candidate of total knee arthroplasty (TKA), we usually face a lot of problem (e.g. soft tissue balance, bone defect and massive joint deformity). Most authors recommend posterior stabilizing TKA. We conducted this study to evaluate the safety of using posterior arthroplasty in patients with cruciate retaining (CR) knee rheumatoid arthritis.Methods: During the last 10 years, 34 consecutive TKA in patients with RA were performed. All knees had cemented components with retention of the posterior cruciate ligament followed in prospective fashion. Assessment was done using knee score, range of motion, stability and patient's ability to climb the stairs. Results: The mean age at surgery was 57 years. The average follow-up was 5.8 years. No revision was carried out up to now. All of the patients were pain free. More than 91% of patients were classified excellent as per the knee score. Conclusion: With regards to knee score, range of motion, stability and patient's ability to climb the stairs, our evaluation proves no preference of CR knee arthroplasty in comparison to cruciate stabilizing type of total knee replacement, which are the treatment of choice; except the more bone stock remains.

Abstract number: 24605 REVISION OF UNICOMPARTMENTAL KNEE ARTHROPLASTIES - ANALYSIS OF PRACTICE FROM A U.K. JOINT REGISTER.

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We present the operative findings of 201 cases of revised Unicompartmental knee replacements from the Trent and Wales Arthroplasty Register from 1990 to 2008. This study demonstrates the common modes of failure, primary and revision arthroplasty systems using age and sex based criteria. Other data includes trends in augmentation and bone grafting at revision surgery. Our study demonstrates a crude revision rate of 14% and average time to revision from Primary to Revison at 4 years in our cohort. The commonest reasons for failure were Aseptic Loosening and Polyethylene. Other findings include a significant difference in average time to revision in male patients in our gender based analysis.

Abstract number: 24607

MULTICENTRE CLINICAL STUDY OF A KNEE ARTHROPLASTY. IS THERE ANY DIFFERENCE RELATED TO PATELLAR SUBSTITUTION?

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INTRODUCTION: A multicentre clinical outcome study evaluating Interax knee arthroplasty (Stryker Orthopaedics) included a regular clinical (HSSscore) and radiological follow-up. The Spanish Interax group was composed by a heterogeneous group of 12 hospitals with different experience in prosthetic surgery. MATERIAL AND METHODS: 1286 knee arthroplasties prospectively studied, 312 with 5 year followup. Group-A: 128 arthroplasties with patella substitution and Group-B 184 without patella substitution. Mean age: 69,2 for Group-A, 66,9 for Group-B, male-female ratio: 17,9/82.1 Group-A and 20.6/79.4 Group-B and preoperative diagnosis of arthrosis (92.8% Group-A and 90.5% Group-B were not statistically different. Chisquare and ANOVA tests were used RESULTS: HSS score improved from 53.5 to 86.4 in Group-A, 50.7 to 85.7 in Group-B. There was significant statistical difference between pre and post-operative scores (p<0.001) in the overall series, however there was no difference between groups, although in Group-A there was a greater increase in the range of mobility (p=0.002).66.5% of Group-A patients and 75% of Group-B with preoperative mild or severe pain on walking report no pain after 5 years. 84.16% of Group-A patients and 85.5% of Group-B with preoperative mild or severe pain at rest report no pain after 5 years. No benefits were obtained in HSS score, postoperative pain at rest or on walking, with the implant of a patella prosthesis. There was an increase in the range of mobility with patella substitution.

Abstract number: 24958 ARTHROSCOPIC DEBRIDEMENT AND CHONDROPLASTY FOR KNEE OSTEOARTHRITIS

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Background: Osteoarthritis (OA) of knee is common disease; however, the treatment with conservative method is occasionally not effective. In terms of surgical method, arthroscopic debridement is one of the most minimum invasive interventions for initial to moderate OA. In this study, we evaluated the clinical outcome of arthroscopic debridement / chondroplasty for knee OA. Materials and Method: Thirty-six patients (9 men, twenty seven women; mean age, 65.5) who suffer from OA of knee underwent arthroscopic debridement / chondroplasty for the surgical treatment due to non-response to conservative therapy, including medication and physical therapy. The mean follow-up period was 8.3 months (3 to18 months) post-operatively. On preoperative radiographic evaluation, 13 knees showed Grade1, 14 knees indicated Grade 2, and 9 were Grade 3 with Kellegren-Lawrence Scale. Clinical outcome was assessed with Japanese Orthopaedic Association Score (JOA score, full mark: 100 points) compared with pre-and post-operative condition, OA grade, and surgical methods (debridement with or without chondroplasty). Results: In total, mean preoperative JOA score (62.6 points) was significantly improved compared with preoperative score (81.5 points) (p<0.001). Regarding OA grade with radiographic assessment, JOA score was improved with significant difference at each grade (p<0.001). No difference was observed in Improvement Rate between OA grades. In terms of surgical method, significant clinical improvement was confirmed in both with or without chondroplasty. Conclusion: Arthroscopic debridement / chondroplasty with minimum invasive intervention was clinically useful for initial to moderate OA knee.

Abstract number: 25127 PREOPERATIVE HYPERGLYCAEMIA ASSOCIATES WITH INCREASED RISK OF INFECTED KNEE REPLACEMENT

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Background: Obesity and diabetes increase the risk of surgical-site infections. Many patients with diabetes, however, do not have proper diagnosis and antihyperglycaemic treatment. In patients with diabetes, poor glycaemic control has been associated with higher risk of postoperative complications. Materials and methods: We analyzed the association between preoperative glucose and deep infection rate in a series of 1,565 primary total knee replacements performed due to osteoarthritis in 2002-2006. Results: During the prospective 1-year follow-up, 15 deep infections (0.96%), defined according to Centres for Disease Control and Prevention, were diagnosed. The infection rate was significantly higher in patients with preoperative glucose >=7.0 mmol/L (126 mg/dL) compared to those with normal glucose (<6.1 mmol/L; 110 mg/dL) preoperatively (2.4% vs. 0.44%, p=0.007). The difference remained significant after adjustment for sex and age (adjusted hazard ratio 4.4, 95% confidence intervals 1.3-14.8). The deep infection rate exceeded 5% in obese patients with preoperative glucose >=7.0 mmol/L. Glycosylated haemoglobin (HbA1c) was measured preoperatively in 381 patients. No infections occurred among patients with normal glycosylated haemoglobin (<6.5%) whereas the deep infection rate was 2.8% (5/176) among those with HbA1c >=6.5%. Conclusions: To us, preoperative screening for hyperglycaemia appears as a feasible way to identify patients with increased risk of deep infection following primary knee replacement. The underlying mechanisms warrant further research.

Abstract number: 25142

MORPHO-FUNCTIONAL CHARACTERISTICS OF OSTEOARTHROSIS AND THEIR CHANGES AFTER ARTHROPLASTY OF KNEE JOINT

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The aim of investigation is to determine the condition of osteo-cartilage structures and function of neurumuscular apparatus of low extremities. 110 patients with III-IV stage have been examined using the method of surface and stimulating electromyography diagnosed radiologically and verified morphologically after endoprosthesis. For histological examination the slides were painted with H&E, and DNA, RNA, glucogen, acid and alkaline phosphatase, S-100 and Ki-67. The decrease of bioelectric activity has been revealed m.vastus lateralis and m.vastus medialis to 55-72% in injured and to 22% in intact extremity. According to EMG the decrease of amplitude H-reflex and M-answers m.soleus has been revealed to 40 and 30% accordingly. On the 14th day after arthoroplasty of the injured joint electromyographic activity has been decreased to 80-85% and its incomplete restoration was observed in 3-6 months. In the operative material studies of the knee joint removed during total endoprosthetis osteoarthrosis III-IV degree was observed histologically. Thus apparent destructive-dystrophic changes were market. Morphometric investigation revealed osteoporosis in the areas less loaded and osteosclerosis in more loaded areas. Thus the mean value of the occupied area of bone trabuculae was 14.98 ± 0.78 % and 56.80 ± 1.50 % accordingly. Proliferative, dystrophic, necrobiotic, sclerotic and inflammatory processes of difert degree evidence and distribution were observed in synovial membranes. The results of the investigation carried out hate been applied in diagnosing the disease and scientifically grounded necessity for joint replacement.

Abstract number: 25382 PERIARTICULAR FRACTURES AFTER TOTAL KNEE REPLACEMENT

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The aims of the investigation included the study of the causes, development of the management, the evaluation of the results of the rehabilitation of the patients with periprosthetic fractures of the femur after total knee replacement. The results of treatment of 9 cases (0.6%) of periprosthetic fractures of the femur after 1568 cases of total knee replacement were studied. All the patients were female aging from 55 to 76. A group of patients with implanted bicondylar no-hinged models was chosen for the investigation. The results 2 to 7 years after the treatment were evaluated according to the Knee Society Clinical Rating System. Periprosthetic fractures occurred at the time of 10 days to 5 years after total knee replacement. In all the cases an evidence of trauma was present. In 5 cases rheumatoid arthritis was present. 4 cases had a femoral notch more than 3 mm. In 1 case total hip replacement of the same leg had been performed. There were no cases with prosthetic instability. An invasive surgical approach was used with open reduction and plating including minimally-invasive implants. In all the cases union was achieved with no axis deformities and an average loss of 10 degrees in the range of motion. The basic causes of periprosthetic fractures of the femur after total knee replacement are the middle age of the patients with concomitant osteoporosis, rheumatoid arthritis, excessive femoral notch. An appropriate invasive surgical approach is indicated in these cases.

Abstract number: 25450

THE EFFECT OF PERI OPERATIVE HIGH VOLUME LOCAL ANAESTHETIC INFILTRATION FOLLOWING PRIMARY TOTAL KNEE REPLACEMENT

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Pain relief after lower limb joint replacement surgery has been a major limiting factor affecting post operative mobilisation and length of hospital stay. Multimodal local wound infiltration with local anaesthetics, adrenaline with non steroidal anti inflammatory agents can, lower the opiate intake, reduce the length of stay and enhance early mobilisation in knee replacement patients. A retrospective review of 15 patients undergoing primary total knee replacement was undertaken. All patients' wounds were infiltrated with ropivacaine, adrenaline and ketorolac by the operating surgeon, intra operatively. Subsequently, a 16 G wound catheter placed into the knee joint. They received two further top up doses of the same combination at 10 hours and 20 hours postoperatively. This group was compared with a control group of 15 patients who did not receive any local infiltration. Both groups were comparable in terms of BMI and ASA grades. Post operative opiate drug consumption in first 48 hours after surgery and length of hospital stay were recorded. There was significant reduction in opiate consumption in the treatment group with an average consumption of 55.53 mg of morphine compared to 81.66 mg in the control group (P=0.02). The length of hospital stay was significantly reduced from 5.53 days in the control group to 4.13 days in the treatment group (P=0.01). Patients infiltrated with the local mobile significantly earlier than those anaesthetic were who were not (P=0.008). There was no major post operative complication in each group

Abstract number: 25508

THE KOREAN TREND IN OVERALL INCIDENCE OF DEEP VEIN THROMBOSIS AFTER TOTAL KNEE ARTHROPLASTY IN RECENT YEARS

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Introduction: Deep vein thrombosis (DVT) is one of the major complications following total knee arthorplasty (TKA). Among the past studies, the incidence of DVT after orthopaedic surgery was lower in Asian peoples than in Western ones. But we assumed that the incidence of DVT in Korean patients not receiving pharmaceutical prophylaxis after TKA show increasing tendency as westernizing the dietary patterns and the lifestyle. A prospective consecutive clinical study was performed to investigate the incidence of DVT after TKA in Korean patients. Materials and Methods: The study group included 312 knees (229 patients) of primary TKA conducted by a single surgeon from September 2007 to May 2010. All the patients did not receive pharmacological thromboprophylaxis. The etiology was limited to primary osteoarthritis. All of them received Doppler sonography and measurement of plasma D-dimer level preoperatively and on postoperative day 6. Variables were collected and the relationships between the development of DVT were evaluated by statistical analysis. Results: Preoperatively, the incidental detection of DVT was found in 14 cases (4.49%). Eight cases (57.14%) were persisted throughout the postoperative period. Postoperatively, DVT was found in 80 knees (25.64%). There were 9 cases (2.88%) of proximal DVT and 71 cases (22.76%) of distal DVT. The mean of preoperative D-dimer levels of DVT-free patients and DVT documented patients were 0.693 µg/ml and 0.669 µg/ml, respectively. The mean of postoperative D-dimer levels were 4.045 µg/ml and 5.445 µg/ml, respectively. Postoperative Ddimer level (p=0.001) and BMI (p=0.048) had statistically significant correlation with DVT, but age, gender, tourniquet time and preoperative D-dimer level had not. In ROC curve, the postoperative D-dimer level did not reveal the usefulness of the screening. Conclusion: Our study showed the increasing tendency of DVT after TKA in Korean patients. From now on, we might be concerned about the development of DVT after TKA, and we might be also considering the use the pharmacological thromboprophylaxis. Key Words: deep vein thrombosis, total knee arthroplasty, incidence, Korean

Abstract number: 25515 FUNCTIONAL OUTCOME IN POSTERIOR STABILIZED HI-FLEX VS STANDARD TKR

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Aims of the study: a) To compare the functional outcomes in patients with highflexion and standard posterior stabilized total knee replacement. b) To compare our results with previous published literature. Materials & methods: We studied thirty knees that had a total knee arthroplasty with a high-flexion design and thirty that had a total knee arthroplasty with a standard design over a period of 3yrs between January 2005 to December 2007 at HOSMAT hospital, Bangalore, and were followed prospectively for a minimum of two years. The arc of maximal non-weight-bearing passive flexion was measured. In addition, the functional outcomes in these two groups were assessed with use of the Hospital for Special Surgery and WOMAC Score system. Results: At the time of the final follow-up, the average maximal nonweight-bearing flexion was 129.3* for the knees in the high-flexion group and 130.3* for the knees in the standard group; the difference was not significant. The average Hospital for Special Surgery knee score was 94.4 points in the high-flexion group and 92.4 points in the standard group; the difference was not significant. The Western Ontario and McMaster Universities Osteoarthritis Index scores also showed no significant difference between the groups. Conclusions: For knees managed with a posterior stabilized total knee arthroplasty, those that had the high-flexion design and those that had the standard design were found to have a similar range of motion. Moreover, no significant difference was found in terms of the other functional outcomes examined.

Abstract number: 25614 POST-SURGICAL PAIN AFTER KNEE ARTHROPLASTY IN RELATION TO PREOPERATIVE PAIN

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The relief of pain and the restoration of functional activities are the main outcomes of primary total knee arthroplasty (TKA) for the treatment of osteoarthritis. Most arthroplasty outcome measures do not take postoperative pain into account. To document if the prospective pain experience following TKA correlates with subjective pain-specific questionnaires for preoperative and postoperative pain and is predictive for long-term pain outcomes.30 patients with a primary diagnosis of osteoarthritis of the knee, who were scheduled to undergo TKA, were asked to fill out the McGill Pain Questionnaire (MPQ) preoperatively and at three, 6 and 12 months follow-up. The overall response rate (return of completed questionnaires) was 80%. There was a significant decrease in the MPQ scores (P<0.05) postoperatively. Our predictive analyses demonstrated that initial pain, as measured by the MPQ, predicted which patients had a worse pain outcome after 24 months. The major clinical implication of this study is that a preoperative self-administered questionnaire may help identify a group of "high-risk" patients for persistent pain after TKA. MPQ scores were shown to predict chronic postoperative pain. This may enable the identification of knee arthroplasty patients at risk for persistent postoperative pain, thus allowing for efficient administration of perioperative pain relief to improve arthroplasty outcomes.

Abstract number: 25616 EARLY DISCHARGE AFTER UNICONDYLAR KNEE REPLACEMENT: A DISTRICT GENERAL HOSPITAL EXPERIENCE IN A RURAL SETTING

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A retrospective analysis of the patients operated at a district general hospital in a rural setting in order to identify a cohort of patients that might be suitable for early discharge after a unicondylar knee replacement. All patients underwent Unicondylar knee replacement using the same implant (Oxford phase 3). Thirty patients' records were analysed with respect to the following factors - co-morbidities, pre-operative mobility, type of anaesthesia (general/general with femoral/sciatic nerve block, spinal anaesthesia using opioids/spinal anaesthesia using fentanyl) and post operative analgesia. We then separated the patients who were discharged on first postoperative day (early discharge) from those whose discharge was delayed. All patients who received a femoral/sciatic nerve block had a delayed discharge (average 3.1 days) due to poor quadriceps control and inability to progress with physiotherapy. All patients who had received a spinal anaesthetic with fentanyl were discharged on the first postoperative day but patients who received spinal anaesthetic with opioid stayed in hospital for an average 3.2 days because they had urinary or bowel retention or due to the systemic effects of the opioids. The average stay for patients with general anaesthetic only was 2.5 days. Also, patients having minimal comorbidities and good preoperative mobility stayed in hospital for average 1.8 days, compared to 4.3 days with significant comorbidities and poor mobility. Therefore appropriate screening of patients before admission along with appropriate anaesthesia and adequate postoperative analgesia can be used to achieve early discharge of patients with UKR.

Abstract number: 25622 TOURNIQUET OR NO TOURNIQUET IN TOTAL KNEE REPLACEMENT SURGERY - A RETROSPECTIVE STUDY INVOLVING 50 PATIENTS

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The traditional use of pneumatic tourniquets in TKR has recently been challenged and certain advantages including lower vascular complications, rapid rehabilitation, decreased postoperative pain and reduced wound complications reported. We conducted a retrospective study of 50 patients with 25 patients in each group who underwent total knee replacement by a single surgeon using the same implant in all patients to ascertain if the patients in the no tourniquet group fared better than their counterparts in the tourniquet group. The parameters recorded were- surgical time, blood loss, homologous blood transfusion requirements, time to SLR, time to flex to 90 degrees, postoperative analgesic use, DVT/vascular complications, wound problems and the length of in hospital stay. Both the groups were well matched for age, sex and preoperative haemoglobin levels. There was no significant difference between the two groups with regard to operating time or total blood loss, blood transfusion requirements and total length of hospital stay, but postoperative pain, wound complications and the incidence of DVT was lower in the no tourniquet group. Also the patients in the no tourniquet group achieved knee flexion and active straight leg raise guicker but at six weeks this difference was negligible and not significant in both groups. We thus conclude that both techniques are safe and it is the surgeon's choice as to which one they feel comfortable with, although it would be beneficial if the surgeon knows both techniques so that they can tailor the surgery to suit the patient.
Abstract number: 25630 CLINICAL RESULTS OF CUSTOM MADE CUTTING GUIDES IN TOTAL KNEE REPLACEMENT

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Current techniques used for total knee arthroplasty rely on conventional instrumentation that violates the intramedullary canals. Accuracy of the instrumentation is questionable, and assembly and disposal of the numerous pieces is time consuming. Navigation techniques are more accurate, but their broad application is limited by cost and complexity. An experimental trial of a new concept of computer-assisted preoperative planning to provide custom made cutting guides that can replace conventional instruments was previously published by the author. This paper is reporting the clinical results of this technique Computed tomography-based planning was used to design two virtual templates. Using rapid prototyping technology, virtual templates were transferred into physical templates (cutting blocks) with surfaces that matched the distal femur and proximal tibia. Straightforward and complex cases of TKR were done using the new technique. The technique was proved useful for cases with extrarticular deformity. Operations were performed using patient cutting guides with no conventional instrumentation, intramedullary perforation, tracking, or registration.

Abstract number: 25658 MIDTERM RESULTS AFTER POSTERIOR-STABILISED NEXGEN TOTAL KNEE ARTHROPLASTY

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Purpose: To retrospectively evaluate the midterm results after total knee replacement using NexGen posterior-stabilised prosthesis. Material and method: Between January 2004 - June 2005 we had performed 63 total knee arthroplasties in 47 patients (29 females and 18 males), with the mean age 62.3 years (range 51-76), followed a mean period of 61 months (range 48-72). In all cases the implants were cemented and the patella was resurfaced. The evaluation was performed according to the Knee Society Score, Functional and Roentgenographic Scoring Systems. Results: The mean preoperative Knee Society Score was 49 points compared with 93 points at latest follow-up. The mean postoperative maximum flexion was 120 degrees (range 110-130). There were no cases of patellar clunk, symptomatic patellar maltracking or posterior dislocation. There was no radiographic evidence of loosening or osteolysis and no revisions were performed or recommended for loosening, osteolysis, instability or polythyene wear. Complications included one knee with a late infection that required revision. Conclusion: The overall midterm results from using this implant were good and support the ongoing use of this design. However long-term studies will be required to confirm the durability of the implant.

Abstract number: 26007 COMPARISON OF OUTCOME BETWEEN THREE DIFFERENT TECHNIQUES OF TOTAL KNEE ARTHROPLASTY

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With increasing patient awareness about various techniques of TKA and specific demands for particular procedure, surgeons today face the challenge of being versed with all the techniques of TKA. The purpose of this study is to compare the clinical and radiologic outcome with three different techniques of TKA. One hundred fifty consecutive TKAs were randomly divided into three groups and operated by a single surgeon using conventional method, MIS technique and navigation assisted surgery. Results were evaluated according to KSKS. Mean mechanical axis was significantly different between three groups (p=0.014) and navigation-assisted surgery providing more accurate alignment as compared to MIS (p value=0.014). Conclusion: Navigation assisted surgery gives best prosthesis alignment. Alignment is less predictable with MIS technique, so extra caution should be exercised while attempting MIS.

Abstract number: 26015 REVISION KNEE ARTHROPLASTY: INDICATIONS AND EARLY COMPLICATIONS

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The number of revision knee arthroplasties is expected to increase as the indications for total knee replacement broaden and the average life expectancy increases. The aim of this study was to analyze both indications and early postoperative complications of patients operated with revision TKAs (constrained condylar and rotating hinge). Methods: We reviewed all medical journals of patients with revision TKAs operated at the Karolinska University Hospital during 2004-2008. We extracted all data concerning surgery and early postoperative complications (<6 m). Results: We could identify 79 cases (55 women, 71%) operated with a revision TKA (De Puy/Stryker TC3/TS [n=57] and S-ROM [n=22]). The median age at surgery was 69 (39-88) years. In 47 cases (59%) a primary TKA was mainly revised due to aseptic loosening or malalignment. In 32 (41%) cases the revision TKA was used as a primary TKA. We could identify the following complications: deep early infection (n 4, 2 were revised surgically), peroneal nerve palsy (n 3), maltracking of the patella (n 5) and one peroperative fracture. Discussion: As expected, revision TKAs were predominately used for failures of TKAs needing a reoperation. However, a significant amount was found in patients undergoing primary knee surgery. This may reflect a selection of patients with a severe instability or deformity at a University Hospital. It could also be a widening of the indications. The early deep infection rate was relatively low, 5%, compared to earlier published studies.

Abstract number: 26146

VALGUM DEFORMITY OSTEOARTHRITIS: PRIMARY TOTAL KNEE ARTHROPLASTY OR REVISION KNEE ARTHROPLASTY?

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INTRODUCTION: The aim of this study is to assess what is the situation of those patients who received a primary total knee arthroplasty or a revision knee arthroplasty due to an arthritic genu valgum. MATERIAL & METHODS: We performed a prospective study of 20 TKA and 20 revision knee arthroplasties implanted as a result of arthritis with genu valgum, between 1997 and 2006, with a median follow up of 7.5 years (range 12-4). We analyzed the survival of the implants, the radiological situation prior to implant placement and during the follow up, functional score using KSS and quality of life using the SF12 questionnaire. RESULTS: Twenty TKA (18F; 2M) and twenty revision arthroplasties (17F; 2M) were implanted in patients with a mean age of 72.24 and 72.55 respectively. One revision arthroplasty was removed because of an infection. The mean score on the SF12 was 22 points for the primary and 20 for review. The correction of genu valgum achieved with the revision arthroplasty was higher than that achieved if primary arthroplasty was implanted. There were not varus or valgum deformities neither medial-lateral instability in the physical examination of the primary arthroplasties. DISCUSSION: Implantation of a primary TKA in patients with genu valgum is a procedure that achieves good results and gets a good degree of patient satisfaction. Implantation of a revision arthroplasty is justified in cases of very marked genu valgum, although a more aggressive procedure with more bone resection, it gets equally satisfactory results.

Abstract number: 26228 THE COMMON PERONEAL NERVE - CADAVERIC MAPPING AND INJURY RISK DURING KNEE SURGERY

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Introduction: Common peroneal nerve (CPN) injury is reported in association with tourniquet use and intra-operative techniques during total knee arthroplasty (TKA). Isolated extensor hallucis longus (EHL) palsy has not been described in this scenario. In the leg, the deep peroneal nerve (DPN) supplies muscular branches to tibialis anterior (TA), extensor digitorum longus (EDL), peroneus tertius (PT), EHL and articular branches to the ankle. The precise divisions, relations to the knee joint and motor end-points are unknown. We highlight 2 cases of isolated EHL palsy post-TKA and define a map of the DPN. Methods: Two cases of isolated EHL palsy were confirmed clinically with electromyography. Case notes were analysed. 26 cadavers were subsequently dissected to determine the anatomy of the DPN and relations to skeletal landmarks. Results: The DPN originates at the CPN bifurcation between the fibula and upper peroneus longus passing infero-medially, deep to EDL, close to the anterior surface of the interosseous membrane and anterior tibial artery. Multiple motor end points to TA were observed. The majority of nerves to EDL, PT and EHL had single motor end points. The nerve to EHL arose as close as 2.7 cm from the tip of the fibula head (2.7-8.3 cm). Discussion: The nerve to EHL is at potential risk during intra-operative manoeuvers during TKA. Neuropraxia-type traction injuries are described. The DPN and proximal branches to TA are also at risk but benefit from tendinous cover and multiple motor end points respectively.

Abstract number: 26248

AN 11-YEAR FOLLOW-UP OF MILLER-GALANTE (MG) II PROSTHESIS IN PRIMARY TOTAL KNEE ARTHROPLASTY

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Objective: We report the long-term results of MGII prosthesis in primary total knee Arthroplasty. Subjects and Methods: A hundred and ninety-eight TKA were performed between 1993 and 1997. Thirty-eight knees in 28 patients could be followed up for more than 10 years. The mean ages at the surgery were 68 years (53 to 78 years). The mean follow-up periods were 11 years and 6 months (10 to 14 years). For clinical evaluation, range of motion and the Knee Society rating score were used. For radiographic evaluation the Knee Society radiographic evaluation system was used. In order to assess the fixation of the prosthesis, the width of clear zone were measured. Results: No revision surgery was required during follow-up period. The ranges of motion were 99 degrees before the surgery and 95 degrees at the final observation. The Knee Society rating score improved from 46 points to 66 points. The position of the implant was maintained at the final follow-up. A radiolucent line was seen in 29.0% knees. Discussion: MGI prosthesis experienced a revision surgery in many patients, because of wearing of the dome-shaped metal-backed patella. The shape of the patellar fossa has been improved to increase the congruency of the patello-femoral joint. Additionally, conformed and all-polyethylene patellar components have been introduced to achieve the long-term durability of MGII prosthesis. Conclusion: Eleven-year results of MGII prostheses were clinically favorable.

Abstract number: 26307 RELATIONSHIP BETWEEN MECHANICAL AXIS OF THE TIBIAL COMPONENT OF KNEE REPLACEMENT WITH ANATOMICAL AXIS OF TIBIA

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Aim: Study the relationship between the mechanical axis of the tibial component of knee replacement prosthesis with the central anatomical axis of the tibia at the apex of the component stem and ankle joint. Method: 32 standardised long leg radiographs of patients with knee replacement are reviewed. Central mechanical axis of the stem of the tibial component is derived by joining four separate central points across the stem. Deviation of this axis from the anatomical centre of the tibia at the level of the apex of the tibial stem is measured. Central mechanical axis of tibial component stem is extended distally to measure its deviation from anatomical centre of the ankle joint. Results: The mean distance between central mechanical axis of tibial stem and anatomical centre of proximal tibia at the level of apex of the tibial stem is 3.21mm. Mean distance between the central mechanical axis of the tibial component stem extended distally with the anatomical centre of ankle joint is 13.29mm. Conclusion: The central mechanical axis of the tibial stem does not always correspond to the anatomical centre of the proximal tibia and ankle joint. Such deviations of mechanical axis can lead to early polyethylene wear and instability. Clinical evaluation with follow up is recommended with a larger group of patients to investigate the bearing of this relationship for survival of prosthesis and revision of knee replacements. A long leg radiograph should be done routinely after knee replacement to demonstrate the relationship during early follow up.

Abstract number: 26378 DOES A NEW KNEE DESIGN PERFORM AS WELL AS THE DESIGN IT REPLACES?

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Introduction: When introducing new joint replacement designs, it is difficult to predict the clinical performance of the new design. Roentgen stereophotogrammetric analysis (RSA) can serve as a predictor of late mechanical loosening for prostheses. This randomized study was designed to evaluate new Triathlon total knee system and compare the results to its predecessor, the Duracon system. Methods: Sixty patients were consecutively randomized to receive either the Duracon (30 patients) or the Triathlon total knee (30 patients). All components were cemented posterior Cruciate Retaining versions. There were no statistically differences between the patient demographics for the two groups (sex, age, BMI, side), neither the time for surgery nor the anesthesiologic class (ASA) The hospital stay were 5 days. The patients were followed postoperatively, 3, 12 and 24 months postoperatively. The principal evaluation tool was RSA, measuring the migration, and the clinical results were evaluated by KOOS and KSS. Results: There were no differences in rotation or translation for the three coordinal axes. Neither were there any differences in the Maximal Total Point Motion (MTPM) during the 2-years follow-up. The MTPM was 0.8.±5 vs 0.6±0.7 mm at 2 yr for the Duracon respectively the Triathlon groups. There were no differences in the clinical results between the groups when using the KSS and the KOOS. Discussion: The results of this study suggest that the new Triathlon total knee system is at least clinically equivalent to the Duracon system.

Abstract number: 26444

ANALYSIS OF FUNCTIONAL OUTCOME OF KNEES WITH ROTATING PLATFORM MOBILE BEARING VERSUS POSTERIOR STABILIZED FIXED BEARING PROSTHESES

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Full flexion of knee is a critical performance requirement for patients in Asia, Middle East and increasingly for patients in Europe and North America. Range of motion after Total Knee Arthroplasty is an important component of a patient's overall functional outcome. We conducted a randomised prospective study to compare the clinical and radiological results of posterior-stabilised fixed-bearing and rotatingplatform prostheses operated by a single surgeon. Thirty consecutive patients undergoing primary, unilateral knee replacement for osteoarthritis were randomly assigned to receive either a fixed-bearing (14 patients) or rotating-platform (16 patients) prosthesis. The mean follow-up period was 33.5 months, with a minimum follow-up of one year. The Knee Society knee scores, pain scores, functional scores and Oxford knee scores were not statistically different (p>0.05) between the two groups. The mean postoperative range-of-motion of mobile-bearing knees was significantly greater than that of fixed-bearing knees (127.6 degrees versus 110.5 degrees, p=0.016). The radiological analysis found no statistical difference in the alignment of the knee, position of femoral and tibial components and position of joint line between the two groups. Osteolysis was not seen in any knee in either group. There was no bearing instability or spin-out in the rotating platform prostheses group. The use of mobile-bearings in Total Knee Arthroplasty may lead to improvement in the knee performance by simulating more closely normal knee kinematics. It may increase the longevity of implants by reducing the polyethylene wear and periprosthetic osteolysis.

Abstract number: 26523 TIBIALIS ANTERIOR TENDON. DOES IT TRULY REPRESENT THE CENTRE OF ANKLE? AN ANATOMICAL STUDY BASED ON 100 ANKLE MRI SCANS

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The tibialis anterior tendon is useful landmark to locate ankle centre during total knee replacement for verifying the perpendicularity of the tibial cut in coronal plane (when extramedullary jigs are used). It represents the distal point on the mechanical axis. It remains a reliable marker due to its predictable course which is well stabilized by the extensor retinaculum. Despite its clinical use and widespread acceptance there is little in the literature as a proof of its reliability. We present our study of 100 MRI scans of the ankle joint to determine the position of tibialis anterior tendon in relation to centre of the ankle joint in coronal plane. We examined sagital and transverse cuts of the ankle. Our results indicate that the lateral edge of tibialis anterior tendon lies on an average 1.72 mms (range 1.64 to 1.85 mms) medial to the centre of the ankle joint on the paramedial sagital cut 3mm medial from the central section (first medial sagital cut from the central section in a standard MRI protocol) in all 100 scans. We thus conclude that a point about 1.7 to 3mm lateral to the tibialis anterior tendon represents the centre of the ankle joint.

Abstract number: 26574

SEVERE PERSISTENT SYNOVITIS AFTER COBALT - CHROMIUM TOTAL KNEE REPLACEMENT REQUIRING REVISION SURGERY

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Implant related hypersensitivity is an infrequent complication after total knee replacement. It remains a relatively unpredictable and poorly understood cause of failure of an implant. We present a report of five patients who presented with persistent hypertrophic synovitis after total knee replacement using a cobalt chrome component. Extensive preoperative and intraoperative attempts ruled out infection as a cause of symptoms. The knees had good ligamentous balance and were well aligned and fixed. The clinical condition improved after revision to a zirconium femoral and titanium metal backed tibial components. Intraoperative histopathology revealed thickened synovium with a predominantly monocellular (lymphocytic or histiocytic) response. Where infection and instability have been excluded as a cause of persistent pain and swelling, consideration should be given to metal allergy as a cause of failure in primary knee replacement surgery.

Abstract number: 23303 KINEMATIC AND CLINICAL EVALUATION OF SHOULDER FUNCTION AFTER A REVERSE SHOULDER PROSTHESIS

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INTRODUCTION: Generally results of the Reverse Shoulder Prosthesis are very satisfying. However, active ROM is often compromised. Aim of this study: perform a kinematic and clinical analysis of the Reverse prosthesis to provide more precise information on its glenohumeral motion pattern. METHODS: During three active ROM tasks, motion patterns of 31 patients (35 shoulders) with a reverse prosthesis (19 primary and 16 revision) were measured. Average age: 71 years (58-85). Average follow-up: 23 months (4-63). We used a six degree-of-freedom electromagnetic tracking device recording 3D kinematic data in a non-invasive, precise way (Flock of Birds method), differentiating between glenohumeral and scapulothoracic motion. These data where correlated to obtained Constant score, SST, DASH-score, integrity of m.teres minor and acromial-prosthetic distance. RESULTS: Constant score improved from 24 (5-47) to 50 points (8-87) (p<0,001). Primary placed prosthesis versus revision case showed a better active glenohumeral forward flexion in the scapular plane (64° vs 46°) (p<0,013), sagittal plane (71° vs 53°) (p<0,025) and active external rotation (32° vs 13°) (p<0,013). No significant correlation between acromial-prosthetic distance and active forward flexion was found. Five cases with a deficient m.teres minor showed no significant decrease of external rotation. Postoperative DASH score was 43.9 points (1.7-84.2), SST 7 points (0-13). Ten complications: 5 dislocations, 1 infection, 1 haematoma, 1 acromial fracture and 2 component loosenings. CONCLUSION: The glenohumeral motion is significantly better in primary cases. We found no correlating parameters to explain this difference.

Abstract number: 25576

HUMERAL HEAD ANTERO-POSTERIOR SUBLUXATION ON CT SCAN: VALIDATION AND COMPARISON OF 2 METHODS OF MEASUREMENT Fanny CANET¹, Dominique ROULEAU¹, Jacob KIDDER², Juan PONS DE VILLANEUVA³, Savvas DYNAMIDIS⁴, Michael DEFRANCO⁵, Gilles WALCH⁶ ¹Hopital du Sacre-Coeur de Montreal, Montreal (CANADA), ²The Orthopaedic Group, Mobile (UNITED STATES), ³Orthopaedic Surgery and Traumatology, Pamplona (SPAIN), ⁴Clinica Ortopedica, Genoa (ITALY), ⁵Department of Orthopaedic Surgery Lenox Hill Hospital, New york (UNITED STATES), ⁶Centre Orthopaedique Santy, Hopital Prive Jean Mermoz, Lyon (FRANCE)

Purpose: Humeral head static antero-posterior translation is important information in the evaluation of osteo-arthritis, congenital deformity and instability. Two different methods were used and compared in terms of absolute difference and reliability. Methods: 115 patients with shoulder CT-scans were selected. The first method, scapula method (SM), uses the scapula axis as a reference line. The second method, mediatrice method (MM), used the mediatrice line, drawn as a perpendicular line to glenoid joint surface passing in its middle. Results: The humeral head subluxation was from 37% to 119% when the scapula method (SM) was used and from 29% to 92% when the mediatrice method (MM) was used. For all three evaluators there was a significant difference between the mean obtained by each method, with the mediatrice method always reporting smaller percentages: 73.5% (SD 15.1%) vs 59.7% (SD 11.2%) p<0.001. The intra observer reliability (consistency) was very good or excellent using SM (ICC: 0.921, 0.841 and 0.912) and good to very good with MM (ICC 0.794, 0.796, 0.704). The inter observer reliability (agreement) was very good for SS (ICC: 0.822 CI 95%: 0.703 to 0.889) and good for MM (ICC: 0.733 CI 95%: 0.654-0.799). Conclusion: Both methods showed significant difference in assessing humeral head subluxation. The method using the scapula axis as reference line seems to be more reliable.

Abstract number: 25610

INTERNATIONAL MULTICENTRIC FRENCH TRANSLATION AND VALIDATION OF WESTERN ONTARIO SHOULDER INSTABILITY INDEX (WOSI)

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Purpose: Following systematic review and psychometric characteristics comparisons, WOSI was identified as being superior over all existing shoulder instability selfassessment scores. The purpose of this study is to translate and validate an existing questionnaire related to shoulder instability; the Western Ontario Shoulder Instability Index (WOSI) in a French version for patients from Quebec and France. Methods: A standardized process for cross-cultural adaptation to develop and assess the French-Canadian version was followed in two steps: the translation, and the validation of the new French version. First, the WOSI was independently forward translated into two French versions. The translators then met to achieve a consensus version. This consolidated version was then back translated into English and cross-verified with the original version. We then submitted this version to our French co-authors and an acceptable version for both populations was elaborated Results: We were able to obtain a French version adapted for patients from Quebec and France. Conclusion: The WOSI_Fr was successfully translated from the original English version. A reliability and validation process needs to be undertaken.

Abstract number: 25728 SHOULDER REPLACEMENT: MID-TERM RESULTS

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Shoulder replacement is performed more and more frequently. The technique is demanding and results are good when proper indications and contraindications are used in every single case. Our aim was to evaluate the mid-term clinical outcomes after shoulder replacement. Material and methods: Eight shoulder hemiarthroplasties in seven patients with comminuted proximal humeral fracture-dislocations and in one patient with a pathological fracture of the proximal humerus, as well as four total shoulder replacements in three patients with rheumatoid arthritis were performed. Specially developed rehabilitation program was started after the 10-th postoperative day. Results: Patients were followed-up clinically and radiographically for 6 to 60 months (mean 30 months). The clinical outcome was assessed using the Constant-Murley scoring system and DASH questionnaire. Ten patients had good or excellent clinical result. Two patients had satisfactory functional outcome because of inadequate rehabilitation due to lack of compliance from the patients. Discussion and conclusions: Restoring the anatomy of the shoulder with humeral arthroplasty yielded favourable clinical outcome. The technique is beneficial for carefully selected patients.

Abstract number: 25444

ORAL VERSUS INJECTABLE ANTI-COAGULATION: A SURVEY OF PATIENT PERCEPTION FOLLOWING TOTAL HIP AND KNEE ARTHROPLASTY

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Background: The UK National Institute for Clinical Excellence (NICE) has recommended the use of the new oral anticoagulant Xarelto® (rivaroxaban) over injectable low molecular weight heparin (LMWH) in adults undergoing elective hip or knee arthroplasty surgery. Aim: To assess patients' perception of use of oral anticoagulation versus injectable LMWH therapy after hip and knee arthroplasty. Materials And Methods: A survey was conducted between August 2009 and November 2009 of 50 patients (age range, 35 - 84 years, mean 65 years) receiving injectable LMWH for VTE prophylaxis after total hip and knee replacement surgery. The survey focused on preference, compliance, efficacy and safetyResults: A significantly larger proportion preferred tablet prophylaxis to injections postoperatively (68% Vs 26%). Older patients preferred tablets while younger patients preferred injections (mean age 66.7 yrs vs. 61.7 yrs). Of the patients who preferred injection prophylaxis, perceived compliance with tablet prophylaxis was less likely than injections (38.46% Vs 53.85 %). In those favouring tablet prophylaxis, a significantly greater number of patients felt they would be compliant (82% vs. 18%), despite these same patients perceiving injections as more clinically efficacious than tablets (67.65% vs. 14.70%). Perception on safety between both methods was similar. Conclusion: Our sample preferred oral anticoagulation following arthroplasty surgery. However patients should be given an informed choice of anticoagulation as differences in age and preference may affect compliance

Abstract number: 25484 WHEN TO RETURN TO DRIVING FOLLOWING LOWER LIMB ARTHROPLASTY. WHO IS RESPONSIBLE FOR MAKING THE DECISION?

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Introduction: Many patients wish to return to driving following lower limb arthroplasty. However, it is unclear who is responsible for making the decision when they are fit to return to driving following such surgery as no British Orthopaedic Association (BOA), British Hip Society (BHS) or British Association of Surgery of the Knee (BASK) guidelines exist. We investigated whether insurance companies or the driver and vehicle licensing agency (DVLA) provided protocols and guidelines regarding returning to driving following hip (THR) and knee (TKR) arthroplasty. Methods: A telephone survey of 18 national and international insurances companies was conducted using 6 questions concerning different aspects of surgery and driving. We also contacted the DVLA to inquire as to whether or not they had any recommendations. Results: 18 companies (100%) had a procedure. 16 (89%) suggested following the surgeon's advice. 2 companies (11%) recommended the patient inform the DVLA and follow the surgeon's advice. None (0%) differentiated between THR and TKR, automatic or manual gearbox and left or right lower limb. None could provide evidence of what their respective policies were based upon. The DVLA stated that THR and TKR are not notifiable conditions and therefore recommend patients follow their surgeon's advice. Conclusions: The surgeon is ultimately responsible for the recommendation of when a patient is fit to return to driving following THR and TKR. This finding may encourage learned societies such as the BOA, BHS and BASK to introduce guidelines to aid the surgeon advising their patients following such surgery.

Abstract number: 26295

THE GRADE OF RADIOLOGICAL CHANGES AND HISTOLOGICAL INFLAMMATION DOES NOT PREDICT OUTCOME AFTER TOTAL KNEE REPLACEMENT FOR OSTEOARTHRITIS

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We investigated the relationship between radiological and inflammatory changes on one hand and osteoarthritic pain and pain thresholds on the other. In 69 patients scheduled for total knee arthroplasty (TKA) preoperative radiographs and histological samples of the synovial membrane were graded for severity of osteoarthritic and inflammatory changes. Preoperative pain at rest and with movement as well as the pain threshold to electrical stimulus was assessed preoperatively and 18 months postoperatively. Our analysis indicates that the grade of radiological or histological changes in osteoarthritis is poorly related to pain and outcome and therefore of limited value for the selection of patients for TKA. Presumably pain before and after TKA in osteoarthritis is determined by mechanisms unrelated to local morphological changes.

Abstract number: 26506 PERIOPERATIVE MANAGEMENT OF JOINT REPLACEMENT: WHAT WE DO DIFFERENTLY TEN YEARS LATER?

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Introduction: The purpose of this retrospective study is to compare patients operated at Tartu University Hospital with primary arthroplasty of hip or knee from years 1995 and 2005, with special interest of perioperative management. Results: The numbers of files reviewed were 98 and 871 patients, respectively. Average ages of studied populations were 63±7.2 and 67.2±10.2. 61.4% were females in year 1995 and it increased to 72.6% in year 2005. Co-morbidities were present in nearly 80% of patients in both years. The most abundant co-morbidities were arterial hypertension, other cardiovascular diseases and overweight. In year 1995 general anaesthesia were employed approximately in ~50% of the cases, but only in less than 10% during vear 2005. Average operative volumes of crystalloids were 1474 ml in 1995 and 1362 ml in 2005. 50% of patients received colloids in average amount 443 ml in 1995, but 80% of patients received colloids in average amount 575 ml in 2005. Erythrocyte mass transfusion during operation in 1995 was performed in all patients and averaged 936 ml compared to 10% of patients being transfused in 2005 with average transfusion of 519 ml.Length of hospital stay was 18.5 and 6 days, respectively. Conclusions: The number of operated patients increased nearly 10 times during 10 years. The perioperative management of patients became more intensive, less hospital stays, more intense pain therapy. Concerning fluid management, the transfusion of blood products was reduced and use of synthetic colloids increased during 10 years.

Abstract number: 22863 DEMINERALIZED CALF FOETAL GROWTH PLATE EFFECTS ON EXPERIMENTAL BONE HEALING

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To stimulate the process of bone healing, several methods have been used previously. These methods include use of ultrasound, electrical stimulation, exposure to electromagnetic field, bone grafts, interporous hydroxyapatite (as a bone graft substitute) and bone growth factors. The following study was designed to evaluate demineralized calf foetal growth plate (DCFGP) effects on bone healing process. Twenty adolscencet, 2-kg- weighing, white New Zealand male rabbits were used in this study. In experimental group (n=10) mid radii bone defect created and filled with DCFGP. In control group (n=10) mid radii bone defect created and left without transplantation. Radiological and histopathological evaluations were performed blindly and results scored and analyzed statistically. Statistical tests did not support significant differences between two groups in radiographically union (P> 0.05). There was a significant difference for bone formation and remodeling at the 56th post operative day (P<0.05). Group with demineralized growth plate was superior to control group at the 56th postoperative day. Histopathological evaluation revealed significant differences between two groups. Group with demineralized growth plate was superior to control group in bone marrow formation and union. In conclusion the results of this study indicate those experimental groups were superior to control group in radiological and histological evaluation.

Abstract number: 23503

CHONDROPROTECTIVE EFFECTS OF A POLYCARBONATE-URETHANE MENISCAL IMPLANT: SITE-DEPENDENT MANKIN SCORE IN A SHEEP MODEL Jonathan ELSNER¹, Eran LINDER-GANZ¹, Gal ZUR¹, Jonathan SHANI¹, Ori BRENNER¹, Elliott HERSHMAN², Avi SHTERLING¹, Farshid GUILAK³ ¹Active Implants Corporation, Netanya (ISRAEL), ²Lenox Hill Hospital, New York (UNITED STATES), ³Duke University Medical Center, Durham (UNITED STATES)

Loss or injury of the meniscus generally leads to degenerative osteoarthritic changes in the knee joint. Nevertheless, there are few surgical options currently available for meniscal replacement. The goal of this study was to examine the ability of a nondegradable, anatomically-shaped, polycarbonate-urethane (PCU) meniscal implant, to prevent cartilage degeneration following complete meniscectomy. The artificial PCU-meniscus was implanted in six sheep knees following total medial meniscectomy. The animals were sacrificed at 3 and 6-month post-surgery. Macroscopic analysis and semi-quantitative histological analysis, based on a modified Mankin scale, were performed, separately, on femoral, tibial, and patellar cartilage of the operated knee and compared to the un-operated contralateral control joint in terms of Wilcoxon test. In addition, the scores of 3 and 6-month groups were compared. From gross inspection, the PCU implant remained well-secured throughout the experiment and showed no signs of wear. Microscopic examinations of the explanted implant did not reveal any changes in their structural/material properties. In the majority of sites, Mankin score in both 3 and 6-month groups, did not significantly differ (p>=0.05) between the control and operated knees, except for the patella region, 3-month post-op (p<0.05). Similarly, there were no significant differences in the severity of degenerative changes between 3 and 6-month groups post-surgery in all sites (p>=0.05). Our findings provide evidence for the ability of an artificial PCU meniscal implant to delay or prevent osteoarthritic changes in knee joint following complete medial meniscectomy.

Abstract number: 23683

TANTALUM IMPLANT FOR ADVANCEMENT OF TIBIAL TUBERCLE. A PROSPECTIVE RANDOMIZED STUDY.

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The aim of this prospective randomized controlled trial is to evaluate the effectiveness and safety of a porous tantalum implant in achieving anteriorization of the tibial tubercle in painful patellofemoral degenerative chondral defects. From January 2000-November 2003, 108 knees-101 patients with degenerative patellofemoral cartilage .51 received autologous corticocancellous bone graft (Group 1) and 57 other knees received a porous tantalum implant (Group 2). An arthroscopy was done previously to assess the degree and location of chondral lesions and the patellar tracking .The same senior surgeon carried out all surgeries. The operation time, blood loss, and duration of hospital stay were recorded. Full weight bearing and unrestricted motion were permitted from the first postoperative day. The average duration of surgery was 53minutes (Group 2) versus 98.5 (Group 1). Blood loss was greater for graft group. Clinical results and fusion rate were similar in both groups. There was no influence on the results of t age, sex, weight, preoperative pain or patellofemoral joint space narrowing. The grade of preoperative patellofemoral chondral lesions had a significant predictive value. DISCUSSION: The reliability of the tibial tuberosity advancement to treat patellofemoral chondral lesions remains a controversial issue. An adequate indication and a proper surgical technique facilitate a good result in their treatment. CONCLUSIONS: The result of this study shows the simplicity and the lack of negative effects of this procedure. The operative technique of the tantalum implant is easier and shorter. The high porosity of this implant enhances bone integration.

Abstract number: 23686

UNI AND MULTIDIRECTIONAL WEAR RESISTANCE OF DIFFERENT CROSSLINKING GRADE OF UHMWPE FOR ARTIFICIAL JOINTS.

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The objective of this work was to study the effect of UHMWPE crosslinking in relation to its wear performance. Four different treatments on the UHMWPE material were investigated. The test methods proposed were a horizontal and multidirectional pinon-disk to evaluate the wear of polymers in biotribology. RESULTS: 1. Higher wear for the irradiated and crosslinked UHMWPEs (XLPEs) than for the unirradiated UHMWPE material. 2. The difference between crosslinked materials is statistically no significant and that both crosslinking treatments seem to have a similar effect on the wear resistance of the UHMWPE. 3. Higher number of scars for irradiated and XLPEs than for the unirradiated UHMWPE, and they are shallower. 4. The grade of fibril formation is higher for the unirradiated than for the irradiated material and then less for the XLPEs. 5. The particle formation of the XLPEs corroborates their lower deformation capacity in comparison with irradiated and unirradiated UHMWPEs. 6. Higher wear for the irradiated and unirradiated UHMWPE material compared to the XLPEs on the multidirectional wear test. DISCUSSION: UHMWPEs with higher capacity to deform locally present a higher wear resistance and lower weight loss under unidirectional conditions. Unirradiated UHMWPE wears less than irradiated .CONCLUSIONS: The results show that the XLPEs are optimal materials for acetabular components in Total Hip Replacements. Under unidirectional sliding conditions the XLPEs are subjected to more wear compared to unirradiated UHMWPE. Therefore, in situations where unidirectional sliding motion is the main type of motion between the articulating components, XLPEs should not be used.

Abstract number: 23687 INFLUENCE OF DIFFERENT COCRMO COUNTERFACES ON UHMWPE WEAR FOR ARTIFICIAL JOINTS

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The objective in these wear tests was to study the effect of different material counterfaces on the UHMWPE wear behaviour. The materials used as counterfaces were based on CoCrMo: forged with hand polished and mass finished, CoCrMo cast and mass finished and additionally two coatings were proposed. The reciprocating pin-on-flat (RPOF) device pin-on-disk wear was used for this study. RESULTS: However, it is more interesting to compare the wear rates of the sliding couples than to compare the volumetric wear after the one million cycles of the wear test. The results show that the CoCrMo coating causes the highest UHMWPE wear of all counterfaces tested. The CoCrMo coating wear rates in an order of magnitude higher than that produced by the mass finished (forged) alloy, which in this study causes the least UHMWPE wear. It is interesting to note that different surface treatments (mass finishing and hand polishing) on the forged CoCrMo alloys lead to a significant difference in UHMWPE wear. DISCUSION: The mass finished (forged) alloy causes less UHWPE wear than the mass finished (cast) alloy and the later causes less UHMWPE wear than the hand polished (forged) alloy. Mass finished (forged) CoCrMo alloy is harder than the mass finished (cast) alloy and the latter is harder than the hand polished (forged) alloy. CONCLUSION: Regarding the CoCrMo coating, it has the highest hardness value, the coating has a very good scratch resistance. Furthermore, coating fragments may have favour third body wear mechanisms, roughening too the coating surface

Abstract number: 23863 IN VITRO ANTAGONIZING EFFECT OF POROUS TANTALUM IMPLANT ON CYTOTOXICITY OF DOXORUBICIN

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Transition metal oxides like titanium dioxide can generate reactive oxygen species (ROS) and degrade chromophores in organic dyes. The interaction between metal implants and antineoplastic drugs is important for bone cancer treatment but this has not been investigated. We aimed to investigate the interaction between porous tantalum (Ta) implants and a chemotherapeutic drug, Doxorubicin (DOX). Ta implants were immersed in aqueous DOX solutions, in which rabbit rectal tumor cells (VX2) were cultured. Cell viability was determined by MTT and the fluorescence of the DOX chromophore was measured with a spectrofluorometer. ROS formation was determined using tempo-9-ac and flow cytometry. We observed that 95% of the DOX fluorescence disappeared when 5 g/mL DOX solution was treated with Ta implant. However, the addition of antioxidant Dithiothreitol (DTT, 10 g/mL) to the solutions recovered up to 20.16% of the fluorescence. With UV exposure of the Ta implants, the solution reduced 98% of the fluorescence and the addition of DTT recovered 4.40% of the fluorescence. In vitro VX-2 cell viability assay showed that the Ta implants antagonized the cytotoxic effects of DOX. Ta implants in aqueous medium could produce hydroxyl radicals. We observed higher intracellular ROS activities when basal medium was incubated with the Ta implant. We concluded that Ta implants antagonize the cytotoxicity of DOX, mainly by ROS generated from the porous Ta implant. These results suggest that it is important to consider the antagonizing effect of the metal implant on DOX in bone cancer patients after reconstructive surgeries.

Abstract number: 23915

COMPARISON OF PHYSICAL PROPERTIES BETWEEN COMMERCIAL REINFORCED LIGAMENT (RESORBAID®) AND NEAT POLYLACTIC ACID (PLA) PREPARED IN A LAB SCALE.

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Introduction: There is a widespread use of biocombatible and biodegradable polymers in orthopaedics. The most used polymer is poly-lactic acid (PLA). Aim: The aim of the present work is the comparative study of reinforcement ligament (Resorbaid®) with laboratory prepared PLA. Materials and Methods: In the present work 10 materials of reinforcement ligament consisted of PLA (Resorbaid®) were used in comparison with neat PLA prepared in a lab scale. The mechanical properties were studied with an Instron 3344, while crystallization rates were evaluated differential scanning calorimetry (DSC) and polarized light microscopy with hot stage (HSM). The biodegradation rate of both materials was studied by enzymatic hydrolysis. Results: The reinforced ligament has greater mechanical properties compared with the laboratory prepared PLA. Both samples hydrolyze relatively slowly, but the commercial sample shows a slightly faster hydrolysis. Surface cracks appear in the samples due to the weight loss during hydrolysis. The melting point of reinforced ligament is recorded at around 180oC, while in the case of the laboratory made PLA around at 171oC. Also the reinforced ligament showed faster isothermal crystallization at temperatures in the range 100-140oC, as well as enhanced cold crystallization. Furthermore, it crystallized significantly on cooling from the melt by 20oC/min, while laboratory made PLA did not crystallize. Conclusions: Some additives of the commercial ligament may act as nucleating agents reducing energy activation process of solidification. This may explain all the differences between the two samples.

Abstract number: 24162 CERAMIC COATINGS ON METALS FOR ANTIBIOTIC DELIVERY

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INTRODUCTION: This project aims to create an antibiotic local delivering coat employing the calcium phosphate situated on the implant bioactive coating. MATERIAL The antibiotic is integrated to the calcium phosphate by biomimetics or thermochemistry methods. The studied antibiotics were tobramicyn, vancomycin and cefotian. METHODS: Cultures of Staphylococcus aureus have been employed to check the inhibition of their growth and the percent cumulative drug release from the calcium phosphate biomimetic coat after time. The implant coating has been study with a Scanning Electron Microscope and analysed with x-ray diffraction techniques. RESULTS: The results showed that the addition of the antibiotic doesn't affect the crystalline structure and the chemical composition of the implants coatings. The hydroxyapatite grows with the same pattern in the entire surface; the roughness is maintained during all the covering process. DISCUSSION: The biomimetic method allows a uniform distribution of the antibiotic on the calcium phosphate layer providing a controlled drug release which will prevent or treat locally postoperative infections. CONCLUSIONS: The host bone doesn't recognise this homogeneous coating of antibiotic and calcium phosphate as a foreign and no inflammatory reactions to foreign bodies appear, reaching important surfaces of direct contact with the bone in a short period of time. The bone remodelling process starts sooner, allowing a shorter recovery period, with social and economic advantages associated.

Abstract number: 24303

SCANNING ELECTRON MICROSCOPIC (SEM) ANALYSIS OF FAILED VARIAX® DISTAL RADIAL LOCKING PLATE USED FOR DISTAL RADIAL OSTEOTOMY

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INTRODUCTION: Low profile designs, pre-contoured plates and options of poly axial locking systems make locking plates the preferred implants for complex fracture fixations and osteotomies of the distal radius. We present two cases of failure of Stryker® VariAx® distal radial locking plate with scanning electron microscopic (SEM) studies to analyse the pattern of failure. PATIENTS AND METHODS: A 76year-old patient underwent dorsal open wedge corrective osteotomy with iliac crest bone grafting and stabilisation with a dorsal VariAx® distal radial locking plate. However, she presented at 6 weeks with non-traumatic wrist pain and radiographs showed implant failure. Another 49-year-old underwent dorsal open wedge corrective osteotomy and iliac crest bone grafting and fixation with a dorsal VariAx® distal radial locking plate. She presented 3 months later with non-traumatic wrist pain and radiographs showed broken plate through an unfilled screw hole at the osteotomy site. In both patients, the broken plates were retrieved and visually examined for manufacturing defects. It was then subject to scanning electron microscopic studies and biomechanical analysis. CONCLUSION: This is the first case in the literature of this multiaxial locking plate failing in this manner. We recommend that these plates if used for dorsal osteotomy be inserted with caution and it may be necessary to maintain some fixation closer to the osteotomy site than we achieved. We also suggest improving the stiffness co-efficient of the plate by minimally increasing the thickness of the plate at vulnerable points.

Abstract number: 24441

BOVINE FETAL GROWTH PLATE AS A NEW XENOGRAFT IN EXPERIMENTAL BONE DEFECT HEALING: RADIOLOGICAL, HISTOPATHOLOGICAL AND BIOMECHANICAL EVALUATION

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Bone grafting is used to enhance healing in osteotomies, arthrodesis, and multifragmentary fractures and to replace bony loss resulting from neoplasia or cysts. They are source of osteoprogenitor cells and induce bone formation and provide mechanical support for vascular and bone ingrowths. Autografts are used commonly but quantity of retrieved bone is limit. This study was designd to evaluate autograft and new xenograft (Bovine fetal growth plate) effects on bone healing process. Twenty male White New Zealand rabbits were used in this study. In autograft group the defect was filled by fresh autogenous cortical graft, in xenograft group the defect was filled by a segment of bovine fetal growth plate and was fixed by cercelage wire. Radiological, histopathological and biomechanical evaluations were performed blindly and results scored and analyzed statistically. Statistical tests did not support significant differences between two groups at the 14th and 28th postoperative day radiographically (P> 0.05). There was a significant difference for remodeling at the 42nd post operative radiologically (P<0.05). Xenograft was superior to autograft at postoperative dav for radiological bone formation (P<0.03). the 56th Histopathological and biomechanical evaluation revealed no significant differences between two groups. The results of this study indicate that satisfactory healing occurred in rabbit radius defect filled with calf fetal growth plate. Complications were not identified and healing was faster than cortical autogenous grafting. It was concluded that the use of calf fetal growth plate as a new xenograft is an acceptable alternative to cortical autogenous graft and could reduce the morbidity associated with harvesting autogenous graft during surgery.

Abstract number: 24471 LOCAL HEMOSTATIC EFFECTS OF PARTIALLY DEACETYLATED CHITINOUS SPONGE

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Pupose: We implemented animal experiment by using partially deacetylated chitinous sponge and evaluated local hemostatic effects. Materials Methods: We implemented animal experiment by using chitinous sponge was prepared by sherbet freezing method. We used collagen hydrochloric acid salt (Avitene), cotton as a comparative contrast. It punctures 4-5 mm depth to the rabbit iliac bone cortex with the drill of the diameter of 5 mm to the intestines bone with general anesthesia and fill up each 10 mg of specimens into bone hole and absorb it the bleeding from hole for 5 minutes and determined hemostatic effect. Results: the effective rate of completely hemostasis in 5 minutes of chitinous sponge was 80.0%. The effective rate of cotton was 23.0%. The effective rate of collagen hydrochloric acid salt was 36.3%. The significant difference was admitted between cotton and chitinous sponge. The decline of the significant amount of bleeding from rabbit iliac bone. Conclusion: The chitinous sponge was prepared by sherbet freezing method to have sufficient hemosatic capability and handling performance in animal oozing model.

Abstract number: 24579 LOCAL HEMOSTATIC EFFECTS OF PARTIALLY ACETYLATED GLUCONIC CHITINOUS SPONGE

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Chitin and its derivertives have good biocompatibility and potential hemostatic properties. Hydrochloride and citorate of chitin and chitosan have been developed and utilized for local hemostatic materials. However, they are insufficient and restricted forclinical application. The high blood absorption and excellent handling for porous sponge should required. Novel technology to control homogeneity of porous materials led to manufacture the gluconic chitonous sponge suitable for the oozing in orthopaedic surgery. We evaluated the hemostatic potency, blood absorption and capability in an animal study. Moreover, we conducted an experiment in which absorbent cotton, collagen hydrochloride, and gluconic chitinous sponge contacted to human platelet richplasma and Platelet factor 4 (PF-4) and Beta-thrombogloburin (B-TG) released were measured. As the results, almost 80% of gluconic chitinous sponge showed hemostatic completion within 5 minutes in oozing from rabbits iliac bone damage model. Significantly high blood absorption of the sponge excellent handling in surgery, and also significant hemostatic potency were confirmed in animal oozing model.. PF-4, B-TG were increased significantly, which suggested one of action mechanism of the platelet aggregation by chitinous sponge. We concluded that gluconic chitonous sponge is a promising local hemostatic material.

Abstract number: 24634 LIGAMENT AND TENDON REPAIR USING A FULLY SYNTHETIC, RESORBABLE GRAFT

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Introduction: Longstanding, missed ligament or tendon ruptures of the foot often have the problem of a substantial tissue gap. This is often solved by sacrificing other available soft tissue for repair. Purpose: To evaluate a new material that is fully synthetic and to investigate the feasibility of the graft in surgical procedures of the foot. Method: The patients had a foot operation because of flatfoot or neglected Achilles tendon or TFL rupture. The flat foot surgery included spring ligament ruptures. The ligament rupture was adapted and reinforced by an Artelon mesh graft from the navicular bone to the sustentacular process (the normal extension). In the Achilles tendon repair, a graft was sutured as a stocking, connecting both ends of the Achilles. In the talo fibular ligament repair the artelon graft was sutured as a superficial covering reinforcement. Artelon is a fully synthetic degradable biomaterial. It keeps 50% of its strength for 4 years and is 100% degraded in 5 years. Results: We performed 17 ligament and tendon repairs. The clinical results are good with painfree, almost full restoration of clinical function and no relapses so far. We have seen no adverse effects during the observation time. The longest follow up is 4 years. Discussion: The use of an Artelon mesh graft proved to be a useful way to bridge tissue defects without sacrificing other tissues. The fact that Artelon is a synthetic material diminishes the risk of anti body reaction and eliminates the risk of viral pollution of the graft.

Abstract number: 24977

EVALUATION OF CLINICAL PERFORMANCES OF ULTRAHIGH MOLECULAR WEIGHT POLYETHYLENE FIBER CABLE USING OSTEOSYNTHESIS-MODEL OF DOG

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Availability of ultrahigh molecular weight polyethylene (UHMWPE) fiber cable for osteosynthesis was evaluated by long-term implantation test using a dog model. The greater trochanter of the dog femur was cut with the abductor muscle intact, and the bone fragment was returned to the original position. The UHMWPE fiber cable or other metal wires were used for the fixation passing through the bone holes. The evaluation was performed histologically, radiologically and biomechanically. The UHMWPE fiber cable caused almost no biological reaction with the bone, and no loosening was observed. Trabecular continuity between the bone fragment and the greater trochanter was observed radiologically by 3 months after surgery. The pull out test was carried out in order to confirm whether or not this material could be removed after bone union. The result showed removability of the UHMWPE fiber cable. Two cases out of 12 cases using metal wires showed wire breakage, whereas no cases out of 12 cases using the UHMWPE fiber cable. Although the fixation force of the UHMWPE fiber cable was less than that of the metal wires, tolerance to clinical fatigue condition might be higher for use in osteosynthesis fixation. We conclude that it is a suitable material for use in fixation for osteosynthesis.

Abstract number: 25023

BONE MORPHOGENETIC PROTEIN-2-HYDROGEL ENCAPSULATED LIGAMENTUM FLAVUM CELLS FOR BONE REGENERATION

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Osteogenesis of ligamentum flavum (LF) is a widely recognized pathophysiologic factor in pathologic ossifications of spinal ligament. The potential for biomimetic constructs with co-immobilized adhesion and bone morphogenetic protein-2 (BMP-2) to induce osteoinduction and osteogenesis was demonstrated in our previous study. LF cells could be a new source for bone regeneration in tissue engineering. For cell isolation, LF tissue were obtained from spinal stenosis patients during spinal decompression procedures and digested with medium containing collagenase. BMP-2 was conjugated to polyethylene glycol by reacted with acrylate-PEG-Nhydroxysuccinimide (Group 1). The soluble rhBMP-2 was incorporated poly (ethylene glycol) diacrylate solution simultaneously for comparison (Group 2). LF cell-polymerphotoinitiator suspension was subsequently loaded into disk-shaped molds with a 4mm internal diameter, followed by photopolymerization with 365 nm UV light to gelate the cell-polymer constructs. LF cell-photoinitiator suspension without rhBMP-2 was as control group (Group 3). Hydrogel constructs were incubated in 24-well plates for 1, 7 and 14 days. Alkaline phosphatase (ALP) activity and immunohistochemical assays were determined for the evidence of osteogenesis. Expressions of ALP, osteoprotin and collagen type I of LF cells increased with cultured time in three groups. Higher expressions of ALP, osteoprotin and collagen type I in group 1 than those in group 2 at 7 and 14 day were observed. Free BMP-2 lost easily from hydrogel. LF cells maintained higher osteogenesis in group 1 due to chemical bond between polymer and BMP-2. Ligamentum flavum cells in photo-responsive hydrogel encapsulated BMP-2 had shown potential in application of tissue engineering for bone regeneration.

Abstract number: 25148

BIOMECHANICAL ANALYSIS OF FIXATION OF DIAPHYSEAL BONE DEFECTS Vasileios SAKELLARIOU, Haridimos TSIBIDAKIS, George MAZIS, Andreas MAVROGENIS, Panayiotis PAPAGELOPOULOS 1st Orthopaedic Department, University of Athens, Chaidari (GREECE)

Objective: To compare quantitative data on the biomechanical analysis of different techniques for fixation of intercalary bone defects, by means of consistently applied methodology on composite models of the adult femur, tibia and humerus. Method: A total of fifteen femoral, fifteen tibial and fifteen humeral specimens of fourth generation composite models were used. An intercalary defect (middle 1/5 of the length of each model) was created and was reconstructed using plates, intramedullary nails, external fixators and segmental prosthetic implants. The specimens were loaded under axial compression, four-point-bending and torsion in the linear elastic region at sub-yield level. Statistical analysis for each bone model was performed employing a non-parametric analysis of variance for ranked data, in order to highlight statistically significant differences between techniques. Results: The analysis for the femur showed no statistically significant differences in the ranking of techniques (p=0.088). The analysis for the tibia revealed a statistically significant difference between groups (p=0.035) with the plate construct ranking lower than the intact. The analysis for the humerus showed statistically significant differences between groups (p=0.038) with the intramedullary nail and plate constructs ranking lower than intact. Conclusions: Modular segmental implants and external fixator ranked better than other techniques, being the ones always exhibiting the most enhanced performance in comparison to intact specimen.
Abstract number: 25262

NOVEL FULLY INTERCONNECTED POROUS HYDROXYAPATITE CERAMIC IN SURGICAL TREATMENT OF BENIGN BONE TUMOR

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Large bone defects remaining after curettage of benign bone tumors should be filled with a substitute to restore mechanical strength. We developed a fully interconnected porous calcium hydroxyapatite ceramics (IP-CHA, NEOBONETM) and have utilized them as bone substitute. The purpose of this study is to evaluate the clinical outcomes with the IP-CHA as bone substitute. We reviewed the results of 71 patients with benign bone tumors sequentially treated by curettage followed by implantation of IP-CHA between 2000 and 2006. There were 29 women and 42 men. Assessment was based on radiography at each time point in the follow-up. Radiographic findings were classified into five stages: Stage 0, no change; Stage 1, slight bone formation; Stage 2, moderate bone formation; Stage 3, consolidation; and Stage 4, absorption. In 70 of 74 operated lesions, radiographs showed that implanted IP-CHA proceeded to Stage 2 or more within 8 months after the surgery on average. Seventeen lesions proceeded to Stage 4 within 35 months after surgery on average. However, there were 10 local recurrences, which are similar to the recurrence rate for such tumors treated with or without implantation of CHAs. It reflects the biological nature of each tumor. IP-CHA has a finely-organized, 3-dimensional interconnecting pore structure. The large interconnecting channels permit the easy penetration of tissue into the deep pores and IP-CHA can induce local bone repair processes. In this present study, we utilized IP-CHA as a bone substitute after curettage of benign bone tumors, and demonstrated its superior osteoconductivity.

Abstract number: 25392 WEAR BEHAVIOR OF AMC CERAMICS ON PE IN HIP PROSTHESES Bernard MASSON

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The introduction of ceramics in total hip arthroplasty contributed significantly to the wear reduction of polyethylene. This great benefit has been demonstrated by Dahl, showing that the wear of a 28mm alumina is considerably reduced compare to a CrCo ball head against Ultra High Molecular Weight Polyethylene (UHMWPE) after 10 years. A first prospective, randomized study with a 15 years follow up compare the wear of polyethylene between alumina and metal ball head. A reduction of 44% penetration (linear wear) with the alumina-polyethylene bearing surface is demonstrated. In order to improve mechanical resistance, a new generation of alumina matrix composite (BIOLOX®delta) has been used in Orthopaedics since 2001. The topic of this study is to demonstrate the excellent wear performance of the alumina ceramic composite against polyethylene, compared to alumina/PE in vivo. The BIOLOX®delta-PE bearing has been tested on a six station hip simulator. After 5 million cycles, the wear rates calculated by linear interpolation were 13.52 mg per million cycles. When comparing the results for BIOLOX®forte on polyethylene with the same 28mm diameter and same testing parameter, we observed 26,57 mg/Mc. The BIOLOX®delta on UHMWPE bearing shows improved wear behavior with a much lower wear rate. Based on this results and the clinical performance of the alumina-UHMPE bearing from the literature, we can expect a further reduction of wear for the BIOLOX®delta on UHMWPE in vivo that will increase the survival rate of the total hip arthroplasty.

Abstract number: 26013

COBALT CHROME ALLOYS FOR IMPLANTS - A STUDY ON RABBIT

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INTRODUCTION: Cobalt-chrome alloys are some of the most used and very well tolerated metallic biomaterials, used for osteosynthesis, and especially in producing internal hip and knee prosthesis. OBJECTIVE: The aim of this study was to obtain a cobalt-chrome type alloy, using Romanian raw materials and conception. In order to be used as a model for producing of metallic hip endoprostheses, the prototype was obtained. MATERIALS AND METHOD: The cobalt-chrome-molybdenum alloy (stellite) has a chemical composition similar to the imported stellite named Vitallium, with lower carbon and iron contents. The corrosion tests were made in vitro, with oxalic acid 10% and chlorhydric acid 1/1, and in vivo, by implantation in rabbits for 90 days.After 90 days the following tissues were analyzed:-the metallic implant electronic microscopy-the debris -the interface tissues - EDXA, AAS, electronic histological, histochemical studies. **RESULTS**: microscopy, Mechanical characteristics: fracture strength determined by traction test: 851 N/sgm;-elongation: density: 330 HV. Interface tissue analysis:-EDXA- no presence of 18.6%:-Fe, Ni, Co, Mo; AAS Co 0.30-0.42 mg/100 gr. dry tissue (N = 0.28-0.47 mg %)Cr 0.68 -0.74 mg/100 gr (N = 0,55 mg %)Fe 5.87 - 9.38 mg % (N = 5.54 mg %)-SEM and TEM (scanning and transmission electronic microscopy) - granulation tissue with sclerotic organization, numerous cells, mastocytes. CONCLUSION: The conception and elaboration of a biomedical Co-Cr alloy requires high technology (vacuum induction furnace) and special projected chemical composition.

Abstract number: 26114 BIOMIMETIC ION SUBSTITUTED HYDROXYAPATITE COATINGS ON TITANIUM FOR ORTHOPAEDIC IMPLANTS

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The bonding between implants and bone tissue and inducing new bone formation are two important things for Orthopaedic implants. Hydroxyapatite (HA) coatings have been proved to improve the bone bonding strength and new bone formation of titanium implants. However, the long-time bone bonding and the rate of new bone formation of HA coatings still need to be further improved. Strontium can reduce the bone resorption and increase the mechanical strength. Silicon can increase the bone mineralization and enhance the osteoblast proliferation and collagen production. Hence, if the strontium and silicon ions are substituted into hydroxyapatite coatings, the new coatings may improve the long-time bone bonding and enhance the implant osseointegration. The preparation of ion substituted HA coatings is based on a biomineralization method. Ti implants are used as substrates. The role of different ion concentrations and treating temperatures on the coating properties has been investigated. Early bone response was studied for selected coatings in a rat model. The results show that homogeneous strontium and silicon HA coatings have been fabricated with controlled surface morphology, coating thickness and ion composition. Histological study shows that the new bone is deposited directly onto the Si and Sr apatite coating without any intervening soft tissue after 7 days. Quantitative histomorphometrical measurements show more bone in-growth and bone implant contact (BIC) for Si and Sr coated implant, as compared with HA coated Ti implants. Based on the above results, these new biomimetic Sr and Si substituted HA coatings could be good candidates for Orthopaedic implants.

Abstract number: 26260

CYTOTOXICITY AND BIOCOMPATIBILITY OF A NEW IRON-BASED DEGRADABLE BIOMATERIAL FOR BONE REPLACEMENT

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Metal materials play a key role in the repair or the replacement of destroyed bones. Due to their mechanically stability there are able to assume the burden of defect bones and have a high damage tolerance. The basic idea of the present work is to design degradable implants with a cellular metal structure for bone replacement. To investigate the cytotoxicity of different alloys fibroblasts were seeded in a monolayer culture and also in a special developed perfusions culture system. Implants were constructed out of the alloy with the best outcome. They were investigated in an in vivo experiment in sheeps. We investigate the periimplant soft tissue, lymphe node, brain, liver, spleen and kidney to an inflammatory diseases and sediments from the implant material. After 6 month only a small part of the implant has been degraded. No sediments and no inflammation were detected in brain, liver, spleen and kidney. In the periimplant soft tissue and the lymphe node sediment of the alloy could be found. But there were no inflammatory disease. The new degradable iron based implant for bone replacement shows an insignificant cytotoxicity at static and dynamic cell culture system. In fact no inflammation and sediments in visceral organs could be seen at the in vivo animal experiment. Therefore iron base degradable biomaterials may be an interesting alternative beside established biomaterials.

Abstract number: 26287 A RAPID METHOD TO IMPROVE THE BIOLOGICAL RESPONSE TO TITANIUM BY LASER INDUCED ION CONVERSION

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This study was carried out to investigate if a rapid laser treatment of titanium can improve the biological response to implant surfaces. It has been shown that UVirradiation of titanium for several hours can induce a precipitation of bone-like apatite on the surface after immersion in a simulated body fluid. This ability has been attributed to a conversion of Ti4+ to Ti3+ sites in the surface oxide, caused by the UV-light which creates oxygen vacancies at bridging sites in the surface. These Ti3+ sites are favourable for the dissociation of water and induce more Ti-OH groups on the surface that can interact with surrounding molecules and ions in vivo. It has also been shown that such a UV treatment elicits a better cellular response to the surface. In the present study it was shown that a similar conversion to Ti3+ can be induced by a much shorter laser treatment, where a titanium slab is irradiated with coherent laser light at 355nm for 10 seconds. A similar treatment at 266nm did not induce any conversion. This was confirmed with XPS where a shoulder on the Ti2p peak indicated the presence of Ti3+ sites. A quick bioactivity test in PBS for 3 days at 37°C did not show any sign of bioactivity of the surfaces. However, further tests are needed to clarify the exact mechanism of the apatite creation on these surfaces.

Abstract number: 26318

BONE-ANCHORED OSSEOINTEGRATED AMPUTATION PROSTHESES: A HISTOLOGICAL STUDY OF SIX IMPLANTS RETRIEVED AFTER MORE THAN 10 YEARS

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Amputees have significant problems related to the use of socket prosthesis. The quality of life could be improved with the use of bone-anchored amputation prosthesis where the external prosthesis is anchored to the bone through a titanium implant (screw-shaped fixture). The aim of this human retrieval study was to histologically evaluate the bone-implant interaction of bone-anchored amputation prostheses. The prostheses were retrieved with surrounding tissue by using a trephine. Six titanium implants from five patients were retrieved due to fracture of the implant in four cases (four implants) and chronic problems with infection for one case (two implants). The locations of the retrieved implants were one congenital hand malformation, one transradial amputation and three transfemoral amputations. The mean time from implantation to retrieval was 138 months, ranging from 131-167 months. Ground-sections of undecalcified bone-implant specimens prepared by sawing and grinding were evaluated by light microscopy. The results showed mature bone tissue around and in direct contact with the implant. At the hollow apical end, ingrowth of predominantly trabecular bone was observed, while cortical bone was around the outside of the screw-shaped implant. Histomorphometry showed mean 60% (24-85%) bone-implant contact and mean 62% (31-87%) bone area within the threads. The present results show, for the first time, morphological evidence of longdirect implant-bone contact of human amputation prostheses. term. The histomorphometric data is in the agreement with what has been previously reported for osseointegrated dental implants and bone-anchored hearing aids. Supported by the Swedish Research Council (grant K2009-52X-09495-22-3) and LUA grant (ALFGBG-11128).

Abstract number: 26450 BONE INGROWTH TO NOVEL TITANIUM FOAMS IN RABBIT DISTAL FEMUR

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This study compared the osteointegration of a novel titanium foam with five different pore sizes but same density in a rabbit distal femoral defect model. A new technique, Particle Sintered Foam (PSF), was used for the fabrication of the test articles which were machined into cylinders, 8mm×5mm. Twenty NZW rabbits were randomly divided into five groups. Five different pore size cylinder, range from 388m to 530m, were implanted into the bilateral distal femur of the rabbits. The animals were sacrificed 6-week postoperatively. The distal femurs containing implants were analyzed using µCT. Bone ingrowth was evaluated as the percentage of bone in the porous space. All of the PSF implants with the specific parameters yielded good bone ingrowth, from 25% to 38%. MicroCT generated structural indices for PSF implants, including connectivity density, number of struts, thickness of struts, strut separation and total surface. Among them the strut separation most likely represents the size of pores. Within the ranges evaluated, the smaller the pore size (strut separation) and the greater the number of interconnecting pores (interconnecting pore density) the greater the bone ingrowth into the porous material. Our data demonstrate that the bone ingrowth is significant correlated to the 3-D structure of the titanium implants, the pore size and interconnectivity.

Abstract number: 26468

THE ADVANTAGES OF MACROPOROUS BIPHASIC CERAMIC BONE SUBSTITUTES. CLINICAL AND HISTOLOGICAL RESULTS WITH APPLICATION OF CERAFORM AND EUROCER IN BONE DEFECTS

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Bone defects are a frequent clinical problem in trauma and orthopaedic surgery. Biomaterials are usually used as scaffolds. The purpose of this study is to investigate the biocompatibility and osseointegration for two synthetic biphasic ceramic bone substitutes (Ceraform and Eurocer). The study was performed in a 3 years interval with a minimal follow-up of 1 year. We have included 42 cases requiring bone substitution (fractures, bone tumors, spinal fusions, revision artroplasty, non-unions, osteitis). Preoperative selection and postoperative follow-up were made by GESTO evaluation protocol (Greffes et Substitutes Tissulaires en Orthopedie). Missing bone quantification was realized intraoperatively by using GESTO classification of bone loss TOD (Type-Os-Dimension). We had two study groups, one for each compound, 21 cases with Ceraform and 21 with Eurocer. These two biomaterials were used as single substitute or mixed with allo or autograft. The radiological survey was performed at 3, 6, 9 and 11 months. Radiological results were assessed by three parameters: substitute bone interface, radiological density of the bone substitute, the possibility of fracture fragmentation. We have observed the radiological integration at 9-12 months after implantation. The bone biopsy during implant removal (minimum 18 months after implantation) showed in all cases a cancellous like bone tissue formation with osteocytes and vascular buds. Osteoblasts were present at the margins of the mineralized bone. The radiological and histological results suggest that with a good contact between the bone substitute and receiver bone, with construct augmentation by osteosynthesis implants, Ceraform and Eurocer represent a valuable alternative to bone grafts.

Abstract number: 26671

IN VIVO TESTING OF STRUCTURAL GRADED POLYCAPROLACTONE SCAFFOLDS IN A PORCINE CALVARIA MODEL

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Background: The scaffolds were comprised of the polymer, polycaprolactone (PCL). The pure bioplotted scaffolds were cylinder-shaped (10 mm diameter x 10 mm height). Scaffolds were infused with a homogenous mixture of PCL, water and 1,4dioxane and underwent a thermal induced phase separation (TIPS) followed by lyophilization to manufacture a structurally-graded-scaffold (SGS) with micro-and nanopore PCL formation within the gaps of the bioplotted scaffold. Materials and Methods: A total of 16 Danish landrace pigs were used with termination of eight pigs after 8 and 12 weeks. A total of six non-penetrating critical size defects were drilled in the calvaria. The following scaffolds were placed in the bottom of each drill hole by random: 1.) Autograft (1,12 g harvested from the drill holes) 2.) Empty hole, 3.) Bioplotted scaffold, 4.) SGS scaffold, 5.) SGS scaffold + autologous stem cells (1,3*10 per scaffold) seeded on scaffold 5 days prior to surgery, 6.) SGS scaffold+BMP-2 (1 mg / scaffold). Afterwards, the soft tissue were repositioned and sutured. Bone volume to total volume (BV/TV) was analyzed using µCT. Results: The µCT data showed significant less bone formation in the SGS scaffolds in all three variations after both eight and twelve weeks. Due to lack of discrimination between intertrabecular tissue and non-degraded scaffold on µCT, we were unable to quantify the cause. The bioplotted scaffold showed significant higher bone volume to total volume after 12 weeks compared to the empty defect without taking the existing volume of bioplotted scaffold into account.

Abstract number: 23556 RESORBABLE SCAFFOLDS IN THE TREATMENT OF OF OSTEOCHONDRAL TALUS DOME DEFECTS

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The purpose of this study is to evaluate the efficacy of synthetic resorbable scaffolds transplantation of the talar dome with MRI and clinical short and medium term follow up. We therefore present surgical technique steps and early results ,at one year ,obtained with preformed in shape and size bone graft substitutes ,in repair of degrees III and IV full thickness osteochondral defects of the talus .all surgical procedures have been completed uneventfully. Patients have been controlled clinically and by serial ankle MRI's and showed statistically significant improvement of AOFAS scores associated to healing of defects and integration of bone plugs in absence of adverse reactions. This study shows that resorbable scaffolds can be used in ankle chondral lesions with good results.

Abstract number: 23984 ARTICULAR CARTILAGE REPAIR USING TRU-FIT PLUGS

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Background: Articular cartilage damage is known to predispose to osteoarthritis. Many different techniques have been used to attempt repair of articular cartilage defects. Synthetic scaffolds can support cartilage formation in areas of cartilage defects. Study: We present our experience with a synthetic scaffold (Tru-Fit) which we are using to treat patients with chondral defects in the knee. Methods: 15 patients with full thickness cartilage defects affecting the medial femoral condyle were treated with Tru-Fit plugs. They were followed up at a mean of 9.6 months (0.5-21) after surgery. At a minimum of 6 months follow-up MRI scans were obtained in all cases to asses healing of defect. International Knee Documentation Committee (IKDC) scores and Lysholm scores were also obtained. Results: The mean IKDC score was 55 (20-90) and the mean Lysholm score was 63 (20-100). In patients with isolated cartilage defects and no other joint or knee pathology the mean scores were a lot better with mean IKDC score of 76 and mean Lysholm score of 86. MRI scans showed good cartilage cover of defects. Conclusion: Our early results of using Tru-Fit plugs to treat articular cartilage defects in knee are promising. Patients with isolated chondral defects of the knee show the most favourable outcomes.

Abstract number: 24301 MRI EVALUATION OF A NEW SCAFFOLD-BASED ALLOGENIC CHONDROCYTE IMPLANTATION FOR CARTILAGE REPAIR

Fredrik ALMQVIST, Aad DHOLLANDER, Peter VERDONK, Rene VERDONK, Wouter HUYSSE, Koenraad VERSTRAETE, Gust VERBRUGGEN *Ghent University Hospital, Gent (BELGIUM)*

This study was designed to evaluate the implantation of alginate beads containing human mature allogenic chondrocytes for the treatment of symptomatic cartilage defects of the knee. MRI was used for the morphological analysis of cartilage repair. The technique was used for the treatment of symptomatic chondral and osteochondral lesions. Twenty-one patients were prospectively evaluated with use of the WOMAC and the VAS for pain preoperatively and at 3,6,9 and 12 months of follow-up. Of the 21patients, 12 had consented to follow the postoperative MRI evaluation protocol. MRI data were analyzed based on the original MOCART and modified MOCART scoringsystem.A statistically significant clinical improvement became apparent after 6 months and patients continued to improve during the 12 months of follow-up. One of the two MRI scoring systems that were used, showed a statistically significant deterioration of the repair tissue at 1 year of follow-up. Twelve months after the operation complete ling or hypertrophy was found in 41.6%. Bonemarrowedema and effusion were seen in 41.7% and 25% of the study patients, respectively. The present study confirmed the primary role of MRI in the evaluation of cartilage repair. Two MOCART-based scoring systems were used in a longitudinal fashion and allowed a practical and morphological evaluation of the repair tissue. Further validation of these scoring systems is mandatory. The promising short-term clinical outcome of the allogenic chondrocytes/alginate beads implantation was not confirmed by the short-term MRI findings.

Abstract number: 24304

TREATMENT OF CARTILAGE DEFECTS IN THE KNEE USING ALGINATE BEADS CONTAINING HUMAN MATURE ALLOGENIC CHONDROCYTES

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Purpose: To determine whether the implantation of alginate beads containing human mature allogenic chondrocytes is feasible and safe for the treatment of symptomatic cartilage defects in the knee. Methods: A biodegradable, alginate-based, biocompatible scaffold containing human mature allogenic chondrocytes was used for the treatment of chondral and osteochondral lesions in the knee. Twenty-one patients were clinically and prospectively evaluated with use of the Western Ontario and McMaster Universities Osteoarthritis Index and a visual analog scale for pain preoperatively and at 3, 6, 9, 12, 18, and 24 months of follow-up. Of the 21 patients, 13 consented to having a biopsy sample taken for investigative purposes from the area of implantation at 12 months of follow-up, allowing histologic assessment of the repair tissue. Results: A statistically significant clinical improvement became apparent after 6 months, and patients improved during the 24 months of follow-up. Adverse reactions to the alginate/fibrin matrix seeded with the allogenic cartilage cells were not observed. Histologic analysis of the biopsy specimens rated the repair tissue as hyaline-like in 15.3% of the samples, as mixed tissue in 46.2%, as fibrocartilage in 30.8%, and as fibrous in 7.7%. Conclusion: The results of this short-term pilot study show that the alginate-based scaffold containing human mature allogenic chondrocytes is feasible and safe for the treatment of symptomatic cartilage defects of the knee. The described technique provides clinical and histologic outcomes that are equal but not superior to those of other cartilage repair techniques.

Abstract number: 24305 A NOVEL MODIFIED OUTSIDE-IN TECHNIQUE OF ARTHROSCOPIC REPAIR OF TRIANGULAR FIBROCARTILAGE COMPLEX TEARS

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INTRODUCTION: Tears of the triangular fibrocartilage complex (TFCC) usually occur as a result of trauma but can happen as a result of age related degeneration. Some TFCC tears produce mild symptoms and resolve with conservative treatment. However, surgery is indicated when non-operative intervention fails. We describe a novel modified outside-in technique of arthroscopic repair of TFCC tears. PATIENT AND TECHNIQUE: A 40-year-old patient presented with wrist pain following a fall. MRI scan revealed a peripheral tear of the TFCC for which he underwent wrist arthroscopy. During arthroscopy an ulnar peripheral TFCC tear (Palmer 1B) was noted. The rest of the joint was normal. An 18G Touhy epidural needle was passed via the 6U portal through the periphery of the stump of torn TFCC. It was interlaced through the radially retracted margin. A 2-0 PDS suture was then threaded through the needle and then grasped with a Halstead haemostat. The suture was then routed through the 6U portal with a grasper and a knot tied with the leading thread over the capsule-TFCC junction till the gap was closed with a secure knot. The arthroscopic portals were closed and the wrist splinted for 2 weeks. At follow-up, the patient was recovering well and making a good functional recovery with physiotherapy. CONCLUSION: Our technique is a modified outside-in technique using an 18G Touhy needle for repair of TFCC tears. It is simple, easy to use with readily available instruments. There is no need for special repair kits.

Abstract number: 25403

RESULTS OF KNEE CARTILAGE INJURY TREATMENT BY ARTHROSCOPIC OSTEOCHONDRAL AUTOGRAFT USING PSEUDOSYNOVIAL LIQUID

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Study of chondro- and osteointegration of autografts in animal models and evaluation of remote results of osteochondral autograft in knee joint cartilage injury. We analyzed the results of osteochondral autograft surgeries in patients by OATS (osteochondral autograft transplantation system). Surgery was indicated in cases with full-thickness isolated cartilage defects in the stressed zones of femoral condyles of the knee joint with subchondral plate stripping and total area not exceeding 4 cm2. In 66,7% cases, cartilage damaged occurred as the result of acute or chronic joint trauma, in 33,3% cases it was caused by osteochondritis dissecans. Treatment results were evaluated 4-7 years after the surgery on Lysholm-Tegner Scale. Chondro- and osteointegration was studied in experimental dog models of fullthickness damage of knee joint cartilage. Pseudosynovial liquid containing the mixture of cholesteric-nematic liquid crystals in 2% Na-CMC water solution. In this animal study, chondro- and osteointegration of autograft with the surrounding hyaline cartilage and host bone bed was reported 2.5 months after osteochondral autograft transplantation. Pseudosynovial liquid stimulated the process and facilitated activation of chondrogenesis, improvement of reproductive functions of cartilage cells, formation of interfacial regenerated cartilage tissue from hyaline cartilage, and practical absence of dystrophic changes in cartilage matrix. Analysis of the remote results of treatment of knee cartilage defects by osteochondral autograft transplantation revealed excellent and good results in most cases (92,6%). Satisfactory cases were connected with the development of joint cartilage chondromalacia around the autograft and on the opposite joint surface of the tibial plateau.

Abstract number: 26020 RESULTS OF MOSAICPLASTY - ROLE OF ETIOLOGY AND LOCALIZATION OF LESIONS

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Aim: to determine the influence of etiology and localization of lesions on the outcome of mosaicplasty. Material and methods: After an average follow-up of 4 years and 2 months, results of mosaicplasty were available for 64 patients. The mean age was 28 vears and 5 months. The type and etiology of these lesions were: chondral posttraumatic lesions 30, osteocartilaginous fractures 14, osteochondritis dissecans 20. The lesions were located on the medial femoral condyle 46, lateral femoral condyle 8, femoral trochleea 6, patella 4. The IKDC Score was used to quantify the results. Results: The average final scores were: medial femoral condyle 85, lateral femoral condyle 83, femoral trochleea 77, patella 79. For the femur, the results (mean IKDC Scores) according to localization in the Cahill and Berg classification were: Zone 1 -86,24; Zone 2 -85,31, Zone 3 -88,36; Zone 4 -82,44; Zone 5 -82,17. The mean IKDC Scores according to localization in Harding areas were: A -86,23, B -84,58, C -84,15. The average final IKDC Scores depending on etiology were: posttraumatic chondral lesions -86,72; osteocartilaginous fractures -88,22; osteochondritis dissecans 82,14.Conclusions: The site of lesion influences the treatment outcome: the mosaicplasty of condilar lesions have better results than those of trochlear or patellar lesions. The best results are recorded in the third compartment in Cahill and Berg classification and in the A segment of Harding classification. The posttraumatic chondral lesions and osteocartilaginous fractures have better prognostic than osteochondritis dissecans.

Abstract number: 26163

FUNCTIONAL OUTCOME FOLLOWING COMBINED SIMULTANEOUS AUTOLOGOUS CHONDROCYTE IMPLANTATION AND HIGH TIBIAL OSTEOTOMY

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High tibial osteotomy (HTO) and Autologous chondrocyte implantation is a recognised method of correction for knee joint malalignment, unicompartmental osteoarthritis and osteochondral defects. This study evaluates the functional outcome in a group of twenty three patients undergoing a combined ACI-HTO procedure identified retrospectively from a larger cohort undergoing ACI procedure. The mean follow-up was 54 months (range 12 - 108) and the mean defect size was 689 mm2 (range 350 - 1200). Nine patients had ACI-C and HTO, the remainder having MACI and HTO. The Mean VAS score improved from 7.4 pre-operatively to 2.9 post-operatively (p<0.0001). The Bentley Functional Rating Score improved from 2.9 to 1.8 (p<0.0001) whilst the Modified Cincinnati Rating System improved from 35.2 pre-operatively to 68.7 post-operatively (p<0.0001). There was no significant difference between ACI-C and MACI. Two patients developed a non union at a mean of 13 months and a further two patients had a failure of the chondrocyte graft Combining high tibial osteotomy with autologous at a mean of 22.5 months. chondrocyte implantation is an effective method of decreasing pain and increasing function at mean of 54 months follow-up. Further follow-up is required to assess the long term outcomes of these combined procedures.

Abstract number: 26763

DEVELOPMENT OF A STRUCTURALLY GRADED POLYCAPROLACTONE (SGPCL) SCAFFOLDS FOR HYALINE CARTILAGE REPAIR

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INTRODUCTION: Articular cartilage defects have shown a limited potential to heal, which can lead to pain, swelling, and early osteoarthritis. The aim of this study is to develop a novel SG-PCL scaffold for hyaline cartilage repair. METHODS: A novel SG-PCL scaffold was constructed using rapid prototyping. PCL fibers (MW 50 kDa) with a diameter of 120 µm were plotted producing a 3D web. The scaffold was subsequently submerged into a mixture of dioxane, PCL and water, and lyophilized at -32° , creating an extremely porous graded structure. By shifting the water/dioxane ratio 16 scaffolds with different pore sizes were made. Using scanning electron microscopy, two scaffolds were selected. The two scaffolds were then constructed with either 25kDa or 50kDa graded structure giving a total of four different scaffold. They were cultured with human chondrocytes and the viability was analyzed using confocal microscopy after 1, 3 and 6 days. The scaffolds were rated based on cell migration, cell shape and distribution of viable cells. RESULTS: The scaffolds contained macro-, micro-, and nano-pores. A large difference in investigated parameters was observed and a water-dioxane ratio of 0.0415 provided the most viable environment for chondrocytes according to the above-mentioned criteria. CONCLUSION: We successfully constructed a SG-PCL scaffold that can be used in future in vivo experiments, and has the potential of subsequent functionalization with nano particles and growth- and differentiation factors

Abstract number: 26765 CHONDROCYTE GENE EXPRESSION IS AFFECTED BY VSOP-LABELING IN LONG-TERM IN VITRO MRI TRACKING

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INTRODUCTION: Autologous chondrocyte transplantation is an essential part of many treatment procedures for cartilage repair. The aim was to investigate the effect and dose-response of very-small iron oxide particle (VSOP) labeling of human chondrocytes for long-term in vitro MRI tracking. METHODS: Chondrocytes were isolated from cartilage biopsies from four patients. The cells for the dose-response study were labeled with 25, 50 or 100 µg/mL VSOP. Quantitative gene expression and cellular proliferation were compared to unlabeled controls at day 1, 3, and 7. The cells suited for MRI tracking were labeled with 50 µg/mL VSOP and embedded in alginate beads, followed by MRI (using T2-weighted sequences) at day 0, 1, 3, 7, 14, 21, 28, and histology was performed at each time-point. RESULTS Histology revealed that VSOP particles were intracellularly confined at all time-points, whereas no extracellular VSOP's were observed. A mean reduction in T2-value of 25.1 ms (±SD 3.5 ms) was found on T2-maps. The chondrocyte-specific genes aggrecan, collagen type 2, and sox9 were all affected by labeling, the two latter in a dosedependent manner. VSOP's had no effect on proliferation. CONCLUSION: VSOPlabeling of chondrocytes affected gene expression but not proliferation. The labeled chondrocytes could be recognized by MRI for 4 weeks without significant changes in the T2 relaxation time.

Abstract number: 26775

A SINGLE STAGE PROCEDURE FOR CELL-BASED CARTILAGE REPAIR: 24 MONTH RESULTS FROM A PILOT STUDY

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Cartilage autologous implantation system (CAIS) is a surgical method in which hyaline cartilage fragments from a non-weight bearing area in the knee joint are collected and then precipitated onto an absorbable filter that is subsequently placed in the focal chondral defect. The clinical outcome of CAIS was compared with microfracture (MFX) in a pilot study. In an IRB approved protocol patients (n=29) were screened with the intention to treat, randomized (2:1, CAIS:MFX) and followed over a 24 month period. To be included in the study the patient may have up to 2 contained focal, unipolar lesions (ICRS grade 3d and ICRS Grade IVa OCD lesions of femoral condyles and trochlea with a size between 1 and 10 cm2. We report 24 month patient-reported outcome (PRO) data using the KOOS-scale. We noted that at 12 months after the intervention CAIS differentiated itself from MFX in that the changes in Sport & Recreation subscale were different (p<0.05, t-test) at 12, 18, and 24 months. QoL data were different at 18 and 24 months. The other KOOSsubscales in CAIS and MFX were not significantly different at any time point. The data suggest that CAIS led to an improvement in clinical outcomes in the second year post-intervention. It is possible that the improvement of symptoms that we measured may be associated with the formation of hyaline cartilage. Study funded by ATRM and DePuyMITEK.

Poster Topic: Evidence Based Orthopaedics

Abstract number: 24463

EFFECT OF FEMORAL NECK MORPHOLOGY VARIATIONS ON THE ARTICULAR BEARING OF THE MEDIAL KNEE COMPARTMENT

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The connection between varus and valgus deformities and gonarthrosis is well known. Very few reports exist concerning the relation between the torsional element of the femur (anteversion) and the development of knee osteoarthritis. A digital 3D solid model of the left physiological adult femur was used to create morphological variations of different neck-shaft angles (varus 115, normal 125 and valgus 135 degrees) and version angles (-10, 0 and +10 degrees). By means of finite element modeling and analysis techniques (FEM-FEA), a virtual experiment was executed with the femoral models aligned in a neutral upright position, distally supported on a fully congruent tibial tray and proximally loaded with a vertical only hip joint load of 2800 N. Equivalent stresses and their distribution on the medial compartment were computed and comparatively evaluated. We found that neck-shaft angle proved of rather indifferent influence with respect to bearing equilibrium conditions in the medial knee compartment. Reduction of the femoral version angle is associated with a substantial increase of stresses at the medial and posterior guadrants of the compartment under study, thus reflecting an increased tendency for equilibrium towards these directions. In this virtual experiment, no ligamentous structures were adopted. However, based on these preliminary findings, it is believed that under reduced femoral version, even in dynamic gait conditions, such tendencies although resisted would indeed exist; mainly as a consequence of prevailing differences in the mechanical axis alignment. Our preliminary findings will be further elucidated by more sophisticated FEM-FEA and clinical studies currently planned.

Poster Topic: Evidence Based Orthopaedics

Abstract number: 25195

THE USE OF A MINI HANDMADE DRAIN AFTER CHEVRON OSTEOTOMY

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Introduction: Closed vacuum drains are used to remove body fluids, to prevent the accumulation of blood and serous fluids and to improve wound healing and recovery. Chevron osteotomy is performed to treat moderate hallux valgus deformities and it can be complicated with hematoma, edema and infection. Aim: The purpose of this study was to present the results of the use of a mini handmade drain in patients with hallux valgus, who were treated with chevron osteotomy. Patients-Method Twenty two patients underwent a chevron osteotomy. Twelve of them (group A) were treated without insertion of any drain and ten of them (group B) with insertion of mini handmade drain before wound closure. The drain was removed after 24 hours. The postoperative management was the same for all of them. We evaluated the dressing changes before suture removal, the days untill sutures removal, the rates of wound erythema and infections, the postoperative hospital stay and the mean blood quantity in the drain. Results: The use of this hand made drain results to fewer dressing changes before suture removal (3,5/2,2 times), rapidly sutures removal (13,1/10,3 days), lower rates of wound erythema and infections (3/1), shorter postoperative hospital stay (mean 4,2/3,8 days). The mean blood quantity in the hand made drain was 3,8ml. Conclusions: The use of this mini handmade drain is a cheap and effective method for the early postoperative period in patients with hallux valgus who were treated with chevron osteotomy.

Poster Topic: Evidence Based Orthopaedics

Abstract number: 25260

THE EFFECTS OF FOOT EXERCISE ON BLOOD FLOW TO DEEP VEINS OF THE LOWER LIMB

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Objective: To clarify the appropriate exercise time and the duration, we investigated the effects of foot exercise on blood flow to the deep veins of the lower limb for the prevention of deep vein thrombosis (DVT). Materials and Methods: We enrolled 11 normal young adults (men, 8 and women, 3; average age, 23 years). The subjects performed foot exercise for 1 min (1-min exercise group) or 5 min (5-min exercise group) with maximum plantar flexion and dorsiflexion of the ankle for 2 s. We measured peak blood flow volume (FVmax) and peak blood flow velocity (Vmax) at the right superficial femoral vein using an ultrasound unit with a 7.5-MHz linear probe. The blood flow was measured at a point 3 min after rest in the supine position and at 0, 10, 20, and 30 min after the exercise. Both groups of the FVmax and Vmax values were compared and change in these values was measured at each point after the exercise. Results: FVmax values increased significantly at 0 min after exercise in both exercise groups. At 0 min after exercise, Vmax values increased significantly in the 1-min exercise group but not in the 5-min exercise group. In both exercise groups, the values FVmax and Vmax decreased to the baseline value 10 min after exercise. Conclusion: The increase in blood flow induced by foot exercise was a temporary effect, and foot exercise for 1 min was sufficient for the prevention of DVT.

Abstract number: 22904 TRAPEZIECTOMY AND CAPSULAR INTERPOSTIONAL PROCEDURE -RESULTS OF PATIENT FOLLOW UP

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Background: Trapeziectomy is done for osteoarthritis affecting the CMC joint of the thumb. Many surgical procedures have been described to fill the potential space post trapeziectomy. Results with these techniques are varied with regards to subjective relief of symptoms and pinch strength. We raise a distally based redundant capsular flap of the carpometacarpal joint of the thumb, proceed to trapeziectomy, then insert the free end of the flap into the potential space. The aim of our study was to assess the subjective outcome of this technique. Material & methods: Retrospective study done in our institute included 35 patients and 40 thumbs. Patients were followed up for a mean of 3 years (1-5 years). Outcome was assessed by Disabilities of the Arm, Shoulder and Hand (DASH) questionnaire. Results: Majority of the patients were females and the mean DASH score was 36.2 range (1.72 - 62.1). Majority of the patients were pleased with the procedure but due to other joints in the upper limb being affected reflected badly on the DASH scores. Conclusions: This study showed that patients had good pain relief with this procedure which was simple and using the redundant capsule flap. This was also associated with less morbidity compared to other procedures described. This also shows that DASH questionnaire is not a good tool in assessing outcomes in patients who have multiple joint pathologies in the upper limb.

Abstract number: 22921

PRELIMINARY EXPERIENCE WITH LOCAL HAEMOSTATIC AGENT (VITAGEL™) IN TOTAL KNEE REPLACEMENT

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Introduction: - The purpose of this study is to ascertain the effectiveness of haemostatic agent (Vitagel) in TKRs. Material and methods: - From Feb 09 to August 09, we prospectively studied 25 consecutive patients (mean age, 69.5 years; range, 60 to 84 years; 17 female, 8 male). Who had undergone TKRs. Patient demographics, perioperative blood loss, the need of blood transfusion, hospital length of stay and post-operative complications were recorded. The patients were divided in two groups. In group A, 11 patients received 1 unit of Vitagel, placed in the medial gutters, lateral gutters and suprapatellar pouch prior to deep closure of implanted TKRs. In group B, 14 patients were used as control group. Results: - Both groups have similar demographic details. The study revealed no significant difference between the 2 groups with regards to hospital length of stay (5 vs.7; p> 0.05 with 95% CI -3 to 0) and drop in haemoglobin level (2.4 vs. 2.3; p> 0.05 with 95% CI -1.1 to 1.1). However, the blood transfusion requirement is less in group A as compared to group B (risk ration 0.778; odds ratio 0.556). No difference was observed in complication rates in both groups. Conclusion: - Hospital length of stay was shortened in group A but not statistically significant. However, there is a 10.4% absolute risk reduction for transfusion in group A compared to group B.

Abstract number: 22969

COMPARATIVE SURVEY OF PAIN-ALLEVIATING EFFECTS BETWEEN ULTRASOUND-GUIDED INJECTION AND BLIND INJECTION OF LIDOCAINE ALONE IN PATIENTS WITH PAINFUL SHOULDER

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Background: Complaints of shoulder pain are very frequent in clinical practice. To relieve this type of pain, intra-subacromial bursa (SAB) injection therapy is commonly employed. Injection procedures include blind and ultrasound-guided injection. In clinical practice, blind injection is routinely performed. However, the SAB is a very thin tissue. Poor response to blind injection may be due to a misplaced injection. It is assumed that ultrasound-guided injections are more effective than blind injections. The purpose of this study was to compare pain-alleviating effects between ultrasound-guided injection and blind injection with lidocaine alone. Materials and methods: The subjects were 16 patients (20 shoulders) in whom pain was possibly derived from inflammation of the SAB. Initially, ultrasound-guided injection was performed with 2 ml of 1% lidocaine. After 1 week, blind injection was conducted in the same patient. They subjectively expressed the grade of pain at each time point (before and 1, 5, 10, 15, 20, 25, and 30 minutes after injection) as pain scores. We calculated the amelioration rate by dividing differences between the scores at each time point and before injection by the pre-injection score. Results: Pain scores of ultrasound-guided injection were lower than blind injection. Ultrasound-guided injection achieved higher mean amelioration rates compared to blind injection, showing significant differences at all time points (P<0.01). Conclusions: Ultrasoundguided technique achieved higher effectiveness compared to blind technique.

Abstract number: 23038 SYNOVIAL CHONDROMATOSIS.A REPORT OF 9 PATIENTS.

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The aim of our work is to present our experience in treating 9 patients with synovial chondromatosis, a rare entity in Orthopeadics. In the period 1997-2007 5 patients with synovial chondromatosis of the knee, 3 patients with infrapatellar bursal chondromatosis and 1 patient with hip chondromatosis were treated in our clinic. Five of them were males and four females. The age of the patients ranged between 31-62 years with an average of 42 years. The cause was repeat minor trauma in 5 patients while no apparent cause was found in the remaining four. The main clinical symptoms were joint swelling and pain in 5 patients, mild discomfort in the affected joint in 2 patients and no symptoms (accidental finding) in 2 patients. Six of the patients were submitted in open joint debridment two in arthroscopic removal of osteochondral bodies and one in total knee arthroplasty due to osteoarthritis .During follow up (1-10 years) we had no complications or transformation. The radiological and clinical results were satisfactory without recurrence and pain. The function of the joint was good with full range of motion. Please to be accepted as a poster

Abstract number: 23039

FOOT TRIPLE ARTHRODESIS.16 CASES WITH MEAN FOLLOW UP OF 11 YEARS.

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The aim of this retrospective study is to present our experience and the results of triple arthrodesis in 16 patients. Between1994-2001 16 patients were managed by triple arthrodesis. The cause was idiopathic subtalar osteoarthritis in 3 patients, postraumatic subtalar osteoarthritis in 6 patients (after a calcaneal fracture), spastic flatfoot in 2 patients, polio in 3 patients and neglected equinovarus due to meningitis in 2 patients. The operation stages included corrective osteotomies for the deformities, removal of the articular cartilage, grafts placement(8 patients), fixation with Steinman or staples in 7 patients(no internal fixation materials in the other patients) and stabilization with brace for 3 months. The patients were encouraged to start partial weight bearing after 3 months postoperatively which switched to full weight bearing after 4 months. Union was achieved in all patients within an average of 4.2 months (range 3-6 months).Neither major or minor complications were observed in an average follow up of 11 years except an ankle subluxation in a patient with polio who was submitted in ankle fusion with intramedullary nailing. Please to be accepted as an oral presentation.

Abstract number: 23057 70 LOOSE BODIES IN BAKER'S CYST -CASE REPORT

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Synovial osteochondormatosis is a rare benign condition characterized by formation of one or more loose bodies by the synovial membrane in a joint, or occasionally in a bursa or tendon sheat. We report an interesting case of a patient with 70 loose bodies in large 7x2.5x2cm Baker's cyst of the left knee. A 68 year old caucasian male presented to the outpatient department complaining of increasing pain and stiffness in his left knee over the last 3 years. Radiographs of his left knee showed moderate to severe degenerative changes involving the patello-femoral and medial joint compartment. In addition to osteoarthritic changes extensive calcific foci within the posterior aspect of the knee joint where noted. Ultrasonographic appearance was suggestive of synovial osteochondromatosis within a baker cyst and the mass appeared to originate form gastrocnemus, semimembranosus bursa. The patient underwent a routine total knee replacement and through a small posterio-medial incision the popliteal cyst was exposed and 70 loose bodies were removed. Our patient made an unremarkable recovery and was discharged on the 4th day post-op. To our knowledge such a high number of loose bodies confined to Bakers's cyst has never previously been described.

Abstract number: 23091 COMPRESSION AND DISTRACTION TRANSOSSEOUS OSTEOSYNTHESIS METHOD IN TREATMENT OF PATIENTS WITH ANKLE JOINT AND FOOT PATHOLOGY

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Introduction: The problem of treatment of patients with pathology of ankle joint and foot remains actual due to the high occurrence of the pathology and increasing of number of technogenic trauma as well as military conflicts. The progress in the development of surgery grew rapid with introduction of method of controlled transosseous Osteosynthesis into the clinical practice. Material and methods: The present paper is based on the experience of treatment of 537 patients (627 segments) aged 1 to 68 years. Patients' number with congenital pathology of the ankle joint and foot was 59%, patients suffered from acquired pathology counted up to 41%. The shortening of the tibia and foot were present from 0.5 to 18 cm. All patients were treated out-patiently and had active life style in the process of treatment. Result: The closest follow-up was studied in all patients in the period of 1.5-2 months at 6 and 12 months after the apparatus removal, and some results were studied in 328 patients: "good" results were obtained in 91.1% of all patients, "satisfactory" results counted up to 8.9%, and "non-satisfactory" was not revealed at all. Conclusion: Thus, clinical introduction of the developed complex system of surgical treatment of patients with ankle joint pathology and foot allowed for increasing of effectiveness of specialized medical help, mostly within the limits of preferably one-stage treatment process, excluding the recurrence of the pathology.

Abstract number: 23253

COMPUTATIONAL PSYCHOLOGICAL STUDY OF BRIEF SCALE FOR PSYCHIATRIC PROBLEMS IN ORTHOPAEDIC PATIENTS (BS-POP) FOR PATIENTS WITH CHRONIC LOW BACK PAIN (CLBP)

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Introduction: We developed the Brief Scale for Psychiatric Problems in Orthopaedic Patients (BS-POP) (doctor and patient versions). The present study aimed to proactively verify the factorial validity, internal consistency, reproducibility, criterionrelated validity and responsiveness of the BS-POP with regard to chronic low back pain patients. Methods: Subjects comprised 188 chronic low back pain patients. During the first test, the BS-POP, Minnesota Multiphasic Personality Inventory (MMPI), Profile of Mood States (POMS), 36-Item Short-Form Health Survey version 2 (SF-36 v2) and Roland-Morris Disability Questionnaire (RDQ) were conducted. In the second test, patients were asked to complete the BS-POP in order to verify BS-POP reproducibility. The BS-POP, POMS, SF-36 v2 and RDQ for the third test were conducted to determine the responsiveness. Results: Factor analysis demonstrated factorial validity of the BS-POP including 1-factor structure. Internal consistency was confirmed by Cronbach's reliability coefficient of 0.754. The correlation coefficients for the retests were r = 0.920 (doctor version) and r = 0.853 (patient version), showing reproducibility. Criterion-related validity was confirmed through strong association with the psychosocial factors of the SF-36, the MMPI, and the POMS. In comparison with the first test, the total crude scores for BS-POP in the third test were significantly lower. Moreover, the crude RDQ scores and the psychosocial factors of the SF-36 v2 significantly improved, confirming responsiveness to treatment. Discussion: The present findings indicate that the BS-POP possesses sufficient reliability regarding computational psychology. The BS-POP constitutes a tool enabling orthopaedists themselves to easily identify psychiatric problems in orthopaedic patients.

Abstract number: 23300 OCCUPATIONAL REPETITIVE STRAIN INJURIES IN HONG KONG

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Introduction: There is a consensus that occupational musculoskeletal disorders are a major problem leading to adverse health and economic consequences. Workers with occupational musculoskeletal disorders have poorer self-perception of physical and mental health. The objective of this study is to review available evidence on the epidemiology and management of occupational repetitive strain injuries with particular reference to Hong Kong. Methods: Literature search of local and internationally published English journals from 1990 to 2007 regarding repetitive strain injuries. All articles involving occupational repetitive strain injuries in Hong Kong were included in this review. Results: There were 16 articles contributing data on the impact of repetitive strain injuries on both Hong Kong and around the world. There were seven articles dealing with the problem of computer station setup and methods of improving the workstation environment. Conclusion: Most arrangements offered to injured workers consisted of temporary modifications such as reduced hours (24%), flexible work hours (25%), or a lighter job (57%), rather than more permanent changes to the way that work was conducted such as changes to the work layout or equipment (8%). Only 36% of injured workers reported that their employer offered to make arrangements to help them return to work in their first year post-injury. Rest and exercise breaks for computer users were shown to increase the likelihood of recovery from symptoms: 55% versus 34% in users without breaks. More data are required to clarify the effectiveness of interventions and for discovering the barriers preventing higher rates of uptake.

Abstract number: 23363

SIMULTANEOUS MEASUREMENTS OF KNEE MOTION USING OPTICAL TRACKING SYSTEM AND RADIO STEREOMETRIC ANALYSIS (RSA)

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Invasive methods are more reproducible and accurate than non-invasive to record knee joint kinematics, but are usually less accessible and less safe. Therefore, noninvasive methods with passive markers are widely used. With these methods varying marker-sets based upon a number of single markers, or sets of markers, known as clusters are used to track body segments. We compared one invasive method, radio stereometric analysis, with a non-invasive method, an optical tracking system with 15 skin mounted markers. Nine subjects (ten knees) were investigated simultaneously with a dynamic RSA system and a motion capture system while performing an active knee extension. For flexion/extension there was good accordance on individual basis as well as a group. For internal/external rotations the group mean was rather similar up to 25 degrees of flexion. Recordings of abd-/adductions revealed a systematic mean difference of 2-4° during the measured range of flexion. Correlation between the two methods in the horizontal and frontal planes was poor. Our skin marker model provided reliable data for flexion/extension. Recordings of internal/external rotation and abduction/adduction were less accurate on individual basis than on group level, most likely due to soft tissue motions and presence of small true motions in these planes.

Abstract number: 23384 FATAL ACUTE PULMONARY EMBOLISM FOLLOWING CONSERVATIVELY MANAGED ACHILLES TENDON RUPTURE

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Tendoachilles ruptures are commonly encountered in the orthopaedic/sports medicine practice. We report a rare case of fatal pulmonary embolism (PE) following conservatively treated tendoachilles rupture. A 34 year old healthy young adult male presented inability to weight bear while playing football. He was a non smoker and no previous history of DVT/risk factors. Clinical examination confirmed tendoachilles rupture. He preferred non operative treatment and was given A/K cast for 2 weeks and then planned for B/K plaster for 2 weeks. He presented 10 days later complaining that plaster felt tight. His calf was soft, non tender with no increase in girth. He was given a new below knee plaster. He represented 4 days later complaining of some breathlessness. Examination revealed no DVT signs/ tachypnoea/reduced oxygen saturation. He was getting some chest pain occassionally and felt it was secondary to using axillary crutches causing pectoral muscle strain. In view of his symptoms, D dimers, Chest radiograph and ECG were organised and was referred to physicians. Calf doppler revealed a popliteal vein thrombus. D dimers were high with normal clotting profile, ECG and chest radiograph. He was treated empirically for PE with therapeutic enoxaparin and CT angiogram was organised next day. That evening, he had cardiopulmonary arrest and resuscitation attempts failed. Postmortem revealed a massive pulmonary embolus at the bifurcation of pulmonary vessels. Our case report highlights the importance of keeping DVT/PE as possible diagnosis in patients with cast inspite of absence of risk factors.

Abstract number: 23451

THE ROLE OF REACTIVE OXYGEN SPECIES IN ISCHAEMIC- REPERFUSION INJURY AND THE USE OF ANTIOXIDANTS IN ITS POTENTIAL PREVENTION FOLLOWING KNEE SURGERY Simon GRAHAM

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In the UK, over 55, 000 TKAs are carried out annually, most of which have a successful outcome. The pneumatic tourniquet has long been an indispensable tool in the practice of orthopaedic surgery and it is used as a mean to provide a clean bloodless surgical field, aid visualisation of vital structures, minimize blood loss and hence expedite the procedure. Restoration of adequate blood flow following tourniquet application is essential to salvage ischaemic skeletal muscle, providing oxygen and substrates that are necessary for tissue recovery and concurrently removes toxic metabolites. However, reperfusion may induce various detrimental processes that may cause further tissue damage. Such deterioration of tissue function after reperfusion is defined as ischaemia-reperfusion injury. The consequences of ischemia-reperfusion injury vary from reversible cell dysfunction to local and remote tissue destruction, multiple organ failure and death. This poster/presentation aims to provide a review of ischaemia-reperfusion injury (I-R) following knee arthroplasty and arthroscopy. While I-R injury is thought to be multifactorial in its aetiology and pathogenesis, this poster/review is designed to focus on the specific role of free radicals and reactive oxygen species (ROS) as well as the importance of antioxidants in its attenuation and potential prevention.
Abstract number: 23498

RUPTURE OF THE FLEXORS TENDONS AFTER VOLAR LOCKING PLATE FOR DISTAL RADIUS FRACTURES: ABOUT 6 CASES.

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We report 6 cases of flexor tendon ruptures, which occurred after distal radius fracture treated by locking plate. Almost 30 other cases have been reported in the literature since 1932. After our analysis, 5 cases of ruptures concerned the flexor pollicis longus tendon and other tendons have been involved in one case. In our cases, tendon's ruptures occurred within 6 months to 4 years after surgery. We reviewed all the patients, in order to determine the raisons of these flexor tendon ruptures and then we proposed a surgical treatment (tendon repair and concomitant removal of the locking plate). In 3 cases, we performed a tendon repair and a plate removal. In 3 cases, the plate was only removed. The flexor tendon ruptures occured, in 2 cases because of the design of the plate (too prominent), in 3 cases because of plate's position (too distal), and in one case because the plate was not ajusted for the fracture reduction on a previous callus. A deformed callus after distal radius fracture or the presence of a volar plate can lead in certain circumstances to secondary flexor tendon tears. The mostly involved is the tendon of the flexor pollicis longus and then the tendons of the index finger. We emphazise the importance of initial anatomic radius reduction, in order to avoid secondary flexor tendon complications. Moreover we propose systematic locking plate removal in dynamic patients (less than 60 years-old) and in cases of volar wirst pain during thumb mobilization.

Abstract number: 23504 BILATERAL IDIOPATHIC GLUTEUS MAXIMUS CONTRACTURE-CASE REPORT AND REVIEW OF LITERATURE

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Bilateral gluteus maximus contracture is an infrequently reported clinical entity. A 14year old female presented to the orthopaedics outpatient department with complain of inability to squat and painless awkward gait. On examination, the girl walked with both her limbs in mild abduction. On attempting to sit or squat, she could only flex her hips in abduction and assumed a frog like position. The hip joint could be flexed to 130° in wide abduction. The arc of abduction was 20 °-45°. Hip rotations were full and free. The patient underwent surgical release of the contracture. There was a fibrotic part of the muscle, extending up to the inferior aspect of the gluteus maximus attachment to the tensor fascia lata. In our case the entire inferior portion of the gluteus maximus muscle and its insertion over the iliotibial band over the greater trochanter was involved. Excision of the fibrous tissue in the inferior part of gluteus maximus and transverse division of part of the iliotibial band over the greater trochanter could correct the deformity.

Abstract number: 23569 TREATMENT OF HIP DEFORMITY AND PELVIC OBLIQUITY WITH EXTERNAL FIXATION

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Treatment of pelvic obliguity often depends of hip deformity and consider a special method for correction, hip and knee axis need a special correlation of alignment for this reason a special hinges are modified for treatment of either isolated hip, knee deformities or combined, a special hinges modified for treatment both of hip and knee deformities, the used hinges are modified system of Salamehfix4, [SLDF4] .From 2002 to 2008, 85cases where treated with various hip and knee deformities. Cases which treated are congenital or acquired femur deformities, neglected hip dislocations or subluxations or post traumatic and post paralytic hip mal alignment and the main principal procedure done it's the pelvic support osteotomy according to Ilizarov principal in treatment of Neglected dislocations in order to restore femur length and hip and knee alignment. Other cases where treated are some of hip and knee post traumatic or congenital or even some cases of Osteoarthritis. Complications where mostly superficial pin infection which treated locally. Conclusions: Correction of hip deformity is very essential for treatment of pelvic obliguity and the used system is differs by simplicity, small size in correlation to its functional hinges and stability of fixation and gives good results.

Abstract number: 23746

BLOOD LOSS IN ARTHROPLASTY- DOES EXTENDED DVT PROPHYLAXIS WITH TINZPARIN INCREASE BLOOD LOSS OR TRANSFUSION RATES? S THOMAS, S MULLER

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Background: The national institute of clinical excellence (NICE) UK has recommended a 28 day post operative course of tinzparin for patients undergoing knee or hip arthroplasty. This has led to concerns regarding increased bleeding and wound ooze. Aim: To study the blood loss and blood transfusion rates in patients undergoing arthroplasty and to identify if extended DVT prophylaxis with tinzparin increase transfusion rates. Methods: 102 patients who had either hip or knee arthroplasty were selected for this study. 51 cases were done prior to introduction of the 28 day course of tinzparin and 51 who were given a 28 day course of tinzparin post operatively. For indirect blood loss assessment the preoperative and post operative haemoglobin counts (up to 28 days post op) were checked. Blood transfusions in these patients were also checked. Results 17 patients in the pre 28 day tinzparin group were transfused compared to 14 in the 28 day tinzparin group. The mean haemoglobin drop in the pre 28 day tinzparin group was 4.26 compared to 3.83 in the 28 day tinzparin group. There was no statistically significant difference in the transfusion rates and haemoglobin drop between the two groups. There was no significant difference in haemoglobin drop between the operating surgeons. Conclusion: Our study shows that extended DVT prophylaxis with tinzparin did not cause any significant increase in blood loss or blood transfusion rates.

Abstract number: 23838

HETEROTOPIC OSSIFICATION FOLLOWING CARDIAC ARREST AND HYPOXIC BRAIN DAMAGE

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Background: Heterotopic ossification is the formation of osseous masses in the soft tissues where it does not normally occur. It can cause severe stiffness of joints. The aetiology may be posttraumatic, neurogenic or gentic. Objectives: We aim to assess the development of heterotopic ossification in patients who suffer hypoxic brain injury, and look at the impact on the rehabilitation process. Materials and Methods: We identified 39 patients who developed hypoxic brain injury after cardiac arrest. We assessed the conscious level, spasticity and joint stiffness. We diagnosed those who developed heterotopic calcification using clinical examination, blood markers and Xray imaging. Those who had X ray findings of heterotopic calcification were further assessed by CT scan. Results: In 39 patients, 6 developed heterotopic calcification (15%). The cause of cardiac arrest varied. We found that in those patients with heterotopic calcification, there was increased pain at the site, with increased stiffness of the joint involved. The commonest joints involved were the hip, elbow and shoulder. 3 patients had multiple joints involved. Conclusions: Heterotopic ossification can occur in up to 15% of patients following hypoxic brain injury. It can lead to increased pain in joints on movement and can prolong the rehabilitation process of the patient

Abstract number: 23925 ELECTROMAGNETIC STIMULATION FOR DELAYED UNION OF HUMERAL SHAFT FRACTURES

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Introduction: The humeral fracture delay union was always a challenge for an orthopaedic surgeon when the initial treatment had to be reviewed. The combination of conservative or surgical treatment with the electromagnetic stimulation for fractures union delay is under serious consideration. Aim of study: The evaluation of electromagnetic stimulation effectiveness in humeral shaft union delay in combination with the initial treatment carry on. Material and Method: From 2000-2005, EMS was applied in seven patients aging from 26-45 years-old with humeral shaft fracture union delay. Initially they were treated with U-slab and Sarmiento brace. The x-rays at 8 weeks revealed fracture inability to consolidate. We decided to apply EMS, a patient-friendly, light-weighted and portable device. The application was taken place once a day at the same time for half an hour over the cast and over the fracture level. We performed clinical and radiological re-evaluation on each patient at 4, 6, 8 and 12 weeks after the EMS application. Results: Five of the patients developed consolidation elements after 4 and the rest after six weeks time. Clinical and radiological fracture union established after 8 weeks in 5 patients and after 10 weeks in the rest three. Discussion - Conclusion: The decision making and the treatment review time is a struggling issue for the orthopaedic surgeon in a shaft fracture delayed union. EMS has many advantages because it is non-invasive, portable, and can be prescribed in an outpatient department, having no particular difficulties on application.

Abstract number: 23940 ASSESSMENT OF LATERAL SESAMOID IN HALLUX VALGUS AND ITS CORRELATION WITH THE CONVENTIONAL ASSESSMENT

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Introduction: Conventional radiological assessment of hallux valgus involves measuring intermetatarsal angle (IMA1-2), hallux valgus angle (HVA), congruity of metatarsophalangeal joint and overall clinical assessment of the forefoot. However, in current practice, these angles are seldom measured. We observed a consistent pattern of deviation of head of first metatarsal in relation to the lateral sesamoid (LS). The position of LS in relation to head of first metatarsal has never been studied before. We aim to study this pattern to quantify the severity of the deformity and establish its correlation with the conventional technique. Methods: 122 radiographs of 67 consecutive patients who underwent a weight bearing radiographs of their feet were studied. IMA1-2 and HVA were graded as AAOS guidelines. Statistical analysis was performed to identify correlation of displacement with conventional measurements. Results: A definite pattern in displacement of LS was noted. Statistical analysis showed a high correlation between LS position and IMA1-2 with correlation coefficient Rho of 0.74 and a good statistical correlation between LS position and HVA with a Spearman's rank correlation coefficient Rho of 0.56. Discussion: LS lies laterally and any progressive deformity makes it more accessible to assessment in contrast to medial sesamoid. We report a consistent pattern and classified this position as normal, mild, moderate and severe. As it does not involve any measurements, we believe, this is quick technique of assessment of HV deformity and should help to base our operative decisions. A statistically significant correlation with the conventional techniques was also established.

Abstract number: 23995 STRESS FRACTURES OF THE TIBIA FOLLOWING ANKLE / SUBTALAR ARTHRODESIS

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Introduction: The goal of arthrodesis around the ankle / triple arthrodesis is a painless, plantigrade, and stable foot. Stress fracture is a differential diagnosis for pain following an ankle/subtalar arthrodesis. Management of stress fractures following sound ankle/subtalar fusion is extremely difficult Methods and materials: 33 patients underwent ankle/subtalar arthrodesis at our institute from 2000-2008. The average age of the patients was 69 years and the male: female ratio was 2:1.The minimum follow-up was for one year. Although there were some variations in technique, all the arthrodesis were performed by removal of articular cartilage, bone grafting of any defects and rigid internal fixation. Results: 2/33 patients developed a stress fracture of the distal tibia following successful ankle/subtalar fusion. An angle of ankle /subtalar fusion showed an average of 0 degrees +/- 3 degrees in the sagital plane, except for the two cases that developed the stress fracture. The angles in these cases were 13 and 11 degrees. The stress fractures occurred proximal to the level of the previous arthrodesis internal fixation devices (arthrodesis nail/ cancellous screws). Intramedullary and extramedullary devices were utilised to obtain union across the stress fracture sites, without success. Discussion: Equinus of more than 10 degrees following ankle / subtalar arthrodesis is a high risk factor for developing a stress fracture of the distal tibia following ankle / subtalar arthrodesis. Stress fracture following successful ankle/subtalar arthrodesis causes severe morbidity. They are extremely difficult to treat, hence are best avoided if possible.

Abstract number: 24008 TIP APEX DISTANCE IN DYNAMIC HIP SCREW STILL OVERLOOKED Parissa REZAI, Sibtain HUSSAIN

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We examined the TAD in all DHS surgeries over a one year period. The TAD was calculated using the method described by Baumgaertner MR et al through the use of the image intensifier and the PACS (electronic radiology system). The magnification was standardised on each independent x-ray on the image intensifier, from this the TAD was calculated. Most of the current literature indicates that the TAD should be less than 20 mm. Total surgeries numbered 101; we excluded 27 on the basis of not having an AP, Lateral or both x-rays. Of the 65 included the TAD ranged from 3.0 mm to 39.6 mm. 54% percent of patients had a TAD of less than 20 mm, (15%) were between 20.1-25.0 mm, 12% between 25.1-30.0 mm, fourteen percent (14%) between 30.1-35.0 mm, five percent (5%) between 35.1-40.0 mm. Although no formal follow up was made of each patient four patients had further x-rays on the system showing cut out. TAD's were 20.5, 29.0, 31.6, 32.1mm.Our work reveals that TAD in DHS surgery has been inadequate over the last year. Fourty five (45%) of DHS cases had a TAD of greater than 20.0 mm. TAD remains a critical to ensure the success of DHS surgery. It is essential all those involved in performing DHS surgery take care to ensure TAD of less than 20 mm in DHS surgery.

Abstract number: 24009 DYNAMIC HIP SCREW POSITIONING

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We studied the position of the tip of the lag screw in DHS operations over a one year period. The method described by Kyle et al was used to determine the lag screw position on image intensifier films on an electronic radiological system. On the AP xray the screw was either positioned in the superior (S), central (C) or inferior (I) position. On the lateral x-ray the screw was either classified as being anterior (A), central (C) or posterior (P). Total surgeries numbered 101, we excluded 27 because of not having an AP, Lateral or both x-rays.Fourty-one-63% of patients had the lag screw in the CC position. Six-9% were CP, four-6% CA, six-9% SC, four-6% SP, one-2% SA, three-5% IP; No screws were placed in IP or IA. Four patients had implant failure due to cut out; screw position was SC, CC, CC and CP. The two CC placed screws each had a tip apex distance (TAD) of 31mm and 29mm. The SC placed screw had a TAD of 20mm. Our work indicates that the position of the lag screw had been satisfactory in 63% of cases. The cut out rate in the centrally placed screws was most likely due to an increased TAD. The SC placed screw had a very good TAD however the position was unsatisfactory thereby leading to failure. Accurate placement of the lag screw has an important role in the success of DHS surgery.

Abstract number: 24029

INTRA-ARTICULAR MORPHINE INFILTRATION DOES NOT IMPROVE PAIN RELIEF FOLLOWING KNEE ARTHROSCOPY

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A trial was undertaken to establish whether the addition of intra-articular morphine reduced pain after knee arthroscopy. Patients listed for minor knee arthroscopic procedures were recruited and quasi-randomised into: Group 1 (10ml 0.5% Marcaine intra-articular infiltration); and Group 2 (10mg morphine in 9ml 0.5% Marcaine). All patients also received 10ml of 0.5% Marcaine around the portal wounds. Questionnaires were provided pre-operatively and pain scores were recorded preoperatively and at 1hr and 24hr after surgery. To date, 39 patients have been included in this study (Group 1 = 19; Group 2 = 20). The mean age of patients was 46 (range 17 to 80). The preoperative pain scores in the two groups were similar (5.4 & 5.37). In Group 1, there was a significant reduction in pain scores at 1hr post-op (3.47, p<0.05). The reduction in pain scores was maintained up to 24hr post-op (3.84, p<0.05). Pain scores at 1hr and 24hr post-op were similar. In Group 2, there was a reduction in the mean pain scores at 1hr post op but this was not statistically significant (3.95, p=.081). At 24hr post-op, there was an increase in the mean pain scores (5.15) although this was lower than the preoperative pain scores. Our results to date show that the addition of morphine into local anaesthetic solution does not provide improved analgesia after knee arthroscopy. The findings also suggest that the addition of morphine may be reducing the efficacy of local anaesthetic.

Abstract number: 24191

NOVEL FLEXIBLE-LIPOSOMAL GEL OF DICLOFENAC FOR PROLONGED AND FASTER RELIEF: A RANDOMIZED, DOUBLE-BLIND CLINICAL STUDY.

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To evaluate the efficacy of topically applied diclofenac in flexible-liposomal gel with a marketed gel and placebo for relief of signs and symptoms in knee osteoarthritis (OA). This was a randomized, double-blind, controlled trial on 30 patients with knee osteoarthritis. They were randomly assigned to flexible-liposomal formulation, active marketed formulation and placebo, three times a day for a period of 6 weeks. The patients were assessed by primary efficacy outcome measures included the changes from baseline to end of study on the WOMAC (Western Ontario McMaster Universities) Osteoarthritis Index. The radiographic grading of OA in the knee was performed by using the Kellgren-Lawrence criteria. We also assessed the safety by evaluation of adverse events, vital signs, and irritation at the application site. The pain, stiffness and difficulty performing routine activities showed statistically significantly decrease on completion of 6 weeks treatment, in patient treated with flexible-liposomal gel, compared to the other tested formulations. All the treatments were found to be well tolerated with no adverse event. Diclofenac in flexibleliposomal gel was found to be superior to other tested formulations like marketed gel and placebo in the relieving the symptoms of OA of the knee. Hence, it can be concluded that diclofenac in flexible-liposomal gel can be explored as a rational alternative to oral diclofenac formulations for management of various pain and inflammation related ailments including osteoarthritis.

Abstract number: 24327 TREATMENT OF UPPER LIMB DEFORMITIES WITH EXTERNAL FIXATION Ghassan SALAMEH

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For treatment of upper limb deformity and lengthening a modified special external hinge distraction system has been developed, which allows the combined Treatment of congenital and acquired complex deformities of the upper limbs. Since 1995 to 2008 this new system was used in 85 patients with deferent indications in the upper limbs they presented with upper limb length discrepancies and axial deviations and deformities. The hinges where used are modified system of /SLDF1; Salamehfix /which had the PCT. Results: The used hinge system allows multiplanr corrections, deferent size of used arcs makes it more suitable in shape and allows joint movements freely, the insertion of wires and pens in a nearly right angels makes the fixation more stable in addition to insertion in a minor painful regions makes it more tolerable, good correction and x-ray control is easy. CONCLUSION: The new developed hinges are easy to use and allow the treatment of complex deformities of the upper limbs.

Abstract number: 24391

ANALYSIS OF SUBCHONDRAL BONE CYSTS IN OSTEOARTHRITIC AND NORMAL HIPS BY USING 3 DIMENSIONAL COMPUTED TOMOGRAPHY

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The formation of bone cysts in the hip increases with the progression of osteoarthritic change. Although bone cysts have been described in many studies, the etiology for their development remains unclear and debated. The purpose of this study is to investigate the relationship between the severity of osteoarthritis and the formation of subchondral bone cysts in osteoarthritic hips. Method: We collected data on 155 osteoarthritic hips and 38 normal hips by using computer tomography scans and plain radiographs. We used 3D-CT to assess the distribution and size of the bone cysts and the width of the joint space in order to estimate the severity of osteoarthritis. We excluded hips that exhibited marked osteoarthritic changes because the cause of theses changes was unclear. We identified the osteoarthritic stage in these hips by using plain radiographs. Result: Of the 193 hips examined, 137 contained cysts within the acetabulum and 99 within the femoral head. Further, 13 of 38 normal hips contained cysts in the acetabulum. The incidence of cysts in the hip increased with narrowing of the joint space and was significantly greater in the anterior and/or middle portion of the hips than in the posterior portion. Of 81 hips with a joint space thickness of less than 1 mm, all but 2 contained multiple cysts in the acetabulum and/or femoral head. Conclusion: Cyst formation was initially observed in the anterior acetabulum and gradually progressed to involve the entire joint, including the posterior acetabulum and femoral head, as osteoarthritis worsened.

Abstract number: 24496

CARPEL TUNNEL SYNOVECTOMY: DOES CLINICAL ABNORMALITY CORRESPOND WITH HISTOLOGICAL ABNORMALITY?

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Background: Fibrous thickening of the flexor tendon synovium is a common finding during carpel tunnel decompression. This is generally accepted to be tenosynovial fibrosis. The aim of this study is to determine whether clinical appearance of abnormality corresponds to histological abnormality. Method: We retrospectively identified 49 wrists in 47 patients who underwent flexor tendon synovectomy during treatment for carpel tunnel decompression. The indication for synovectomy was clinical abnormality of the synovium intra-operatively. Histological reports were examined to determine whether histological abnormality corresponded with clinical abnormality. A post-operative functional outcome score from patients who underwent synovectomy and open decompression (group 1) was compared to patients who underwent decompression alone (group 2). Complication rates between the groups were compared. Results: Of the 49 slides analysed, inflammation was present in 10.1% (5) only. Oedema was present in 51% (25). The most common finding was vascular scelerosis of small to medium sized vessels within the synovium in 77.1% (38). The most infrequent findings were fibrosis and synovial hyperplasia 4% (2) and 2% (1) respectively. The mean functional outcome score for group 1 was 10 and 11.7 for group 2. Statistically analysis showed the difference was insignificant (p 0.065). The complication rates between the two groups were equal. Conclusion: Clinical abnormality is a poor predictor of histological appearance of tenosynovitis. Functional outcome score suggest that synovectomy for clinical abnormality confers no greater advantage but does not cause harm either. it may not be cost effective when done for this reason alone.

Abstract number: 24601 FUNCTIONAL OUTCOME OF SCAPULOTHORACIC FUSION FOR FASCIOSCAPULOHUMERAL DYSTROPHY

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AIM: To assess the functional outcome and influence on lung function of Scapulothoracic fusion in patients with Fascioscapulohumeral Dystrophy (FSHD). MATERIAL AND METHODS: All patients undergoing Scapulothoracic fusion for FSHD were prospectively studied. There were 10 fusions in 9 patients. All had significant deficit in shoulder function. The scapula was fused to the ribs using 2 rows of circlage wires tightened over longitudinal reconstruction plates augmented by fresh frozen allograft. Preo and postoperative Lung function (LFT) and Disabilities of Arm, Shoulder and Hand(DASH) scores were recorded. Active shoulder elevation was also assessed. RESULTS: There were 9 patients, 4 males and 5 females (one had staged bilateral procedures). The average follow was 29 months (Range 12-50 months). The forward elevation improved from a mean of 70 degrees to 115 degrees. The mean Forced vital capacity (FVC) reduced to 4.29 litres (2.4 - 5.8) from 4.6 Litres (3.1 - 6.4) preoperatively. This difference was not significant. The mean DASH score preoperatively was 49.96(31.66 - 74.16). This reduced postoperatively to 38.58(9.17 -70). This difference was significant (p-0.05).5 patients needed removal of implants. 1 patient needed revision of fusion for non-union. 1 patient had postoperative transient intercostal neuralgia and another developed postoperative chest infection. CONCLUSIONS: Scapulothoracic fusion gave good functional results in our small study group with improvement in DASH scores and forward elevation. This is not an operation without complications but functional gain without significant loss of lung function is achieved.

Abstract number: 24914

A MULTIDISCIPLINARY FUNCTIONAL RESTORATION PROGRAM FOR PATIENTS WITH CHRONIC BACK PAIN

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INTRODUCTION: To examine the effectiveness of a multidisciplinary functional restoration program for patients with chronic low back pain and to identify factors that can predict the vocational outcomes. METHODS: Sixty-five chronic low back pain subjects who have been off work for 16.6 ± 21.4 months (range: 0 to 20 months) participated in a 12-week multidisciplinary treatment program. Assessment was conducted at the start (baseline), midway, end of the program, and at a 6-month follow-up. Based on their vocational outcomes, the subjects were classified into the return-to-work and the not-return-to-work groups. Demographic data and baseline measurements were identified and tested as outcome predictors. RESULTS: No significant pain reduction or improvement in the psychological performance was demonstrated during the training period. Interestingly, significant pain reduction was observed at the 6-month follow-up. The rehabilitation program effectively helped regain physical function and the ability to work. 52% of the program graduates returned to work after the 6-month follow-up, and they showed more improvement in self-perception of disability and physical function compared to the not-return-to-work group. The pre-program employment status and age of the participants were the most important predictors for the vocational outcomes. The prediction model correctly classified 71% and 77% of the program graduates who returned or did not return to work, respectively. DISCUSSION: The rehabilitation program was effective in regaining the physical function and the ability to return to work. The pre-program employment status and age of the participants were the most important predictors for the vocational outcomes of the program graduates.

Abstract number: 24961 PAINFUL HIP AFTER FEMORAL NECK FRACTURE FIXATION: A DIAGNOSTIC DILEMMA

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Pain and disability after treatment of femoral neck fractures can result from several causes. Local complications such as fixation failures, nonunion, avascular necrosis, arthrosis and anterior and more lateral femoroacetabular impingement (FAI) are all well recognized and have been reported extensively. Some patients complain of pain without one of the above being an apparent cause of these complaints. We report a similar case of painful hip after femoral neck fracture fixation in a 45 year old male with cancellous screws in whom the cause of persistent pain eluded the diagnosis. After extensive work up, patient was diagnosed to have post implantation tuberculosis of hip. The patient was managed with staged reconstruction by resection arthroplasty followed at 6 weeks interval by cemented total hip replacement with excellent functional results.

Abstract number: 24974 FUNCTIONAL ANTHROPOMETRIC MEASUREMENT OF INDIAN PELVIS ON PLAIN RADIOGRAPH

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Purpose: To determine the normal values of several radiographic measurements of hip and pelvis in Indian population. Material and Methods: We conducted a crosssectional study of Indian population and calculated mean and variation seen in different parameter in Indian pelvis. We took the plain X-ray of randomly selected hundred individuals with magnification factor 20%. Different parameters including acetabular inclination angle, cup size, tear drop position, neck shaft angle, neck offset, abductor lever arm, canal size, and level of lesser trochanter were drawn on the X-rays and values measured. Results: 100 subjects were taken (63 male and 37 female). The mean of acetabular inclination angle was 37.70 +3.820 (30-470). The mean neck shaft angle was131.53+7.700 (114-158) and the most common value 1310. The mean abductor lever arm was 38.48mm+5.77(23-54) with the mode of 40. The mean cup size was 48.9+3.67 mm (34-58) with the most common value 50. The mean angle from tip of trochanter to center of head was 80.2+9.10 (62-110). Among all the seven parameters correlations were drawn. There were in all 22 correlations out of which 14 were statistically significant; Conclusion: Since there is significant difference between various measurements of Indian population with that of European population, an evaluation in the design of the implant by the manufacturers is Also this study proposes that the normal values of our own recommended. population be used as reference values in interpreting standard radiographs of pelvis.

Abstract number: 24980 COMPARATIVE HISTOLOGICAL STUDY OF DECAPITATED & NORMAL FEMORAL HEAD ABOVE 65 YRS

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Objective: The objective of this study is to assess the segmental viability of femoral head and the placement of implants and bone graft accordingly. Methods: Quadrant-wise comparative histological study was done in 22 cases of femoral head, removed for replacement arthroplasty for fracture neck femur in elderly patients and four normal head removed from persons in the same age group who died of road-traffic-accident. Result: Maximum viable cells compatible with bony union, were present in anteroinferior quadrant and so is the ideal site for implant placement. Maximum dead cells were found in posterior quadrants. If its to provide vascularized bone graft, it should be added here.

Abstract number: 25000

EVIDENCE OF ASSOCIATION BETWEEN GDF5 POLYMORPHISMS

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Congenital dislocation of the hip (CDH) is a multifactorial disease which involves genetic factors that are still unidentified. Recently, a functional polymorphism (rs143383) of the 5-UTR region of GDF5 (Growth/Differentiation Factor 5) previously reported to be associated with osteoarthritis has been associated with CDH in a Chinese population. The aim of our study was to determine whether GDF5, known to be involved in bone, joint and cartilage morphogenesis, is also associated with CDH in Caucasians. Methods: We genotyped three tagSNPs (rs224334, rs143384, rs143383) in 189 cases and 189 controls from western Brittany (France) where CDH is frequent, and tested the association using both single-locus and haplotype-based approaches. Results: The most significant association was observed with rs143384. The T allele of this SNP was overrepresented in cases (68.0% vs. 54.0%, p<0.0001). Under a recessive model, carriers of the TT genotype had a 2.22-fold higher risk of developing CDH than carriers of the other genotypes. The association was also significant with rs143383, but appeared weaker than with rs143384. The haplotype carrying the susceptibility alleles of these SNPs was also more frequent in cases (p<0.0001). This study reports, for the first time, the association between GDF5 polymorphisms and CDH in Caucasians, and points out another polymorphism of interest that requires further investigation. Reduction in GDF5 expression might lead to developmental deficiency of ligaments and capsule in hip joint, and therefore contribute to CDH pathogenesis.

Abstract number: 25025 EVALUATION OF A NEW FIBRE OPTIC TECHNIQUE FOR RECORDING OF INTRAMUSCULAR PRESSURE (IMP)

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We have evaluated the performance of a new fibre optic catheter to measure IMP in a human model of simulated leg compartment syndrome. IMP in the anterior tibial muscle was measured simultaneously by a fibre optic technique (Samba Sensor) and a needle-injection technique (Stryker) in 12 legs of 7 healthy subjects (age 23-37 years). Through a Venflon tube (1.3 mm) an optic transducertipped fibre (diameter 0.42 mm) was inserted 20 mm lateral to tibial tuberosity. The Stryker needle (1.3×64 mm) was inserted 10 mm lateral or medial to the optic fibre into the same depth, verified by sonography. Abnormally elevated IMP was induced by venous obstruction IMP at baseline was 4.7±1.8/6.6±2.5 mmHg (p<0.05) for the fibre of a casted leq. optic/needle system. It was 48.6±7.1/47.8±7.0 mmHg during simulated compartment syndrome. The amplitude of the IMP oscillations was 3.3±1.4 mmHg. At rest after the test IMP was 4.5±1.7/7.4±3.6 mmHg respectively. IMP increased significantly following each injection of 0.1 ml of saline and remained elevated. Conclusion: The amplitude of IMP oscillations during abnormally elevated IMP can be recorded by the fibre optic technique and used in the diagnosis of compartment syndromes. The fluid injections techniques are prone to measure artificially elevated IMP. The fibre optic technique is superior due to its low compliance of the pressure recording system.

Abstract number: 25028

THE ENDOEXO PROTHESIS FOR BOTH SIDED TRANS-FEMORAL AMPUTEES Dietrich SCHULTE-BOCKHOLT, Tim REITZEL, Philipp KRAEMER, Paul Alfred GRUETZNER

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It is now 10 Years since the EndoExo prothesis for transfemoral amputees was introduced in Germany. The EndExo prothesis is an implant in the femur that exits the skin through a stoma and allows the anchorage of the leg prothesis directly to the implant. The report will present two cases of both sided transfemoral amputees which were treated with the EndoExo prothesis. By presenting those two cases we will show indications and contraindications as well as the advantages and hazards of this method. The EndoExo prothesis offers a feasible alternative in selected patients in cases of difficult external prosthetic care. The correct indication and patient selection have to be emphasized. A reliable compliance and a psychological stable patient are required.

Abstract number: 25053 REAL-TIME AGING AND THE ELUTION OF VITAMIN E-STABILIZED CROSSLINKED UHMWPE

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Vitamin E is used to maintain oxidative stability in crosslinked UHMWPE for total joints. It can be blended with UHMWPE powder with subsequent irradiation of the consolidated mixture or diffused into UHMWPE after irradiation. Because vitamin E hinders crosslinking, its concentration during blending is limited to 0.2-0.3wt% to achieve high cross-link density and low wear rate. We compared the oxidative stability of blended and diffused crosslinked UHMWPEs by accelerated and real-time aging. Vitamin E blends (0.02, 0.05, 0.1wt%) were irradiated (100, 150, 200kGy). Irradiated UHMWPEs (100, 150kGy) were diffused with vitamin E (~1.5wt%) and gamma sterilized. Blocks were real-time aged for 36 months in water at 40°C or accelerated aged at 70C for 2 weeks at 5 atm. of oxygen. Accelerated aging resulted in significant oxidation in irradiated, unstabilized control UHMWPEs but did not result in oxidation in the vitamin E-stabilized crosslinked UHMWPEs. In contrast, at 36 months of real-time aging, irradiated blends showed significantly higher oxidation than before aging, whereas post-irradiation diffused UHMWPE showed no oxidation. Thus, real-time aging differentiated among vitamin E-stabilized, radiation crosslinked UHMWPEs prepared by different methods. During real-time aging, the vitamin E concentration of the diffused blocks decreased and the initial non-uniform profile with high surface concentration became uniform, equilibrating at ~0.7 wt% vitamin E at 36 months. We attribute this to the difference in solubility of vitamin E in UHMWPE at 40°C, compared to that at the initial diffusion temperature of 120°C. Nevertheless, this material showed oxidative resistance up to 36 months.

Abstract number: 25060 SURFACE CROSSLINKED UHMWPE WITH SUPERIOR STRENGTH AND FATIGUE RESISTANCE

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Fracture risk of highly cross-linked ultrahigh molecular weight polyethylene (UHMWPE) joint implants due to low fatigue strength is a concern in high stress applications. We hypothesized that limiting cross-linking to the articular surface would improve mechanical properties without sacrificing wear resistance. Surface crosslinking was achieved by using vitamin E-containing UHMWPE such that the articular surface was depleted of the antioxidant and the bulk contained a higher concentration, allowing for higher surface cross-linking after irradiation due to vitamin E hindering crosslinking with increasing concentration. GUR1050 UHMWPE was blended with vitamin E at 0.05 wt% and 0.5 wt%. Blended UHMWPE with a gradient in vitamin E concentration was made by either layered compression molding of the two blends. The UHMWPEs were irradiated to 150 kGy and tested along with the control UHMWPE (irradiated and melted).Surface crosslinked UHMWPE had a wear rate comparable to that of control. The fatigue strength was 30% higher than the control. The impact strength (87±1 kJ/m2) was also comparable to unextracted, irradiated control (89±1 kJ/m2). These results corroborated that the bulk mechanical properties of surface crosslinked UHMWPE were not affected by the surface crosslinking. The fatigue and IZOD impact strength was 66% and 45% higher than that of 100-kGy irradiated and melted UHMWPE, respectively. Surface crosslinked UHMWPE has combined wear and fatigue resistance superior to current technology and we envision that it will improve the performance of UHMWPE implants in high stress conditions such as the use of thin acetabular liners, total knees and resurfacing implants.

Abstract number: 25065

A NEW MECHANISM FOR ULTRAHIGH MOLECULAR WEIGHT POLYETHYLENE (UHMWPE) OXIDATION IN THE ABSENCE OF FREE RADICALS

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Our understanding of oxidative stability in UHMWPE relies on residual free radical elimination after irradiation. However, unexplained oxidation and decrosslinking found in shelf-stored explanted hip implants fabricated from UHMWPE without detectable free radicals suggested that contact with bodily fluids made it prone to oxidation. UHMWPE absorbs squalene in vivo. We hypothesized that absorption of these lipids could induce oxidation in UHMWPE.GUR1050 UHMWPE was irradiated to 100-kGy, then melted at 150°C. Samples were doped with squalene and accelerated aged under 5 atm. of oxygen at 70°C. One set of samples doped with squalene for 2 hours were also aged in air at 80°C for 1 and 5 weeks. Infrared spectroscopy was used to quantify oxidation in the aged samples and swelling in xylene to quantify crosslink density. Despite having no free radicals, irradiated and melted UHMWPE oxidized heavily after squalene absorption and accelerated aging. Small amounts of oxidation caused substantial decrosslinking. We attribute these to the highly active unsaturations of squalene, which form hydroperoxides during squalene oxidation and may initiate oxidation through the abstraction of hydrogen from polyethylene chains and free radical generation. Oxidation rate was dependent on oxygen concentration, which suggests a slower rate of oxidation in vivo. We discovered an oxidation mechanism for UHMWPE through the absorption of unsaturated lipids in the absence of free radicals. This presents a paradigm shift in our understanding of oxidative stability of UHMWPE implants and warrants further investigation.

Abstract number: 25162

AN UNUSUAL MECHANISM OF PECTORALIS MAJOR RUPTURE- RISK OF TRAPEZE OVERHEAD BAR IN HOSPITAL BEDS FOR ELDERLY PATIENTS Sitaram GIRI, Brian BANERJEE

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Pectoralis major rupture is an uncommon entity and is mainly an athletic injury commonly seen in activities like weight lifting, bench press or while performing weighted parallel bar dips. The injury may be missed initially due to its uncommon nature and lack of awareness amongst the treating physicians. The tear occurs with decreasing frequency at musculotendinous junction, humeral insertion and the muscle belly. Being an injury in active individuals, surgical treatment is usually recommended but for partial or more proximal ruptures conservative treatment may be used. In elderly patients this injury is suspected to be more common than reported. We here present an unusual mechanism for rupture of the pectoralis major which has never been reported in literature. A 91 year old lady admitted into an orthopaedic with an undisplaced periprosthetic hip fracture which was treated nonoperatively. While attempting to lift herself up with the help of a monkey bar attached to the bed she developed sharp pain in her right chest wall. Next day she was found to have bruising and tender lump in upper- outer chest wall. An ultrasound scan was performed, which revealed a complete tear involving the muscle belly of the pectoralis major. She was treated symptomatically with anti-inflammatory and rest followed by progressive functional use of her arm. On review at 3 months she was asymptomatic and had no functional disability. A review of literature discussing the pathomechanics and treatment recommendations for pectoralis major injuries are discussed.

Abstract number: 25166

MINOR AMPUTATION SUCCESSFUL IN PATIENTS WITH DIABETES MELLITUS AND SEVERE FOOT ULCERS THREATENING THE SURVIVAL OF THE FOOT Hedvig SVENSSON, Jan LARSSON, Jan APELQVIST, Magnus ENEROTH Department of Orthopaedics, Skane University Hospital, Malmö, Lund (SWEDEN)

Background: The principal aim of a minor amputation is to avoid a major amputation. Minor amputations are performed on many diabetic patients but little is known about the outcome. The aim of this study was to analyse the outcome of minor amputations in patients with diabetes and severe foot ulcers threatening the survival of the foot. Patients and Methods: All diabetic patients in a defined population undergoing minor amputation between 1982 and 2006 were investigated according to a standardised protocol and were followed until final outcome (healing or death). 410 consecutive amputations in 309 patients with a median age of 73 (32-93) years were identified. Results: In 94%, deep infection and/or gangrene was present at amputation. Severe peripheral vascular disease or critical limb ischemia was present in 61% of amputations. Almost two thirds (64%) of the amputations healed at a level below the ankle, 17% healed after a re-amputation above the ankle and in 19% of amputations the patient died before healing was achieved. In surviving patients 79% healed below the ankle. Median healing time for those who healed below the ankle was 26 (2-250) weeks. 21% of amputations had a re-amputation above the ankle. Conclusion: The goal of avoiding major amputation was achieved in almost two thirds of minor amputations, in patients with diabetes and severe foot ulcers threatening the survival of the foot. This indicates that minor amputations in these patients are worth while.

Abstract number: 25207

A MULTI-INSTITUTIONAL STUDY REGARDING OSTEOARTHRITIS OF THE HIP IN JAPAN -THE INVOLVEMENT OF ACETABULAR DYSPLASIA-

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Objective - Coxarthrosis is a major disease that affects the healthy life span of a population. It is necessary to fully understand the patents condition before systematic treatment can be applied. This study investigated the current status of coxarthrosis with a particular focus on the involvement of acetabular dysplasia. Methods - Data were collected from adult coxarthrosis patients in the orthopaedic outpatient office of 15 institution five different areas of Japan for 9 months. Data were also collected from patients with hip osteonecrosis as controls. The collected data from each patient included the sex, age, treatment history for DDH, and clinical score of the hip joints. Etiology was determined from the 17 disease options. The roentgenographic stages of coxarthrosis, as well the indexes of acetabular dysplasia were assessed in each coxarthrosis joint. Results - There was a substantially larger number of female patients than male patients. This difference regarding gender was found in every generation. The peak age at presentation was for patients in their 50's. The etiology was assessed to be acetabular dysplasia in most of the patients. The measurements of the indexes of acetabular dysplasia also showed the similar rate. The Sharp angle and the acetabular oblique angle of the coxarthrosis joints were significantly larger than those of the non-coxarthrosis joints or those of the osteonecrosis hip joints. The AHI was significantly smaller. Conclusions - The patients with hip osteoarthritis in Japan were unique in regard to age distribution, gender heterogeneity and disease etiology. Acetabular dysplasia is still main etiology.

Abstract number: 25222 REVIEW OF URINARY CATHETERISATION AFTER TOTAL JOINT REPLACEMENT

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Introduction: This prospective study was carried out to review the catheterisation following total joint replacement. Methods: 106 patients (58 male and 48 female) who underwent total joint replacement were audited. The mean age of the patients was 68.4 years (range 43-83 years). Each patient was questioned and detailed urological history was taken to the presence of lower urinary tract symptoms preoperatively. All patients were observed postoperatively and catheterised if necessary. Results: The overall incidence of postoperative bladder catheterisation was 52.8%. 65.5% of males and 37.5% of females needed catheter with the average time of 8.8 hours from operation to the insertion. 4 patients (3.8%) had re-retention after removal and 2 patients (1.9%) were complicated with chronic urinary problems. 4 patients (3.8%) developed lower urinary tract infection. All female patients were catheterised due to incontinency. 33.3% who had a previous history of stress incontinency and 66.6% with urge incontinency required insertion of catheter. All males who had previous history of urological problems needed urinary catheter. In our study preoperative hesitancy and dribbling symptoms found to be best predictor for postoperative catheterisation. 6 males (10.3%) and 4 females (8.3%) were catheterised although they denied having any urinary symptoms preoperatively. Conclusion: This study supports that the postoperative urinary catheterisation is predictable and patients at risk can be identified. All patients being considered for total joint replacement should undergo preoperative urological evaluation and the patients may be observed, catheterised as necessary postoperatively.

Abstract number: 25351

BILATERAL SIMULTANEOUS SPONTANEOUS HABITUAL ULNAR DISLOCATION OF THE EXTENSOR DIGITORUM COMMUNIS TENDON OF LONG FINGER: A CASE REPORT

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We report a case of a chronic bilateral simultaneous spontaneous habitual ulnar dislocation of the extensor digitorum communis tendon of long fingers, its surgical management and review of literature surrounding this disorder in a 22 year old patient. His chief disability was the inability to difficulty in writing and thus was not able to sit for his examinations O/E: Complete ulnar dislocation of the extensor tendons of bilateral long finger was seen when the MP joint was flexed at 60 degrees or more. Surgery: The superficial layer of the sagittal band covering the extensor tendon was found to be ruptured just radial to the extensor tendon and also the palmer part of the extensor tendon was detached from the deep layer of the sagittal band. The soft tissue on radial side of the tendon was found to be grossly laxed. A 1.5 x 0.3 cm sling was fashioned from the laxed tissue and looped around the EDC tendon and stitched on itself so as to act as a 'chekrein'. In addition to this, double breasting of the remaining laxed tissue on radial side of tendon was done thus increasing restraint to ulnar dislocation. Four weeks of postoperative immobilization with a splint with the MP joint in a slightly flexed position was given. This was followed by active and passive mobilization of the MP joint. At sixteen weeks after surgery, patient had full range of motion without pain and the tendency for extensor tendon dislocation had disappeared.

Abstract number: 25367 VERSATILITY OF FREE FIBULAR GRAFT IN ORTHOPAEDIC PRACTICE

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Free fibular graft is the strongest autogenous bone graft available. It is the bone graft of choice when strength is needed. The chances of infection are nil as compared to allografts. Further more, free fibular grafts are permanent and cost effective and donar site morbidity is minimal. Functional results are excellent especially in children, We present a 10 year follow up of more than 100 cases of free fibular grafting in various sub specialities of Orthopaedics especially tumours, trauma, pediatrics etc. The analysis of the cases is under process and full abstract shall be submitted in due course.

Abstract number: 25448

LATE FUNCTIONAL RESULTS OF CARPAL TUNNEL DECOMPRESSSION WITH MENISCUS KNIFE THROUGH MINI-OPEN PALMAR INCISION VERSUS MINIMAL-INCISION OPEN CARPAL TUNNEL DECOMPRESSION. José E. FRAGA FERREIRA, Rui CERQUEIRA², Sofia VIÇOSO, Tiago BARBOSA, João Paulo OLIVEIRA, João LOURENCO *Centro Hospitalar do Alto Ave, EPE, Guimarães (PORTUGAL)*

The median nerve compression in the carpal tunnel is the most common compression syndrome of the upper limb. In most cases it is idiopathic but may also occur from anatomical, traumatic, endocrine, rheumatic or tumoral causes. Chow's endoscopic technique was initially used to treat this disease and then modified to a mini-open approach through a single palmar incision. This incision is similar to the one used in endoscopic release by Agee. After exposing the proximal part of the transverse carpal ligament a meniscus knife is advanced until there is a complete section of the ligament, without endoscopic equipment. Between 2004 and 2006, 200 hands in 179 patients with a diagnosis based on clinical and electromyographic criteria were operated by this mini-open technique. The mean follow-up was 49 months (minimum of 34 months and a maximum of 70 months). 50 randomly selected patients were submitted to the self-administered Boston questionnaire. 50 patients treated by the minimal-incision decompression during the same period were also given the questionnaire. The aesthetic satisfaction was registered as well as if they would have surgery on the other hand or would recommend the procedure. This mini-open technique is another technique available to the surgeon that allows very similar functional results to endoscopic surgery, without use of specific material and with a shorter surgical time.

Abstract number: 25488

THE COURSE OF PAIN, DISABILITY AND PHYSICAL ACTIVITY THE FIRST WEEK AFTER THE ONSET OF SEVERE ACUTE LOW BACK PAIN

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Episodes of acute low back pain (LBP) are extremely common. Staying active in spite of the pain has been regarded as the most appropriate treatment recommendation. The objective of this study was to evaluate if this stay active in spite of the pain advice was more effective in helping to reduce pain and disability than the advice adjust your activity according to the pain in subjects with severe acute LBP. Methods: One hundred-and-nine employed subjects with severe acute LBP were recruited consecutively and examined within 48 hours of debut. They were randomly given one of the two treatment recommendations, i.e. stay active in spite of the pain or adjust your activity according to the pain and then followed for 1 week using the following measures: Disability Rating Index, pain intensity, and step count (pedometer). Results: At baseline, there were no differences between the groups with regard to cause of pain, occupation, pain intensity, disability, guality of life or fear of movement. The acute LBP onset occurred at work in 31% of the subjects and 34% of all the subjects had no explanation for the LBP. Disability and pain intensity decreased rapidly and at similar rates (p< 0.001) in both groups. The stay active group had a greater step count across time. Conclusion: The treatment recommendations stay active in spite of pain or adjust your activity according to the pain did not have different effects on the first-week course of acute LBP with regard to pain reduction or disability.

Abstract number: 25552

CORRECTION OF HALLUX VALGUS DEFORMITY USING THE COMBINED CHEVRON/AKIM OSTEOTOMY ASSOCIATED WITH BIOLOGICAL ARTROPLASTY OF THE LESSER FINGERS

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The Authors have evaluated subjective, clinical and radiographic results of 70 patients treated with Chevron and Akin osteotomy for hallux valgus associated to biological arthoplasty of the IF joint of the lesser fingers. All patients were treated at the Jewish Hospital of Rome from January 2008 to January 2009, with a follow-up of 24 month. Clinical results have been evaluated at 1 year using the AOFAS score. The radiographic parameters were evaluated pre-op and at follow-up on two plane Xray. To the original surgical procedure the Authors have made some modifications: In all cases an Akin varus phalanx osteotomy has been associated in order to increase the correcting effects of the Chevron osteotomy. In about 70% of cases one or more of the lesser fingers were treated with a biological arthroplasty of the IF joint. Biological arthoplasty differs from classical artrodesis in conserving the articular surface of the distal falanx. Accurate evaluation of complications and results has shown an excellent radiographic alignment of the hallux and lesser fingers, the restoration of the physiological range of motion of the hallux, the conservation of the range of motion of the IF joint of the lesser fingers, good functionality and decrease of pain during gait. Our results show that biological arthoplasty of the IF joint of the lesser fingers with griffe deformity associated to correction of the hallux valgus using the combined Chevron/Akin technique is a better alternative to the classical arthrodesis of the lesser fingers.

Abstract number: 25568 KINEMATIC AND KINETIC CHANGES DURING WALKING IN PATIENTS WITH HALLUX VALGUS

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OBJECTIVE: Hallux valgus (HV) may not only alter the foot alignment, but also result in functional changes in biomechanics of lower limb. Therefore, this study aimed to evaluate the effects of HV on gait. MATERIALS AND METHODS: Ten patients with HV (age: 45±11.8 years, hallux abductus angle: 28.63±5.99°) and 12 healthy females (age: 50.4±8.5 years) participated. Each participant walked for 3 times while their kinematic data measured by a 7-camera motion capture system (Vicon 512) and the ground reaction forces (GRF) recorded by two AMTI forceplates. Peak joint angles and moments between groups were analyzed using Student's t-test with a significance level of 0.05. RESULTS: Compared to control group, patients with HV displayed less anterior pelvic tilt and greater pelvic rotation, greater hip internal rotation, greater knee flexion, and greater ankle internal rotation and abduction. They also showed increased peak moments of knee extensor as well as decreased moments of knee abductor, ankle abductor and ankle internal rotator. DISCUSSION AND CONCLUSION: Increased ankle internal rotation was closely related to greater foot pronation and toe-in gait. Greater pelvic and hip rotation would advance foot pronation and aggravate HV. Significant toe-in gait had been found to decrease the medial GRF and further reduce the knee and the ankle abductor moments. Although there was only abnormal alignment of big toe, feet with HV would affect the kinematic and kinetic changes of lower limbs during gait.
Abstract number: 25573 COMPARTMENT SYNDROME OF THE THIGH- AN UNUSUAL ETIOLOGY Rahul KAKKAR, Matthew ELLIS, Paul FEARON

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Compartment syndromes in the thigh are unusual and mostly traumatic in origin although there is one previously reported case of a non traumatic compartment syndrome in a patient on enoxaparin. Early recognition and prompt decompression by fasciotomy are required to prevent limb and life threatening complications. All clinicians must maintain a high degree of suspicion and although most often bleeding associated with low molecular weight heparins is minor, occasionally it can result in a major bleed resulting in limb threatening conditions like a compartment syndrome. We describe and discuss the management of a non traumatic case of compartment syndrome of the thigh in a patient on anticoagulant therapy for a left ventricular assist device. This case emphasises a new aetiology for compartment syndrome- namely low molecular weight heparin. This aetilogy is not well known in the medical literature and we also discuss the dosages of low molecular weight heparins at which the chances of spontaneous bleeding become high and therefore can lead on to complications like coompartment syndrome.

Abstract number: 25587

COMPLETE ABSENCE OF THE SCAPHOID- A UNIQUE CASE AND ITS MANAGEMENT

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Complete absence of the scaphoid is rare and when it presents without other associated anomalies it is extremely uncommon. Only seven cases with complete absence of scaphoid without associated anomalies or with only minor aberrations in the development of other bony components like associated radial styloid hypoplasia. hypertrophic radial styloid, associated dysplastic trapezium have been reported. The case of a 52 year old female is discussed who presented with clinically significant pain in the right wrist. Radiographs revealed a complete absence of scaphoid with the capitate shifted radially and dorsally leading to degenerative arthritis of this radiocapitate articulation. Functional tolerance in this anomaly is high, but if arthritis supervenes then surgical options like arthrodesis of the lunate to capitate and hamate have to be considered. This case and all the other cases of congenital absence of scaphoid without associated anomalies reported in the literature represent those rare exceptions where the deformity cannot be classified according to any particular classification and perhaps remind us that other mechanisms and sequences of isolated growth suppression, not presently known to us, are possible, in contrast to the one proposed generally that hypoplasia or aplasia is a continuum of growth suppression starting from the thumb and progressing proximally.

Abstract number: 25618 OLD STYLE SPR'S BETTER THAN NEW ST3'S

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Since the advent of modernising medical careers (MMC) and the restructuring of specialist registrar training in the UK, many people have entered the debate as to its effectiveness. The new structure introduced means that after finishing medical school and the two year foundation programme, an 8 year specialist training (ST) trauma and orthopaedic programme is completed leading on to a consultant post. Our study involved emailing a questionnaire to various orthopaedic consultants in the North West of England asking them to compare new ST3 registrars with the old style first year registrars. Consultants were asked to grade current ST3 registrars into better, equivalent or worse than old style trauma/orthopaedic registrars. We focused on the following categories, history, examination, diagnosis, judgement, operative skill, basic science knowledge, leadership, team working. So far 11 consultants have completed the questionnaire. Our preliminary results reveal that the ST3 registrars were largely poorer in diagnosis (73%), judgement (73%), operative skill (90%), basic science knowledge (73%) and clinical knowledge (82%) as compared to the old style registrars. In no discipline were the ST3's overall better than the old style registrars. Further restrictions on training time available, European Working Time Directive (EWTD) mean that future trainees may be of a poorer standard still as compared to previously. Interventions need to be put in place to ensure new registrars are at a competent scientific and clinical standard before they become orthopaedic consultants. Particular attention needs to be placed on improving their operative skill and knowledge.

Abstract number: 25640 POSITION OF INSTRUMENTS AND IMPLANTS IN HIP SURGERY IN RELATION TO VITAL STRUCTURES

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The traditional training using textbooks, illustrations and cadaveric workshops can not cope with the increasing demands of orthopaedic training. We now entered the new era of electronic data manipulation used over broadband internet connection; the relevant example is the Visible Human Project. The goal of the Visible Human "complete, anatomically detailed, three-dimensional Proiect is to create representations of the male and female human body. We used the web based server to determine in 3D, the place of the instruments and implants such as screws placement in Total hip replacement in different approaches of the hip joint. Using different sections and cuts, showing how much these instruments and implants may be endangering vital anatomical structures. Our study emphasizes the importance of safe replacement of instruments and implants in different operative steps. Also, our study illustrates the exact places of instruments and implants in relation to vital structures in coronal, sagital and axial planes.

Abstract number: 25743 USING DIGITAL PHOTOPLANIMETRY IN CLINICAL MONITORING OF WOUND HEALING

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Planimetry helps to objectify the clinical method of wound healing. We have worked out an original method of non-contact identification of wound area in dynamics using modern digital technologies the photoplanimetry. The wound is photographed using digital camera at a certain distance. The file is copied then into computer memory (JPG format) and is loaded into photo processing program, which counts the wound size according to given scale in picsels and square centimeters. Photoplanimetry has been applied in 203 cases of trauma healings monitoring. The method has the following advantages: absence of direct contact with wound; high measuring precision; usability, high speed of data production and analysis; possibility to archive data; receipt of visual photo dynamics of healing process. Thus, photoplanimetry has proved to be an effective and progressive method, enabling satisfactory objectification and simplification of clinical monitoring of wound healing process.

Abstract number: 25760

OUTCOME OF SURGICAL MANAGEMENT OF POST TRAUMATIC TIBIAL OSTEOMYELITIS.

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MATERIALS AND METHODS: We present 33 patients with confirmed tibial osteomyelitis, from June 1993 to November 2009. There were 30 males and 3 females with mean age of 33 years (7 to 75 years). All patients had osteomyelitis due to trauma. 16 patients (48%) had sustained open fracture at the time of initial injury. 25 patients (76%) were referred from peripheral hospitals and had undergone an average of three procedures before referral. 90% of patients had discharging sinuses. A systematic approach adopted during operation included; 1. With holding prophylactic antibiotics till adequate soft and bony tissue samples were sent for microscopy, culture, sensitivity and histology. 2. Adequate soft tissue and bone debridement. 3. Firm stabilization of the bony fragments in case of instability. 4. Empirical administration of broad spectrum antibiotics till results of culture and sensitivity are available. 5. VAC foam dressings in open cases. RESULTS: 18 (56%) patients did not have any relapse. Nine (26%) patients improved significantly but have occasional episodes of pain, redness or discharge well controlled with oral antibiotic courses. Six patients needed amputation due to extensive bony and soft tissue involvement. We were able to isolate causative organisms in 81% of cases. The commonest organism isolated was Staphylococcus followed by Pseudomonas and MRSA. Most of the organisms were sensitive to Vancomycin and resistant to DISCUSSION: Systematic Penicillin. approach, adequate debridement. intraoperative assessment of bone along with regular clinical, laboratory and radiological assessment remain the mainstay in management of chronic tibial osteomyelitis.

Abstract number: 25818 MONOARTICULAR PSEUDOGOUT OF HIP PRESENTING AS SEPTIC ARTHRITIS - A CASE REPORT

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Objectives: Calcium pyrophospate dihydrate (CPPD) disease is the second most common crystal-induced form of arthropathy. CPPD disease usually presents as polyarthritis with the most common joints involved being the knee, shoulder, wrist, elbow, and ankle. Rarely, the small joints of the hands and feet can be affected. The heterogenous presentation of CPPD disorders has led to its classification into seven subgroups. We present a case of monoarticular pseudogout of the hip joint presenting as septic arthritis which has not been previously reported in the English literature. Case report:An 89 year old gentleman presented with acute onset severe hip pain, inability to weight bear, raised body temperature and raised CRP of 315. Hip aspiration revealed calcium pyrophosphate crystals and cultures of the sample did no grow any organism. Patient started to mobilise gradually within seven days with analgesics and recovered completely. Conclusion: In case of acute presentation with painful limitation of all hip joint movements and local tenderness in elderly patients, septic arthritis should be excluded first. Aspiration of the hip should be attempted before any surgical intervention is undertaken to exclude other causes.

Abstract number: 25823

THE DIAGNOSTIC CHALLENGE OF ATRAUMATIC BILATERAL PATELLAR TENDON RUPTURE: A CASE REPORT & REVIEW OF THE LITERATURE

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It is well recognised within the literature that spontaneous bilateral patellar tendon rupture is a rare entity particularly in the absence of any concomitant disease. Despite this it still proves to be a diagnostic challenge. We report the case of a 42 year old male with sudden onset of pain and swelling of his knees whilst running for a train. Radiographs demonstrated patella alta with a Blackburne and Peel ratio of 1.6 (normal value = 0.8). However, initial ultrasound imaging performed by an accident and emergency specialist within the department did not demonstrate any tendon rupture. Due to the pathognomic radiographic features and clinical findings consistent with patellar tendon rupture the patient was admitted. A repeat ultrasound was performed, on this occasion by a musculoskeletal radiologist and confirmed the original suspected diagnosis of bilateral patellar tendon rupture. We recognise the importance of initial radiographs and the calculation of the Blackburne and Peel ratio as a diagnostic tool in bilateral patellar tendon rupture as well as highlighting the operator dependant nature of ultrasound imaging.

Abstract number: 25829

SUBMUSCULAR VERSUS SUBCUTANEUS ANTERIOR TRANSPOSITION OF THE ULNAR NERVE - 15 YEARS OF EXPERIENCE

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Introdution: The ulnar nerve entrapment at the elbow is common in clinical practise. The surgical techniques to treat this disease include simple decompression, decompression with medial epicondylectomy; anterior subcutaneous, intramuscular or submuscular transposition. The aim of this study is to compare the results of subcutaneous anterior transposition with submuscular and evaluate the efficacy of these techniques. Material and Methods: 70 patients submitted to subcutaneous or submuscular transposition from 1993 to 2008 were evaluated. The disease was diagnosticated with clinical history, physical examination and/or complementary exams. Previously to surgery they underwent at least 6 months of conservative treatment without benefits. The patients were evaluated according to the McGowan classification and Modified Bishop Scoring System. Morbidity, complications and recurrence were registered. Results: 45 patients were female e 25 male; there were bilateralism in 7 and 2 with recurrence of the disease; 50 (71%) underwent subcutaneous transposition and 20 (29%) submuscular; 42 (60%) had the disease in the dominant side. Regardless of what type of surgery was done, 63 (90%) consider to have improve their condition; 49 (69%) had complete resolution of the paresthesias and 40 (57%) had complete pain resolution. The medium time of symptoms resolution was lesser in the submuscular transposition group. Discussion: The subcutaneous transposition is a simple surgical technique which permits immediate mobilization after surgery, but with more nerve exposition to trauma. The subcutaneous technique has better results in recurrences, lesser nerve exposition to trauma; but is technically more complex and needs more time to recover after surgery.

Abstract number: 25847

THE DIAGNOSTIC UTILITY AND COST EFFECTIVENESS OF USING A HANDHELD CARPAL TUNNEL SYNDROME TESTING DEVICE AT A SMALL DISTRICT GENERAL HOSPITAL

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Objective: The diagnostic utility and cost effectiveness of the Mediracer handheld carpal tunnel syndrome (CTS) tester used at a small district general hospital were evaluated. METHOD: Using the test device, the sensory nerve conductions in the median nerve were tested in 23 patients presenting with symptoms of CTS over a two month period. Data were analysed to determine the diagnostic utility of the device and to determine the cost effectiveness of using the device compared to that of using more formal nerve conduction studies for CTS. RESULTS: 30 tests were performed lasting approximately 25 minutes. All tests were performed to confirm or refute a diagnosis of CTS. All patients would have been referred for formal nerve conduction studies otherwise. We were unable to obtain readings on 3 patients. 4 of 23 patients were referred for further nerve conduction studies with only 2 because the device did not work. Total cost of Mediracer tests including the cost of 4 formal nerve conduction studies was 1370 pounds. Total cost of the formal nerve conductions studies what would have been required if the Mediracer device was not used would have been 5100 pounds. Total savings of using the Mediracer CTS device was 3730 pounds. Conclusion: The findings obtained with the Mediracer CTS device were reliable and reproducible. The cost effectiveness of using the devise compared to that of formal CTS tests was significant, with potential annual savings at a small district general hospital between 15,000 to 20,000 pounds.

Abstract number: 25850 INCIDENCE OF SYMPTOMATIC VENOUS THROMBO-EMBOLISM IN SHOULDER SURGERY. RETROSPECTIVE STUDY.

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Background This clinical study was performed to establish the prevalence of deep vein thrombosis and pulmonary embolism after shoulder surgery. The incidence of venous thromboembolism complicating shoulder surgery is poorly described in literature. As VTE is a potentially fatal condition we wanted to make surgeons aware of the problem and to try to establish any risk factors contributing to it. Methods We reviewed retrospectively clinical records of all patients who had any surgical procedure performed on their shoulder between 2001 and 2009. Patients' records were assessed for any admissions due to proven VTE; we looked for any radiological results suggestive of venous thromboembolism. Results: We identified 1020patients who had surgical procedure under GA on their shoulder; including 113 patients had shoulder arthroplasty. There was 1 fatal PE in this group. There were 2 cases of symptomatic DVT of lower limb, both treated successfully with anticoagulation. No upper limb DVT was identified. There were 7 patients who had negative tests for suspected thrombosis. Discussion Recent studies suggest that DVT prevalence following arthroplasty is as high as 13%. According to our results the prevalence of symptomatic DVT following shoulder surgery is about 0.3% and symptomatic PE about 0.1 %. The prevalence of asymptomatic VTE is probably much higher and further research needs to be undertaken in that area. We would advice to think carefully about risk of thrombosis and use mechanical prophylaxis in shoulder surgery. We would not recommend routine postoperative anticoagulation as DVT prophylaxis unless there are additional risk factors.

Abstract number: 25856 AMYOTROPHIC NEURALGIA - HIGHLY UNDERDIAGNOSED DISEASE. REVIEW OF 10 CASES.

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Background: Amyotrophic neuralgia (neuralgic amyotrophy) is rather rare condition affecting shoulder and upper limb. It is inflamatory disease affecting brachial plexus. Its etiology and natural history is not well known Methods: In our study we retrospectively reviewed history of 10 patients treated in Glan Clwyd Hospital, North Wales between 2001 and 2008. All of them had nerve conduction studies confirming above diagnosis. Results: There were 3 women and 7 men diagnosed with amyotrophic neuralgia. Left and right shoulder were equally affected. Mean age was 41 (from 20 to 72). Time from onset of symptoms till presentation varied from 2 weeks to 24 months. It was precipitated by flu like infection in 2 cases, in 3 cases patient did recollect some minor trauma prior to onset of symptoms. In 9 cases there was some degree of palsy of one or more of brachial plexus nerves. In all cases diagnosis was confirmed by nerve conduction studies. All patients were treated with NSAIDs and physiotherapy. 8 of 10 patients did complete recovery within 12 months (range 6 weeks-12 months), 2 patient suffered long term disability and were forced to change their occupation, 1 required shoulder arthrodesis. Conclusion: Neuralgic neuralgia is an inflamatory disease affecting brachial plexus. It is often associated with previous minor infection (20%), but often cause remains unknown. Nerve conduction studies are the investigation of choice. Disease is usually self limiting, but in some cases may lead to chronic pain and disability

Abstract number: 25859 ANKLE ARTHRODESIS USING ACETABULAR REAMER TO HARVEST FIBULAR BONE GRAFT

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Bone grafting is usually required to enhance bone fusion in ankle arthrodesis. Bone from iliac crest provides an ideal bone graft material but the use of iliac crest is an additional surgical procedure and has its own morbidity. A simple technique for harvesting cancellous bone from the lateral malleolus is described here. After exposure of the lateral malleolus, the outer aspect of the bone is cleared of soft tissue attachments. A small size (38 or 40 mm) powered acetabular reamer is used to harvest cancellous bone. The outer cortex of the malleolus can be stripped to expose the cancellous bone and facilitate the reaming technique. The malleolus is osteomised and removed to expose the joint surface. The desired technique of ankle fusion and of internal fixation are used with the harvested graft. The remaining part of the malleolus can be used as a supplementary graft if needed. This technique saves the time usually used to crush the osteomised lateral malleolus. Also, the osteotomy of lateral malleolus creates a better cosmetic result as it narrows the ankle and prevents bony abutment on the shoe. The technique was used in a 35-year-old male who had an old trauma resulted in a severe osteoarthritis of his left ankle and a traumatic fusion of the subtalar joint. A transfibular lateral approach was used and the above described technique was applied. The ankle was fixed using 2 cross screws, we did not encounter any complications and the outcome of this procedure was satisfactory.

Abstract number: 25908

TIBIAL NON-UNION IN A PATIENT WITH OSTEOPETROSIS – CASE REPORT

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Background: Osteopetrosis was first described in 1904 by the German radiologist Albers-Schonberg. It is a heritable disorder characterized by a defective osteoclast resorption leading to hard and brittle bone. The treatment of fractures in these patients presents various difficulties. The complications of these fractures are a really challenge for Orthopaedic surgeon. Case Report: The authors present a case report of a female patient, 62 years old, suffering from osteopetrosis disease, with an eight years evolution tibial non-union. She presented an antecurvatum (65°) and varum (30°) deformity The previous medical history included proximal femur fracture bilaterally, treated surgically. The patient was submitted to debridement of the nonunion focus, fibular subtraction osteotomy and tibial fixation with compression plate. The postoperative occurred without complications and the patient started partial weight bearing 6 weeks after the surgery. It was achieved a good alignment of the leg and both clinic and radiographic union occurred in the 6th month follow-up. Discussion: The surgical treatment of patients with osteopetrosis disease is complicated by the difficulty of working with extremely hard, brittle, marble bone. Intramedullary fixation provides greater stability with few complications and is recommended for patients with repeated fractures, long bone deformity and failed load bearing implants. In this case it was considered internal fixation with a compression plate due to the need of debridement of the non-union focus and correction of the angular deformity, associated to complete medullary canal obliteration. The result accomplished was good.

Abstract number: 25939 A NOVEL SINGLE PULSED ELECTROMAGNETIC FIELD STIMULATES THE OSTEOGENESIS AND ANGIOGENESIS

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Pulsed electromagnetic field (PEMF) has been successfully applied for accelerating fracture repair as early as 1979. Since the treatment required 8-12 hrs of application daily, the inconvenience leads us to develop a newly designed single pulsed electromagnetic field (SPEMF). Materials and Methods: The single pulsed electromagnetic field (SPEMF) is in composition of a single pulsed repeated in adjustable times and magnetic fields. Pulsed period is 5 ms in sine wave per stimulation. Thymidine incorporation was used to examine cell proliferation. ALP and mineralization assay were used to evaluate osteogenic differentiation of hBMSCs. Balb/C mice were used to validate the effects of SPEMF. We evaluated the x-ray, H&E stain to count bone matrix ratio and vWF stain to count the angiogenesis ability. Results: The ALP activity of hBMSCs was significantly increased in SPEMF-treated groups after 2-5 days of treatment. The mineralization was also increased after 15-25 days of SPEMF stimulation. In animal study also had the same results. Discussion: In this study, we demonstrated there is a novel electromagnetic field which showed advantages not only increased proliferation of hBMSCs, osteogenic differentiation of hBMSCs, but also accomplished the desire goal in less than 3 min of treatment per day. In conclusion, our result showed that SPEMF would increase proliferation of hBMSCs in a proliferative environment, increased differentiation of hBMSCs in an osteogenic environment, and accelerated mineralization in a mimic physiologic environment. SPEMF could be a useful device in enhancing fracture healing.

Abstract number: 26006 ATYPICAL PRESENTATION OF THORACIC OUTLET SYNDROME IN KURDISTAN IRAQ

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Background and Objectives: Thoracic outlet syndrome (TOS) is a clinical phenomenon resulting from compression of neurovascular structures at the superior aperture of the thorax which presents with varying symptoms. The aim of this study was to analyze the different kinds of clinical presentation of thoracic outlet syndrome if Kurdistan region of Iraq and its management. Methods: In Erbil teaching hospital, 150 patients have been studied from February 2000- December 2006. These patients diagnosed as sypmtomatic thoracic outlet syndrome and have been managed conservatively and surgically. Results: In this study 97 (64.6%) patients were female, 53 (35.3%) patients were male. Thier ages ranged from (17-40) years. There was pain, parasthesia in arm in 69 (46%). Shoulder pain, chest pain and pain in axillary's region with arm pain in 38 (25.3%) patients (diagnosed by cardiologist as they have cardiac problem and treated accordingly without benefit). Incidental findings in 27 (18%) patients with vague symptoms in upper limb, supraclavicular fullness in 2 (1.3%) patients, 12 (8%) patients diagnosed by psychiatrist as having psychological problem (misdiagnosed as obsessive or depressive cases because of there neck pain and headache) and one patient has wasting of hand muscles. Surgery done for 25 (20.5%) patients (supra clavicular approach). Conclusions: Careful patient's history and proper physical and clinical evaluation including nerve conduction study, conventional radiography of cervical spine can decide proper management for symptomic cases conservatively or surgically. Keywords: Thoracicn outlet syndrome (TOS), conservative treatment, surgery and supraclavicular approach.

Abstract number: 26060

BLOOD ORDERING SCHEDULE FOR ELECTIVE ORTHOPAEDIC SURGERIES Vijay SHARMA¹, Arul SELVI¹, Kamran FAROOQUE²

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Aim: To audit the blood utilization in elective Orthopaedic surgeries in our hospital over two years period and to recommend an optimal blood ordering schedule. Methods: Retrospectively, Data was collected included type of orthopaedic surgery, pre and post operative hemoglobin levels, number of units cross matched, number of units returned, number of units transfused, cross match to transfusion ratio (CT), transfusion probability (%T), transfusion index (TI), estimated blood loss for each surgery and predicted fall in hemoglobin. The number of red cell units required for each procedure was calculated using the equation proposed by Nutall et al, No. of red cell units required for procedure = Predicted Hb fall (Preoperative -Postoperative Hb) Results: A total of 472 patients with a median age of 31 yrs (9 to 88 yrs) were evaluated. The mean preoperative hemoglobin was 10.51gm/dl. A total of 1369 units were cross matched and only 538 units were transfused to 247 patients. 225 patients (47.67%) did not require transfusion during their stay in hospital. Six of the thirteen elective procedures had CT ratio higher than 2.5. Eight of the thirteen procedures (61.54%) had low transfusion index (TI<2.5). We recommend group and save procedure in these operative procedures with low TI. We propose a blood ordering schedule based on the anticipated blood loss during each elective Orthopaedic procedure in our hospital, type of surgery, pre and post operative hemoglobin levels of the patient.

Abstract number: 26063

THE INFLUENCE OF DISTRESS ON DISABILITY, PHYSICAL ACTIVITY AND PAIN INTENSITY AFTER 7 DAYS OF SEVERE ACUTE LOW BACK PAIN

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The -stay active- concept has been regarded as the most appropriate treatment recommendation for patients with acute low back pain (LBP). The objective of this study was to evaluate the influence of distress on disability, physical activity and pain intensity in subjects with severe acute LBP; Methods: Ninety-nine employed subjects (mean age 45 years, range 20-63), 61% white- and 39% blue-collar workers with severe acute LBP were examined in extend within 48 hours after the onset of pain. All patients were initially assessed using the Depression Anxiety and Positive Outlook Scale (DAPOS) and the Tampa Scale of Kinesiophobia (TSK) questionnaires. Thereafter, the patients documented the following in a diary over a 7 day period: pain intensity, disability rating index (DRI) and step count (pedometer). Linear Mixed Models (LMM) for repeated measures were employed for the statistical analyses. All results were adjusted for age, gender, treatment, number of days and *DAPOS-D). for the interaction term (treatment Results: DAPOS was associated with DRI and pain intensity (p<0.05). DRI and pain intensity responses over time were differentially mediated by the treatment, in interaction with the scores of DAPOS (p<0.05). Patients with high scores on TSK (>38) at baseline reported significantly a lower step count overtime (p<0.05). Conclusion: Depressed mood (DAPOS) and fear of movement (TSK) affect the outcomes of disability, the level of physical activity and the pain intensity in patients with severe acute LBP.

Abstract number: 26168 CARPAL SYNOSTOSIS-TWO CASE REPORTS

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The carpal synostosis, also known as coalitions are extremely rare congenital anomalies, which occur as a result of a failure in the process of embryological segmentation of the carpal bones, between the fourth and eighth weeks of embryonic life. The bones carpal centers are separated by a cartilaginous undifferentiated mesenchymal tissue that normally disappears, leaving empty spaces, which form the carpal joints. A disruption of this process is caused by the persistence of band cartilage between the bones that are subsequently ossified, and emerge as the synostosis. The triquetrum-lunatum fusion is most common among all carpal coalitions. It is present in between 0.08% and 0.13% of the population. The carpal synostosis can be bilateral or unilateral but in most cases affects both hands. These malformations are usually asymptomatic and diagnosis is often accidental. The authors present two case of previously assintomatic patients that present in the emergency department with wrist pain after a fall. The first case is a 10 years old girl which showed a triquetrum-lunatum synostosis, and no sign of fracture or degenerative signs. An x-ray of the contralateral wrist showed the same anomaly. The second case is of a 13 years old boy that had suffered a fall a week ago and presented in the emergency department because of persistent wrist pain. The X-ray showed capitatum-hamatum synostosis. The contralateral side had no abnormality. Again, there was no sign of fracture or degenerative signs.

Abstract number: 26194

HEXAPOD EXTERNAL FIXATOR FOR MOTORIZED DEFORMITY CORRECTION Robert WENDLANDT¹, Klaus SEIDE², Arndt-Peter SCHULZ¹, Christian JUERGENS¹ ¹University Hospital Schleswig-Holstein, Luebeck (GERMANY), ²Berufsgenossenschaftliches Unfallkrankenhaus Hamburg, Hamburg (GERMANY)

Introduction: External fixation is a commonly used technique for fracture fixation as well as for correction of deformities. Systems with six degree of freedom kinematics like the hexapod external fixator are especially suited for complex maneuvers in several directions and rotations simultaneously. Materials and Methods: Based upon the manual hexapod external fixator well established in clinical routine the system was developed by replacing the manual actuators with motor-driven actuators. A motor-unit containing a DC motor and gearhead in a watertight housing is attached to telescopic rods. The actuators are connected to a control unit containing power supply, motor-drive electronics and a Bluetooth transceiver which is connected wirelessly to a laptop running the control software. The system was first tested for speed, force and accuracy. Then it was applied clinically for correcting a deformity. Results: The speed of the actuators is 2.5mm/s. The actuation force of the system is 483N. Accuracy of the complete system was better than 1mm and 1°. The clinical application of the system for the correction of a angle of 3.5° in varus and 13.3° posterior deformity determined by two x-ray images taken from frontal and lateral reduced the varus deformity completely while 6° of posterior deformity remained. Discussion: Speed and force of the robotic hexapod external fixator are sufficient in comparison with literature which was clearly seen also in the clinical correction. Fluoroscopy pictures taken during the correction allowed only a limited field of view therefore the deformity was not corrected completely.

Abstract number: 26208

MINI OPEN IN-SITU DECOMPRESSION OF ULNAR NERVE AT THE CUBITAL TUNNEL: EARLY RESULTS OF A PROSPECTIVE STUDY

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BACKGROUND: Ulnar nerve entrapment in the Cubital tunnel is a common peripheral neuropathy. Surgical treatments for it include simple decompression, medial epicondylectomy, subcutaneous or submuscular anterior transposition of the nerve. OBJECTIVE: The authors report early results in patients with Cubital tunnel syndrome who underwent in-situ decompression of the ulnar nerve through a mini open incision (<= 4cms).METHODS: All patients had clinical features and nerve conduction tests confirming Ulnar nerve compression at the Cubital tunnel. The degree of nerve compression was evaluated using Dellon's classification- a grading system that includes measurements of motor and sensory function. Patients underwent simple in-situ decompression under general anaesthesia as a day-case procedure. The incision (<= 4cms) begins at the point where the ulnar nerve passes between the medial epicondyle and the olecranon and is extended distally. Moving this mini open incision proximally and distally the nerve is then decompressed. RESULTS: There were 22 patients (average age 53.8 years), 15 male and 7 females. 11 had severe, 9 moderate and 2 mild compressions as per Dellon's criteria. At 3-month post surgery most patients showed significant improvement in their symptoms. According to Modified Bishop scoring system, 63.7% patients were clinically graded as excellent, 27.3% good, and 9.1% fair and none as a poor result. CONCLUSION: In-situ decompression through a mini open incision is a technically simple, safe and minimally invasive approach that gives good results.

Abstract number: 26263

PATIENT-SPECIFIC GUIDE TECHNOLOGY IN ORTHOPAEDICS

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Introduction: Orthopaedic surgery typically involves positioning of osteotomies, pins, wires, screws and implants. Pin and wire placement can be an intermediate step to position an implant component into a pre-determined position, or to determine the screw pre-drill trajectory by specific entry point and direction. Both clinical and biomechanical studies show the need for accurate positioning of implants and screws, due to its major influence on the long-term survival [Beaulé 2004]. Patientspecific guide technology has recently been successfully introduced in TKA, but can prove efficient in new application domains as well. Materials and Methods: Based on three-dimensional medical image data and pre-operative planning software, a surgical plan is established and a patient-specific surgical guide is designed. These surgical guides fit either to the bone or the implant in a unique way and show the cutting planes or drill holes generated in the surgery plan. The guides are manufactured by additive fabrication technology (Materialise, Leuven, Belgium). The material is bio-compatible, medical grade and sterilizable. Results: The potential of patient-specific guide technology is illustrated by different retrospective and clinical cases in the field of total hip arthroplasty, hip resurfacing, total shoulder arthroplasty, hand and wrist surgery and complex bone fracture fixation surgery. High accuracy can be attained; e.g. the average three dimensional angle variation and the average entry position variation in hip resurfacing applications equal respectively 1.14 ± 0.57 degrees and 1.01 ± 0.47mm.Conclusion. Patient-specific guide technology in Orthopaedics shows high potential for accuracy improvement and surgery time reduction.

Abstract number: 26264

THE GAIT DEVIATION INDEX- A NEW METHOD TO DESCRIBE GAIT DEVIATIONS IN PERSONS WITH RHEUMATOID ARTHRITIS

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Introduction: Rheumatoid Arthritis (RA) may lead to gait deviations 1. Threedimensional gait analysis includes measurements of movement from multiple joints1. The complexity of gait data puts high demands on clinicians and researchers interpreting these data in a global sense. The newly developed Gait Deviation Index (GDI) 2 measures overall gait deviations and captures functional aspects of walking. The aim of this study was to describe gait deviations expressed as, GDI-scores, in patients with RA. Methods: Forty patients with RA (mean 56,6 yrs) and 40 age- and aender matched healthy controls (mean 56,3 yrs) were examined. 3-D gait analysis was performed (Oxford Metrics) and GDI-scores were calculated1, 2. Pain during walking was measured in the patient group with Visual Analog Scale (VAS). Results: Mean pain during walking was 33 mm in the RA group and mean disease duration was 13,8 yrs. Mean GDI score was 14 % lower in the RA group (87) compared to controls (102) (p<0.001). Correlations were found between GDI and walking speed (r=0.43, p=0.005) and pain (r=-0.294, p=0.066). Discussion: In this study patients with RA showed increased gait deviations compared to healthy controls. GDI showed a moderate correlation with walking speed, which can be used as a measure of walking pathology3. In conclusion, the GDI could be useful to measure overall gait deviations in this patient group.References:1. Weiss et al 20082. Schwarts & Rozumalski 20083. Andriacchi et al 1977

Abstract number: 26286

REPEATABILITY OF SHOULDER BONY LANDMARKS LOCATION FROM BIPLANAR X-RAY, IN A PSEUDO-KINEMATIC CONTEXT

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Analysis of shoulder movement requires precise identification of bony landmarks. Following work by Ohl [1], the purpose of the study is to verify the repeatability of shoulder bony landmark identification in a pseudo-kinematic context, from biplanar Xrays. Nine healthy subjects participated in the study. Biplanar X-rays (EOS(TM)) were acquired at 3 elevations of the arm in the scapular plane. Image analysis consisted in modelling bones with simple geometric shapes (points and spheres), in a dedicated virtual 3D environment. These shapes were manually positioned in 3D so that their projections superimposed to bony landmarks visible on the radiographs. Image analysis was carried out by 2 observers, 3 times each. Repeatability for identification of the humeral head center was good with 95% confidence intervals (CI) ranging from 0.57mm to 2.25mm. The coracoid process was the most repeatable scapular landmark with 95% CI's ranging from 0.81mm to 6.55mm. Other scapular landmarks which were studied are the acromial angle, the inferior angle and the superior and inferior borders of the glenoid fossa. Repeatability data obtained in this study is comparable to that reported for palpation [2]. Biplanar X-rays has the advantage of identifying bones without soft tissue artefacts and directly accessing the humeral head and glenoid fossa, however at the cost of low radiation doses. This study clearly demonstrates the potential of biplanar X-ray for shoulder pseudo-kinematics analysis.[1] Ohl X. et al., (2009) Surgical and Radiologic Anatomy, [2] Lewis J. et al., (2002) Manual Therapy, 7: 26-30

Abstract number: 26306

CONTRIBUTION OF 3D IMAGE PROCESSING AND PRE-OPERATIVE PLANNING TO ORTHOPAEDIC HEALTH CARE

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Introduction: Complementing two-dimensional templating based on digital radiographs usually presented today to clinicians, three-dimensional pre-operative planning software has recently been introduced in the field of Orthopaedics. Nevertheless, scatter and complex bone fractures often pose difficult challenges to segmentation of bone models. Virtual models of the anatomical structures facilitate diagnosis, surgical simulation, virtual manipulation of bone fragments and patientspecific implant design. Moreover, three-dimensional finite element modeling allows for stress simulations which are of utmost importance in complex Orthopaedic disorders. Materials and methods: Image processing software (Mimics, Materialise, Belgium), preoperative planning software (SurgiCase Orthopaedics, Materialise, Belgium), computer aided design software (3-matic, Materialise, Belgium) and finite element software (Abagus, USA) is integrated into an efficient pre-operative workflow by means of data exchange and dedicated software development for efficient and adequate image processing, patient-specific surgery planning and/or implant design. Results: The potential of three-dimensional pre-operative planning for guidance and implant design is illustrated by several clinical cases in the field of Orthopaedics and traumatology such as clavicular malunion, acetabular revision surgery and acetabular fractures. Conclusion: The use of three-dimensional image processing and preoperative planning software in Orthopaedics contributes to medical diagnosis, surgery simulation, surgical procedures optimization, surgical outcome improvement, surgery time reduction, health care cost reduction and implant life time elongation. On a case-specific basis, equilibrium between preoperative effort and postoperative outcome should be sought for by means of assistance of a skilled biomechanical engineer.

Abstract number: 26355

EFFECT OF SHOCK WAVE THERAPY IN CALCIFYING TENDINITIS

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We prospectively studied extracorporeal shock wave therapy (ESWT) for calcific tendinitis of the shoulder in 46 consecutive patients. All patients were randomly divided into 2 groups: treatment and control. The 33 patients in the treatment group received 2 courses of ESWT at the energy density of 0.55mJ/mm2 (1000 impulses). The control group underwent sham treatment with a dummy electrode (13 patients). Evaluation included the Constant score, pain scale, and radiographs. The ESWT results were good to excellent in 87.9% of shoulders (29/33) and fair in 12.1% (4/33), and the control results were fair in 69.2% (9/13) and poor in 30.1% (4/13). Among ESWT patients, calcium deposits were completely eliminated in 7 cases (21.2%), partially eliminated in 11 (36.3%), and unchanged in 15 (45.4%). In contrast, elimination was partial in 2 control patients (15.3%) and unchanged in 11 (84.7%). There was no significant difference between Gartner type I and type II groups in the Constant score (P >.05). ESWT shows promise for pain relief and functional restoration of calcific tendinitis with negligible complications

Abstract number: 26373 LCP FOR FIXATION OF FREE FIBULA GRAFT: IN VITRO BIOMECHANICAL STUDY AND CLINICAL RESULTS

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Treatment of forearm bone defects more than 5 cm long is a challenging problem. In such cases the method of choice is vascularized fibula transfer. But the question is how to fixate graft. We hypothesized that the LCP would be the best, because we need 1) to fix fibula stable, 2) minimize blade pressure on bone surface (it is particularly important in circumstances of free vascularised graft) and 3) to achieve appropriate axial compression in two places between recipient bone and graft (bilocal compression). In order to help justify the use of the LCP for fixation of free fibula graft an In vitro biomechanical testing was performed. The 3.5 mm LCP were applied over a osteotomied bone simulating bone defect and free fibula graft. Blade pressure on bone surface with traditional and locking screws (bicortical and unicortical), axial compression with bicortical and unicortical screws and bilocal compression with bicortical and unicortical screws were studied. Mean blade pressure on bone with traditional and locking screw was 40.1N and 1.1N respectively, axial compession achieved 25.4N and biaxial 36.4N. So we suppose that it is better to fix free fibula by unicortical locking screws and than bilocal compression by traditional screws placed by the each side of the graft should be done. 11 patients with ulna or radius were treated by this technique. At the end in all cases defect was reconstructed successfully. In one case we have met fatigue plate failure, reosteosyntesis was made using another LCP.

Abstract number: 26384

DIFFERENCES BETWEEN BONE ANCHORED AND TRADITIONAL SOCKET PROSTHESES FOR TRANSFEMORAL AMPUTEES.

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Since 1990 the Sahlgrenska University Hospital in Gothenburg, Sweden has been the centre for prosthetic rehabilitation for patients treated with upper or lower extremity bone-anchored (osseointegrated) amputation prostheses. Today more than 100 patients with transfermoral amputation have been treated. The aim of this presentation is to illustrate differences between bone anchored and traditional socket prostheses for patients with transfemoral amputation. In traditional prosthetic rehabilitation a prosthetic socket is made from a cast of the residual limb. In the normal case a new socket has to be produced every second or third year for the rest of the patient's lifetime. Our treatment for a bone anchored prostheses is a two stage surgery procedure (S1 and S2) using the method of osseointegration. A titanium implant is used and after the surgeries an abutment will protrude through the skin out of the residual limb. Four to six weeks after surgery S2 the patient will start to load and strengthen the skeleton by using a short training prosthesis. The full length prosthesis (osseointegrated prosthesis) is supplied about 3 months after S2. The OIprostheses is easily attached to the abutment. The most obvious difference between the two prostheses is the lack of a prosthetic socket. All problems regarding suspension of a prosthetic socket are solved. Other advantages are free hip range of motion and comfortable sitting. Data also indicate that patients using OI. prostheses have improved sensation through the prosthesis (osseoperception).

Abstract number: 26420 FACTORS DETERMINING THE LENGTH OF STAY FOLLOWING A PRIMARY TOTAL KNEE REPLACEMENT

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Aim: The aim of this study was to determine the factors that affect the length of stay in hospital following a primary total knee replacement. Materials and Methods: It is a retrospective analysis of all the patients who underwent a primary total knee replacement (TKR) between January and December 2008 at our institution (n=346). A comprehensive database was developed and all the patient records were examined for pre, intra and post-operative factors that had previously been shown to affect length of stay and recorded into the database. At the time of submission of the abstract complete data from 175 operations was available. Spearman's correlation coefficient, Mann-Whitney U test or Kruskal-Wallis ANOVA were used to analyse the data depending on the nature of the variable. Results: The following factors were found to significantly affect the length of stay at the 95% confidence level: Age, marital status, pre-operative use of a walking aid, comorbidity, pre and post-operative haemolobin, post-operative blood transfusion requirement, weekday of surgery, early post-operative mobilisation, post-operative day on which 10m mobilisation or 900 knee flexion were achieved, post-operative complications and ITU stay and the postoperative day deemed fit for discharge by occupational therapy. Conclusion: The above patient and treatment-related factors are associated with length of stay following a primary TKR. Although preliminary these results certainly show a trend and further investigation is warranted to assess whether modifying these factors has an impact on length of stay and the potential use of the above in a predictive model.

Abstract number: 26467

PRAVASTATIN REDUCES MMP-3 AND MMP-9 GENE EXPRESSION IN INTERLEUKIN-1-Î² STIMULATED NORMAL HUMAN CHONDROCYTES

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Introduction: Pharmacological agents for the treatment of osteoarthritis (OA) only control symptoms. With the increasing burden of this disease worldwide, development of a disease-modifying drug is crucial. Statins, with well-reported antiinflammatory properties, are one such potential agent. We aimed to investigate the efficacy of Pravastatin to modify the gene expression of three selected matrix metalloproteinases (MMPs). Methods: Normal human chondrocytes were grown under standard laboratory conditions. After stimulation with interleukin-1- (IL-1-) to simulate OA for 6-hours they were treated with Pravastatin at 1, 5, 10 and 50M for a further 18-hours. IL-1- stimulated cells without treatment with Pravastatin were used as a control. PCR was used to measure change in gene expression of MMP-3, MMP-9 and MMP-13 all enzymes contributing to articular cartilage destruction. Results: At the 10 and 50M concentrations, there was statistically significant reduction in expression of MMP3 (p=0.036, 0.006 respectively, one sample t-test). There was a non-significant trend toward down-regulation of MMP-9 mRNA expression with increasing concentration (all p>0.05). There was no obvious trend, nor statistically significant down-regulation of MMP-13 gene expression at any dose. Conclusion: Pravastatin shows some promise for the treatment of OA with the ability to downregulate mRNA expression of MMP-3 and MMP-9. Further work is warranted in this field to confirm that gene expression changes correlate with reduced enzyme activity and reduced articular cartilage degradation.

Abstract number: 26470

REDUCED SUBSTANCE P LEVELS IMPEDE TENDON REPAIR

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Tendon repair is characterized by prolonged healing, which is especially marked in patients with neuropathic conditions. The sensory neuropeptides, substance P (SP) and calcitonin gene related peptide (CGRP) are involved in nociception as well as in tissue repair. The impaired healing seen in neuropathic conditions may be a result of a reduced local presence of sensory neuropeptides. The study was conducted in order to investigate whether a decreased expression of SP and CGRP during rat achilles-tendon healing would influence the development of biomechanical tissue properties. Capsaicin-induced denervation reduced the concentrations of SP by ~60% and CGRP by ~40%, as assessed by radioimmunoassay in the dorsal root ganglia (DRG). The peripheral neuronal presence of SP and CGRP, as assessed by immunohistochemistry, was subjectively almost depleted. Looking at intra-individual correlations, decreased SP levels in the DRG correlated with lower ultimate tensile strength (UTS) and stress at failure in healing tendons. Furthermore, an individual decrease in nociception at week 2 was correlated with decreased peripheral occurrence of SP and was moreover correlated with reduced UTS and stress at failure at 4 weeks post-tendon injury. Comparing groups at 8 weeks, the denervated tendon group exhibited higher UTS, failing at tendon midsubstance, than did the operated controls, which failed at the bone tendinous junction. These findings suggest that denervation may block a SP-induced remodelling phase at the tendon bone insertion in the denervated group. In conclusion, a reduced presence of sensory neuropeptides is associated with impaired development of biomechanical tissue properties in the healing tendon.

Abstract number: 26479 MAGNESIUM ATTENUATES LOCAL ANAESTHETIC TOXICITY TO CULTURED HUMAN CHONDROCYTES

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Introduction: Local anaesthetic (LA) has a potentially detrimental effect on human chondrocytes. Magnesium, an NMDA receptor-antagonist, may be an alternative intra-articular analgesic agent. We aimed to report the effect of commonly used LA on chondrocyte viability and also report on the effect of adding magnesium to the LA. Methods: Human chondrocytes were exposed to either lignocaine (0.5, 1, 2%), levobupivacaine (0.125, 0.25, 0.5%), bupivacaine (0.125, -.25, 0.5%) or ropivacaine (0.1875, 0.375, 0.75%) for 15 minutes. Cells were also exposed to a local anesthetic agent with the addition of magnesium (10, 20, or 50%). Cells exposed to media or saline served as controls. MTS assay was used to assess cell viability 24-hours after exposure. Results: One-way ANOVA showed an expected dose response in all LA groups with the exception of lignocaine. Magnesium alone was no more toxic than normal saline (P>0.3). 50% magnesium showed similar effect on cell viability to the least toxic local anaesthetic (lignocaine 1%, P=0.31). The addition of magnesium to the local anesthetic agents resulted in greater cell viability than when cells were treated with the respective local anaesthetic alone (lignocaine (P=0.033), levobupivacaine (P=0.007), bupivacaine (P<0.001), ropivacaine (P<0.001)).Conclusion: We have showed that cell viability is improved with the addition of magnesium to local anaesthetic compared to the local anesthetic agent alone. We believe that these findings offer support to an alternative intra-articular analgesia following arthroscopy.

Abstract number: 26544

A VIRTUAL BONE DATABASE FOR OPTIMIZATION OF ORTHOPAEDIC IMPLANT DESIGN

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Orthopaedic implant designs are historically based on data from cadaver bones, normally from a very limited sample number. However, detailed knowledge of the variance of bone morphology secures an optimized fit in a larger population. A population-based design methodology will guarantee an optimal fit for the whole range of patients and in turn may facilitate better clinical outcome and less device related complications. Our new implant design methodology is based on bone surface models of derived image segmented CT scans from patients together with additional metadata (ethnic group, age, gender etc.). The surface bone models are transformed to volume models using unique automated volume conversion software. In addition, we developed semi- and fully-automated methods with which we can analyse key bone geometries on our virtual, three-dimensional bone data. The aim of our study was first to validate the automated methods and then to compare them to data from manually performed volume conversion and geometric measurements. The automated methods turned out to be reliable, whereas the manually performed measurements have to be challenged because of high personal subjectivity resulting in a large statistical variance of the data. This new design methodology is now implemented in the development process of new implants and further planned studies will investigate possible facilitation of surgical procedures and enhanced clinical outcome.

Abstract number: 26549 DISTAL TIBIAL ANTERIOR TENDINOSIS Hans CRONE

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Since 1990 I have regularly seen patients with insertalgia of the tibialis anterior tendon at my office for foot surgery. This study describes the clinical feature of this entity, which has only been done once before (A. Beischer et al in Foot & Ankle Int. 2009, 1053-1059). These patients have pain at the medial part of the midfoot when walking and usually aching at rest, sometimes twinges. At examination they have medial footpain when walking on heels. There is a swelling and tenderness over the distal 3-5 cm of the tendon. Pronation when standing was not a frequent finding. During five years (2003-2007) 113 patients with distal tibialis anterior tendinosis attended my clinic, (compared to 70 patients with tibialis posteriortendinos at the same time). Ten had bilateral complaints. 101 patients were female (90%). Quite half of the patients had other problems or diagnosis concerning the affected foot. Mean age was 62 years (range 26-83). Mean duration of symptoms prior to consultation was 8 months (range 1-48). A questionnaire was sent to all patients. Fourteen did not reply and another five could not be assessed. Of the remaining 94 patients 74 (79%) had no or only mild symptoms. For those the average time from start to relief of complaints was 18 months (range 6-48). Eight patients were not improved and seven of these had arthrosis in the foot as well. No ruptures were registered.

Abstract number: 26563

CASE REPORTS: A NEW TUTORIAL CONCEPT

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Introduction: The University Clinic for Orthopaedic Surgery Graz is one of the Austrian centres for treatment of benign and malign musculoskeletal tumours. Because of the low number of most musculoskeletal tumours sometimes the only occurrence in literature are case reports. Although the scientific value of case reports in the scientific community is far below clinical trails they represent an important scientific contribution especially in rare pathologies. Students should be motivated early to scientific work. Case reports are the ideal introduction to this. Materials and Methods: Within 12 one hour sessions students are instructed to basics of scientific working. Every participant could choose a case report or a simple retrospective study and had to present the chosen topic in a seven minute presentation for colleagues. Additional aim was to produce a poster or presentation for a national or international congress and work out a manuscript for sending it to a journal. The students were supervised in all these actions of the lecturing tutors. Results: The tutorial was hold four times with very good output. Seven case reports of the students were published till now. 25 presentations and 36 posters were accepted (61 abstracts). Discussion: Students were very satisfied with the concept of this tutorial. They learned basics of scientific working and had possibility to present their work. Retrospective evaluation showed, that students and lecturing tutors had many benefits of this new method.

Abstract number: 26637 CURRENT MANAGEMENT OF RISK FACTORS IN PATIENTS UNDERGOING TOTAL HIP AND KNEE ARTHROPLASTY IN WALES

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Introduction: Total Knee and Hip Arthroplasty (TKA and THA respectively) are two of the most commonly performed surgical operations. Two of the major risks for patients undergoing TKA or THA are deep vein thrombosis (DVT) and infection. Aim: To assess the current use of antibiotic prophylaxis and DVT prophylaxis for patients undergoing THA or TKA in Wales. Methods: We used a telephone guestionnaire to collect data from every Hospital in Wales regarding the number of joint replacement surgeons, their choice of antibiotic and DVT prophylaxis. Results: TKA or THA were performed in thirteen hospitals. In smaller district general hospital most general orthopaedic surgeons carried out TKA or THA, whereas in the larger units specialist surgeons performed the same. The preferred antibiotic prophylaxis was cefuroxime 1.5 grams (g) at induction and 2 post op doses of 0.75g although the dosage varied. All hospitals used laminar air flow theatres. We found that DVT prophylaxis varied much more, ranging from TED stockings and aspirin to foot pumps during hospital stay and enoxaparin for four weeks post-op. Two hospitals used tinzaparin instead of enoxaparin and one used fondaparinux sodium. Conclusion: The current management of risk factors in TKA or THA patients in Wales varied significantly. Although antibiotic prophylaxis seems to be uniform there is a slight dose variation. However, this practice is not necessarily evidence based. The DVT prophylaxis regime varied much more and seems to depend on the individual surgeon's preference despite the recent publication of guidelines from NICE.
Poster Topic: General Orthopaedics

Abstract number: 26718

BONE LENGTHENING BY ILIZAROV TECHNIQUE: CAMPARISON OF OSTEOINDUCTIVE EFFECT OF CANCELLOUS BONE AND BMP IN DOG

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The Ilizarov technique is commonly used for treatment of open and close fractures, non unions, bone tumors and infections. In this study the Ilizarov technique was used in combination with BMP and cancellous bone for bone lengthening in dog. 15 mix breed dogs were used. They were anesthetized and the left radius and Ulna were exposed and were cut transversely by osteotom. Two Ilizarov pins were installed at each fragment end of the radius perpendicular to each other 2.5 cm apart. The pins were connected to the Ilizarov rings using adaptors and the rings were connected to each other by vertical bars using the same adaptors. The two fragments of bone were pulled apart gradually using Dehdashti extender applied to the bars and rings, so that the ideal gap made between two fragments ends was more than bone diameter. The dogs were divided randomly into 3 groups: 1. Group one: No bone treatment. 2. Group two: The fracture gap was filled with BMP. 3. Group three: The fracture gap was filled with autogenous cancellous bone. They were evaluated clinically, radiographically and biomechanically. Bone formation, callus formation and union in the gap in 3 groups were not statistically significant which can be due to the low number of the samples. In biomechanical evaluation the load was statistically significant in BMP group compared to cancellous group, but both BMP and cancellous groups were significant different compared to the healthy bone. Although Ilizarov technique has many advantages for long bone lengthening but it also has many complications including: infection, fracture of the bone, deformity of the limb. Therefore further study in this area is required for dogs.

Abstract number: 23298 MYCOBACTERIUM MARINUM INFECTION OF THE HAND AND WRIST: A REVIEW OF ANTIBIOTIC TREATMENT REGIMENS

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Introduction: Mycobacterium marinum infection is an occupational hazard for workers with marine exposure. Delayed treatment leads to prolonged drug use, extension of cutaneous infections to the tenosynovium and poorer prognosis with multiple debridements and joint contractures. The objective of this study is to review available evidence on the epidemiology and management of mycobacterium marinum infections. Methods: Literature search using the search term mycobacterium marinum. Data on epidemiology, microbiology, diagnostic difficulties, clinical presentation, culture, histology, treatment and long-term outcomes (such as loss of hand function) were included. Results: Delayed or wrong treatment can lead to the loss of hand function. For instance, initial misdiagnoses have lead to intra-lesional injections of corticosteroid which exacerbates the condition. 54% of patients received steroid injections before admission and 84.6% of these patients resulted in delayed wound healing or poor response to medications and subsequently requiring surgical debridement. Extensive synovectomy lead to fingers stiffness (average total active motion of 93.8 degrees). Immobilization of the hand for 7 to 10 days before allowing vigorous exercise lead to a range of motion of involved wrist and fingers similar to that of the unaffected hand in 87.5% of patients. Conclusion: Patients at risk for infection are fisherman and have documented aquatic exposure with preceding trauma. Proactive approach towards obtaining a histological diagnosis is recommended as positive culture results are usually unavailable or late. The authors advise clinicians to be alert, commence medical treatment early and proceed to surgical debridement in cases of deep seated infections.

Abstract number: 23389 TOURNIQUETS IN TOTAL KNEE REPLACEMENT- ARE THEY A POTENTIAL SOURCE OF INFECTION

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This was a prospective audit carried out in 10 patients who were undergoing elective total knee replacement. Infection following a knee replacement leads to poor results, mulitple surgeries, and sometimes amputation. Extreme care is taken to avoid infection in arthroplasty surgeries in the form of laminar flow theatres, proplylactic antibiotics, good glycaemic control, double gloves, etc. Knee replacements are done under tourniquet control. This study was designed to see if reusable tourniquets could be a potential source of infection in TKR surgeries. The tourniquets were numbered swabbed preoperatively in the operating theatre after application on the patient. The results were checked to see if they had any significant growth of organisms which could potentially cause infection in TKR. None of the tourniquets grew organisms. This study highlights the fact regular maintainance of the tourniquet with cleaning is important. An alternative option would be use of disposable tourniquets.

Abstract number: 23398 SACROILIAC JOINT TUBERCULOSIS: A CASE REPORT AND REVIEW OF LITERATURE Kiran SINGISETTI

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Sacroiliac joint is an unusual site for tuberculosis infection. We report a case of 22 year old man who presented with dull aching left buttock pain and an insidiously developing swelling around the same sacroiliac joint. He soon complained of intermittent fever and cough with expectoration. The haematological parameters were within normal limits except for an ESR of 88mm in first hour. The plain radiographs and CT scan revealed a lytic lesion of the sacroiliac joint. The swelling was drained by an open procedure and the histopathological examination confirmed tubercular infection. He was started on a multi drug regimen of anti tubercular drugs. He was completely symptom free at the end of three years of follow up. Though the incidence of bone and joint tuberculosis may be declining in some regions of the world, it is still a challenge due to its varied presentations. A high index of clinical suspicion helps in the early diagnosis. Early intervention and multi drug chemotherapy is cornerstone in its treatment.

Abstract number: 23413 TUBERCULAR OSTEOMYELITIS OF THE CLAVICLE: A REPORT OF FIVE CASES

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We report the clinicoradiological features of tuberculosis in the clavicle in 5 patients. The patients' ages ranged from 9 months to 29 years. All patients were managed with antitubercular drug therapy for one year and one underwent surgical debridement and curettage as well. Clinicians should be aware of the varied presentation (pain, non-healing ulcer, abscess, multifocal osteoarticular tuberculosis) of this condition. With the worldwide resurgence of tuberculosis, clinicians should maintain a high index of suspicion. The diagnosis of osteoarticular tuberculosis is usually made on clinico-radiological features.Key words: clavicle; tuberculosis, osteoarticular

Abstract number: 23444 DO TINY DROPS CAUSE AN INFECTION IN ORTHOPAEDICS

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We did a prospective study of 15 elective orthopaedic operations in our operating theatres. We noticed that after scrubbing up, while the surgeon opens the gown to get towels for drying the hand, droplets tend to drip on to the gown. This gown is worn for operation and comes into contact in the operating field throughout the procedure. Our null hypothesis was that these droplets may cause some commensals which can cause infections especially arthroplasty procedures. We innoculated these droplets into culture media including enrichment broth to see if they yield any organisms of significance. Two surgeons and the scrub nurse innoculated the culture plates with these droplets. None of the plates yielded any growth even after prolonged incubation. This suggests that the risk of contamination from these droplets to cause infection is low.

Abstract number: 23744 ANTIBIOTIC PROPHYLAXIS IN ARTHROPLASTY- A SURVEY OF PRACTICE AMONGST ORTHOPAEDIC SURGEONS

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Introduction: Joint replacements are increasingly performed by Orthopaedic Surgeons. Infection following arthroplasty is a dreaded complication and antibiotic prophylaxis is regularly used. There is no universal consensus regarding type of antibiotic to be used. We conducted this survey to assess the current practice regarding the use of antibiotics in joint replacement surgery. Method: A guestionnaire survey was done amongst the members of British Orthopaedic Association. The survey assessed if hospitals provided a protocol for antibiotic prophylaxis, the type and doses of antibiotic used. The survey also assessed awareness regarding any existing guidelines for antibiotic prophylaxis and the need for such guidelines. Results: 88% of the respondents mentioned that their hospital provides a guideline .There was variation in practice with 58.1% using Cefuroxime, 25.6% using Gentamicin, 23.5% using Flucloxacillin and 14% using Augmentin. 61.8% use one pre operative plus two post operative doses. 53.65% were not aware of any regional/national guidelines and 30.9% were not sure. 63.4% suggested a guideline is required for using prophylactic antibiotics. While 51.2% feel it should be done at a regional or hospital level, 31% felt that there should be a uniform national guideline for such practice. Conclusion: There seems to be a variation in the current practice of using prophylactic antibiotics in arthroplasty across hospitals. A consensus regarding antibiotics usage and guidelines developed at regional or national level is recommended.

Abstract number: 23766

IMPLANTS COATING WITH REGULATED ANTIBACTERIAL PROPERTIES

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Infection complications in the postoperative period are very often the reason to unsatisfactory results of applying metallic implants in surgery of the locomotorium involving the problem of removing endoprostheses, metallic construction. Purpose: Jo develop coatings onto the metallic fixators with regulated bactericidal (antibacterial) properties. Materials and methods: Metallic constructions with the coatings prepared on the basis of titanium dioxide and processed by the ions streams served as a material. The coatings were obtained by way of falling out the streams of titanium plasma generated by the arch of low pressure in the rarefied oxygen atmosphere. Activation of antibacterial properties took place under influence of X-ray impact. Antibacterial properties were evaluated in the Petri dish together with St.Aurus (209) in the amount of 1×109 microorganisms per cup. Cultivation was done during 1.2, u 3 days. The specimens laving bactericidal coatings were implanted into the hip bone of the rats for assessment of the results. Results: When evaluating the results in the Petri dish antibacterial activity around the implants with coatings after processing them with the X-rays was noticed. And after intrabone implantation of the specimens it was shown that the material of the coating did not influence reparative osteogenesis. The index of osteointegration of the coating material with new formed bone tissue is 82,4 ± 12,2.Conductions. New coatings which properties can be activated by way of X-ray impact were developed for the titanium fixators.

Abstract number: 23988 VACUUM ASSISTED DRESSING AND CULTURE SPECIFIC ANTIBIOTIC BEADS FOR CONTROL OF IMPLANT INFECTION

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Aim: The control of infection around internal fixation devices is generally difficult due to the formation of glycocalyx around the metallic implants. Early infections are generally dealt with by washout and parenteral antibiotics. We present our series of successful control of acute infection around internal fixation devices with the use of culture specific high dose antibiotic cement beads and negative pressure dressings. Methods and Materials: Prospective collection of data of 12 consecutive patients who underwent debridement with antibiotic bead insertion and VAC dressing for acute infection around internal fixation devices were included in the study. All operations were performed or closely supervised by a single surgeon. Patients were followed up prospectively for minimum of 6 months following the index procedure. Secondary outcome measures included complications such as repeat debridement, delayed wound healing & removal of internal fixation device. Results: There were 6 females and 6 males. The average age was 54 years (Range 26 to 82). The follow up period was between 6 to 24 months. All patients underwent successful wound healing and union around the fracture / arthrodesis site. One patient needed removal of plates following the fracture union for residual pain. Discussion: Custom made culture specific antibiotic beads facilitate the local delivery of high doses of specific antibiotics without any systemic side-effects. The use of vacuum assisted dressing helps reduction of collection around the internal fixation device and accelerates wound healing, allowing retention of the internal fixation devices till fracture / arthrodesis union.

Abstract number: 24467

EVALUATION OF SENSITIVITY AND SPECIFICITY OF 99M-TECHNETIUM ISONIAZID SCAN FOR DIAGNOSIS OF SKELETAL TUBERCULOSIS.

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The aim of our study was to evaluate the sensitivity and specificity of 99m-Technetium Isoniazid scan for the diagnosis of skeletal tuberculosis. 20 patients with strong clinical, radiological and microbiological evidence were included in the study presenting in the time period of January 2007 to February 2009. Patients already on antitubercular treatment, pregnant females, those with hepatic and renal abnormalities, and those with hypersensitivity to Isoniazid are excluded from the study. All patients were initially subjected to 99m-Tc Bone Scan and those patients with positive result were then subjected to INH Scan and images were acquired at 1hr, 4 hr and 24 hr. After the images are acquired, the samples were taken and sent for mycobacterial culture (taken as the gold standard). Of the culture positive cases, 69.2 % of cases were positive and 30.8% of cases were negative for 99m-Tc- INH Scan. Sensitivity, Specificity, Positive Predictive value, Negative predictive value and diagnostic accuracy were found to be 69.2%, 71.4%, 81.8%, 55.5%, and 70% respectively. Hence we conclude that 99mTc-INH Scan has a good sensitivity and specificity for the diagnosis of skeletal tuberculosis. Furthermore it is noninvasive, nontraumatic and it can be done on outpatient basis to rule out skeletal tuberculosis.

Abstract number: 24570 ACTINOMYLOSIS OF BONE AND SOFT TISSUE: A REPORT ON 10 PATIENTS AND REVIEW OF LITERATURE

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Actinomycosis is a non communicable, chronically suppurative, and uncommonly diagnosed human disease. The potentially pathogenic organisms are ubiquitous in soil and are part of the flora of the mouth. The difficulty in diagnosing the disease might be due to the lack of familiarity with this disease. The article discusses ten patients, presented very late, with diffuse infiltration of bone and soft tissue. Nine were in the foot and one case in the foot and one case in the middle 1/3 of the tibia. The diagnosis was confirmed on clinical, bacteriological and histopathological examination, antibiotic were useful but was not curative. All end up with below knee amputation. This paper confirms the importance of clinical awareness in the initial stage of disease so that amputation may be avoided.

Abstract number: 25109 PRESACRAL ABSCESS: A NOVEL APPROACH TO DRAIN IT

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Osteo-articular tuberculosis in general and spinal tuberculosis in particular is major health problem in technologically developing regions of world. Presacral region is one of the uncommon yet difficult regions for drainage of abscess. Tubercular infection or abscess generally responds well to antitubercular therapy. Surgical drainage is indicated if it is not regressing on antitubercular therapy or if it is causing pressure symptoms. It is difficult to approach the presacral region. Since many approaches have been described, anterior transperitoneal approach is most commonly used. Others being presacral route, perineal route or precoccygeal route. We are presenting case series of 12 such cases of tubercular etiology presented to us with cauda equina syndrome. All of them had complete neurological recovery within 3 days to 3 weeks (mean: 7.8 days) of performing abscess drainage by transpedicular approach. Transpedicular approach has been reported in literature sparsely. Transpedicular approach to presacral region is a safer option as compared to other approaches to reach this region. It simultaneously allows decompression of cauda equina nerve roots by laminotomy without changing position of the patient in the theatre. The key to success with this approach is early diagnosis and early treatment.

Abstract number: 25147 PROXIMAL FEMORAL OSTEOMYELITIS FOLLOWING A RUPTURED SIGMOID DIVERTICULITIS- A CASE REPORT AND REVIEW OF LITERATURE

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Ruptured sigmoid diverticulitis may either present as peritonitis or a localised abscess. These abscesses may track out of the pelvis along fascial planes or path of least resistance. Spread can occur along blood vessels or muscles such as Iliopsoas, pyriformis and oburator internus. Limb manifestations of perforated diverticular disease can present a diagnostic challenge and need a high index of suspicion. These are common in elderly patients. Extensive diverticulitis may sometimes present only with extra peritoneal manifestation without any abdominal symptoms.We present a case of a 67 year old male admitted with a history of lower back pain. Initial investigations revealed a raised CRP. Clinical diagnosis of acute discitis was made and urgent MRI was performed. MRI revealed no evidence of discitis. As he continued to have temperature spikes and high CRP a pelvic CT-scan was performed which revealed a severe diverticular disease and a small psoas collection. This was aspirated followed by a course of antibiotics. Repeat CT-scan in 6 weeks showed improved diverticular disease and no new collection. Presented around 6 months later with progressively worsening left groin pain. He had elevated CRP and ESR. MRI scan revealed proximal femoral osteomyelitis with gross destruction of the femoral head. He underwent a 2 stage uncemented THR. Peroperatively there was granulation tissue in the acetabulum with advanced destruction of the femoral head. He improved dramatically following the hip replacement and at the last review 6 months postoperative he was completely pain free with no evidence of persistent infections

Abstract number: 25413 OSSEOINTEGRATED TRANSCUTANEOUS TITANIUM PROSTHETIC SYSTEM FOR AMPUTEES -INFECTIOUS COMPLICATIONS

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Background: The osseointegrated transcutaneous titanium prosthetic system for amputees is intended to assure stable long-term fixation. Most metal transcutaneous implants have previously failed because of infections. Aim: To study infectious complications with this novel method and to evaluate the bacterial flora at the skinpenetration area and its relation to local and implant-related infection. Methods: 39 arm and leg amputees who had lived with their transcutaneous osseointegrated titanium implants for in mean 56 months (range 3-132 months) were included. There were 33 femoral, four ulnar, four radial, three humeral and one tibial implant. Patients were cross-sectionally included during a six month period in 2005 and identically reevaluated after 3 years prospective follow-up. Results: The cross sectional frequency of implant infection was 5% at inclusion and 18% at follow-up. One infected patient recovered as a result of antibiotic treatment and one had the implant removed. Most implant infections had low infectious activity and in five of the seven infected patients, prosthetic use was not affected. The most common bacteria in both superficial and deep cultures were Staphylococcus aureus and coagulase-negative staphylococci. Conclusions: Despite frequent colonization around the skin-implant interface by potentially virulent bacteria such as S. aureus and bacteria associated with biomedical device infections such as coagulase-negative staphylococci, this titanium implant system for bone-anchored prostheses causes few severe infections leading to disability or implant extraction.

Abstract number: 25510 TO STUDY THE PATTERN & EVALUATE THE INCIDENCE OF INFECTIONS IN TOTAL KNEE REPLACEMENTS

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Aim of the study: 1. To study the pattern of presentation of patients presenting with infection in total knee replacements. 2. To evaluate the incidence of infections in total knee replacements.Materials & methods: We had conducted a retrospective study of 420 total knee replacement done over a period of two and half years from May 2007 to October 2009. Our study had eighteen cases of TKR infection and included ten left sided and eight right sided knees. There were sixteen females and two males in our study, with a follow up ranging from six months to two years. Results: Our study had a overall infection rate of 4.29%, with 38.9% of patients have associated comorbidities. 72.2% of patients got totally cured (44.4% by dressings with or without antibiotics, 16.7% by secondary suturing and 11.1% by surgical intervention). 5.6% patients had recurrence of infection and 11.2% of patients lost to follow up. Conclusion: All cases of superficial infections got treated by procedures like dressings, antibiotic and dressings or secondary suturing & Co-morbidities like Diabetes mellitus, Rheumatoid arthritis and obesity definitively increase the risk of infection. The risk was most significant within the first post-operative month which should be addressed very cautiously to avoid deep infection. Recommendations: 1. Operative: Using separate operating room for joint replacement definitively reduces the risk of infection and also traffic should be as less as possible. 2. Post-operative: Suspicion and an eye to diagnose infection should be present.

Abstract number: 25536 VACUUM ASSISTED CLOSURE THERAPY AS WOUND TREATMENT

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OBJECTIVES: To describe basic demographic data, co-morbidity, treatment results and complications in relation to wound aetiology in patients treated with VAC therapy. METHODS: A consecutive series of patients treated with VAC therapy during 2005-2007 at Södersjukhuset, Stockholm, due to any type of wound, were included in the study. Baseline and wound data were collected from the patients' medical charts. All patients were followed up during the time of treatment in the hospital inwards or outwards departments. The results were recorded as treatment results divided into; Successful treatment or Non successful treatment. The time for treatment was measured. All forms of complications related to the treatment were registered. RESULTS: A consecutive serie of 92 patients, were included in the study, treatment results were registered for 87 patients. Successful treatment was noted for a total of 62 patients (71%) with a mean treatment time of 24 days. Patients with peripheral disease had a significant increased risk for non successful treatment (OR 9.6) and complications (OR 7.5) compared to wounds due to postoperative complications, pressure ulcers had also a risk of non successful treatment (OR 4.1) and a two times higher risk (OR 2.0) for complications. CONCLUSION: VAC therapy seems to be a successful treatment of wounds especially postoperative wounds. However the wound aetiology should be in consideration when deciding on the therapy, taking into account that especially patients with peripheral disease and pressure ulcers have less successful treatment results and are more prone to complications.

Abstract number: 25595 PATIENTS' EXPERIENCES OF ACQUIRING A DEEP SURGICAL SITE INFECTION

– AN INTERVIEW STUDY

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Background: The negative impact of surgical site infection (SSI) in terms of morbidity. mortality, additional costs and LOS is well described in the literature, together with risk factors and preventive measures. As there is a lack of knowledge regarding patients' experiences of SSI, the aim of thisstudy was to describe patients' experiences of acquiring a deep SSI. Methods: Content analysis was used to analyze data obtained from 14 open interviews withparticipants diagnosed with a deep SSI.Results: Patients acquiring a deep SSI suffer significantly from pain, isolation and insecurity. Theinfection changes physical, emotional, social and economic aspects of life in an extremely negativeway and these changes are often persistent. Conclusions: Healthcare professionals should focus on strategies to enable early diagnosis andtreatment. The unacceptable suffering related to the infection, the medical treatment and aninsufficient patient-professional relationship should be addressed when planning individual care, asevery effort is needed to support this group of patients and minimize their distress. Every possiblemeasure should be taken to avoid the bacterial contamination of the surgical wound during and aftersurgery to prevent the development of SSI.

Abstract number: 25648

USE OF AN ANTIBIOTIC COATED NAIL IN TREATMENT OF INFECTED NONUNIONS OF FRACTURE SHAFT OF FEMUR: PRELIMINARY RESULTS IN TEN CASES

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Chronic infection of bone with nonunion is traditionally treated by a 2-stage procedure involving initial debridement and antibiotic delivery and then definitive internal fixation. Alternatively, external fixators are used to provide stability. A technique with which single stage antibiotic cement-coated intramedullary nails are prepared in the operating room with the use of Kuntscher Nails and materials that generally are available is described herein. Although useful for all infected nonunions this technique is particularly useful for patients who are not ideal candidates for external fixation and for those who do not want to have an external fixator applied. We evaluated 10 cases treated with antibiotic cement-coated K nail with application of an additional unicortical plate in 7 cases. Autologous iliac crest bone grafting was done in all cases and additional bone substitutes used in 2 cases. 9 patients had stable union with complete control of infection. One patient had persistent infection at the time of last follow

Abstract number: 25810 REDUCING THE BACTERIAL CONTAMINATION RATE OF FEMORAL HEAD ALLOGRAFTS AT RETRIEVAL

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Aims: The aim of our study was to report the contamination rate of femoral head allografts over a 9 year period at our Regional bone bank. In addition, we investigated whether a change in our microbiological procedures had an effect on our contamination rate. Methods: A review of all microbiological results of femoral head allografts at our Regional bone bank between January 2001 and December 2009 was conducted. The total number of femoral head donations, the number of contaminated specimens and the microbiological organism grown on primary culture or Robertson's Cooked Meat (RCM) Broth were recorded. Prior to 2007; samples underwent primary culture on agar plates. The local microbiological procedure policy was changed in 2007; data was collected prior and post our policy change. Results: During this 9 year period a total of 6,981 femoral head allografts were donated to the Regional bone bank. Of the 6,981 femoral head allografts 1,008 were found to be contaminated, a rate of 14.4%. Prior to the change of policy to RCM broth cultures performed in theatre, the annual contamination rate ranged from 16-22%, this decreased to 7.9% following our policy change. Conclusions: Our contamination rate is within the range of previously published data. Microorganisms found were of low virulence, the majority being Coagulase Negative Staph (76%). We noticed a decrease in the contamination rate when using RCM broth in theatre.

Abstract number: 25815

SURGICAL SITE INFECTION IN ORTHOPAEDIC SURGERY. INCIDENCE RELATED TO SURGICAL PROCEDURE. 12 YEARS OF SURVEILLANCE.

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Introduction: Surgical site infections (SSI) are related to a surgical procedure and affect the surgical wound or deeper tissues. In orthopaedic and trauma surgery there is a great variability of procedures with influence in each evolution. The aim of this study is to fix SSI incidence in relation of surgical procedure.MethodsThis report contains data of 19.948 procedures collected from 1996 to 2008 at a Specialist Orthopaedic Hospital. The SSI surveillance is focused on categories of surgical procedure (Hip arthroplasty, Knee arthroplasty, Spine surgery and Hip fracture) with each category containing a defined set of similar procedures. A basic of demographic data and details about operation itself are collected for each procedure. Patients are followed up throughout their hospital stay and after hospital discharge. We present the incidence of SSI by risk group and surgical procedure. SSI are categorized in type, moment of diagnosis, micro-organisms reported. Results: Rates of SSI are highest in hip hemiarthroplasty after fracture and in hip and knee revision procedures. Rates of SSI increase with the number of risk factors present in the patient, especially after fracture procedures. The most common infecting microorganism was coagulase-negative staphylococcus, followed by Staphylococcus aureus, enterococci and streptococci. 38% of the infections arise after one year of surveillance. Conclusions: Our results confirm difference in rates of SSI depending of surgical procedure in orthopaedic and trauma surgery. We believe that our decision to monitor infection with a long term follow up it's the better way to avoid underreporting of infection.

Abstract number: 25967 NEW RESEARCH IN SAFETY VENTILATION EMPLOYED IN A MODULAR ULTRA CLEAN OPERATING THEATRE

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Results from three studies at Building Sciences, KTH have been employed in a modular operating theatre which gets emphasises in patient safety, cost-and energy effective installations and quality assurance Challenge tests (LR-method), microbiological tests and air velocity tests in field studies in three different operating rooms has been performed. Data from a KTH study on clothing system performace and data on the concentrations of viable particles in the operating rooms during ongoing operations from four county councils have been used in this study Results shows that supply air systems providing unidirectional air flow, often called LAFsystems, today often installed with an air supply velocity below 0.3 m/s, the air flow pattern above theoperating table occurs in a disordered manner, which resembles that of atotal mixing air flow. This means that new, more cost-effective, air supplysystems can be used by using ordinary total mixing air flow in ortopaedicsurgery. A simple mathematical expression has been developed topredict the concentration of airborne viable particles present in the operating room. This expression is based upon the dilution principle. New research in safety ventilation has made it possible to construct a modular, ISO-class, operating theatre with top patient safety and cost-effective ultra clean airflow for orthopaedic surgery. References: Ljungqvist, B., Reinmüller, B. (2006), Practical Safety Ventilation in Pharmaceutical and Biotech Cleanrooms, PDA, Bethesda, MD, DHI Publishing, LLC, River Grove, IL.Nordenadler, J, (2008), Skyddsventilation i operationsrum, Licentiatarbete i installationsteknik, meddelande nr 71, KTH, Stockholm.

Abstract number: 26076 ANTIBIOTIC LOADED CEMENT SPACER IN TWO-STAGE REVISION OF INFECTED TOTAL HIP PROTHESIS

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Aim: to evaluate the outcome of the two-stage revision hip arthroplasty using a antibiotic loaded cement spacer. Material and methods: We used antibiotic loaded cement spacers in 18 two-stage hip revision arthroplasty for infected hip prothesis. The spacers were either preformed or custom made. High doses of gentamicin and/or vancomycin were incorporated in these devices. The mean age of patients was 66 years (extremes: 39-72). Mobilization with minimal weight bearing was allowed and antibiotherapy for 3 months was indicated. The average time elapsed between the 2 stages of revision was 171 days (extremes: 92 -284 days). Local clinical status, radiological aspect and serological markers of inflammation were recorded. Reimplantation was performed when there were no more clinical, radiological or serological signs of infection. The mean follow-up after reimplantation was 38 months. Results: The infection healed in 16 out of 18 cases. Additional surgical procedures were necessary in 3 cases. All the patients with reimplanted prosthesis showed no clinical, radiological or serological signs of infection during the follow-up. At 12 months after reimplantation the average Harris Hip Score was 81 (extremes: 49-96). Conclusions: The medium terms results of two-stage hip revision arthroplasty using a antibiotic loaded cement spacer are very good. The spacer will fill the space, will release antibiotic, will prevent the ascension of the femur, limb shortening and will allow a certain hip mobility. This procedure improves the quality of life for the patient between the 2 stages and it participates in the healing of infection.

Abstract number: 26288 MILIARY TUBERCULOSIS AND NECROTIZING TUBERCULOUS FASCIITIS-AN UNUSUAL COEXISTENCE IN A RHEUMATOID ARTHRITIS PATIENT

Sang-Wook LEE, Seung-Hoon BAEK, Shin-Kun KIM, Chang-Hyuk CHOI, Myung-Rae CHO, Sang-Bong KO, Dong-Young SHIN Daegu Catholic University Medical Center, Daegu (KOREA)

We report a case of a 65-year-old Korean female patient with rheumatoid arthritis, who presented with extensive necrotizing fasciitis of the gluteus muscles, as an unusual initial manifestation of miliary tuberculosis. The patient had previously been treated with conventional disease modifying antirheumatic drugs and low dose steroid for 7 years. However, she recently developed fever, warmth and painful swelling in her right buttock area. Magnetic resonance imaging indicated necrotizing fasciitis of the gluteus muscles and a fasciectomy specimen revealed a Mycobacterium tuberculosis infection. Two weeks after a fasciectomy, miliary tuberculosis of the lung was diagnosed by high resolution computed tomography. With this case, a soft tissue infection caused by mycobacterium tuberculosis should be included in a differential diagnosis of an immunocompromised host. Furthermore, clinicians should be alert to rare presenting clinical features of miliary tuberculosis that show a normal chest radiograph and no respiratory symptoms.

Abstract number: 26481

SURGICAL TREATMENT OF CHRONIC OSTEOMYELITIS OF HUMERUS

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Methods and Materials: We have examined and treated 54 patients with chronic osteomyelitis of humerus (COH) of different aetiology. The age of patients was between 5 and 75 year old. 9 of patients (16. 7%) had nonunions and pseudoarthrosis. We have placed emphasis on 9 factors characterising the pathologic site. We have managed to make charts of the pathologic site of COH. Choice of operative intervention was based on combination of the above enumerated factors. An optimal type of operation was used for each combination of factors. This approach allows to standardize and optimise choice of operation. Altogether 65 operations have been performed. In patients with nonunions and pseudoarthrosis we have used combined wire-rod external fixation devices. Results: 65% of patients had primary wound healing. 6 patients (11.1%) were hospitalised with recurrences. Bone integrity was totally recovered in all patients. In 98.4% patients the pyoinflammatory process was terminated. Bone shortening from 3 till 5 cm was observed in 5 patients. Arthrodesis of elbow joint was performed in 4 patients. Discussions: Choice of operative intervention in patients with COH becomes much easier at standardization of symptoms of the pathalogic site. In our opinion if a patient has nonunions of the humerus use of combined wire-rod external fixation devices is necessary. When the proximal part of humerus is damaged we prefer either partial resection or total resection of humeral head without arthrodesis. Thus, arthrodesis of elbow joint in patients with COH is performed more often than arthrodesis of shoulder joint.

Abstract number: 26535 INFECTED TOTAL KNEE ARTHROPLASTY - 10 YEARS OF EXPERIENCE

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Infected total knee arthroplasty (TKA) remains a major topic of interest because of its diagnostic challenges, requisite intensity of care, and often compromised outcomes. Infected TKA requires 3 to 4 times the hospital resources when compared with primary TKA, and double the resources when compared with aseptic revision TKA. In the period 1998 to 2008. in M M A - Orthopaedics & Traumatology Clinic, 654 TKAs was performed. During this period we have registered and surgicaly treated 28 infected TKAs (MMAs primary TKAs - 22, other institutions primary TKAs - 6). MMA incidence of TKA infection was 3,36%. The most common were: Staphylococcus Aureus 14 cases - 50%, Staph. Epidermidis - 3 cases - 10,7%. Other isolated pathogens were: Enterococcus faecalis, Klebsiela pneum., Klebsiela spec., Streptoccocus viridans, Seratia species, Micrococcus luteus and Peptostreptococcus spec. In one case we had mixed anaerobic flora, and in 3 cases cultures were negative. In our series 4 patients responded fully to one stage reimplantation, 12 cases responded fully to two stage reimplantation, 11 patients ended with arthrodesis (9 ex.fix., 2 plating technique) and we had 1 above knee amputation. Two stage revision remains "golden standard" in infected TKA and is treatment of choice in Military Medical Academy. Eradication of infection is a necessary condition for success of reimplantation. AB-spacer prothesis concept preserves function, higher patient's satisfaction, infects eradication and provides excellent cost/effectiveness.

Abstract number: 26620

INTEREST OF THE METHOD OF ILIZAROV IN THE TREATMENT OF SEPTIC PSEUDARTHROSE OF LEG AT THE ADULT. ABOUT 32 CASES.

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Used, as a last resort and after several therapeutic protocols, lizarov's method permitted to rescue quite a lot of limbs that risked the amputation. In our study, we report a series of 32 cases who suffer from infected leg pseudarthrosis, it is about 29 mean and 3 women that the mean age is 35,5 years old. The patients presented pain (16 cases), fistulas (6 cases) limbs inequality (6 cases) 02 soft parts amyotrophy (6 cases). The preoperative radiography confirmed the diagnosis with 19 cases of hypertrophic pseudarthrosis and 13 cases of atrophic pseudarthrosis. The treatment based on Ilizarov's technique carrying out alternately distraction compression: monofocal (11 cases), bifocal (10 cases), trifocal (11 cases). The consolidation of bones has been noticed in almost all the patients in a delay of 7,4 months on average. The complications caused by pains (7 cases) were treated by analgesics. Oedemas are noticed in almost all the patients at the beginning of the treatment, diminished particularly in 8 patients, articular stiffness is noticed 5 patients who benefited from rehabilitation, osseous sequester (3 cases), a sequesterectomy has been practiced in 1 case. The neurovascular complications are noticed in 1 case. Generally, our global results are good in 60% of the cases, medium in 33% of the cases and bad in 7% of the cases.

Poster Topic: Minimally Invasive Surgery - Ankle/Foot

Abstract number: 23325

MINIMALLY INVASIVE SURGERY OF SINUS TARSAL SYNDROME

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The main goal of this report is to introduce minimally invasive surgery (MIS) as a treatment for sinus tarsi syndrome. Up to now, an open curettage including regional anaesthesia and preventing ischemia was necessary. We have been performing this technique from November 2006 to July 2009, with a total of 17 cases. All of them have been clinically followed and have answered the AOFAS score for ankle and hindfoot. The follow-up has a range of 4-12 months. Criteria to indicate this surgical procedure is: clinically demonstrated sinus tarsi syndrome with no response to conservative treatment with non-steroidal anti-inflamatories and limited-in-time response to steroids injection into the sinus. It consists on curettage of sinus tarsi through a 2-3 mm lateral incision by inserting a specific reamer and profuse washing. No preventing ischemia and just local anaesthesia are needed, so the patient leaves the hospital two or three hours later walking on his own wearing a rigid-soled opened shoe. The patients with tibialis posterior insufficiency were advised to keep wearing the medial support insole. Curettage was performed as a unique surgical procedure in 5 cases and 12 associated with other MIS procedures in the remaining hallux valgus, heel spur and metatarsalgia plus hammer toe. We have had no wound infection and no latter steroid injections or re-operations have been performed in any case. No references in literature have been found about this technique and its results. Conclusions: Is a useful technique for this pathology du to the good results.

Poster Topic: Minimally Invasive Surgery - Ankle/Foot

Abstract number: 26056

PERCUTANEOUS FOOT SURGERY: VARIATION OF THE COMPLETE DISTAL OSTEOTOMY OF THE FIRST METATARSAL.

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Background: Distal osteotomy of the first metatarsal is indicated for the surgical treatment of mild-to-moderate hallux valgus deformity. The aim of this study was to evaluate the results of a variant of subcapital distal osteotomy of the first metatarsal with use of a percutaneous technique in mild-to-serious hallux valgus deformity. Methods: From 2007 to 2008, 23 consecutive percutaneous distal osteotomies of the first metatarsal were performed for the treatment of painful mild-to-serious hallux valgus in 17 patients. The patients were assessed with a clinical and radiographic protocol at a mean of 4.1 months postoperatively. The American Orthopaedic Foot and Ankle Society (AOFAS) hallux-metatarsophalangeal-interphalangeal scale was used for the clinical assessment. The lateral release of the first metatarsal coincides with the incision for the adductor tenotomia before making the distal osteotomy of the first metatarsal. Immediate support after foot surgery. Results: The mean score on the AOFAS scale was 94.58 points. The postoperative radiographic assessments showed a change compared with the preoperative values, in the mean hallux valgus angle, first intermetatarsal angle, proximal metatarsal articular angle and sesamoid position and did not develop any infection. Conclusions: The percutaneous technique appears to be reliable for the correct execution of a distal linear osteotomy of the first metatarsal for the correction of a painful mild-to-serious hallux valgus deformity. In some cases the improvement of symptoms is given by the reduction in the intermetatarsal angle and correct position of sesamoid rather proximal metatarsal articular angle.

Abstract number: 25395

ARTROSCOPIC TREATMENT OF ELBOW JOINT CONTRACTURE

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Efficiency evaluation of arthroscopic debridement of elbow joint for contracture of different genesis. The analysis of results on arthroscopic treatment of 18 cases of elbow joint contracture was conducted. The causes of contracture were: 9 - intraarticular fracture of distal part of humerus, 3 - ulnar process fracture, 3 - rheumatoid arthritis, 1 - septic arthritis, 1 - agnogenic chronic arthritis, 1 - heterotopic ossification resulted from neuro injury of central genesis. The average age of the patients was 23±2.3 years old (15-38). Indications for arthroscopic joint debridement were limitation in the range of motion with functional curve no less than 100°. The results were evaluated within 1-3 years after operation. The operation included: joint examination, front debridement (resection of coronoid process, adhesions removal), proximal resection of joint capsule, debridement of olecranon fossa, resection of olecranon, debridement of medial and lateral introversion, olecranon fossa fenestration. In the case of rheumatoid arthritis with evident loss of rotational movements, resection of head of radius was additionally applied. For removal of large abarticular ossificate, an additional incision was applied. The clinical evaluation of the results showed in 16 (88.9%) cases excellent and good results, i.e. complete or partial recovery of joint function. On average, extension deficit reduced from 46 to 12°, flexion range increased from 92 to 136°, rotat ional movements became full. In the cases of elbow joint contractures of different genesis, arthroscopic debridement is indicated with differentiated choice of approaches and surgical technique depending on the cause of contracture.

Abstract number: 23086 THE DIAGNOSTIC VALUE OF WRIST ARTHROSCOPY IN PATIENTS WITH CHRONIC WRIST PAIN

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A retrospective analysis of 44 cases over a five year period was undertaken to evaluate the diagnostic benefits of wrist arthroscopy. We investigated patients who underwent wrist arthroscopy for chronic wrist pain of more than 3 months duration. 75% of these patients had a history of preceding trauma. Patients were between the ages of 11 and 74 years and 68% were male. During arthroscopy, 98% of patients had a pathological diagnosis established. The three common diagnoses on wrist arthroscopy were triangular fibrocartilage complex tear, scapholunate ligament injury and articular cartilage defects. When compared to other investigations, abnormalities were detected in only 76% of radiographs, 67% of arthrograms, 64% of MRIs and 16% of bone scans. Wrist arthroscopy proved to be the most sensitive investigation in establishing a diagnosis for chronic wrist pain. Arthroscopic examination showed that most patients with chronic wrist pain had ligament and/or articular injury. The finding of articular cartilage defects in these patients may help to explain why no pathological lesion has been postulated for many patients with chronic wrist pain. Arthroscopy is highly operator-dependent but affords the opportunity to determine pathology and undertake simultaneous surgical treatments.

Abstract number: 23553 ENDOSCOPIC CARPAL TUNNEL SYNDROME TREATMENT - AN ON-LINE TRAINING COURSE

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Endoscopic carpal tunnel release is gaining increasing acceptance relative to open release procedures for the treatment of carpal tunnel syndrome. Training of surgeons is an important task in the process of introduction and dissemination of any surgical procedure. There is a learning curve in the case of endoscopic carpal tunnel release, as the surgeon must become familiar with the endoscopic equipment and gain knowledge of the endoscopic carpal tunnel anatomy, fundamentals of the technique and possible complications before performing the procedure. In our study a need analysis of medical students, residents and orthopaedic surgeons and neurosurgeons in Bulgaria, Ireland, and Greece was performed and the survey showed that there is need for training physicians using eLearning materials. A course on endoscopic carpal tunnel release surgery was created by selecting the course content corresponding to the needs of the identified by the need analysis targeted trainees; providing expertise in the procedures and sharing experience and surgical outcomes of patients; providing specific treatment recommendations; participating in the pilot test of the system and implementing the eLearning materials in the teaching programme of the Medical University in Plovdiv and the eHealth system in Bulgaria. The course will be presented as a performance support system in DIPSEIL system and will be available for review and educational and training purposes.

Abstract number: 24122

TRANEXAMIC ACIDS REDUCE BLOOD LOSS IN MINIMALLY INVASIVE THA

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Tranexamic acid has been reported to reduce intraoperative and postoperative blood loss in patients undergoing total hip arthroplasty. To our knowledge, however, there have been no reports describing the effects of tranexamic acid on blood loss during and following minimally invasive total hip arthroplasty (MIS-THA). We investigated the effects of tranexamic acid in 81 patients who underwent MIS-THA without cement for the treatment of osteoarthritis of the hip. There were 20 men and 61 women. The mean age at the time of surgery was 66 years, and the mean BMI was 24.1. ±1000 mg of tranexamic acid was administered intravenously five minutes before the skin incision and just before the skin closure, dependently. Baseline hemoglobin and hematocrit values were obtained three weeks before operation. Postoperative hemoglobin and hematocrit values were obtained at one day, one week, and two weeks. Operative time averaged 80 minutes, and average intraoperative blood loss was 340 ml. We use no suction drain in all cases. The greatest reduction in the level of hemoglobin and hematocrit values during the postoperative period was observed in one week after operation. We needed neither autologous nor allogeneic blood transfusion postoperatively. There was no evidence of deep vein thrombosis or event of any infections, and haematoma. The use of tranexamic acids in MIS-THA could be an effective and safe means to reduce blood loss and the need for blood transfusion requirements.

Abstract number: 26152 TOTAL HIP ARTHROPLASTY USING TWO-INCISION TECHNIQUE

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Purpose: To evaluate the effectiveness of the minimal invasive surgery (MIS) total hip Arthroplasty (THA) using the two-incision technique as described by mears compared to posterolateral one-incision MIS-THA. Materials and methods: January 2003 to December 2006, sixty patients underwent total hip arthroplasty using two-incision and one-incision MIS by one surgeon. Group I 34 patients were used one-incision technique and Group II 26 patients were used two-incision thechnique. There was no difference in age, gender and cuauses of THA between two groups. The mean follow-up duration was longer in one-incision group than two-incision group. We evaluated operation time, bleeding amount, incision length, ambulation, hospital stay and complications between two groups. Results: There was no difference in bleeding amount between two groups. Operation time was longer in two-incision group than one-incision group. Operation time of the two-incision technique could be reduced after 15 cases. Patients started ambulation early after operation and hospital stay was shorter in two-incision group than one-incision group. There was no difference in clinical results between two groups. There was no difference in components position of the acetabular cup and femoral stem between two groups. Intraoperative periprosthetic fracture occurred in 4 cases (15%) in two-incision technique. There was no dislocation in two groups. Conclusion: Two-incision THA has the advantage of rapid recovery and shorter hospital stay. However, longer operation time and high complication rate compared to one-incision are problems to solve in this technique. We don't use two-incision technique anymore in our hospital.

Abstract number: 26199

COMPARISON OF SHORT-TERM RESULTS IN PRIMARY TOTAL HIP ARTHROPLASTY WITH MINIMALLY INVASIVE ANTERIOR AND DIRECT LATERAL APPROACH

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GOAL: The goal of this prospective, non-randomized study is to compare early functional and life-quality changes in primary total hip replacement (THR) with minimally invasive anterior (MIA) and direct lateral (DL) approach. MATERIALS and METHODS: Fourty (20 MIA, 20 DL) consecutive patients underwent primary THR were operated by the same senior surgeon. Patients completed functional and lifequality scores (Oxford Hip Score, Harris Hip Score, EQ-5D, EQ-VAS) before operation and three times (2 and 6 weeks, 3 months) after the surgery. 6 months after THR 10-10 patients underwent MRI examination to adjudge status of abductor muscles. RESULTS: In MIA group both functional and life-quality scores showed better results in first six weeks. Abuctor muscle strength was significantly greater. Trendelenburg-limping was detected in more cases in DL group. Two weeks after the surgery climbing a flight of stairs was normal and public transport could be used by 80% of patients in MIA group. There were 4 operative complications in MIA group, including 2 transient lateral femoral cutaneous nerve palsy, 1 greater trochanter fracture, 1 haematoma. Postoperative hip dislocation was not detected. MRI represented fatty atrophy of abductor muscles in DL group. CONCLUSIONS: It seems that faster postoperative recovery can be achieved by MIA approach, which have many financial and social benefits. It preserves muscles and tendons, which probably can influence the long-term results. By preventing abductor muscles can assure better gait pattern. Of course additional long-term studies are needed.

Abstract number: 26512

THE BIOACTIVE HYDROXYAPATITE COATED SL-PLUS TIHA MIA STEM IN MIS. Gerald PFLUEGER

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Aim of this study was to investigate the advantages of the bioactive coated SL-Plus TiHA MIA stem in comparison to the uncoated SL-MIA stem for minimally invasive THR. We examined a cohort of 576 patients after 6 to 12 month postoperatively (465 patients with the uncoated and 111 patients with the bioactive coated stem). Patients were operated in supine position via MIS-approach (modified Watson Jones), followed by early and full weight loading mobilization starting on the first postoperative day. Follow-up included the clinical (HHS, VAS) and radiological evaluation in terms of 6 weeks, 3 and 6 month and after one year. The main focus of the radiological evaluation was osseointegration of the stem, axial migration and the appearance of radiolucent lines. In both groups the clinical parameters (HHS,VAS) showed no significant differences. Axial migration from 2 to 4 mm was nearly equal in both groups. Over 5 mm we examined a remarkable difference in favour of the coated group (uncoated: 5%; coated: 1%). Radiolucent lines (Gruen-zones) were observed in only 0.9% of the coated group versus 23% in the uncoated. With the introduction of the bioactive coated SL-Plus TiHA MIA stem in our department the appearance of radiolucent lines became remarkable rare. The incidence of extreme axial migration (>5 mm) declined. According to our results we expect that long-term studies will also show a lower rate of aseptic loosening of the stem and increased durability of the prosthesis. Statistical results will be presented.

Abstract number: 24598 MINIMALLY INVASIVE TOTAL KNEE ARTHROPLASTY WITH IMAGE-FREE NAVIGATION COMPARED WITH MANUAL IMPLANTATION

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Introduction: Correct alignment of the leg and positioning of the component has been shown to be an important factor in the good long-term outcome of total knee arthroplasty (TKA). Minimally invasive surgery (MIS) TKA has gained popularity over the past several years. We combined the accuracy of navigation systems with MIS. Materials and Methods: We evaluated two groups of 100 patients who had MIS TKA using either an image-free navigation system or a manual implantation. Clinical evaluations were performed using range of motion preoperatively and postoperatively as well as ratings according to the system of the Knee Society preoperatively and at 6 months postoperatively. We performed radiological evaluation using full-length standing anteroposterior and lateral radiographs and CT scans of the knee at 6 months postoperatively. Results: Range of motion was comparable in the two groups at all times. There were no significant differences between the two groups as regards knee score and function score preoperatively and at 6 months postoperatively. The percentage of patients with a coronal tibiofemoral angle within 3 degrees of the ideal in the navigated TKA was significantly higher (94 %) compared with manual TKA (78 %, P=0.04). No notable differences were found between the two groups as regards the coronal and sagittal planes and rotational alignment of the femoral or tibial components. Conclusion: Navigation-assisted TKA could give a better correction of alignment of the leg compared with manual TKA when combined with MIS. Potential benefits in long-term outcome require further investigation.
Abstract number: 25400

DIFFERENTIAL APPROACH TO THE CHOICE OF SUBCHONDRAL BONE PERFORATION METHOD IN OSTEOCHONDRITIS DISSECANS

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We analyzed treatment results of 34 (35 medial femoral condyles) patients divided into 2 groups: Group I - 7 patients with juvenile OD (active growth), Group II - 28 adults with OD (no growth). At the time where surgery was performed, mean age of Group I patients was 14-17, Group II - 18-34. Average history of symptoms before surgery was 22 months for juvenile OD and 55 months for adult OD. Patients with grade III and IV OD underwent deep arthroscopic transchondral tunneling of the lesion (27); patients with intact joint surface (grade I and II) underwent retrograde tunneling of lesion (8). Mean follow-up period was 6,8±0,8 years for juvenile OD and 8,0±0,7 years for adult OD. Clinical effect of treatment was evaluated on Hughstone Scale and on the basis of standard biplanar X-ray images. Excellent clinical results (6: 85,7%) were reported only in Group I patients with juvenile OD. In Group II (adult OD), good results were reported in 22 (78,6%) cases, while in other 6 (21,4%) cases it was satisfactory. Analysis of treatment results proved that differential approach to the choice of subchondral bone perforation method produced excellent and good long-term results in 87,5% of cases with grade I and II OD and in 77,8% of cases with grade III and IV of this disease. In treatment of osteochondritis dissecans of femoral condyles, stage- and age-dependent differential approach to the choice of method of subchondral bone perforation in the lesion.

Abstract number: 25590 THE MINI KEEL MODULAR TIBIAL PLATE IN TOTAL KNEE REPLACEMENT: PROSPECTIVE RANDOMISED CLINICAL STUDY.

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Mini invasive surgery techniques introduced new devices for joint replacement and modular stem for tibial plate and mini keel allow component placement without dislocation of the knee joint. We prospectively evaluated clinical and radiographic differences among tibial plate with and without the modular stem. Methods. The knee of 60 patients treated for primary arthritis by cemented total knee replacement (NexGen LPS-Flex Zimmer, Warsaw, Indiana) was randomised to receive a mini keel tibial plate with a 45 millimetres stem (S) or without (U). Clinical outcomes, including the KSS, range of motion (ROM), and pain were measured, at six weeks, six months and 3 years after surgery. Alignment angles on frontal and lateral x-ray views and radiolocency were measured. Results. The KSS did not changed significantly among the groups. In terms of pain one patient S and two U refered moderate simptoms. Six months after surgery all patients had ROM>110°, and simptoms free. Three years after surgery KSS average was 92,5 and 91,7 for the S and the U group respectively. Alignment angles on AP and lateral x-ray views were 89,6° and 86,4° for S group and 88,7° and 85,9° for U group. No radiolucent lines were recorded for each group. Conclusions. We found no significant differences between the groups at the early period after surgery. We concluded that 45 mm. modular tibial stem does not appear to have benefits on the ROM, function, and does not influence alignment or primary stability of the prosthesis

Abstract number: 25673

OUR EXPERIENCE OF KNEE JOINT'S ARTHROSCOPY IN YOUNG PATIENTS

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The purpose of the current report is to describe main knee joint pathology in children and adolescents. On the basis of children's traumatological-orthopaedic department of 6th city clinical hospital of Minsk we performed 186 arthroscopies at 174 patients (92 boys and 82 girls). Middle age of patients was 14,4 years (2-18 years). 119 from 174 patients (68,4%) marked a trauma of knee joint in the anamnesis. The basic types of a pathology demanding operative arthroscopic intervention on a knee joint were the followings:1) recent and old damages of meniscuses and ligaments (35,6%),2) chondral and osteochondral fractures of the patella, condyles of femur and tibia (17,8 %),3) synovitis of various genesis (14,4%),4) chondromalacia of various grades (11,5%),5) congenital anomalies of meniscuses (6,9%),6) Koenig disease (6,3 %), etc.20 of 30 cases (66,7 %) of chondral and osteochondral fractures of the knee joint's bones were observed at children till 15 years while 40 of 62 cases (64,5 %) of damages of meniscuses or ligaments of a knee joint were observed at adolescents of 16-18 years. It is necessary to note the high diagnostic importance of arthroscopy. At 54 patients (31 %) the diagnosis established by arthroscopy, completely has not matched with preoperative diagnosis. In 27 cases (15,5 %) diagnoses have not coincided partially. The most difficult in diagnostics were chondral and osteochondral fractures: the incorrect diagnosis has been preliminary established to 19 of 30 patients with the given pathology.

Abstract number: 26111

RETOSPECTIVE ANALYSIS OF ARTHROSCOPIC BANKART REPAIRS

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Arthroscopic treatment of anterior shoulder dislocation has become possible through improvements in instruments and techniques. To retrospectively evaluate results of arthroscopic Bankart repairs at a minimum 3-year follow-up for patients with histories of shoulder dislocation and an anterior-inferior labral tear at the time of diagnostic arthroscopy. A consecutive series of 35 patients (27 men, 8 women; mean age, 27 years) with Bankart lesions were treated with arthroscopic repair using suture anchors; 10 patients (28%) had extension of the labral injury into the superior labrum affecting some or all of the biceps anchor. Anchors were loaded with no. 2 nonabsorbable braided suture and placed 2 mm into the edge of the glenoid surface. A low anterior (5-o'clock) portal through the subscapularis tendon was used in all patients; patients were evaluated at a minimum of 3 years postoperatively (mean, 56 months). Four patients (12%) experienced recurrent instability after repair. Two patients had redislocations;1 experienced recurrent subluxations. One patient had pain with the apprehension test without a clear history of recurrent instability. There were no complications, including no neurologic deficits. Clinical strength testing of the subscapularis muscle was normal in all patients. The mean Rowe score was 83 of 100 points, with 90% excellent or good results. Simple Shoulder Test responses improved from 64% positive preoperatively to 83% positive postoperatively. Bankart repairs performed arthroscopically using properly implanted suture anchors and nonabsorbable sutures and in which associated pathoanatomy is addressed demonstrate low recurrence rates (12%) similar to historical open controls.

Abstract number: 23295

ENDOSCOPIC PERCUTANEOUS VERTEBROPLASTY AND KYPHOPLASTY USING CALCIUM PHOSPHATE BONE CEMENT FOR OSTEOPOROTIC VERTEBRAL COMPRESSION FRACTURES

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Endoscopic percutaneous vertebroplasty and kyphoplasty were performed for osteoporotic vertebral compression fractures. Their clinical outcomes were reviewed.Methods.Patients were placed in the prone position under general anesthesia. A knee arthroscope was inserted percutaneously and transpedicularly into the vertebral body. Fibrotic tissues were resected as much as possible under an endoscope using a rongeur. Finally, highly viscous calcium phosphate cement was injected in one bolus. 67 fresh vertebral fractures and 31 non-fresh fractures with delayed union or non-union were examined.12 of non-union patients also had spinal/neurological symptoms. We examined the timing of pain free with movement, the timing of ambulation, and the rate of vertebral wedge deformity from radiographs. Patients with neuropathy were examined using Japanese Orthopaedic Association (JOA) scores, the criteria for treatment results of lower back pain. The mean follow-up period was 1year and 6months.Results.The pain with movement was resolved in 2.1 days postoperatively in fresh cases, and 2.5 days in non-fresh cases. The ambulation began 6.4 days postoperatively in fresh cases and 4.4 days in non-fresh cases. The final deformity rate was 71.9% in fresh cases and 66.7% in non-fresh cases. The mean correction loss was 8.3% in fresh cases and 5.8% in non-fresh cases. In patients with neurological symptoms, there was an improvement indicated by the JOA score from 12.5/29 preoperatively to 23.2/29 postoperatively. Conclusion. This procedure is an effective treatment with low invasiveness for patients with osteoporotic vertebral fractures.

Abstract number: 23335 MICROENDOSCOPIC POSTERIOR FORAMINOTOMY FOR CERVICAL RADICULOPATHY

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From 2003, we have treated 80 patients with cervical spondylotic radiculopathy by the posterior foraminotomy using microendosccopic discectomy (MED) system. In this paper, the surgical procedure and the initial experience are reported. In the prone position, the initial dilator was inserted with the assistance of the C-arm fluoroscopy. After the serial dilation, the tubular retractor was placed above the facet joint complex. The medial half of the facet joint was removed by the use of high speed burr. The yellow ligament was removed by Kerrison rongeur. and then the nerve root was decompressed. The suction tube was placed for 24 hours after surgery. Patients were permitted to walk 6 hours after surgery without neck collar. The average follow up period was 48 months. Operation time, blood loss, hospital stay, hospital charge and the sick leave were evaluated and the neurological outcomes were estimated by Tanaka score (full mark is 20 points). These values were compared with the anterior cervical fusion which was performed by the same authors. Neurological outcomes, operation time and blood loss were not different between the posterior foraminotomy and the anterior cervical fusion. Hospital stay and the sick leave were significantly shorter in posterior foraminotomy. Hospital charge of posterior foraminotomy was 1/2 less than anterior cervical fusion. Microendoscopic posterior foraminotomy is considered as the less invasive surgery for cervical radiculopathy because of the less painful post-operative course. Moreover, it seems to give socioeconomical benefits for patients.

Abstract number: 25690

PERCUTANEOUS HYBRID FIXATION FOR THE TREATMENT OF THORACOLUMBAR BURST FRACTURES WITHOUT NEUROLOGICAL DEFICIT Nikolaos MANIDAKIS, Georgios TZOANOS, Savvas LYKOUDIS, Ioannis KOUTROUMPAS, Georgios STATHAKOS, Pavlos KATONIS University Hospital of Heraklion, Heraklion, Crete (GREECE)

Aim: The evaluation of early results of combined percutaneous pedicle screw fixation and kyphoplasty for the management of thoraco-lumbar burst fracturesMaterials and methods: Between October 2008 and September 2009, 14 patients with thoracolumbar burst fractures underwent percutaneous short-segment pedicle screw fixation and augmentation kyphoplasty with calcium phosphate cement. All patients were selected according to the type of fracture (unstable type A3 fractures based on the Magerl classification) the absence of neurological signs and an intact posterior longitudinal ligament on the pre-operative MRI scan. Patient demographics, comorbidities and complications were recorded. The main endpoints included Cobb angle correction, vertebral body height restoration and the length of hospital stay.Results: There were 6 male and 8 female patients with an average age of 40.6 years. The average follow-up was 6.1 months. The mean kyphotic angulation improved from 22.3 degrees pre-operatively to 7.5 post-operatively. The loss of vertebral body height improved from a mean of 40.5 % pre-operatively to 12.8 % post-operatively. The average duration of surgery was 40 minutes with insignificant blood loss. There were no post-operative complications. The average length of hospital stay was 3.5 days. Conclusion: The combination of percutaneous shortsegment pedicle screw fixation supplemented by balloon kyphoplasty for the management of thoracolumbar burst fractures with no neurological deficit offers correction of the normal thoracolumbar anatomy as well as augmentation of the anterior load-bearing column, using a minimally invasive technique. The early results are promising.

Abstract number: 26533

THE TREATMENT OF OSTEOPOROTIC VERTEBRAL COMPRESSION FRACTURES WITH THE NOVEL RADIOFREQUENCY-KYPHOPLASTY METHOD Stefan MATTYASOVSZKY, Nadja BREIJAWI, Susanne THOMCZYK, Juri GEMIDJI, Bjoern HABERMANN, Philipp DREES, Andreas KURTH, Konstantinos KAFCHITSAS Department of Orthopaedics and Orthopaedic Surgery, Center for Musculoskeletal Surgery, University Medical Center of the Johannes Gutenberg University Mainz, Germany, Mainz (GERMANY)

Introduction: Radiofrequency (RF)-Kyphoplasty is a new development in vertebral augmentation procedures with an innovative cement application system. The aim of this prospective study was to evaluate the efficacy of this novel technique. First clinical results in the treatment of osteoporotic vertebral fractures are presented.Materials and Methods: Twenty-eight patients (19 women, 9 men, average age 70.8 years) with thirty-nine symptomatic osteoporotic vertebral fractures located in the thoracic and lumbar spine were treated between May 2009 and January 2010. Fractures were diagnosed on standard radiographs, whereas the symptomatic level was identified by MRI. Reduction of pain was evaluated using the visual analogue scale (VAS). For clinical assessment the Oswestry Disability Index (ODI) score was documented before and after surgery. Leakage of cement was assessed on standard plain radiographs and classified into type B (basisvertebral vein), type S (segmental vein), and type C (cortical defect). Results: All the patients studied experienced an early and persistent pain relief (VAS) after treatment and improved significantly in the quality of daily life (ODI). Although there were no technical problems in the performance, cement leakage occurred in 13 of 39 (33%) augmented vertebrae, whereas extravasation through cortical defects (type C) was the most common (85%) complication. Non of the patients suffered from a constriction of the spinal channel or any other life-threatening complications. Conclusion: RF-Kyphoplasty represents an efficient alternative treatment option for symptomatic osteoporotic vertebral fractures and may offer new therapeutic options in the treatment of pathological vertebral fractures following RF tumor ablation.

Abstract number: 26366

ENDOSOPYCALLY-ASSISTED RAISING OF THORADORSAL FREE FLAPS

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Latissimus dorsi and serratus anterior muscle flaps are used most often in reconstrucive microsurgery. The main disadvantage of this muscle flaps lies in its donor-site morbidity with the risk of scar contracture and limitation of shoulder movement. A possible solution to this problem is the endoscopically-assisted harvesting. We performed an anatomical study (15 cadavers, 30 dissections) investigating variant anatomy of thoracodorsal artery and its branches according to minimally invasive endoscopycally-assisted harvesting. Optimal portals for endoscopically assisted dissection of the blood vessels and approaches were identified. The appropriate incision located at the anterior border of the latissimus dorsi muscle with the center located at the level of scapula's inferior angle should be 5 cm long. That was enough in all cases of variant anatomy we have met. Endoscopycally-assisted raising of thoracodorsal flaps was performed in 12 patients (9 - latissimus dorsi and 3 serratus anterior flap). The results were compared with results of the traditional open technique (retrospective group, 19 patients). Mean time of harvesting in case of endoscopically-assisted group was 112 min (91 min in the traditional group, p<0.05). Blood loss was equal in both groups (1040 ml summary, p>0.05). Mean DASH score 6 months post operation was 41 in the miniinvasive group and 52 in the traditional group (p<0.05). At the 12 months post operation there were no significant differences between groups by the DASH score, but patients in endoscopycally group were much more satisfied with the cosmetic results.

Poster Topic: Minimally Invasive Surgery - Tibia / Fibula

Abstract number: 23240 PRELIMINARY REPORT OF MIS TECHNIQUE HIGH TIBIAL OSTEOTOMY IN 413 PATIENTS

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Genu varum is among the most common orthopaedic problems which mostly leads in osteoarthritis. High tibial osteotomy (HTO) is a way for prevention and treating knee osteoarthritis. Various models of HTO have been proposed and in parallel, HTOassociated problems. The purpose of this study was to investigate the clinical results of a new innovative method of HTO named MIS reversed V-shaped high tibial corticotomy in a follow-up period of 3-13 years. Methods: Between 1996 and 2006, 293 patients with medial compartment osteoarthritis and or genu varum were operated on, using our new method. Patients were examined and interviewed before and 6 months after surgery and clinical examination recordings and post-operative complications were registered. Also at the final follow up limb alignment and patients' satisfaction was reassessed. Results: The early post operative complications were varus recurrence, knee pain and no sign of tibial non-union or infection were observed. In final follow up the only observed complications were few cases of mild genu recurvatum, knee pain and loss of correction. There was no relationship between the underlying pathologies and loss of correction in this study and no significant difference between age groups regarding loss of correction was observed. Conclusion: This method can be a feasible alternative for correction of genu varum because of a small incision, being soft tissue friendly, a corticotomy instead of osteotomy, no internal fixation devices, shorter duration and an acceptable rate of complications and recurrences and finally higher patient satisfaction.

Abstract number: 23434

HIP RESURFACING: THE RISK FEMORAL NECK FRACTURE AFTER ANTERIOR OR POSTERIOR FEMORAL NECK NOTCHING.

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Method: 47 fourth generation synthetic femora were implanted with Hip Resurfacing prostheses using imageless computer navigation. The prosthesis was initially planned for neutral version and translated anterior, or posterior, to create a femoral neck notch. The femora were fixed in a single-leg stance, 25° flexion/extension, and tested with axial compression using a mechanical testing machine. The results were compared to the control group in neutral alignment using a one- way ANOVA. Results: Testing Group Mean load to failure. Significance (p-value) Anterior $2mm3926.61 \pm 894.17$.843 Anterior 5mm 3374.64 ± 345.65 . 155Neutral (Control)

 4539.44 ± 786.44 - Posterior 2mm 4208.09 ± 1079.81 . 994 Posterior 5mm 3988.06 \pm 728.59 .902Superior 5mm 2423.07 \pm 424.17. 001 Anterior 5mm in 25° flexion 3048.11 \pm 509.24 027 Posterior 5mm in 25° extension 3104.62 \pm 592.67. 038Anterior and posterior two mm or five mm notches are not significantly weaker in axial compression. Anterior and posterior 5mm notches are significantly weaker in flexion/extension (p=0.027/ p=0.038). The five mm superior notch group was significantly weaker with axial compression supporting previous published data (p=0.001). Conclusion: Anterior or posterior two mm notching of the femoral neck has no clinical implications, however five mm anterior or posterior femoral neck notching significantly weakens the femoral neck. Hip resurfacing is commonly performed on active patients and five mm neck notching has clinically important implications.

Abstract number: 23440

ACCURACY AND REPRODUCIBILITY OF POSTERIOR SLOPE ALIGNMENT IN PRIMARY TOTAL KNEE REPLACEMENT USING EXTRA-MEDULLARY TIBIAL JIGS AND COMPUTER NAVIGATION.

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Methods: 110 primary knee arthroplasties were included over a 4 year period (2005 to 2009). All operations were performed by 2 surgeons using a standardized approach and implants. Group 1 used an extramedullary guide with a 0 degree cutting block tilted by placing 2 fingers between the tibia and guide proximally, and three fingers distally, to produce a 3 degree slope (N=40). Group 2 used computer navigation to produce a 3 degree slope (N=30). Group 3 used an extramedullary guide placed parallel to the anatomic axis of the tibia with a 5 degree cutting block to produce a 5 degree posterior slope (N=40). Posterior tibial slope was measured, from lateral radiographs taken 6 weeks post-operatively, by 2 independent blinded reviewers and averaged. Statistical calculations were performed using SPSS Windows. A one sample t-test determined accuracy. Results: There was excellent agreement between the 2 independent reviewers. The linear correlation constant was 0.87 (p<0.01). Group 1 (4.15±3.24 degrees) and group 2 (1.60±1.62 degrees) were both significantly different from the ideal slope (p=0.03 for Group 1 and p<0.01 for Group 2). Group 3 (5.00±2.87 degrees) was not significantly different (p=1.00). Discussion: The most accurate method was the 5 degree cutting block. Computer navigation had the lowest standard deviation and was the most precise method. However, computer navigation was not accurate. The extramedullary guide and 0 degree block is neither accurate nor precise.

Abstract number: 23480

IS THE COMPUTER-ASSISTED SURGERY USEFUL FOR TOTAL WRIST PROSTHESIS?

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Total joint replacement appeals more and more regularly to computer-assisted surgery, whether it is in the knee or in the hip. Applications begin to be born in surgery of the upper limb in particular for shoulder prostheses. We wanted to know what could be the specifications for the implantation of the total wrist prostheses by computer-assisted surgery. Our series contained six total prostheses of wrist. After a dorsal approach, the distal radius was exposed. A device of location containing 3 markers was fixed to the surface of the radius. Fluoroscopic images of anteroposterior and lateral views were realized, then fitted in a fluoroscopic navigation system. The ideal axis of the radius was determined then virtually directly to the screen of the compute. Once the surgical drill calibrated, the K-wire was put in the axis of the radius by following the indications of the computer. The tools of cutting guide were then threaded on the K-wire. Then, the procedure was pursued according to the conventional technique. In conclusion, during the implantation of a total wrist prosthesis, it seems more logical to determine first the axis of the radius, what allows the fluoronavigation, rather than to base itself on a location outside or intuitive as in the conventional techniques. We think that this preliminary study allowed to show the interest of the computer-assisted surgery in this indication.

Abstract number: 23679 COMPUTER ASSISTED SURGERY: INTEREST ON TKR. PROSPECTIVE AND COMPARATIVE STUDY.

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The goal of this study is to compare the clinical and radiographic results of total knee arthroplasty (TKA) implanted with or without computer assistance. Methods and materials: We present a prospective study, 105 patients (mean 71.5 years) divided into two groups: TKA computer assisted surgery (n=55) and classic (n=50). All the patients were operated by the same surgeon and had the same implant design. The and radiographic parameters were analysed clinical preoperatively and postoperatively (2, 6, 12 months) by one observer. A statistically analysed was done with a p<0.05 as significance level. Results: Both groups were preoperatively comparable (age, sex and IMC); the computer assisted patients had a bigger flessum $(5.32^{\circ} \text{ versus } 4.15^{\circ}, p = 0.04)$ and valgus $(4.19^{\circ} \text{ ver sus } 3.98^{\circ}, p = 0.04)$. The surgical duration was sensiblylonger in the computer assisted surgery group (90.4 versus 95.9 min). No statistically differences according the complications and the length of hospital stay (p>0, 05). The implant positioning was comparable (angle computer surgery HKA = $179 \pm 1.58^{\circ}$ versus $176^{\circ} \pm 3.6$). The a ctive flexion, at 6 months postoperative, was significantly better in the classic TKR (107 ° versus 101°, p=0.016). Discussion - Conclusion: This study didn't show a significant difference between the TKR performed with or without computer assistance. This technique allows a better positioning of the implants and improves the reproducibility of the technique, but when the surgeon has a skilled experience the difference between isn't significant.

Abstract number: 23697

THE UTILITY OF KINEMATIC NAVIGATION SYSTEM OF TKA FOR THE UNSTABLE OR DESTRUCTED RA KNEE

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Introduction: Final state of RA is a "stiff knee". Degenerative change is added on to the RA change at weight bearing joints, which is the sclerotic change of the subcondral bone. This will generate an unstable knee with loosened and dysfunctional ligament. Total knee arthroplasty (TKA) is indicated for unstable knees with ADL disturbance. In general, constrained TKA is indicated for such unstable knee like RA, since it is necessary to achieve a good ligament balance with dysfunctional cruciate ligament and collateral ligament. Usually, we perform TKA using kinematic navigation system (OrthoPilot TKA ver.4.2) with e-motion FP manufactured by Aesculap Germany. This paper reports on our short-term results and its favorable outcomes using the fore-mentioned surgery, indicated for unstable RA knee. Material and Methods: 40 cases of TKA for unstable RA knee were studied. All cases had over 10 degrees of instability in full extension on navigation display, just after registration. There were 9 knees of male and 31 knees of female. Average age at the time of operation was 70.1 years (range, 64-85 years). We evaluated range of motion and patient satisfaction level three months post-operatively. Results: The average malalignment of the mechanical axis, under valgus or varus stress in extension, became from 13.92 degrees just after registration to -2.3 degrees after implantation. Patients were very satisfied and regained nearly normal gait three months post-operatively, and there was no limping gait due to knee dysfunction.

Abstract number: 24590

PERIOPERATIVE KNEE NAVIGATION - SIMPLE AND PRECISE TECHNOLOGY Evgeny MALYSHEV¹, Dmitriy PAVLOV², Svyatoslav KOROLYOV¹, Sergey BLINOV¹ ¹Nizhniy Novgorod Medical Academy, Nizhniy Novgorod (RUSSIA), ²Nizhniy Novgorod Research Institute of Traumatology and Orthopaedics, Nizhniy Novgorod (RUSSIA)

INTRODUCTION: Intraarticular fractures and mal-union, osteoarthritis, congenital pathology etc. cause frontal plane angle deformity (varus and valgus) in the knee which is a common malalignment. Precise clinical measurement of this deformity is a challenging problem. METHODOLOGY: A simple and precise tech-nology is offered to solve this problem with trigonometric function: $= \arctan BC/AB \times 180^{\circ}$, where AB is length of the shin (cm) and BC is deviation of the ankle (cm). Three points for leg axis assessment are used: spina iliaca anterior superior, the middle of patellar tendon on the level of its lower pole and tendon of tibialis anterior muscle on the level of ankle joint line with dorsal flexion. In preoperative and postoperative examination we use original device consisting of two perpendicular rulers 1 meter and 30 cm long. To simplify the calculation of deformity angle, a table of most common parameters from 30 to 45 cm of the shin length and up to 10 cm of ankle deviation is used. Intraoperative assessment is performed with a cable method; deviation of ankle joint is estimated by sterile stainless steel ruler. Comparison with radiological examination has revealed that the mistake of measurement is within ±0.5°. CONCLUSION: There are some indications to apply our technology in perioperative period which are as follows: preoperative planning of corrective osteotomy; measurement of physiological varus and valgus to approximate the fractured leg to the contralateral limb or to correct the axis of the extremity if monocompartmental osteoarthritis development is ex-pected; intraoperative confirming of fracture reduction, adequacy of correction in osteotomies, accuracy of knee prosthetic components settings; control of weightbearing in intraarticular fractures for early diagnosis of secondary bone fragments displacement in postoperative period; evaluation of outcomes after intraarticular knee fractures; estimation of medial-lateral instability in the knee joint.

Abstract number: 24944

HEALTH-RELATED QUALITY OF LIFE IN TOTAL KNEE ARTHROPLASTY. SIMILAR RESULTS USING STANDARD, MIS AND NAVIGATION TECHNIQUE Daniel HERNANDEZ-VAQUERO¹, Alfonso NORIEGA-FERNANDEZ², Manuel Angel SANDOVAL-GARCIA², Jose Manuel FERNANDEZ-CARREIRA² ¹School of Medicine. University of Oviedo, Oviedo (SPAIN), ²Hospital St Agustin, Aviles (SPAIN)

Introduction: Despite substantial advances in primary Total Knee Arthroplasty (TKA) patient selection, surgical technique, and implant design, numerous studies indicate only 80% of patients were satisfied with their primary TKA. The patient evaluation of health perception and functional results sometimes is not the same as the surgeon appreciation after the surgery. Patient satisfaction is an important outcome measure because there is a well documented discrepancy between clinician and patient ratings of health status. Material and Methods: Prospective randomized study comparing four groups of 25 patients with different surgical techniques (standard with and without navigation, MIS with and without navigation), using the same prosthesis model (Triathlon-Stryker). Mean age: 71.63 (SD 6.68), 81% are women. Visual analog scale (VAS) for satisfaction, pain and improvement, Western-Ontario-McMaster Osteoarthritis Index (WOMAC) and SF-12 questionnaires are used to measure the quality of life six months after surgery. ANOVA is used to find significant differences and Bonferroni test for multiple comparisons. Results: No differences are found in the VAS test for pain (p=0.93), satisfaction (p=0.73) or improvement (p=0.96). There are not differences neither in the WOMAC questionnaire pain subscale (p=0.75), stiffness (p=0.61), function (p=0.97) or for the total score (p=0.87) nor in SF-12 physical subscale (p=0.85), mental subscale (p=0.51) or for total score (p=0.87). Conclusions: Six months after TKA the patient's health perception is similar independently of the technique choose (conventional, MIS or navigation).

Abstract number: 25234

POSITIONING OF COMPUTER-ASSISTED (CAS) TOTAL KNEE ARTHROPLASTY (TKA) DURING THE LEARNING CURVE. COMPARISON OF LIMB AND COMPONENT ALIGNMENT VERSUS CAS PERFORMED BY AN EXPERT. A PROSPECTIVE RANDOMIZED TRIAL.

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Introduction: Success in total knee arthroplasty (TKA) is dependent on many factors. Postoperative extremity and component alignment are determinants of outcome and longevity. Computer-assisted (CAS) navigation devices were developed to improve implant positioning but their use increases complexity. The aim of this study is to assess the radiological outcome of CAS for TKA performed by an expert and other group performed by a beginner in CAS.Methods100 patients patients were prospective randomized into 2 groups: CAS performed by an expert (n=50) and CAS performed during the learning curve (n=50). Preoperative and postoperative clinical examinations were performed. Preoperative and postoperative radiographic measurements were evaluated. The Knee Society Scoring System (KSS) was used to asses clinical and functional outcomes. All variables were analysed for differences between the groups either by Student's t-test or the Mann-Whitney U test. Results: There were no differences in implant positioning. In the expert group the mean coronal tibial alignment was 90.25° (88°-92.5°) and mean coronal femoral alignment 90.15° (88°-93°) to the mechanical axis. In the "beginner" group the mean coronal tibial alignment was 90.13° (86°-93°) and mean coronal femoral alignment 89.92° (87º-92º) to the mechanical axis. Improvement in the KSS up to one year was similar for the two groups. ConclusionsWe have not shown differences in the precise positioning of implants during the learning curve. Our results show that the learning curve in CAS for TKA maintains the accuracy of component alignent.

Abstract number: 25832

EVALUATION OF 320 COMPUTER-ASSISTED TOTAL KNEE REPLACEMENT PROCEDURES

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Introduction: Our objective when we do a total knee replacement (TKR) is to obtain a correct mechanical axis $(0 + / -3^{\circ})$. We have performed a prospective study about primary TKR-procedures assisted by computer in order to know immediate postoperative results. Material and methods: We have implanted at our hospital 320 prostheses Search- Evolution and Columbus (B/Braun Aesculap, Tuttlingen, Germany), assisted by the surgical navigator Orthopilot (B/Braun Aesculap, Tuttlingen, Germany), from March 2003 until January 2009. We communicate our data about our patients and the pre and postoperative mechanical axis obtained (calculated by the Navigator before the bone was cut and after the prosthesis was implanted). Results: Our series is composed of 227 women and 93 men, median age 70 years (range 34-86). Median preoperative deformity: 173.7° (range 161°-194°). In seven surgical procedures, navigation was aborted due to technical problems. In the remaining 313 TKR, 309 (98.7%) showed a mechanical axis at the end of the procedure of 180 +/- 3°, and we regarded 4 (1.3%) as outliers, with values of mechanical axis of 184° and 185° (4°, 4° and 5° valgus and 4° varus respectively). Comments and conclusions: 1) Surgical navigation in TKR has allowed us to achieve a correct mechanical axis in 309 out of 313 procedures 2) The four cases gualified as outliers present a 4° varus deviation and 4°, 4° and 5° valgus deviation. 3). We think that surgical navigation is an extremely useful advance in TKR.

Abstract number: 25985 COMPUTER-ASSISTED IMAGE-GUIDED TRANSPEDICULAR SCREW FIXATION OF THE LUMBAR SPINE

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Introduction: Nowadays, transpedicular fixation is widely used in lumbar spine surgery. However, along with the efficiency of the technique there remains the risk of different complications using traditional control techniques of screw positioning (fluoroscopy and anatomic landmark control). Using computer navigation systems has turned into a solution of this problem. Navigation system minimizes and, if skilfully handled, eliminates the risk of operational complications, connected with wrong screws positioning. Using preoperational CT scans or intraoperative fluoroscopy images of the spine this system allows to monitor instruments positioning towards anatomic elements in real-time mode. Material and methods: 76 patients underwent lumbar spine surgery using computer surgical navigation. In 65 cases preoperational CT analysis data were used (FluoroMerge program), - in 10 of them intraoperational fluoroscopy data (FluoroNav program). All operated patients were given a control post operational CT examination to determine the screws positioning. Results: Correct screw positioning was determined in accordance with the degree of damage of the arch root cortical plate. In all cases continuity of the arch root cortical plate was not violated and screws positioning was considered to be sufficient. Conclusions: Computer navigation is a modern technique that allows to position transpedicular screws with great accuracy minimizing the risk of complications, connected with wrong positioning of the latter mentioned. The system of computer surgical navigation is a «passive» one. It does not surgeon's manipulations, but it just visualizes what the he does. Thus the final result depends on decisions made by the surgeon.

Abstract number: 26353 NAVIGATION-ASSISTED HEMIVERTEBRAE RESECTION AND PEDICLE SCREW INSERTION IN TODDLES: 4 CASES PRELIMINARY STUDY

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Introduction: Computerized image guidance has evolved as a scoliosis surgical tool. Numerous laboratory and clinic studies have documented its precision of lumbar pedicle screw insertion in idiopathic adolescent scoliosis. But, in toddle groups, no adoption of navigation system in hemivertebrae resection and segmental pedicle screw insertion was reported. Materials and Methods: We report four cases of toddles (18-36 months) presenting de novo with fully segmented thoracolumbar whom deformity merited surgical treatment. hemivertebrae in Posterior hemivertebrae resection and pedicle screw insertion was performed using an image navigation system (BrainLAB, Germany). Results: The average segment main curve was 47° before surgery and 15° after surgery. Thus, the average main correction rate was 72. In our cases, only monosegmental fusion of the two adjacent vertebrae was performed. There were no neurologic complications in our cases. Excellent correction rate and a short segment of fusion allows for normal growth in the unaffected parts of the spine. Conclusion: Corrective surgery of congenital scoliosis with hemivertebra should be performed early, before the development of severe deformities and secondary structural changes. Posterior resection of the hemivertebrae with transpedicular instrumentation allows for early intervention in very young children. Due to poor visualization of anterior vertebrae, the long operation incision was inevitable. The use of Computer Tomography navigation system successfully reduced the operation incision, the perforation rate and insertion angle errors. It demonstrates the clear advantage in safe and accurate pedicle screw placement in corrective surgery of congenital scoliosis in small children.

Abstract number: 26650 CAN COMPUTER ASSISTED SURGERY REDUCE BLOOD LOSS AFTER TOTAL KNEE REPLACEMENT?

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Computer aided surgery is increasingly used to improve the accuracy of implant placement and alignment after total knee replacement. In navigated knee replacement, trackers are used instead of intramedullary jigs for alignment and hence it is anticipated that the blood loss would be lower in comparison to conventional knee replacement. A retrospective study was performed to analyse the difference in blood loss after navigated and non-navigated total knee replacement. All consecutive patients who underwent total knee replacement between September 2006 and September 2009 by a single surgeon were considered to be included in the study. Patients undergoing revision surgery and complex primary knee replacement requiring bone grafts and osteotomy were excluded. A standard proforma was used and laboratory results. There were 147 patients with 74 males and 73 females. The average age was 68.9 (40-90) years. The pre-operative and the post-operative haemoglobin were compared between the navigated and the non-navigated groups and the results presented.

Abstract number: 23449

THE ROLE OF ANTIPSYCHOTICS IN OSTEOPOROSIS AND FRACTURE INCIDENCE: IN VITRO AND IN VIVO STUDIES.

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Antipsychotics are increasingly used to treat the vast majority of patients with schizophrenia and bipolar disease. Blocking the D2 receptors in the mesolimbic pathway in the brain is believed to reduce and control psychotic experiences. (1) Although antipsychotics remain the mainstay of treatment in schizophrenic patients, recent evidence has suggested that they may also have an adverse effect on bone mineral architecture and fracture incidence. (2, 3) Antipsychotics have a variable side effect profile including acute dystonias and Parkinsonism but clinical trials have shown hyperprolactinaemia to be one of the commonest adverse effects reported in association with the majority of antipsychotics (4). Charoenphandhu et al demonstrated that in female rats prolactin decreased the expression of Runt-related transcription factor 2 (Runx2), osteoprotegerin, and receptor activator of nuclear factor kappaBeta ligand (RANKL), essential genes for osteoblast differentiation and function leading to increased bone loss. (5) A recent case control study including 16,341 hip fractures on the General Practice Research Database with 29,889 matched controls reported a statistically significant association between prolactin raising antipsychotics and hip fractures. (6) Furthermore, a study comparing ultrasound bone mass in 73 schizophrenic patients on antipsychotic therapy with a matching number of healthy subjects demonstrated increased bone loss in schizophrenic patients on antipsychotic therapy. (2) The aim of this poster/presentation study is to explain and summarize the current literature surrounding the use of antipsychotics and their effect on bone mineralization and fracture incidence.

Abstract number: 23702 THE RISK FACTORS OF FEMUR SHAFT INSUFFICIENCY FRACTURE

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Purpose: To characterize the relationship of femur shaft insufficiency fracture which has been issued recently and the long-term administration of osteoporosis medication, and to examine the presence of other risk factors of femur shaft insufficiency fracture. Materials and Methods: The 16 patients consisted of 2 males (12.5%) and 14 females (87.5%) were treated for insufficiency fracture from July 2002 to June 2008, excluding the other risk factors. Their mean age was 76.13±7.71 (65-89) years and the mean follow up period was 50.6 months (14-86months). Results: The average weight was 45.93 ± 8.32, it was statistically significantly lower than the average weight of Koreans in the same age group (p=0.000), and similarly, the mean height was 148.4 ± 8.235, which was shorter than the average height of Koreans in the same age group (p=0.003). Among insufficiency fracture patients, 14 postmenopausal women excluding 2 males had the past history of osteoporosis and the experience of osteoporosis medications. In 5 patients underwent surgical treatment, additional treatments were required for delayed union and nonunion, nevertheless, bone union were obtained eventually from all 12 patients.Conclusion : Early menopausal, underweighted and short patients who prescribed osteoporosis medication for a long time, if prodromal symptoms such as thigh or inguinal pain is present, it is necessary to suspect femur shaft insufficiency fracture and to perform simple radiographs of femoral shaft or bone scan, and more aggressive treatments for fracture are required.

Abstract number: 23948 IS OSTEOPOROSIS BEING MANAGED ADEQUATELY: A REVIEW OF OUR PRACTICE

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Introduction: Osteoporosis is characterised by low bone mass and structural deterioration of bone tissue, this increases the susceptibility to fractures from low energy trauma. In the UK based on current trends, hip fracture rates may increase from 46,000 in 1985 to 117,000 by 2016. Hip fractures cause the most morbidity with reported mortality rates up to 20-24% in the first year after a hip fracture. We aimed to determine how patients admitted under our orthopaedic care with hip fractures were managed pre-admission and during admission. Methods: A retrospective audit of trauma admissions from Jan 2008 -Dec 2009 that had neck of femur fractures over the age of 60 in accordance with the British Orthopaedic Association Guidelines were reviewed from their discharge summaries to see if they were on osteoporosis treatment before admission or started on treatment whilst admitted. Results: A total of 87 patients discharge summaries were reviewed. 13 patients were treated for osteoporosis prior to admission. No patients received investigation in the form of DEXA scan or treatment for osteoporosis whilst an inpatient. Conclusion: Hip fractures are the most expensive osteoporotic fracture to treat, comprising 87% of the total cost of all fragility fractures. We failed to identity and treat any patients for osteoporosis. Orthopaedic surgeons need be more pro-active in highlighting at-risk patients. We propose a question asking if osteoporosis management has been initiated on the electronic discharge summary which has to be answered for the summary to be complete and before the patient is discharged.

Abstract number: 24019 ASSESSMENT OF BONE MINERAL DENSITY BY DEXA SCAN AND SINGHÂ STUDY

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low BMD is highest in Indians. There scarcity of data quantifying the problem. Thirty patients (20-40 years) with traumatic proximal femoral fractures less than 1 week old were taken as cases. 30 Healthy volunteers of the same age as controls selected individuals subjected to xray both hips to determine the Singh's index and assessment of BMD by DEXA scan of the normal hip. Bland and Altman method of agreementused. male: female:: 2:1. In fracture cases, 18 (60%) patients were osteoporotic (Grade I, II, III), 7 (23.3%) osteopenic (Grade IV) and 5 (16.7%) normal (Grade V, VI). percentages were 20%, 46.7% and 33.3% respectively in controls. BMDassessed using DEXA scan T-values from unaffected hip revealed 80% (24 patients) of fracture cases (Table 3) had low bone mass. 5 of the 6 females in fracture cases had low Bmd. In controls, 73.3% (22 patients) were either osteopenic and none females had normal BMD of hip as per DEXA. Fracture cases were found to predisposed tofractures on account prevalence of osteoporosis (p<0.05) in the said group as per DEXA. Relationship between BMD and Singh's index examined.No agreement in cases and a weak agreement was found between the two in controls (measure of agreement- 0.4). Indians fails to attain an adequate peak bone mass.It necessitates larger study to ascertain bone mass and raises question to the validity of western data.

Abstract number: 24896 THE FACTORS CORRELATED TO BONE MINERAL DENSITY OF WOMEN WITH FRACTURE AND HEALTHY WOMEN

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Introduction: Many authors reported a strong positive association between bone mineral density (BMD) and fractures. The purpose of this study was to confirm whether predictive factors of BMD of patients with femoral neck fracture were the same as those of healthy people. Patients and Methods: We evaluated 857 healthy women and 24 women who had femoral neck fracture. Age, height, weight, bone mass index (BMI) and BMD were measured. BMD of lumbar spine and proximal femur were measured by dual-energy X-ray absorptiometry (DEXA). Result: The average BMD of femur was 0.590g/cm2 in fracture group and 0.633g/cm2 in healthy group (P < 0.05). Other measured items were not significantly different between both groups. In healthy group, correlation coefficient (CE) between BMD of femur were 0.40 in height, -0.52 in age, 0.30 in weight, 0.07 in BMI, and 0.49 in BMD of the lumbar spine. In fracture group, CE between BMD of femur were 0.39 in height, -0.25 in age, -0.14 in weight, -0.51 in BMI and 0.37 in BMD of lumbar spine. Height, age, and BMD of lumber spine were correlated with BMD of femur in healthy group. Only BMI was correlated with BMD of femur in fracture group. Discussion and Conclusion: The factors correlated to the BMD of femur were opposite in fracture group and healthy group. Predictive factors of BMD of women with femoral neck fracture were not the same as those of healthy women.

Abstract number: 25201 EFFECT OF ZOLENDRONIC ACID IN TREATMENT OF POSTMENOPAUSAL WOMEN WITH OSTEOPOROSIS

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Aim: To determine the efficacy and safety of intravenous infusions of zoledronic acid, and effects on vertebral pain, bone mineral density (BMD) in postmenopausal women with osteoporosis.Object. 41 postmenopausal women with osteoporosis aged 49-83 years (average age - 65.90±0.76) years were examined. Methods: Evaluation of pain syndrome and life quality was made with questionnaires. BMD was determined with Dual-energy X-ray absorptiometer "Prodigy" (GE Medical systems). 5 mg of zoledronic acid (Aclasta, -Novartis) was administrated by intravenous injection. During the complex treatment patients received 1 tablet of calcium combined medicine (Calcium - 500 mg, Vit. D - 400 IU) 2 times a day during 12 months. Examination was performed before and after three, six, nine and twelve months of treatment course. Results: A reliable decrease of vertebral pain syndrome by visual analogue scale was observed up to nine months. The pain syndrome increased up to twelve months. However, the given index was lower than before treatment (insignificant changes). The BMD of femur (total) increased significantly after three (t=4.76; <0.00), six (t=8.06; <0.00), nine (t=2.36; =0.03) and twelve (t=2.60; =0.02) months. Dynamics of BMD were 6.48%, 8.57% on lumbar spine and 2.75%, 3.15% on femur (total) at six and twelve months, accordingly. Conclusion: Intravenous infusions of zoledronic acid (5 mg) were shown to be effectively increasing BMD, decreasing pronounced vertebral pain syndrome and improving life quality in postmenopausal women with osteoporosis.

Abstract number: 25221

THE PRECISION OF DIGITAL X-RAY RADIOGRAMMETRY COMPARED WITH DXA IN WOMEN AT RISK OF OSTEOPOROTIC FRACTURE: RESULTS FROM A PROSPECTIVE AND MULTICENTRIC STUDY.

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OBJECTIVE: Identification of patients with high risk of osteoporotic fracture by means of digital X-ray radiogrammetry (DXR) like simple and accessible method. METHODS: Were studied prospectively 350 white women (55-65 years). The multicentric Osteoporosis Group was composed by 8 public hospitals from the North of Spain. There was practised a standard X-ray of the non-dominant hand, which later it was scanned. By means of Sectra Osteoporosis Package specific software (Linköping, Sweden), we selected three regions of interest on the three central metacarpals. We realised also a Dual energy X-ray absorptiometry (DXA) in a control group of 20 persons. We studied the association of the osteoporosis with the analyzed risk factors by means of risk-reasons when the precedence to the osteoporosis is biologically reasonable and by means of prevalence-reasons for the factors whose temporary sequence of causality cannot be determined. Cronbach alfa reliability test, reliability and reproducibility estimated by the Spearman's correlation, and concurring validation through Spearman's correlation were used. RESULTS: We found that DXR has excellent precision of 0.004 g/cm2 compared with 0.021 g/cm2 and 0.015 g/cm2 obtained by DXA at the hip and spine, respectively. This study was considered consistent (Cronbach alfa = 0.83) and valid (p = 0.03). CONCLUSIONS: We conclude that DXR measured by the automated Sectra system has excellent precision and seems to provide meaningful information on bone mass in epidemiological studies, where DXA measurements are not available.

Abstract number: 25240

EFFECTS OF HOME-BASED EXERCISE PROGRAM FOR ELDERLY WITH KYPHOSIS

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Objective: To define the effects of home-based exercise for elderly kyphosis outpatients in Orthopaedic clinic. Methods: The subjects were assigned to a exercise group (n=7, age: 77.1±3.7) or control group (n=9, age: 77.2±5.8) who consulted the outpatient of the Department of Orthopaedics in clinic. The intervention group was females with kyphosis and primary osteoporosis. Exercise program consisted of four types that single-leg with eyes open, exercise of ankle, toe and back muscle, everyday for 6 months. The 8 item test encompassing balance, leg and trunk strength and range of ankle joint motion was used. By using the SPSS Ver.15.0, paired t tests and t tests were performed to compare the mean of each item at baseline versus after 6 months. Results: Many subjects found it very difficult at first to exercise of toe and single-leg with eyes open. 6 subjects improved the measured values of each item that single-leg with eves open, back muscle strength, 5-m maximal walking time. The mean value of every items except ankle dorsiflexion were improved. A significant difference in 5-m maximal walking time (from 4.38±1.09s to 3.72±0.66s, p=0.001) and toe grip force (from 17.66±2.89N to 24.41±3.77N, p=0.02) were shown. The mean value of amount of activity with measuring instrument showed no significant differences between groups. Conclusions: The results demonstrated that this intervention is effective to improve the measured values in kyphosis.

Abstract number: 25521

INCREASED FRACTURE RISK IN PATIENTS WITH RHEUMATIC DISORDERS AND OTHER INFLAMMATORY DISEASES. A CASE-CONTROL STUDY WITH 53,108 FRACTURE PATIENTS.

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Background: Chronic inflammatory diseases, such as rheumatic disorders (RD) and inflammatory bowel diseases (IBD), have cost implications for health care provision, employers and insurers. Some of this expense is due to co-morbidity including bone fractures. The aim of this study was to identify the risk of hip and vertebral fractures in patients with RD and IBD. Methods: This population-based case control study, assessed the fracture risk of patients with rheumatoid arthritis (RA), juvenile idiopathic arthritis (JIA), ankylosing spondylitis (AS), systemic lupus erythematosus (SLE), polymyositis/dermatomyositis (PM/DM), systemic sclerosis (SSc), Crohn's disease (CD) and ulcerative colitis (UC). The study cohort comprised 53,108 fracture patients (66% females) and 370,602 age- and sex-matched controls. Results: There was a statistically significant increased fracture risk for all RD and for IBD when compared with controls. The magnitude of fracture risk was higher for patients with RD (OR 3.0, 95% CI 2.9-3.2) than for IBD (OR 1.6, 1.4-1.8). The ORs in RD ranged from 2.6 (1.3-4.9) for SSc to 4.0 (3.4-4.6) for AS. The largest increased fracture risk for vertebral fractures was seen in AS (OR 7.1, 6.0-8.4) and for hip fractures in JIA (OR 4.1, 2.4-6.9). Conclusion: Our results highlight the existence of an increased fracture risk in patients with RD and IBD due to a variety of underlying causes. In many inflammatory diseases, implementation of fracture prevention strategies may be beneficial.

Abstract number: 25560 RETROSPECTIVE STUDY ON THE STATISTICAL ASSOCIATION BETWEEN OSTEOPOROSIS AND BODY MASS INDEX (BMI) IN WOMEN

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Introduction: Osteoporosis is highly prevalent in India. An estimated 61 million people in India are reported to be affected by it. Recent data indicate that Indians have lower bone density than their North American and European counterparts. Data obtained by other Indian investigators showed that BMD values in our population were approximately 15% lower than those in Caucasian women. Therefore it is important to conduct proper research work on the risk factors involved. Objectives: To determine the statistical association between Body Mass Index (BMI) and osteoporosis in women. If existing, the strength of the association. Materials and Methods: Data was collected from 564 patient files obtained from the Kasturba Hospital Osteoporosis Registry. A case control study was carried out. Results: In the Osteoporotic group, 8.8% had a low BMI and 41.8% had a high BMI & in the non osteoporotic group 7.6% had a low BMI and 22.3 % had a high BMI. Conclusion: Although there seems to be an inverse relationship between BMI and incidence of osteoporosis, the results suggest that BMI cannot be used as the only factor to predict the incidence of osteoporosis. Other clinical risk factors need to be taken into consideration. Having a high BMI cannot be said to be protective against osteoporosis.

Abstract number: 25650 LOW-ENERGY FRACTURES - A PREVENTIVE CHALLENGE FOR AN ORTHOPAEDIC SURGEON?

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An analysis of bibliographical data and every day practice demonstrate that the level of self-consciousness of the need of prevention of low-energy fractures in the orthopaedic community is relatively low. On the other hand proven pharmacological interventions exist that could decrease the risk of osteoporotic fracture by half in comparison with untreated subjects. The goal of this presentation is to alert vast and basic orthopaedic community about need of introduction a pharmacological treatment in patients with low-energy fracture. In spite of the fact that some primary actions confirming the diagnosis of osteoporosis (e.g. DEXA) should be introduced, they are not a prerequisite for introduction of the treatment even in bed-ridden subjects as parenteral forms of antiosteoporotic drugs are available. A concise review of the burden and impact of low-energy fractures on the health-care economies in welldeveloped countries will be discussed. The modalities of surgical interventions concerning different locations of fractures will be presented stressing the need for augmentation of bone stock obviously deficient in osteoporotic subjects. Postsurgical complications will be stressed with the emphasis on life- and function threatening conditions concerning predominantly vertebroplasty and kyphoplasty. A need for early pharmacological treatment including parenteral therapies with antiosteoporotic drugs will be demonstrated since well documented data exist showing that such measures could reverse the secular trends in osteoporotic fractures occurrence. A low-energy fracture in the adult should always alert of possible underlying osteoporosis and treating orthopaedic surgeon should be aware of a need for urgent apart from surgical concomitant pharmacological intervention.

Abstract number: 25787 EFFECTIVENESS OF INTERMITTENT PAMIDRONATE FOR TREATMENT ON SEVERE OSTEOPOROSIS IN POSTMENOPAUSAL WOMEN

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Objective: to evaluate the effect of intravenous pamidronate treatment in postmenopausal women with severe osteoporosis. Object: There were examined 20 women with osteoporotic vertebral fractures, aged 56-78 years (67.8±1.41). During the complex treatment patients were got pamidronate (generic drug "Pamired") 30-90 mg once in 3 month and 2 tablets of Calcemin-advance a day during 12 months. The patients of group A were got 140 ± 10 mg pamidronate, group B - 295 ± 16 mg pamidronate.Methods: Dual-energy X-ray absorptiometry was held before and after 3, 6, 9 and 12 months pamidronate treatment. The examination of pain syndrome was performed by VAS scale. Results: After 3 months of treatment a significant decrease of pain syndrome was observed, and during 6, 9 and 12 months intensity of pain significantly decreased in group A, B and in the whole group. Three months later lumbar spine BMD was increased and continue to increase 12 month after in two groups, but the significant elevation was in group B. Conclusions: It was shown, that pamidronate treatment significantly influences the BMD lumbar spine during 12 months treatment in two groups and keep increased BMD femoral neck in 9 months in group B and decreases the intensity of the pain syndrome just after 3 months therapy and has it's effect during the whole therapy course.

Abstract number: 25798

BONE MINERAL DENSITY IN POSTMENOPAUSAL WOMEN

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This research is aimed at studying the bone mineral density among postmenopausal women with Colles' fracture (PW-CF). Object. The total of 116 PW 50-79 years old (average age - 63,5±0,7 years; average duration of postmenopausal period -13,9±0,8 years; women with Colles' fracture in their anamnesis n=36; without any osteoporotic fracture (PW-WF) n=80) were examined. And divided into the following age-dependent groups: 50-59, 60-69, 70-79 years old. Methods: The questionnaire; measurement of anthropometrical characteristics; bone mineral density (BMD) of the total body, spine (L1-L4), hip, and forearm were determined by means of Dualenergy X-ray absorptiometer "Prodigy" (GE Medical systems, 2005). Results: BMD of different skeletal areas was significantly (<0,001) lower for PW-CF compared with the data of PW-WF: in the group of 50-59 year-olds: spine - 0,788±0,056 g/cm2 and 1.092±0.031 g/cm2, total femur - 0,856±0,043 g/cm2 and 0,984±0,027 g/cm2; in the group of 60-69 year-olds: spine - 0,920±0,034 g/cm2 and 1,109±0,032 g/cm2, total femur - 0,849±0,038 g/cm2 and 0,986±0,038 g/cm2; in the group of 70-79 year-olds: spine - 0.897±0.055 g/cm2 and 1.050±0.039 g/cm2, total femur - 0.802±0.033 g/cm2 and 0,911±0,031 g/cm2, respectively. Conclusion: BMD of different skeletal areas was significantly lower for PW-CF compared with the data of PW-WF.

Abstract number: 26166

MEDICATION USE IN PATIENTS WITH A HIP FRACTURE -DRUG PRESCRIPTIONS 6 MONTHS BEFORE AND AFTER THE FRACTURE

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OBJECTIVES: To investigate hip fracture patients' use of fall-risk increasing drugs (FRIDs) and bone-density-active medication before and after the fracture and to analyze possible relationship to gender, age and geographic area. DESIGN: Population-based cohort study with data retrieved from two national databases. METHOD: 2043 participants' >=60 years with a hip fracture during 2006 in a Swedish county. Medications prescribed within 6 months before and 6 months after hip fracture. RESULTS: Before the hip fracture 1374 (67%) patients received FRIDs. Patients aged >=80 years were significantly more likely to receive FRIDs than those aged 60-79 years; all FRIDs (70% vs 61%), >=5 drugs (51% vs 41%), cardiovascular drugs (46% vs 37%) and sedatives/hypnotics (38% vs 30%), p<0.001 for all comparisons. After age adjustment women used more benzodiazepines than men (22% vs 14%, p<0.001). Post fracture 96% used FRIDs. Increase in analgesics, psychotropic, cardiovascular, anticholinergic and drug-combinations (>=5, >=10 and >=3 psychotropic drugs) was shown. Use of osteoporosis medication increased minimally, calcium/vitaminD 19% and bisphosphonates 4%. Significant differences in post fracture prescribing between five health care districts were seen, opioids (85% vs 65%), bisphosphonates (21% vs 4%) and calcium/vitaminD (72% vs 13%). CONCLUSIONS: A majority of hip fracture patients were prescribed FRIDs before fracture and prescribing of FRIDs increased after fracture. There were differences in prescribing between health care districts and age groups that remains to be explained.
Poster Topic: Osteoporosis

Abstract number: 26229

SACRAL INSUFFICIENCY FRACTURES SECONDALY CAUSED PARASYMPHYSEAL INSUFFICIENCY FRACTURES: AN UNEXPECTED CAUSE OF PAIN IN THE POSTMENOPAUSAL WOMEN.

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Background: Older patients tend to suffer from osteoporosis. In such cases, several types of fractures can easily occur. Purpose: We report four cases of sacral insufficiency fractures diagnosed within the department of Orthopaedics in our hospital over the last three years. Case Reports: All cases were postmenopausal women and in osteoporotic condition, suffered from the unknown sudden-onset low back pain more than a month before they came to our hospital and we made the diagnosis. Not only the patients themselves but also their families were all fear of some kind of malignant disease. All cases were accompanied by parasymphyseal insufficiency fractures secondly. All patients complained of the pain especially when they sit, but it became less when they lay down, stand up or walk. In the evaluation of abnormalities in their pelvic ring, CT and MRI were very helpful. All patients had complete resolution of pain within nine months. Discussion: The structure of pelvis is ring shaped. So once any part of it ruptured, more stress on the no fracture part of pelvic ring become the cause of the another fracture on the pelvic ring. The patients with sacral insufficiency fracture often suffered from osteoporosis, so other fractures on their pelvic ring might be easily occoured. Conclusion: When older patients complain of any discomfort around their low back, sacral insufficiency fractures must be considered. If the diagnosis were delayed, it is better to take care that other fractures within their pelvic ring might have occurred secondly.

Poster Topic: Osteoporosis

Abstract number: 26538 OSTEOPOROSIS - FRACTURES RISK FACTOR Liviu IOVANESCU, Dana IOVANESCU County Hospital Arad, Arad (ROMANIA)

Introduction: The goal of the study is to assess the incidence of osteoporosis in patients with fractures. Patients and methods: We observed a number of 361 consecutive patients (296 females and 65 males) with Colles' fractures who presented in the emergency room of our hospital in the period January - June 2009. The main average was 59.3 (from 27 to 86). One half month after the fracture we performed an osteodensitometric analysis using a General Electric device for 324 patients. We realized a complete medical history of the patients in order to found data related to the osteoporosis. Results: We found osteoporosis in 126 patients, and osteoporosis and osteopenia, and they took medication (4.5%). The most common factors associated with osteoporosis and osteopenia were: smoking, old age, sedentarism, gastroenterological diseases, abuse of alcohol, and use of drugs. Twelve percent of the patients had a second fracture in the medical history.Conclusion.The osteoporosis is a very important risk factor of the fractures which needs more attention and treatment.

Abstract number: 23048 MANAGEMANT OF SUPRACONDYLAR FRACTURES IN CHILDREN WITH CLOSED REDUCTION & PERCUTANEOUS PINNING Rajule RAJESH

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CASES - 22 patients, age up to 16 years , Grade II & III supracondylar fracture of humerus. From - May 2005 to May 2006. Attending OPD, IPD and casualty at R.M.C., Loni. PROCEDURE - closed manual reduction and percutaneous pinning with at least two Kirschner wires of various sizes from I mm to 2.5 mm. Above elbow slab for 3 weeks. Gradual passive mobilization - next 2 weeks. Kirschner wires removal after good clinical and radiological union was seen (approx. 6 weeks). Active assisted mobilization. Patients follow up - fortnightly till 6 months. Evaluation done both clinically and radiologically. FOLLOW-UP - Use of collar & cuff sling with posterior slab. Physiotherapy Started after 3weeks. After the removal ofk' wires active assisted exercises done. RESULT- Excellent - 73 % Satisfactory - 13.5 % Unsatisfactory - 9 % Poor - 4.5 %

Abstract number: 23210 RADIUS-ONLY ELASTIC STABLE INTRAMEDULLARY NAILING FOR BOTH-BONES DIAPHYSEAL FOREARM FRACTURES IN CHILDREN

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Introduction: Diaphyseal forearm fractures are common injuries in children. Bothbones forearm fractures are potentially unstable, and when intramedullary nailing is the chosen treatment option, both bones are fixed in most cases. We report our experience in treating these common injuries with radius-only Intramedullary Nailing. Methods: Between 2004 and 2008, 29 children were treated with radius-only intramedullary nailing for both-bones forearm fractures. 27 were closed and two were open injuries. There were nine girls and 20 boys and the mean age was nine years. We retrospectively reviewed the clinical notes and radiographs of those children. Results: Closed reduction was achieved in 21 patients, while eight required open reduction. All the patients were immobilised in an above elbow cast for average period of 3.4 then a below elbow light weight cast was applied for mean duration of 2.8 weeks. The mean duration of cast immobilisation was 6.8 weeks. All children underwent removal of nail after successful fracture union of both bones. All fractures achieved clinical and radiological union at 6-8 weeks, with no residual functional abnormality at the final follow up. Two children had pin site infections which resolved with a short course of oral antibiotics. Two patients had limitation of supination after the initial immoblisation period (6 and 5 weeks) and that resolved after physiotherapy exercises. Conclusion: From our experience, radius-only intramedullary nailing seems to be a sufficient and effective option in treating both bones forearm fractures in children, with excellent function and union rates and minimal complications.

Abstract number: 23345 DO WE NEED FEMORAL DEROTATION OSTEOTOMY IN DDH OF EARLY WALKING AGE GROUP??? A CLINICO-RADIOLOGICAL CORRELATION STUDY Aditya MOOTHA, Raghav SAINI

PGIMER, Chandigarh (INDIA)

Aim of the study was to evaluate femoral anteversion pre operatively by MRI and compare with intra operative analysis, and to evaluate the need for derotation osteotomy in DDH in early walking age group. We evaluated femoral anteversion in 15 dislocated hips and 11 normal hips in unilateral dislocation of hip in DDH of age group 12 - 48 months. We correlated this with the intra operative test of stability which is described by Zadeh et al. In none of the cases the FAV exceeded 30 degrees on dislocated side. The difference in FAV between these 2 groups was found to be insignificant (p value= 0.345). In all the 15 cases we did open reduction by anterior approach and evaluated the position for maximum stability. None of the hips required internal rotation for stability. Hence we did salters osteotomy in all the hips and femoral shortening through lateral approach in 3 cases. At a minimum follow up of 18 months all the hips were clinically stable and none of them dislocated till final follow up. The outcome was excellent in 8 hips and good in 7 hips as per modified Mc Kay's criteria. Hence we recommend that femoral derotation osteotomy is not needed in DDH of early walking age group and MRI evaluation of femoral anteversion as a part of pre operative evaluation is needed.

Abstract number: 23834 ORTHOPAEDIC FEATURES OF PENTASOMY X SYNDROME

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Background - Pentasomy X is a very rare genetic abnormality, where a female child has 5 X chromosomes to every cell. Few cases have been reported. Children can present with certain orthopaedic abnormalities, which may or may not be present in every case. We discuss the findings in one patient with this condition. Results - We discuss the case of a 5 year old child. Her phenotype was described as micrognathia, hypertelorism and epicanthic folds with upward slanting eyes. She had clinodactyly, a simian crease of the left hand and overlap of the fifth toes. Chromosomal analysis showed a genotype 49 XXXXX, confirming pentasomy X. She presented to our clinic with instability of both elbows and difficulty with pronation and supination of both forearms. Clinical examination showed full range of flexion and extension of the elbow, but that the forearms were both held in 45 degrees pronation with little movement. X rays of both elbows confirmed synostoses of the proximal radius and ulna with an absence of the radial head. In addition we found her to have clinodactyly of the little finger of the left hand. This did not seem to be limiting her function or grasping ability. Conclusions - Pentasomy X is an extremely rare genetic abnormality, with only a few cases described worldwide. Orthopaedic findings may include radioulnar synostosis, clinodactyly and toe abnormalities.

Abstract number: 23835 DOES PROLONGED DISLOCATION OF THE HIP JOINT AFFECT THE STRENGTH OF THE FEMORAL HEAD?

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Background - Developmental dislocation of the hip may have effects on the biomechanical properties of the femoral head. Objectives - To compare the compressive strength of dislocated hips with undislocated hips.Materials and methods - We dislocated one hip of ten skeletally immature dogs. We relocated the hip in half of the dogs at the time of surgery. The hip remained dislocated in the remainder. We harvested the hips at 8 weeks and performed strength testing, comparing the dislocated, relocated and undislocated hips. Full ethical approval was obtained for this study.nResults - We found that while the strengths of the relocated hips were similar to the undislocated ones, there was a significant loss of strength in the hips that were dislocated for the whole 8 week experiment. Conclusions - Prolonged dislocation of the femoral head may lead to significant loss of compressive strength in skeletally immature individuals. In a context of DDH in a child this may provide weight to the argument that reduction sooner than later is preferable.

Abstract number: 24154 SCARF-AKIN OSTEOTOMY FOR HALLUX VALGUS IN JUVENILE AND ADOLESCENT PATIENTS

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Aim: We report the radiological outcomes of Scarf- Akin osteotomy in the treatment of juvenile and adolescent hallux valgus. Methods: A retrospective review of the patients who underwent a Scarf - Akin osteotomy between the period of February 2002 and August 2007. The only indication for surgery in all cases was moderate to severe symptomatic hallux valgus. The pre- and post-operative intermetatarsal angle (IMA), hallux valgus angle (HVA), distal metatarsal articular angle (DMAA) and ratio of the length of first metatarsal to that of the second metatarsal were determined. Results: 34 patients (57 feet) underwent Scarf-Akin Osteotomy for moderate to severe hallux valgus. Average age of the patients at operation was 12.9 years. Preand postoperative radiographs of these patients were evaluated. Three patients with non-weight-bearing radiographs were excluded. The six weeks post operative radiographs showed a significant improvement of the IMA, HVA and DMAA in all the 54 feet. This improvement was maintained in 20 patients (32 feet) at the last follow up. Recurrence was noted in 14 patients (22 feet) of which 7 patients (10 feet) underwent revision surgery. One patient (both feet) underwent 2nd revision surgery. Discussion: Hallux valgus has been reported to affect 22 -36% of adolescents with a reported incidence of recurrence 30 - 40 %. Radiological recurrence rate in our series was 40%, but less than half were symptomatic enough to require a revision surgery. We report a high recurrence rate in hallux valgus surgery in children and hence suggest postponement of correction until skeletal maturity.

Abstract number: 24226 CONGENITAL UNDESCENDED SCAPULA (22 CASES), MANAGMENT

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Introduction: Congenital Undescended Scapula widely known as Sprengel's Scapula is an uncommon congenital anomily; the Scapula is hypoplastic, elevated, deformed and malpositioned with cervicle and thorasic spine and ribs anomilies as well as abnormal muscular development. It present as cosmotic and functional disability .First described by Eulenberg in Germany in 1863 .In 1891 Sprengel described 4 cases in Germany. Recently the deformity found in a mummified fetus from ancient Egyptian civilization. Materials & Methods: Prospective study of 22 patients with Sprengel"s Scapula deformity, 17 cases had surgical treatment by Woodward operation. Follow up was from 3-24 months. Results: All the children improved in scapular elevation by 2 grades and in abduction of shoulder 18 degrees in average.Parants satisfactionwas good in 83% of cases .Two cases had Brachial Plexus affection resolved completly. Discussion: Number of cases are small as it is a rare condition, results are comparable to other studies. Conclusion: Sprengel's Scapula is cosmotic and functional disability and in its sever grades needs surgical treatment, Woodward operation with modifications provides good results .Brachial Plexus palsy can be an annoying complication need to be observed

Abstract number: 24487

THE UTILIZATION OF THE FEMORAL SEGMENT RESECTED IN FEMORAL SHORTENING IN STABILIZATION OF INNOMINATE OSTEOTOMY IN TREATMENT OF D.D.H.

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Background: Developmental Dysplasia of the Hip is a major problem. In older children, open reduction and or Salter innominate osteotomy is recommended. Femoral osteotomy and shortening when it is necessary can offer a suitable graft which can be used in the stabilization of Salter osteotomy. Material & Method: 20 cases of D.D.H. were treated by open reduction, Salter innominate osteotomy and femoral shortening using the femoral segment resected from the femur as a bone graft to stabilize the Salter osteotomy.14 patients were females and 6 were males. The age was ranged from 2 years to 5 years. 10 hips were left. 6 were right and 4 were bilateral. The right hips were done by the present procedure. The length of the femural shortening ranged from 8mm to 28mm with average 13mm. Results: The 20 hips were followed-up from 2 months to 4 years. The total immobilization period ranged from six to nine weeks. Complete incorporation of the graft in the host bone was achieved in all cases. No cases of wound infection, fracture or dislodging of the graft was seen. Conclusion: From this study one can conclude that using the femoral segment resected in femoral shortening in stabilization of the Salter innominate Osteotomy is a reliable method, providing an efficient means of stabilization at the osteotomy site with full respect to the morphology and growth of the innominate bone and its crest which plays a great role in the equilibrium and morphology of the body as a whole.

Abstract number: 24631 COMPLICATIONS AND PATIENT SATISFACTION AFTER NEUROMUSCULAR AND SYNDROMIC SPINAL DEFORMITY SURGERY

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Analysis of complications was performed in 42 cases neuromuscular (NM) scoliosis and 18 syndromic scoliosis, all with minimum 3 year followup, one surgeon. Stainless steel instrumentation was used for all. Questionnaire designed by authors was completed by 48/60 patients or families (35/42 NM, 13/18 syndromic). Complications were much more numerous and severe in neuromuscular patients. 1 major complication, partial paraplegia, occurred in the syndromic group. In neuromuscular group, deep wound infection requiring removal of instrumentation occurred in 11/42 patients, all with CP or spina bifida (5/18 CP, 5/6 spina bifida). All instrumentation removed had evidence of corrosion. ¹/₂ of infections were associated with Urinary tract infections. There was one death 2 weeks postop (NM). One patient (CP) had a poor outcome from technical factors, with inadequate correction. One patient (CP) with hyperkyphosis was initially paraplegic, but 2 years later she recovered her ability to ambulate. Despite these numerous and severe complications, patient/family satisfaction was high. 27/35 NM indicated they would definitely or probably have the surgery performed again, 11/13 syndromic. Posture/sitting balance was judged as major or moderately improved by by 30/35 NM, 10/13 syndromic. Of the 19 patients with preop sleep disturbances, 15 (12/14 NM, 5/7 syndromic experienced major or moderate improvement. Quality of life was judged as worsened postop in 5 patients. 27/35 NM and 12/13 syndromic would recommend the surgery to others. Stainless steel is no longer used for spinal instrumentation.

Abstract number: 25021 HIGH-FRACTIONAL AUTODISTRACTION IN LIMB-LENGTHENING

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The search for optimal distraction regimen is one of the main problems in limblengthening. In this work we analyze results of limb-lengthening, performed in automatic regimen at 60 patients with the use of originally developed device for highfractional autodistraction. Two groups of patients were included in this study: Group I: 30 patients with limb-lengthening of humerus (16), tibia (19), femur (5) achieved with the use of high-fractional autodistraction. Distraction was carried out on a twenty-four hour basis with the mean speed 1.02 mm a day, with the distraction rhythm 120 a day and means shear interval 0.009 mm. Group II: 30 patients with limb-lengthening accomplished with the use of classicllizarov method (1 mm a day, 4 times daily). The age distribution was comparable in both groups. Etiology of shortening was also similar in both groups of patients, congenital shortening prevailed. In all patients planned limb-lengthening from 4.5 cm to 10.0 cm (mean 6.5 cm) was achieved. Within the 1st group index of fixation comprised 16,05+1,8, index of osteosynthesis 28,6±2,8. Within the 2nd group 20,27±4,2 and 38,2±6,5 respectively.Our observations has showed that high-fractional autodistraction produce more favorable conditions for adaptative and regenerative processes with significant shortening of terms of rehabilitation

Abstract number: 25338

GENU VALGUM DEFORMITY CORRECTION BY LATERAL GRADUAL DISTRACTION

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Background: Various methods for correction of genu valgum deformity include osteotomies like wedge, dome and v shaped. These are complex surgeries with high rate of complications. We present a simple technique of correcting genu valgum deformity by gradual lateral distraction by modified Illizarov. Materials and methods: We corrected Genu Valgum deformity in the age group above 11 years in girls and 12 years in boys with intermalleolar distance more than 10 cms and stable joint. Two half rings of illizarov are applied on lateral side of thigh with two schanz pin in each ring and rings are connected with hinges on threaded rods. Corticotomy is done at metaphyseo-diaphyseal junction between rings and gradual lateral distraction is done after 7day till correction of valgum deformity i.e; correction of Mechanical axis. Rings are removed after consolidation of corticotomy. RESULT: The results were evaluated by assessing clinical, functional and radiological parameters ie.mechanical axis. All cases had good result with few complication of pin track infection and some translation of corticotomy in case of very severe deformity. CONCLUSION: Gradual deformity correction is a simple, safe technique of genu valgum deformity correction with minimal scar and early mobilization.

Abstract number: 25353

USING OF THE POSTERIOR ROTATIONAL HIP OSTEOTOMY IN TREATMENT OF THE II TYPE KALAMCHI DEFORMITIES IN CHILDREN

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The II type deformities according Kalamchi after avascular necrosis of the femoral head is the most difficult for operative correction. We performed the posterior rotational hip osteotomy for treatment of this pathology in 14 cases. The indications to operation were: the multidimensional deformities of the proximal part of the femur at the age 10-14 years (8 cases) and removing a plane of progressing deformation in functional less significant at the age 6-9 years (6 cases). The mean value of the epiphyseal quotient increased from 48 to 98. Its improvement was marked and further during all time till the moment of bone maturing. The epiphyseal-neck quotient increased to 99 against 58 before the intervention, the neck-shaft angle became 132 Against 122. The Viberg angle increased from 18 to 31. This operation can be very useful in treatment of the II type deformities of the proximal part of the femur in children. Advantages of operation are absense of negative influence on a growth plate, lengthening of the femoral neck, improvement of a congruity in a hip joint.

Abstract number: 25358

USE OF LOCKING COMPRESSION PLATE (LCP) FOR THE TREATMENT OF CONGENITAL PSEUDOARTHROSIS OF THE CLAVICLE IN CHILDREN

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Congenital pseudoarthrosis of the clavicle (CPC) is a rare deformity in children. There is still controversy on the selection of nonoperative or operative treatment. The indication for surgery in most patients is the unsightly appearance of the shoulder. The authors used locking compression plate (LCP) as the internal fixation for congenital pseudoarthrosis of the clavicle in 2 childrens, in which a bilateral case was included. Allografting procedure was performed simultaneously in all operations. Computed tomography was used to assess the lesion. Pathological changes were also evaluated in all 3 resected pseudoarthrosis specimens. Both patients healed without any complications. Histological results showed the cartilaginous caps and hyperplastic fibrocartilage. Although operative treatment with LCP needs a second procedure to remove the internal fixation, a successful healing of the pseudoarthrosis and the improved appearance of the shoulder were guaranteed. The authors considered LCP was an ideal choice of internal fixation for operative treatment in CPC.

Abstract number: 25368 USING OF THE TRIPLE PELVIC OSTEOTOMY IN TREATMENT OF THE II TYPE KALAMCHI DEFORMITIES IN CHILDREN

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The II type deformities according Kalamchi after avascular necrosis of the femoral head is the most difficult for operative correction. We performed the triple pelvic osteotomy in 18 cases with unsatisfactory development of acetabulum for creation of "a stability stock» in a hip joint. The mean follow-up is about 7 years. For assessment of outcome we used the classification of Severin with addition Zionts and MacEwen. Clinical evaluation at the latest follow-up included leg length discrepancies, range of motion and McKay system. 3 hips had an excellent result, 11 a good result and 4 a fair result. The mean Viberg angle increased from 14 to 32. The mean leg length discrepancy is 0,8 sm. 2 patients still had lameness after operative treatment. Using of the triple pelvic osteotomy is justified at treatment of the II type deformities according Kalamchi after avascular necrosis of the femoral head in children.

Advantages of operation are improvement of femoral head covering, increase of stability and possibility further remodeling of hip joint.

Abstract number: 25502

COMPARATIVE STUDY OF OPERATIVE RESULTS OF CALCANEAL LENGTHENING OSTEOTOMY AND GRICE-GREEN PROCEDURE FOR THE TREATMENT OF SPASTIC PLANOVALGUS DEFORMITY.

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Introduction: Pes planovalgus is a common deformity associated with cerebral palsy and other neurological disorders. The purpose of our study is to evaluate the results of two valid surgical techniques used for its treatment, extra-articular subtalar arthrodesis (Grice-Green) and calcaneal lengthening osteotomy. Methods: Our material includes two groups of patients who underwent extra-articular subtalar arthrodesis and calcaneal lengthening osteotomy, consisting of eleven feet each, who were chosen to match in sex and age. In order to evaluate the outcome of the two surgical procedures we compared radiographic measurements, for which we used standard anteroposterior and lateral views of the foot, and functional ability, using Gross Motor Function Classification System. Results: Initial deformities and functional ability status were similar in both groups. There was no significant differences in improvement of their functional status postoperatively (p=0.632). Radiographic measurements showed no significant differences in correction of the deformity (p=0.785). Both procedures corrected talar position, abduction of the forefoot and subluxation of talonavicular joint. Discussion: Both of these valid operative techniques are suitable to correct spastic planovalgus deformity and the choice of surgical procedure depends upon the evaluation of each valgus foot and preference of the surgeon.

Abstract number: 25692 SURGICAL TREATMENT OF BLOUNT DISEASE IN CHILDREN

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Blount disease (BD) is characterized by abnormalities occurring in the medial part of the proximal tibial metaphysis, physis, and epiphysis, and declares by genu varum (more 20 degr. during the weightbearing), lateroposition of shin and «thrust» during stance phase of gait, often at obese patients. The main method of operative treatment of BD in Belarus is osteotomy, at this moment transverse auto-plastical OT of shin bones with moderate overcorrection (5-10 degrees) of deformation. During the period from 1987 to 2004 year 51 operations at 45 knees (21 right, 24 left) of 37 patients with BD at age 2-17 years old (9 boys, 28 girls) were performed. All patients had clinical picture of legs bowing (from 20 to 55 degrees), lateral instability 5-20 degrees, in 26 cases - internal torsion of tibia from 10 to 45 degrees and secondary pes planus. Treatment: 49 osteotomies were performed, 10 of them (20,4%) of tibia alone, other of tibia and fibula, in 6 cases also epiphysiodesis was made; in 2 cases of recurrence BD isolated epiphysiodesis was performed. Methods of osteotomies: wedge - 27 (55,1 %), spherical - 4 (8,2 %), triangular - 4 (8,2 %), transverse autoplastical - 14 (28,6 %). Fixation was performed with help of Kirschner's wires (44 cases) or Ilizarov's device (5 cases). Long-term (from 1 to 21 years, average - 9,4 years) postoperative results were available for 33 patients: good at 14 patients (42,4 %), satisfactory at 13 patients (39,4 %), poor at 6 patients (18,2 %) required another osteotomies.

Abstract number: 25749 COMPARATIVE STUDY OF PLASTER CAST VS PINNING FOR TREATMENT OF SUPRACONDYLAR FRACTURES OF HUMERUS IN CHILDREN Abdul Latif QURESHI

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Supracondylar fracture of humerus is the most common elbow injury in children. Total 40 cases of these fractures were included in this comparative study. Twenty patients in group "A" treated with conservative method like (POP Cast) and 20 patients in group "B" treated by percutaneous pinning method between May 2005 to April 2007. The Metaphyseal-diaphyseal angle of both the groups in the anteroposterior radiographs was measured at the same day, 1st, 2nd, 3rd, 6th, 12th, 24th week and range of motion at the elbow joint was measured at 3rd, 4th, 6th, 8th, 12th, 16th, 20th and 24th week of follow up. Their mean values were compared, analyzed in two groups by applying student T-test and 100 points score method. Statistically significant difference was observed by comparing the mean values of Metaphyseal-diaphyseal angles in both groups at immediate post operative and 1st week of follow up (P-Value< 0.05). Final score at 24th week of follow up in-group "A" was Fair (63%), while in-group "B" was Excellent (88%). In-group "A" (treated with POP Cast) 03(15%) patients developed posterior displacement in the 1st week of follow up and 01(5%) patient developed anterior bone block in the 3rd week of follow up. In-group "B" (treated by pinning) 01(5%) patient developed transient radial nerve palsy. Conclusion of this study is that percutaneous pinning is better method of treatment for supracondylar fractures of humerus in children for Wilkins type IIA, IIB & III.

Abstract number: 25925 BILATERAL SIMULTANEOUS FRACTURE NECK OF FEMUR IN A EIGHT YEAR OLD CHILD

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Simultaneous traumatic bilateral fracture neck of femur is a very unusual injury in paediatric age group. Literature search revealed only four cases reported. A eight year old female patient had a high speed road traffic accident and attended our hopital. Examination and radiology revealed minor head injury, small vaginal laceration and bilateral cervicotrochanteric fracture neck of femur. She was treated with closed reduction and canulated cancellous screw fixation on both sides. Recovery was uneventful and patint was kept in bed with range of motion exercises. Followup revealed good union and no features of avacular necrosis and implants were removed. At current (ten month) followup patient was mobilising painfree with no limp and no osteonecrosis is evident. She continues to be under follow up.

Abstract number: 26108 EARLY RADIOGRAPHIC OUTCOME AFTER TREATMENT FOR NEONATAL INSTABILITY OF THE HIP

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Introduction: Developmental dysplasia of the hip (DDH) is a spectrum of hip joint disease in children, including morphologic changes of the joint, instability and dislocation. As much as 29% of all total hip arthroplasties in patients less than 60 years old are due to DDH. Screening and early treatment of neonatal instability of the hip (NIH) decreases the incidence of DDH. Objective: To determine whether infants with NIH who were treated with an abduction splint would have normal radiographic outcome at 1 year. Methods: All patients with suspected NIH that were admitted to our clinic between April 1st 2002 and December 31st 2007 were reviewed for x-ray files. Measurements of the acetabular index (AI) were compared between cases with dislocated/dislocatable, unstable and normal hips.Results: The incidence of NIH was 7 per 1000 born infants with a referral rate of 15 per 1000. 82% of those treated were girls. The AI was higher in children with dislocated / dislocatable hips (mean ±SD: 25,0 \pm 4,0) than in the control group (22,4 \pm 3,9) (p = 3,6E-11). Girls had a higher mean AI than boys and left hips had a higher mean AI than right hips which is in accordance with previous findings. Conclusion: This study shows that even for children diagnosed and treated from the first days of life, radiological differences in acetabular shape are persistent at 1 year of age. The importance of these diffences for future hip function is unknown and warrants further study.

Abstract number: 26156 OUTCOME OF PAEDIATRIC FOREARM FRACTURES TREATED WITH FLEXIBLE NAILS

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Introduction: The majority of paediatric diaphyseal forearm fractures are treated with closed reduction and application of an above elbow cast. It is difficult to manage unstable diaphyseal fractures with cast alone, however in recent years flexible nails are becoming viable option. Aim To study the clinical outcome of patients treated with flexible nails for forearm fractures. Materials and method: Patients details was collected retrospectively from hospital database including patient demographics, mechanism of injury, fracture classification, duration of hospital stay, surgical details and complications. ResultsThere were a total of 26 patients (3 open and 23 closed fractures) treated with flexible nail for unstable forearm fractures with age ranging between 5 to 16. Union of fracture was evident clinically and radiologically in all patients at an average of 8 weeks. All patients had the flexible nail removed electively at 3 months. There was one case of infection at pin site requiring the nail to be removed at 6 weeks. The fracture in this patient healed and there was no long term sequel. Radiological angulation was calculated using Firl and Wunsch score and found to be r=10.11, x=118.63, y=174.7 which is calculated as the percentage of average maximum radial bow as 67.9% (normal 60.39%) which is 5.79% (normal 7.21%) of the total length of the radius. Conclusion: Flexible nails is a viable alternated treatment in forearm fracture in paediatric age group for displaced and unstable diaphyseal forearm fractures in children.

Abstract number: 26193

A SCHOOL-BASED EXERCISE INTERVENTION PROGRAM INCREASES MUSCLE STRENGTH IN PRE-PUBERTAL BOYS

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This 12-month prospective controlled intervention study evaluated the effect of exercise on muscular function, physical ability and body composition in pre-pubertal boys. Sixty-eight boys aged 7-9 years, involved in a general school-based exercise program of 40 min per school day, were compared with 46 age-matched boys who participated in the general Swedish physical education curriculum of mean 60 min/week. Baseline and annual changes of body composition were measured by dual energy X ray absorptiometry (DXA), height and weight by standard equipments, isokinetic peak torque (PT) of the knee extensors and flexors at 60 and 180deg/sec by computerized dynamometer (Biodex) and vertical jump height (VJH) by a computerized electronic mat. The annual gain in height and weight was similar between the groups whereas the increase in total body and regional lean mass (p<0.001) and fat mass (p<0.001) was greater in the exercise group. The one year gain in weight-adjusted knee extensor PT at 180 deg/sec was a mean 13% in the intervention group and 7% in the control group (p<0.05) and in flexor PT at 180 deg/sec a mean 38% in the intervention group and 9% in the control group (p<0.001). There was no group difference in VJH. In conclusion, the increase in school-based physical education from 60 to 200 minutes per week enhances the development of muscle mass and muscle strength in pre-pubertal boys.

Abstract number: 26250

LATE FUNCTIONAL SCORES AFTER SURGICAL TREATMENT OF SLIPPED CAPITAL FEMORAL EPIPHYSIS - RETROSPECTIVE STUDY OF A 25 YEARS SERIES

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Proximal femoral epiphysiolysis (PFE) is a rare condition with an unknown aetiopathogenesis. An early diagnosis and treatment is essential to minimize premature degeneration of the joint. The authors reviewed the cases treated between 1980 and 2005 in our institution. This study was aimed at evaluating patients with hip epiphysiolysis surgically treated by canullated screws or pinning and previously controlled by short-term follow-up, in order to evaluate their level of physical activity, complaints and hip mobility. These patients were contacted and clinically reviewed with the application of the Tegner and Lysholm activity score, and the Larson Hip score. The scores were also applied in the contralateral hip, serving as a control group. The functional score is correlated with the patient's radiological result

Abstract number: 26273

FEMOROACETABULAR IMPINGEMENT AND **OSTEOARTHRITIS** IN Α POPULATION WITH SLIPPED CAPITAL FEMORAL **EPIPHYSIS RETROSPECTIVE STUDY OF A 25 YEARS SERIES** José E. FRAGA FERREIRA, Rui CERQUEIRA, Sofia VIÇOSO, Tiago BARBOSA, João Paulo OLIVEIRA, Paulo VASCONCELOS Centro Hospitalar do Alto Ave. Guimarães, Guimarães (PORTUGAL)

Proximal femoral epiphysiolysis (PFE) is a rare condition with a unknown aetiopathogenesis. An early diagnosis and treatment is essential to minimize premature degeneration of the joint. The authors reviewed the cases treated between 1980 and 2005 in our institution. This study was aimed at evaluating patients with hip epiphysiolysis surgically treated by canullated screws or pinning and previously controlled by short-term follow-up, in order to evaluate radiographic medium/ long term evolution, looking for evidence of degenerative arthritis or femoroacetabular impingement. We performed a retrospective review of the clinical notes and radiographs of all patients with slipped upper femoral epiphysis who were surgically treated at our institution between January 1980 and December 2005. These patients performed radiographs to detect evidence of osteonecrosis, chondrolysis, degenerative arthritis or femoroacetabular impingment. To grade the radiological osteoarthritic changes the grading system of Kellgren and Lawrence was used. These changes were correlated with the existence of femoroacetabular impingement. The radiological results were correlated with the degree of chronicity of the slip, the morphological classification and the existence of complications such as avascular necrosis.

Abstract number: 26397 DOES SALTER'S OSTEOTOMY RETROVERT THE ACETABULUM IN DEVELOPMENTAL DYSPLASIA OF HIP?

Aditya MOOTHA, Raghav SAINI PGIMER, Chandigarh (INDIA)

Salter's osteotomy had been condemned in the past for the retroversion of the acetabulum, when it is used in the patients with developemental dysplasia of hip. These studies were based upon the indirect measurement of the acetabulum anteversion on radiographs rather than the actual measurement. Acetabulum retroversion is blamed for the acetabular impingement and early onset of degeneration. Study included the 45 children with unilateral developmental dysplasia of hip and MRI was done to document the pre-operative acetabular anteversion. Open reduction and Salter's osteotomy was done in all the patients. Post-operative MRI was done in all the patients to document the post-operative acetabular anteversion. None of our patient had post-operative dislocation and all children were walking without limp at the follow up. Statistical analysis was done and there was no statistical significant difference between the pre-operative and post-operative values of acetabular anteversion. Salter's osteotomy should be used without any fear for the retroversion of the acetabulum. Salter's osteotomy corrects the pathoanatomy of DDH in addition to the providing post-operative stability.

Abstract number: 26407 CONGENITAL POSTERO-MEDIAL BOWING OF THE TIBIA AND FIBULA- IS EARLY SURGERY WORTHWHILE?

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Methods - 22 children with congenital postero-medial bowing of the tibia and fibula from 1991 to 2009, 13 patients underwent conservative treatment, 9 patients of whom 3 underwent corrective osteotomy for the correction of bowing and intorsion and 6 underwent lengthening and deformity correction with Ilizarov fixator. The angles of medial and posterior angulation and limb length discrepancy were recorded before and after surgery and on follow-up (mean follow-up after surgery - 6.1 years) along with the complications. Results - Although there was a reduction in angulation and correction of limb length discrepancy we encountered a high incidence of complications. Conclusions - We advocate a one stage lengthening and correction of the residual deformity closer to skeletal maturity.

Abstract number: 26564 ISOLATED TRAUMATIC ANTERIOR DISLOCATION OF THE RADIAL HEAD IN CHILDREN: CASE REPORT. REVIEW OF THE LITERATURE Tiago RIBEIRO BARBOSA, Sofia VIÇOSO, José FRAGA FERREIRA, Rui CERQUEIRA, João Paulo OLIVEIRA, Fernando LIMA Centro Hospitalar do Alto Ave - Guimarães, Guimarães (PORTUGAL)

Introduction: Traumatic dislocations of the radial head in children as an isolated injury are rare. The most common type is the anterior dislocation and often the mechanism is an injury in pronation and extension of the elbow. Material: The authors report a case of isolated anterior dislocation of the radial head in an 8 years old girl following an injury of the right elbow. The clinical examination revealed limitation of pronosupination motions, without overflowing deformation. The radiological study showed anterior dislocation of the radial head, without bone lesions associated. Methods: The child underwent manipulation under sedation, as a matter of urgency, with closed reduction, review of joint stability and immobilization in a plaster cast with the elbow at 90° and supination of the forearm, for 3 weeks. The authors reviewed the literature of this pathology and discussed the therapeutic options for its resolution. Results: After 8 months of follow-up the clinical and functional outcome was satisfactory, with no significant differences between the injured and normal elbows. Discussion and Conclusion: The diagnosis is easily missed and is established on the basis of a correct imaging procedure. Isolated dislocation of the radial head can be treated conservatively when diagnosed in the first 3 weeks, with good functional results. After this period, open reduction is often necessary. Thus, the reduction of the radial head is currently recommended as soon as possible to avoid future complications, growth deformities and joint stiffness.

Abstract number: 26747 ENHANCEMENT OF BONE HEALING DURING DISTRACTION OSTEOGENESIS WITH PLATELETS RICH PLASMA (PRP)

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Gradual limb lengthening with external fixators using distraction osteogenesis principles is the gold standard for treatment of limb-length discrepancy. However, long treatment time is a major disadvantage of the current lengthening procedures. Efforts to decrease the treatment include biological and biomechanical factors. Injection of platelet-rich plasma (PRP) is a biological method to enhance bone healing during distraction osteogenesis. We hypothesized that PRP can enhance bone healing during limb lengthening. We report our experience with the use of PRP during distraction osteogenesis. Our retrospective study included 19 patients divided into the standard group of 10 patients who did not receive PRP and the PRP group of nine patients who received PRP at the end of the distraction phase. The study variables included external fixator time, external fixation index, and complications during treatment. The PRP group had statistically significantly shorter treatment time (p =0.0412). Injection of PRP into regenerate bone might be an effective method to shorten treatment time during limb lengthening and lead to better functional outcomes and improved patient satisfaction.Level of Evidence: Level IV, therapeutic study.

Abstract number: 22888 A NOVEL TECHNIQUE FOR DETERMINING TRANSVERSE SKIN INCISION SITE FOR ANTERIOR CERVICAL SPINE SURGERY

Cian KENNEDY, Mike LEONARD, John MCCABE ¹University College Hospital Galway, Galway (IRELAND)

Background - The transverse skin incision for anterior cervical spine surgery is not extensile thus it must be made at the accurate level. The use of palpable bony landmarks is unreliable due to anatomical variations, and pre-operative fluoroscopy to identify the level takes up operating room time, increases the radiation dose to the patient and increases the overall cost of the operation. Objective - To describe a simple, fast and inexpensive method of accurate transverse skin incision placement for anterior cervical spine surgery, and to report on its use in 54 consecutive adult patients.Patients and Methods - In each case a ratio was recorded on the lateral cervical spine radiograph based on the distance between the clavicle and mandible and the operative level, this was then applied to measurements on the patient's neck.Results - Procedures performed consisted of a mix of discectomy and fusion, disc replacement and combinations of both. The operative level ranged from C2-C3 to C7-T1, the most common being C5-C6. Twenty-three patients had a single-level, 26 a two level and 5 a three level procedure, all cases were performed through one single transverse incision. Conclusion - In conclusion we describe the highly successful use of a straightforward method for accurate level transverse skin incision placement for cervical spine surgery In no case was it necessary to radically extend or to make a separate incision. There were no cases where the wrong level was operated on.

Abstract number: 23182

PERCUTANEOUS POSTEROLATERAL TRANSFORMINAL ENDOSCOPIC DISCECTOMY

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BACKGROUND: Surgery for herniated lumbar disc is intended to provide relief of pain and disability. The technological development combined with better understanding of endoscopic anatomy has made endoscopic discectomy an appealing surgical option. Our goal was to retrospectively evaluate clinical outcome, complications rate and learning curve with percutaneous posterolateral transforminal endoscopic discectomy. METHODS: Transforminal endoscopic discectomy was preformed from 2004 to 2008 in 150 patients. 124 patients were available for follow up. Demographic data, pain evaluation by VAS, Oswestry Disability Index, postoperative complications, neurological status, operation time and subjective patient satisfaction were recorded. RESULTS: Satisfactory clinical outcome as reflected in the VAS (mean 3.6) and ODI (mean 21%) scores is reported. 26 patients required additional surgery because of continuing symptoms. In The assessment of surgical learning curve, we found a statistically significant difference (p value 0.043) for fewer revision surgeries as the surgeons became more experienced. Thirty patients (24%) had at least one previous back surgery prior to the index endoscopic discectomy. Patients that had endoscopic discectomy as a primary surgery achieved significantly lower VAS (p value 0.04) and ODI (p value 0.004) scores in comparison to patients having endoscopic discectomy as a revision surgery. The combined Complication rate in this patient series was 1.6%. CONCLUSIONS: Based on our results and experience, transforminal endoscopic discectomy has a satisfactory clinical outcome with a low total complication rate. We acknowledge the steep learning curve of this technique, which can be overcome with training and suitable patient selection.

Abstract number: 23272 RADIOGRAPHIC PREDICTORS OF DEGENERATIVE SPONDYLOLISTHESIS IN A MEAN 12-YEAR PROSPECTIVE STUDY

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[INTRODUCTION] This study was designed to identify predictors of degenerative spondylolisthesis (DS) in a prospective study of community-based women. [METHODS] A final total of 142 community-based female volunteers, aged 40-75 years with no DS at baseline x-ray, were followed for 8-15 years. Standing entire spine radiographs were used for measuring lumbar lordosis (LL), pelvic incidence (PI), sagittal spinal balance, disc height ratio, vertebral inclination angle (VA), facet sagittalization (FS), and the magnitude of spondylolisthesis with more than 5% slip defined as newly-developed DS. [RESULTS] Subjects - baseline age was 54.7 years, and during mean follow-up period of 12.1 years, 18 subjects (12.7%) developed DS. Significant differences were demonstrated between DS and non-DS subjects in baseline LL (DS 40.5 vs. non-DS 32.7 P=0.0151), PI (62.4 vs. 54.7, P=0.0056), VA (L4 12.0 vs. 5.3, P=0.0135; L5 23.2 vs. 16.4, P=0.0167), and FS (33.3% vs. 4.8%, P<0.0001); each also has been an independent predictor in a multivariate analysis. We introduced DS score; adding the number of following risk factors; 1) LL>41, 2) PI>63, 3) L4-VA>12, 4) L5-VA>24, and 5) positive FS, which showed significant linear correlation with the incidence of DS. [DISCUSSION] The value of PI has been suggested as a risk of DS, and introduced DS score, including baseline PI value, predicted the development of DS among susceptible female subjects.

Abstract number: 23274 PELVIC INCIDENCE AS A UNIQUE PREDICTOR OF SPINAL DEGENERATIVE DEFORMITY

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[Introduction] There is a growing concern about the relationship between sagittal spinal alignment and spinal pathologies. Pelvic incedence (PI), a morphological parameter not affected by the posture or the pelvis position, has been suggested as a unique predictor of spinal degenerative deformities such as spondylolisthesis (DS) and kyphosis (LDK). The purpose of this study was to investigate the influence of PI on the development of DS and LDK in a prospective cohort. [Methods] A final total of 227 female volunteers, aged 40+ years at baseline were followed for more than 8 years. Entire spine radiographs were used for measuring sagittal spinal alignment including PI. Magnitude of spondylolisthesis was evaluated in 142 women without DS at baseline radiograph, and development of more than 5% slip was diagnosed as newly-developed DS. LDK was diagnosed by the angle of L1-S1<15° among all subjects. [Results] Subjects' baseline age was 57.5 and mean follow-up period was 12.0 years. DS was diagnosed in 12.7%, and PI was significantly bigger in DS patients (DS 62.4°vs. normal 54.7°, p=0.0056). LDK was diagnosed in 13.7%, and PI was significantly smaller in LDK patients (LDK 48.2° vs. normal 56.3°, p=0.0021; Student t-test). [Conclusion] This is the first to study the relationship between PI and spinal pathologies in a long-term follow-up. PI determines the capacity of pelvic retroversion, and smaller PI led to the development of kyphotic deformity, while bigger PI led to the development of slip.

Abstract number: 23560 SIMULTANEOUS CERVICAL AND LUMBAR SURGERY FOR TANDEM SPINAL STENOSIS IN ELDERLY PATIENTS

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Introduction: Spinal stenosis is common in the elderly and sometimes involves the cervical and lumbar spine as tandem spinal stenosis (TSS). Safety and outcomes of simultaneous surgery for patients >70 years with symptomatic TSS were examined. Methods: Subjects comprised 17 patients with TSS (TSS group; mean age, 75.9 years) who underwent cervical laminoplasty. In the lumbar spine, laminectomy (n=10) and decompression with fusion (n=7) were performed. Operation time, blood loss, Japanese Orthopaedic Association (JOA) score, grasp strength, 10-s finger flexionextension test (10-s test), complications, hospitalization, use of analgesics, hemoglobin, CPK and CRP levels were examined. Comparisons were made with 17 controls treated using cervical laminoplasty alone. Results: Mean operation time was 84.3 min (cervical) and 87.4 min (lumbar) for the TSS group and 98.4 min for controls (ns). Mean blood loss was 240.4 g in the TSS group and 56.1 g in controls (p<0.05). No significant differences in blood tests were detected except for CPK level at 1-day postoperatively. Mean analgesic use was 7.1 times in the TSS group and 4.5 times in controls (p<0.05). No significant differences between the two groups were identified for recovery of JOA score, grasp strength, 10-s test, postoperative hospitalization and complications. Conclusions: From the perspectives of surgical invasion and postoperative complications, simultaneous cervical and lumbar surgery for elderly patients was as safe and effective as cervical laminoplasty alone. We recommend this surgery even for elderly patients with symptomatic TSS.

Abstract number: 23713

THE INFLUENCE OF PSYCHOLOGICAL FACTORS ON PRE-OPERATIVE LEVELS OF PAIN INTENSITY, DISABILITY AND HRQOL IN LUMBAR SPINAL FUSION SURGERY PATIENTS.

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Objectives: To assess the influence of pain and psychological factors on disability and health related quality of life (HRQOL) in patients scheduled for lumbar fusion surgery. To test our hypothesis that relationships between pain intensity, mental health, fear of movement/(re) injury, disability and HRQOL are mediated by cognitive beliefs and appraisals. Design: Cross-sectional, correlational study. Participants: 107 patients scheduled for lumbar fusion surgery. Measures: Visual analogue scale for pain intensity, SF-36 mental health subscale, Tampa Scale for Kinesiophobia, Back Beliefs Questionnaire, Self-Efficacy Scale, Coping Strategy Questionnaire, Oswestry disability index, European Quality of Life Questionnaire. Results: The group effect of multiple mediators significantly influenced the relationships between pain intensity and mental health, fear of movement/(re)injury, functional disability and HRQOL. Pain catastrophizing significantly mediated between pain intensity and mental health, control over pain significantly mediated between mental health and functional disability, self-efficacy and pain outcome expectancy significantly mediated between mental health and HRQOL, self-efficacy significantly mediated between pain intensity, fear of movement/(re) jury and functional disability. The model explained a total of 27.7, 30.3, 52.2 and 41.9% of mental health, fear of movement/(re) injury, functional disability and HRQOL respectively. Conclusions: This study highlights the strong influence and mediation roles of psychological factors on pain, mental health, fear of movement/(re)injury, disability and HRQOL in patients scheduled for lumber fusion. Future research should focus on pre and post-operative screening and interventions based on psychological factors for potential improvement of lumber fusion surgery outcomes.

Abstract number: 23715 LEG PAIN AND PSYCHOLOGICAL VARIABLES PREDICT OUTRCOME 2-3 YEARS AFTER LUMBAR FUSION SURGERY

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Study Design: Prospective cohort study. Objective: To examine predictions of functional disability, back pain intensity and HRQOL 2-3 years after lumbar fusion by regressing nonlinear relations in a multivariate predictive model of pre-surgical variables. Summary of Background Data: Prediction studies testing a thorough range of psychological variables in addition to demographic, work related and clinical variables is lacking in spinal surgery research. Previous studies have not investigated nonlinear relations between response and predictor variables or addressed predictive model validity. Methods: 107 lumbar fusion patients completed questionnaires before and 2-3 years after surgery investigating demographics, work related variables, clinical variables, functional self-efficacy, outcome expectancy, fear of movement/(re)injury, catastrophizing and mental health and pain coping. CATREG regression with optimal scaling transformation, elastic net regularization and bootstrapping were used to investigate predictor variables and address predictive model validity. Results: The most parsimonious subset of pre-surgical predictor variables explained 41.6%, 32.2% and 25.6% of the variance in functional disability, back pain intensity and HRQOL 2-3 years after lumbar fusion. Control over pain significantly predicted functional disability and HRQOL while leg pain intensity and catastrophizing significantly predicted functional disability and back pain. Postoperative rehabilitation focusing on cognition, behaviour and motor control also significantly predicted functional disability while outcome expectations significantly predicted HRQOL. The discriminative ability of the prediction models was of good quality. Conclusions: The study demonstrates the importance of pre-surgical leg pain and psychological factors in the predictions of functional disability, back pain and HRQOL related lumbar fusion outcomes.
Abstract number: 23718

A PROSPECTIVE STUDY ON PROPHYLACTIC HIGH-DOSE METHYLPREDONISOLON THERAPY TO PREVENT C5 PALSY FOLLOWING DECOMPRESSION SURGERY TO PATIENTS WITH CERVICAL OPLL Kazuhiro HASEGAWA, Takao HOMMA, Haruka SHIMODA Niigata Spine Surgery Center, Niigata (JAPAN)

INTRODUCTION: C5 palsy is a common complication following cervical surgery especially in ossification of posterior longitudinal ligament (OPLL). We proposed that the etiology is a transient disturbance of the spinal cord (SPINE 2007). Thus, we pursued countermeasures to prevent the complication. The purpose of this prospective study was to test the hypothesis that methylprednisolone administration in a dose advocated by NASCIS-II (MPTx) is effective to prevent C5 palsy. METHODS: Thirty-eight patients with myelopathy due to cervical OPLL (mean age=58.3 y, M/F=25/13) were treated by laminoplasty with MPTx (group MPTx). An age- and sex- matched patients who underwent laminoplasty for cervical OPLL without MPTx (mean age=60.7 y, M/F=35/23, group non-MPTx) were used as a control group. Frequency of C5 palsy was compared, and a risk factor analysis was performed on sex, age, procedure, area of decompression, MPTx, and preoperative JOA score. RESULTS: C5 palsy occurred 7 patients (12.1%) in group non-MPTx, whereas none in group MPTx (p<0.05). A risk factor analysis revealed that non-MPTx was the most significant factor on C5 palsy occurrence. DISCUSSION: Reoxygenation-reperfusion injury to ischemic brain and thoracic spinal cord are wellknown clinical features. The mechanism underlying the nerve injury might also underlie cervical spinal cord damage as the etiology of C5 palsy, possibly explaining the effectiveness of MPTx in the present study. Therefore, we conclude that MPTx is effective and can be an option to prevent C5 palsy.

Abstract number: 23761 EFFECT OF ANTIDEPRESSANT THERAPY ON PAIN DUE TO DEGENERATIVE LUMBER SPONDYLOSIS

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Introduction: Pain and depression frequently occur together and may arise from common musculoskeletal disorders. Antidepressant drugs have been shown to be effective in the treatment of chronic pain due to musculoskeletal disorders. The aim of the present study was to determine the efficacy of an antidepressant, a serotonin and noradrenaline reuptake inhibitor (SNRI), on the relief of pain due to degenerative lumber spondylosis. Materials and methods: The study included 17 patients, aged 62 to 82 years. They were all diagnosed as having degenerative lumber spondylosis and suffered from pain in the low back and lower extremities. The patients were treated with the SNRI milnacipran for 8 weeks. General symptoms and pain intensity were rated using visual analogue scales. The subjects completed a Zung self-rating depression scale at each evaluation. All subjects gave their informed consent. Results and discussion: General symptoms improved progressively with time, with a significant improvement from week 2. Pain intensity decreased in the 10 patients who completed the study; mean pain levels decreased in a time-dependent manner. In 7 patients, the pain intensity at week 8 was less than 50% of that at baseline. The severity of depression measured using Zung's SDS decreased significantly from week 2. All patients, including those reporting no pain relief, showed decreased depressive symptomatology. Conclusions: The present data clearly illustrate that an antidepressant SNRI may also be useful in the treatment of pain due to degenerative spondylosis, in a manner that may be independent of an accompanying depressive state.

Abstract number: 23786

RESPIRATORY DYSFUNCTION IN PATIENTS WITH CERVICAL MYELOPATHY Minoru KASHIHARA

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Purpose: The changes in respiratory function in chronic cervical myelopathy is not well documented. The purpose of this study is to evaluate the respiratory function of patients in cervical spondylotic myelopathy (CSM). Materials and methods: We investigated preoperative percent vital capacity (%VC) and forced vital capacity for 1 second (FEV%) as a parameter of spirometry in 75 patients with CSM and 41 patients with lumbar canal stenosis (LCS) as a control group. In 32 CSM patients postoperative spirometry was performed. We compared %VC between upper cervical lesion group and the other group of CSM. The upper cervical lesion group had high intramedullary signal intensity change on T2WI of MR image and the other group had no signal change at the cranial side from C4/5 level. Results: In terms of preoperative FEV%, there were no significant differences between CSM group and LCS group. However, the preoperative %VC of CSM group was significantly lower than that in LCS. The %VC of CSM slightly improved after surgery. The %VC of upper cervical lesion group was lower than that of the other group of CSM, but there were not significant differences between two groups. Conclusion: The spinal segments of main inspiratory muscles exist in cervical spinal cord and those of main expiratory muscles exist in thoracic spinal cord. We considered that the preoperative decrease of %VC in CSM was due to the muscle weakness of respiratory muscles. Respiratory dysfunction is considered one of the impairment in CSM.

Abstract number: 23857

COCCYGECTOMY FOR COCCYDYNIA: A CASE SERIES AND ANALYSIS Dushan THAVARAJAH, Gareth POWELL, Alexander ASHMORE, Andrew FLOYD *Milton Keynes General Hospital, Southall (UNITED KINGDOM)*

Introduction: Coccygectomy, surgical excision of the coccyx, may be used to treat coccydynia, a chronic and disabling condition of the lowest part of the spine. It is a controversial and infrequently performed operation that many surgeons are reluctant to perform due to the risks of rectal perforation and infection. The criteria for patient selection for coccygectomy remain ill-defined. We present a single surgeon case series of 17 patients who underwent coccygectomy for chronic coccydynia. Methods: This was a retrospective observarional case series analysis. Case notes of 17 patients who underwent coccygectomy from 1999 -2009 were obtained and analysed. We then carried out telephone survey for which only 15 patients were contactable. We used the Milton Keynes Orthopaedic Patient Satisfaction survey and the modified Oswestry low back pain disability questionnaire. Results: All patients had a 2-3yr history of coccydynia; 15 following trauma, 1 following a caudal injection All patients had received between 1 - 5 & 1 following birth delivery. lignocaine/methylprednisolone injections prior to coccygectomy, with documented initial symptom relief. All 17 patients had documented hypermobile sacro-coccygeal joints. Post-operative symptom relief varied between 60 & 100%, with all patients reporting that they would have their surgery again. Complications included 3 post operative wound infections. There were no cases of rectal perforation. Conclusion: Coccygectomy for intractable coccydynia is sometimes the only option available. With good patient selection, including identification of a hypermobile joint with initial symptom relief following local injection, coccygectomy is a successful and safe treatment.

Abstract number: 23963

MORPHOLOGICAL ANALYSIS OF THE CERVICAL PEDICLES, LATERAL MASSES AND LAMINAE IN DEVELOPMENTAL CANAL STENOSIS

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This study aimed to elucidate the relationship among developmental spinal canal stenosis (DCS) and morphologic features in cervical spine comparing with nondevelopmental spinal canal stenosis (NDCS), especially the posterior structures, by using CT myelography. 52 consecutive patients underwent cervical spine CT myelography. Axial images were selected from each C-3 to C-7 vertebrae and the total 260 images were analyzed. The following parameters were measured, SCLD (spinal canal longitudinal diameter), SCTD (spinal canal transverse diameter), OSCA (osseous spinal canal area), DSA (dural sac area), SCA(spinal cord area), POW (pedicle outer width), PAL (pedicle axis length), PTA (pedicle transvers angulation,), LMLD (lateral mass longitudinal diameter), LMTD (lateral mass transverse diameter), LOW (lamina outer width), LAL (lamina axis length). The participants were classified into 2 groups - DCS group (the SCLD was less than 12mm at any level) or NDCS group (the SCLD was more than 12mm at all level). The mean OSCA and DSA from C3-5 in DCS group were less than those in NDCS group. There were no significant differences in the mean SCA from C3-7 among the groups .The mean POW at C6 and C7 in DCS group were less than those in NDCS group. The mean LMTD at C5 and the mean LMLD at C3, C5 and C6 in DCS group were less than those in NDCS group. It is expected that patients with DSC progress the myelopathy and need the cervical operation. However, the posterior screw insertion should be considered carefully because of its morphologic features.

Abstract number: 23987 STUDY OF MEASURED D-DIMER LEVELS AFTER SPINAL SURGERY FOR DETECTION OF DEEP VENOUS THROMBOSIS

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There have been few studies about the occurrence of deep venous thrombosis (DVT) after spinal surgery in which D-dimer assay was used for screening. The purpose of this study was to demonstrate the prevalence of DVT and pulmonary embolism (PE) after spinal surgery. D-dimer assay was used to screening for DVT. 88 patients who had a spinal procedure between July 2006 and June 2007 at the authors' institution were considered for inclusion in the study. There were 48 males and 40 females. The average age at operation was 62.4 years (range, 17-85 years). D-dimer levels showed 10 g/ml or higher were examined by computed tomographic pulmonary angiography and computed tomographic venography. Nine (10.2%) patients showed D-dimer levels of 10 g/ml or higher, of whom 5 (5.7%) had DVT. Two (2.2%) patients of 5 had PE. However, there was only one patient with clinical signs of DVT. Statistical significance was not found in the level of procedures (P=0.42). However, almost patients had DVT were underwent lumbar procedures. Statistical comparison between patients who did and did not have DVT showed there were no significant differences in age, gender, height, body weight, body mass index, operative time, intraoperative blood loss, duration of postoperative recumbency. There were not a few patients of DVT after spinal surgery. However, thrombosis of the vein in the calf is generally asymptomatic. Additionally, there were a few patients of asymptomatic PE. D-dimer assay were useful to predict DVT.

Abstract number: 23991 POST-OPERATIVE ORAL INTAKE REGIME FOLLOWING LUMBAR DECOMPRESSION-FUSION SURGERY

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Introduction: Lumbar decompression-fusion surgery involves extensive surgery in prone position and is associated with significant post-op ileus. We compared the post-operative oral intake regimes of our two spinal firms over a 6 months period. Methods and materials: The post operative oral intake was commenced as soon as the bowel sounds started in one firm. In the other firm, the oral intake was started only after the patient passed wind. There were 28 patients in the first group (bowel sounds) and 27 patients in the second group (passage of wind). The two groups were comparable for age and sex distribution. The average age was 69 yrs, and the male: female ratio was 1.2:1. Results: The bowel sounds were found to start on an average of 8.5 hours (6-16 hours) post-operatively. The average time between the operation and the patient passing wind was 26 hours (18-73 hours). The patients who were on Patient Controlled Analgesia (PCA) were found to have a delayed passage of wind. There was no significant correlation between the number of fusion levels or the operative time and commencement of bowel sounds/ passage of wind. Discussion: The patient satisfaction rate was much better when the oral intake was commenced as soon as the bowel sounds start, although they had more bloating of the abdomen. The incidence of nausea / vomiting was significantly less in the group in which the oral intake was commenced following patient passing wind.

Abstract number: 23994 PYOGENIC DISCITIS

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Introduction: Spinal disc infection is associated with a significant morbidity and mortality in the acute setting. On long term review it leads to significant moribidity due to the deformity and secondary osteoarthritic changes in the surrounding vertebral segments. Methods and Materials: Prospective collection of data of 21 patients suffering from discitis was collected over the span of last 10 years. The age group ranged between 21 -67 yrs. The male: female ratio was 1.2:1. The minimum delay in presentation since the onset of symptoms was 8 weeks. The detection of the microorganism was either by needle/open biopsy or indirectly via blood cultures. Serial records were maintained of inflammatory markers. All patients received plain radiographs, gadolinium-enhanced magnetic resonance imaging scans, and bone/gallium radionuclide studies. Results: Operative decompression was performed in 7 patients. Infection elsewhere was the most common predisposing factor. Leukocyte counts were elevated in 54% of spondylodiscitis cases. The erythrocyte sedimentation rate and CRP were elevated in all cases of epidural abscess. The most common organism was Staph Aureus. Antibiotics were administered for duration of at least 6 weeks. On long term, all patients developed deformity at the level of the infection, with half of them being symptomatic. Conclusion: Spinal infections are extremely morbid conditions demanding prompt diagnosis and urgent treatment to prevent complications.

Abstract number: 24043

KINEMATIC EVALUATION OF THE ADJACENT SEGMENTS AFTER LUMBAR INSTRUMENTED SURGERY: A COMPARISON BETWEEN RIGID FUSION AND DYNAMIC NON-FUSION STABILIZATION

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Introduction: The aims of the current study were to evaluate changes in lumbar kinematics after lumbar instrumented surgery with rigid fusion and dynamic nonfusion stabilization. Methods: A total of 77 lumbar spinal stenosis patients with L4 underwent L4-5 degenerative spondylolisthesis monosegmental posterior instrumented surgery. Of these, 36 patients were treated with rigid fusion (TLIF) and 41 with dynamic stabilization (Segmental Spinal Correction System (SSCS)). The clinical outcomes were evaluated by JOA score. Lumbar kinematics were evaluated with functional radiographs preoperatively and at final follow-up postoperatively. We defined the contribution of each segmental mobility to the total lumbar mobility as the percent segmental mobility (sagittal angular motion of each segment in degrees) / (total sagittal angular motion in degrees) \times 100). MRI was performed on all patients at 2-week and final follow-up postoperatively. The discs were classified into 5 grades based on the previously reported system. We defined the progress of disc degeneration as (grade at final follow-up) - (grade at 2 weeks postoperatively). Results: No significant kinematical differences were shown at any of the lumbar segments preoperatively; however, significant differences were observed at the L2-3, L4-5, and L5-S1 segments postoperatively between the groups. At final follow-up, all of the lumbar segments with rigid fusion demonstrated significantly greater disc degeneration than those with dynamic stabilization. Conclusions: Our results suggest that the SSCS preserved 14% of the kinematical operations at the instrumented segment. The SSCS may prevent excessive effects on adjacent segmental kinematics and may prevent the incidence of adjacent segment disorder.

Abstract number: 24046 RETROSPECTIVE ANALISIS OF THE COMBINED DYNAMIC/RIGID TREATMENT OF MULTIPLE LUMBAR DISCAL HERNIAS.

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OBJECTIVE: Evaluate evolution of the surgical treatment rigid/dynamic of multiple lumbar discal hernias.INTRODUCTION: Overload in lumbar region, generated by obesity, hyperlaxitud and sedentarism, by itself onset an early mechanical segmentary instability between L4-L5 and discartrosis L5-S1, resulting multiple discal hernias with neural compromise and premature degeneration in young population. achiving a functional combined dynamic/rigid treatment with biomechanical changes, posterior the neural liberation, consisting in circumferencial arthrodesis 270°, changin the vertical force that lays on L5-S1 to L4-L5, increasing the transversal support and decreasing the cutting forces, plus the decrease, the lumbar hyperlordosis, with interespinous plasticligamentoplasty, mantains the movility at L4-L5. MATERIAL AND METHODS: retrospective study, descriptive, at agust 2002 to october 2008. Patients with multiple lumbar hernias with neural compromise, mechanical segmentary instability of L4-L5 and discarthrosis L5-S1, diagnosed by physical exam, x-rays, MRI and electromiography. performing combined rigid/dynamic surgical treatment and neural liberation. RESULTS: 24 Patients, 10 male, 14 female, 24 Double hernias L4-L5 and L5-S1 discarthrosis and instability 24 Performed surgeries circumferential ligamentoplasty L4-L5With pain, 21 medium decreases 3 arthrodesis 270°L5-S1 late decrease 24 functional estability L4-L524 radiografic consolidation arthrodesis and stabilization L5-S1. Rehabilitation: 22 improvement, 22 physical reinorporation to activities, 2 late control and late recovery. CONCLUSIONS: Is a usefull and resolutive technique for premature onset, obesity and sedentarism.surgical option based on valid rachideal biomechanics and a logical aplication.

Abstract number: 24138 POSTERIOR DYNAMIC STABILIZATION USING THE DIAM (DEVICE FOR INTERVERTEBRAL ASSISTED MOTION)

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Introduction: Dynamic stabilization has proven to be useful in the management of degenerative conditions of lumbar spine. The DIAM is a polyester-encased silicone interspinous dynamic stabilization device that can unload the anterior column and reestablish the functional integrity of the posterior column. The DIAM is thought to work by reducing loading of the disc, restoring the posterior tension band, realigning the facet joint line, and increasing foraminal height. Indications are facetal apopathy with lumbago, unstable motion segment, canal stenosis, kissing spine syndrome and spondylolysis.58 DIAM was implanted in 54 patients, 42 males and 14 females (double implants in four) between sept 2006-oct 2009. There were no implant migrations, or neurological injuries. Late infection was seen in 2 patients. There was intraoperative breakage of supraspinatus ligament in two cases, so procedure abandoned. A retrospective evaluation was performed based on patient questionnaire at a median follow-up interval of 16 months. The pain level showed improvement in 84%, no change in 8%, aggravation in 0%, and was indeterminate in 8%. The guestionnaire revealed that at 16 months postoperatively, analgesic usage was decreased in 70%, increased in 8%, and unchanged in 22% patients, and activities of daily living were improved in >60%, decreased in 12%, and unchanged in 28%. Conclusion: If 80's was the decade of pedicle screws. The 90's was the decade of interbody fusion devices. The new millennium is the era of non-fusion dynamic stabilization procedures and devices. DIAM is a "Diamond" if used judiciously

Abstract number: 24164 BLOOD VOLUME CHANGE IN LOWER BACK MUSCLES IN HEALTHY MALES AND PATIENTS WITH LUMBAR SPINAL STENOSIS.

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Near-infrared spectroscopy (NIRS) has made it possible to measure in vivo changes in hemoglobin oxygenation and blood volume in contracting muscles. The purpose of this study is to investigate the hemodynamics of the back extensor muscles during various tasks. Using NIRS, we measured regional oxygen saturation (rSO2) and hemoglobin index (HbI), which indicates the change in the total hemoglobin volume, in 12 healthy males (mean age: 23.8 years) and 6 patients (mean age: 68.8 years) with symptomatic lumbar spinal stenosis. In healthy males, Hbl did not show a definite trend on horizontal back extension (concentric contraction), but increased markedly during sitting, forward flexion, and flexion with weight-bearing (eccentric contraction), and immediately returned to the initial level on adopting an erect posture. The rSO2 decreased conversely according to the magnitude of the task. Hbl and rSO2 showed the same pattern in all healthy subjects. It is suggested that eccentric contraction of the lower back muscles involves different hemodynamics and metabolism compared to concentric contraction. In tasks involving sitting and forward flexion of the upper body, the back muscles are in a congestive state in terms of blood flow. Conversely, in 3 patients with LSS, Hbl increased during sitting and forward flexion and it remained high level even in the upright position. In 2 patients with LSS, Hbl decreased markedly during forward flexion in upright position. We found that hemodynamics in lower back muscles in patients with LSS is quite different compared to healthy subjects.

Abstract number: 24182

POSTERIOR SPINAL SHORTENING FOR DELAYED PARALYSIS AFTER OSTEOPOROTIC SPINAL FRACTURE -PEDICLE SUBTRACTION OSTEOTOMY AND MODIFIED POSTERIOR LUMBAR INTERBODY FUSION (PLIF) -

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[Purpose] To report the results of the posterior spinal shortening using claw hook and pedicle screw for delayed paralysis after osteoporotic spinal fracture. [Subjects] Subjects were 8 patients (4 male, 4 female) who received posterior spinal shortening at our institutions in 2008. Their ages were between 63 and 78 (mean age 72.0 years), and the level of the fracture was Th7, Th9, Th12, L2 (1 case each), and L1 (4cases). [Method] We conducted posterior reconstruction by removing unstable cranial disc and end plate with the modified PLIF and posterior shortening with pedicle subtraction osteotomy. Basically, pedicle screws were inserted into 2 craniocaudal vertebras, and the reconstructed area was reinforced by claw hooks and/or a tapes. The local kyphosis, bone union, and complications were investigated. [Results] Mean preoperative local kyphosis was 11.8 degree, and it improved to 2.0 degrees after the operation. The loss of correction was very small in the mean of approximately 3.2 degrees. So-called adding on fracture was observed in 2 cases. There was no instrument failure, and bone union was observed in all cases. All cases with existing gait impairment, pain, and bladder disturbance showed improvement after the operation. Neurological findings in all cases had obviously improved by Frankel grade. [Conclusion] The circumferential fusion by the anterior reconstruction with the modified PLIF and posterior shortening stabilization and PLF was clinically effective. Even in the osteoporotic spine, appropriate correction and fusion was achieved by pedicle screw system with additional claw hook placement.

Abstract number: 24283 PERCUTANEOUS ENDOSCOPIC TRANSFORAMINAL FUSION WITH TWO CAGES (PE-TLIF) UNIPORTAL AND BIPORTAL?

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Since 2005, we've inserted percutaneous cages for lumbar arthrodesis in "virgin spines" and in previously operated spines. Most of the first patients have been operated on in prone position. In the case of treating one disc by using an arthrodesis and one hernia on the level above on the same side in lateral position, we began to carry out the arthrodesis on only one side. Seeing that the results on virgin spines were encouraging, 29 good primary results with a mean follow-up of 2 years on 39 patients, we wanted to simplify the technique by making a lateral approach. In the case of two patients we put in two cages on the same side at every level, on L2L3 twice and L3L4 once in the middle of the intervertebral space. In the cases of three patients, we made a unilateral approach on L4L5 and put in two cages for two patients and one cage for the last patient. For one other patient, we put in two cages in L5S1. The immediate results were good. We can't exactly explain why we can put in two cages for some patients and only one for others, particularly on the L4L5 level. Could this be due to the width of the Kambin triangle or to the number and the position of anastomosis between the exiting root and the white or grey ramus communicans which carries the nociceptive fibers? We will show each case in details and discuss the future of this technique.

Abstract number: 24291

HOW MUCH APICAL DEROTATION OCCURS AS A RESULT OF CORONAL CURVE CORRECTION IN AIS, ASSESSMENT USING THE FULCRUM BENDING RADIOGRAPH

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Introduction: Various studies have reported vertebral derotational effects with different implant constructs and surgical techniques. However none of them has considered the spontaneous coupling effect on vertebral derotation produced by correction of coronal deformity. Method: Patients aged between 10 to 20 years who suffered from Lenke type 1 idiopathic scoliosis with Cobb angles more than 45° and underwent posterior spinal fusion were prospectively included. Scoliosis Cobb angles and apical vertebral rotations in standing, supine and fulcrum bending positions before surgery, and in supine position after surgery, were measured on x-rays and CT scans. They were compared using paired t-test. Results: Eighteen patients were included. The mean age at surgery was 15.5yr. The Cobb angles and apical vertebral rotations in standing, supine and fulcrum bending positions before surgery and in supine position after surgery were 54°,26°, 40°,19°; 17°,10°, and 14°,8° respectively. The differences in Cobb angles and apical vertebral rotation between standing, supine and fulcrum bending positions were statistically significant. The differences in Cobb angle and apical vertebral rotation between fulcrum bending position and postoperation were statistically insignificant. Discussion and Conclusion: Our study demonstrated that spontaneous apical derotation occurred concomittently with correction of the coronal deformity. The amount of vertebral derotation achievable under fulcrum bending may predict the post-operative vertebral rotation correction. Apical rotation was corrected by 27% on supine and 62% on fulcrum bending positions. Such spontaneous derotation effect should be considered when assessing the effects with different implants and surgical strategies.

Abstract number: 24326 TREATMENT OF STATIC SCOLIOSIS AND PELVIC OBLIQUITY

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Often we find mobile scoliosis which is not fixed deformity and depends of pelvic obliguity which is related to many factors often of hip deformities, knee deformities or limb length discrepancies or both and in some cases paralytic insufficiency. Treatment of pelvic obliquity Consists of Femur congenital and acquired deformities, hip and knee deformities like old hip dislocations or subluxations or even paralytic malformations and knee deformities consider a special method for correction, hip and knee axis need a special correlation of alignment for this reason a special hinges are modified for treatment of either isolated hip, knee deformities or when we have combined deformity an combined hinges modified for treatment both of hip and knee deformities, the used hinges are modified system of Salamehfix4, [SLDF4]. From 2002 to 2008, 85 cases where treated with various hip and knee deformities combined with static scoliosis changing the hip angel in order to replace some of muscle paralyses insufficiency this will decrees of Trandelenburg gait and limping and at the same time we can restore limb length inequality and correction of static scoliosis. Complications where mostly superficial pin infection which treated locally. Conclusions: Correction of pelvic obliguity is a good method of treatment of static scoliosis and we have to consider it. The used system is differs by simplicity, small size in correlation to its functional hinges and stability of fixation and gives good results.

Abstract number: 24358 OSTEOPOROTIC VERTEBRAL FRACTURE FOLLOWING INSTRUMENTED ARTHRODESIS FOR DEGENERATIVE LUMBAR DISORDERS

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The objective is to investigate the influence of instrumented lumbar arthrodesis on the osteoporotic vertebral fracture. 25 patients with thoracolumbar vertebral fracture following instrumented arthrodesis for degenerative lumbar disorders (study group) were investigated. The bone mineral density (BMD) of the femoral neck in the study group was compared with that of 28 patients (control group) who undergone simple osteoporotic vertebral fracture. The fracture following instrumented arthrodesis is diagnosed after mean 47(7~100) months. Clinically diagnosed vertebral fracture was associated with slip down in 16 cases and aggravation of back pain without trauma in 19 cases. There is a relatively better BMD in study group, 0.67±0.12g/cm2 as compared to control group, 0.60±0.13g/cm2 (p=0.013). VAS of back pain have improved from a mean of 7.5±1.0 at the time of fracture to a mean of 4.9±2.0 at 1 year after the fracture (p=0.001). But 12 (48%) patients complained of severe back pain at 1 year after the fracture on comparison of the pre-fracture state. There was negative correlation between the BMD and the back pain at the last follow up (R= -0.455, p=0.022). Lumbar instrumented arthrodesis is a risk factor of osteoporotic vertebral fracture. The osteoporotic vertebral fracture following instrumented arthrodesis contributes to aggravation of the back pain in addition to final outcome of degenerative lumbar disorders.

Abstract number: 24366 CONJOINED LUMBOSACRAL NERVE ROOT: THREE CASES OF INTRAOPERATIVE DETECTION

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Introduction: Conjoined nerve root are often missed even with advanced imaging studies. The majority of conjoined nerve root occurs unilaterally at L5-S1. We report three cases of unsuspected conjoined nerve root which were detected intraoperatively. Material & Methods: A total of 78 microendoscopic discectomy (MED) were performed over one year between January 2009 and December 2009. All patients were diagnosed as lumbar disc herniation preoperatively by means of MRI, myelogram, and myelo-CT. None of the subjects were diagnosed with conjoined nerve root anomalies preoperatively. Results Three out of 78 patients were found to have conjoined lumbosacral nerve root anomaly intraoperatively. All patients were male, and all demonstrated L5-S1 herniated disc (one was subligamentous extrusion and 2 were transligamentous extrusion). All subjects showed Type 2A of S1 conjoined nerve root based on the classification of Neidre. After surgery, all subjects showed excellent clinical results. Discussion: The lack of a preoperative awareness of conjoined nerve root may lead to iatrogenic root injury. It is said that these potential failure may increase with the rising popularity of minimally invasive therapies to the sacrifice of enhanced visualization. In our study, 2.6% of unsuspected conjoined nerve roots were detected intraoperatively. None of them demonstrated pseudolocalizing neurological sign preoperatively, and preoperative diagnostic images did not clearly identify nerve root anomalies. A surgeon must always be cognizant of the fact that a nerve root anomaly may be present during any surgical exploratory procedure.

Abstract number: 24392 HYDRARTHROSIS OF THE FACET JOINT HAS AN INFLUENCE ON RADICULAR PAIN INTENSITY IN LUMBAR SPINAL STENOSIS

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[Introduction] It still remains unclear that degree of low back pain (LBP) or sciatica correlates with the diagnostic imaging in lumbar spinal stenosis (LSS). The purpose of this study was to investigate the causality. [Methods] Forty-four patients with LSS, who underwent the operation due to radicular neurogenic intermittent claudication, were prospectively assessed in this study. The responsible segment was a single in each patient. Degenerative spondylolisthesis was present in 20 patients and spondylosis in 24. The degree of lateral recess was graded by the nerve root compression and, furthermore, the hydrarthrosis of the facet joint neighboring the affected nerve root was also graded by size. These MRI findings were compared to visual analogue scale (VAS) on LBP/ leg pain and Roland-Morris Disability Questionnaire (RDQ). [Results] The degree of the lateral recess stenosis significantly related to RDQ (P < 0.05), but not VAS. The nerve roots with hydrarthrosis were detected in 42% and the average VAS were 3.2 on LBP and 6.9 on leg pain, respectively. On the other hand, VAS were 4.3 on LBP and 5.5 on leg pain in the nerve roots without hydrathrosis, indicating the pronounced leg pain on the nerve roots accompanying hydrathrosis (P<0.05). The size itself of hydrarthrosis had no relation to VAS or RDQ. [Discussion] This study suggested that the degree of lateral stenosis did not correlate with the pain intensity. However, co-existence of the hydrarthrosis and stenosis might have a possibility of exaggerating radicular pain due to LSS.

Abstract number: 24453 CIRCUMFERENTIAL ENCASEMENT OF THE SPINAL CORD IN A PATIENT WITH RHEUMATOID ARTHRITIS

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An 83 year old lady with rheumatoid arthritis (RA) presented with an 8 week history of progressive bilateral leg weakness and urinary frequency. Her lower limbs were hypertonic and hyper-reflexic with grade 4/5 power throughout and up going plantar response bilaterally. Magnetic Resonance Imaging (MRI) of the spine showed an enhancing circumferential stenosing extradural mass lesion extending from C7 to T12. She underwent an upper thoracic decompressive hemilaminectomy and ultrasound assisted biopsy of the extradural lesion followed by a cervico-thoracic (C6-T3) laminectomy and complete posteror decompression of spinal cord one week later. Histology showed a chronic inflammatory process with hyalinised fibrosis, consistent with rheumatoid arthritis. By twelve months she was walking independently with only a stick for support. Thickening of the ligamenta flava is a common disorder, but isolated thickening of clinical significance is rare. In our case MR imaging demonstrated an unusually long extra-axial mass in the spinal canal at the cervicothoracic junction with only one such case being reported previously reporting a much shorter lesion. However, we know of no known cases of chronic hyalinised fibrosis consistent with rheumatoid arthritis involving the cervico-thoracic junction. Epidural inflammatory lesions should be considered in the differential diagnosis of RA patients who present with neurologic signs and symptoms referable to the spinal cord even if involvement of the cervical spine is not apparent with surgery and histology being essential for a definitive diagnosis. Furthermore, the value of ultrasound assisted spinal surgery in avoiding complications is illustrated.

Abstract number: 24474 GIRDLE AND LEG PAIN IN A LADY WITH PPRP

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40 year lady with PPRP left lower limb presented with left lower limb and girdle pain along the midriff. Of 10 months duration. Examination revealed a Limb length discrepancy 2.8 cm, uncompensated .Pelvis could be squared.Radicular pain left groin on weight bearing, decreasing on flexion and right lateral bending. Left lower limb flail. Passive rotations and movements left hip normal. Walking with a calliper with shoe raise.pain in leg starts after loading for more than one minute. Expected scenario of Limb length discrepancy leading to abnormal stress in the back. Compensation for limb shortening should resolve back painX-rays showed compression fractures of L1 and L2 vertebrae with concavity towards the shorter side.MRI revealed Degenerative Disc Disease D12-L1 and L1-L2 with no root/thecal compressionSerum Ca, P, ALP was within normal limits.25-Hydroxy- Vit.D was marginally low. DEXA scan was within Normal Limits. Started on Vit. D and Calcium treatment. Given wt. relieving caliper with shoe raise. Root blocks given to L1 and L2 roots. Temporary relief for two days. Observed for four weeks.No substantial relief. Treated with percutaneous pedicle screw and rod fixation between T12-L2 with distraction given on concave side and compression given on convex side. Post op xrays showed straightening of the spinal curvature. The patient was relieved of her symptoms. Probably an indolent root compression was relieved

Abstract number: 24481 CLINICAL AND MRI ANALYSIS OF CAUDAL REGRESSION SYNDROME AND CONCOMITANT ANOMALIES

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PURPOSE: To review the clinical and Magnetic Resonance Imaging (MRI) results of patients with CRS with a view to better understand the condition and its concomitant anomalies. MATERIAL AND METHODS: A retrospective study was conducted using the MRI results, radiological and clinical data of pediatric patients who came to our hospital with spinal problems related to congenital or neuromuscular conditions. Radiographs were reviewed to classify each patient by Renshaw type. The mean age was 81 (30-180) months. The 7 CRS patients were examined to study the presence of congenital anomalies concomitant with CRS. RESULTS: Of 77 patients, 7 (9%) were diagnosed with Sacral Agenesia related to CRS. According to the Renshaw classification, 3 children were defined as type 4, 2 children were type 2 and 2 child was type 1. The following conditions were diagnosed: 1 ectopic anus, 1 cleft mouth, 2 urinary system anomalies, 2 Thoracic Insufficiency, 3 displaced hips, 1 syndactily, 4 scoliosis, 2 kyphosis, 1 amelia. Using MRI results the following were diagnosed: 1 hernia, 1 chiari malformation, 3 multi-level hemivertibra, diaphragm 3 syringohidromyelia, 2 tethered cord, 1 diastometamyelia, 3 Sipina Bifida (SB), 7 sacral agenesia and 1 sacral dermal sinus. CONCLUSION: In this study 9% of the patients were diagnosed with CRS in combination with congenital and SB related spinal deformities. Our retrospective study allowed us to see the various concomitant conditions which often occur with CDR. Better understanding the condition at an early age will allow us to devise new treatment and maximize recovery.

Abstract number: 24503 MAGNETIC RESONANS IMAGINE RESULTS OF SYNDROMIC SCOLIOSIS/KYPHOSIS

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PURPOSE: MRI results of patients with the rare scoliotic condition -syndromic scoliosis/kyphosis- were evaluated to determine spine problems and related complications. METHOD: 15 patients in our study were diagnosed with syndromic scoliosis/kyphosis by genetic analysis. The average age was 13.13 (7-25) years, 9 male, 6 female. Pathologies of the entire spinal column and cord were evaluated with MRI. RESULTS: 15 patients with syndromic scoliosis/kyphosis were evaluated and diagnosed with the following syndromic conditions: Neurofibromatosis 4 patients, Digorge syndrome 1 patient, Escobar syndrome 2, Eisenmenger syndrome 1, Marfan syndrome 1, Genoderma Osteodistfrica 1, Larsen syndrome 1, Gilbert Syndrome 1, Spondyloepiphysial dysplasia (SED) 1, 9p syndrome 1, 1p+ syndrome 1. The MRI results of 12 of the 15 patients were evaluated. Of these 12 patients 6 (Digorge, Eisenmenger and 1p+, Neurofibromatosis) were found normal. Of the remaining 6 patients the following conditions were diagnosed: Syringomyelia 3 (Escobar, Genoderma Osteodistrofica, Gilbert) Posterior vertebral congenital fusion (Escobar) 2. Cerebellum minimal ectopia 1 (Marfan), Perineural cyst 1 (Geneoderma osteodistrofica), distrofic alterations (SED) 1. In our study 4 patients showed progressive scoliosis: 1 Escobar received posterior spinal instrumentation, 1 patient (Eisenmenger) could not receive surgical treatment due to her cardiavascular condition and 2 Neurofibromatosis received posterior spinal enstrumentation. CONCLUSION: It is important to understand spinal cord and related pathologies which accompany the relatively rare syndromic scoliosis/kyphosis. MRI provides useful data in the evaluation of such pathologies and helps to define the treatment and follow up of patients with syndromic scoliosis/kyphosis.

Abstract number: 24509 THE EARLY RESULTS OF VEPTR INSTRUMENTATION FOR SEVERE CHEST WALL DEFORMITY

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INTRODUCTION: Early Onset Scoliosis (EOS) is generally diagnosed after birth and often occurs with congenital vertebra anomalies and severe deformities in the chest wall. Chest wall deformity can lead to a reduction in lung capacity and affect respiratory functions. A VEPTR (Vertical Expandable Prosthetic Titanium Rib) implant is designed to correct chest wall deformity in young patients whose lung capacity is at critical stage of development. PURPOSE: To evaluate the early results of VEPTR instrumentation in three EOS patients with severe chest wall deformity. METHODS: 3 EOS patients (2 female, 1 male) with severe chest wall deformity and congenital vertebra and rib anomalies received VEPTR implants. Mean age at the time of operation was 39 months (20 - 45). Patients with substantially reduced single or bilateral lung capacity, extreme scoliotic deformities and coronal imbalance were chosen for the operation. Postoperatively cobb angle, coronal balance and SAL were evaluated. Distractions were scheduled every 6 months following the operation. RESULTS: Preoperative AP thorasic cobb angle was 79.75° (65-97), early postop angle was 60° (46-62). A significant improvement in coronal balance and SAL were recorded. Patient compliance was good. CONCLUSIONS: For infantile patients with severe chest wall deformity it is important to correct the deformity at an early age when lung capacity is rapidly developing. The early results of VEPTR implants showed a significant correction in chest wall deformity, increased SAL and the beginning of a reduction in spinal deformity.

Abstract number: 24522

DEVELOPMENT AND VALIDATION OF SYMPTOM SCALE OF A LUMBAR SPINAL STENOSIS

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Introduction: Lumbar spinal stenosis (LSS) is a common spinal disorder. In assessing the effectiveness of treatment for LSS, severity of LSS-related symptoms is considered to be one of the most relevant for an outcome. The aim of this study was to develop a reliable and valid instrument to measure symptom severity of the patients with LSS. Methods: First, in order to derive categories of the LSS-related symptoms, focus group interviews were conducted and the data was analyzed using qualitative method. This analysis extracted ten domains (symptom at rest and in certain posture, difficulty in walking, sleep disturbance, etc) and also created an item pool. One hundred and eighty nine patients with LSS answered this LSS scale questionnaire. Exploratory factor analysis was conducted to examine the construct validity and Cronbach's alpha coefficient was calculated. The criterion-related validity used pain, numbness, and walking capacity as external criteria. The test-retest reliability was analyzed in 163 patients. Results: Qualitative study extracted ten domains and also created a pool of 36 items with 5 categorys Likert type scale. With factor analysis, items with factor loading less than 0.35 were excluded and 25 items in eight domains were selected. The Cronbach's alpha of these items was 0.929. Coefficient of the test-retest reliability was 0.807. Pain, numbress, and walking capacity were significantly correlated with the score of the LSS symptom scale. Discussion: A 25 item LSS symptom scale was developed and its reliability and validity was confirmed.

Abstract number: 24560 DYNESIS FIXATION OF SPINE, EARLY RESULTS IN INDIAN POPULATION

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Introduction: Dynesys is a semi-rigid fixation system that allows minimal lengthening and shortening between two segmental pedicle screws as opposed to a rigid metal bar. The system maintains stability and near physiological motion patterns of the lumbar spine. Theoretically it prevents adjacent segment degeneration. The dynamic push/pull relationship between the spacers and the cord stabilizes the affected vertebrae. The system is designed to permit careful controlled bending, straightening and twisting movement in the affected joints. It preserves the intervertebral discs and anatomy of the affected vertebrae. Methods: Seventeen cases were operated since sept 2005, 11 males and 6 females age group 34-70 yrs. with a mean follow-up of 16 months (range, 9 to 36). Main indications were Symptomatic discopathy(2)One level stenosis(8), Multi level stenosis(4), Adjacent segment syndrome(2) and Dynamic foraminal stenosis(1). Intraoperative breakage of cord seen in 2 cases. Stabilization could not be achieved in 1 case. Post operative: Haematoma - seen in 1 case (six weeks later) 3 cases were lost to followup Postoperative pain scores (VAS) improved in 12 cases and results were best when dynamic fusion was combined with nerve root decompression. CONCLUSION: Patient selection is of highest importanceAlways keep fusion systems ready. Tissue handling and post op care extremely important. Very good device in Symptomatic refractory discopathy with or without early dynamic stenosis. May be useful in symptomatic Shmorl's nodes.

Abstract number: 24589 COMBINED POSTERIOR AND DELAYED STAGED MINI-OPEN ANTERIOR SHORT-SEGMENT FUSION FOR THORACOLUMBAR BURST FRACTURES

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Background: The surgical treatment of thoracolumbar burst fractures remains controversial. In attempting to combine the advantages of posterior procedures including initial correction of kyphosis and early decompression and those of anterior procedures including direct decompression and restoration of anterior column support, a minimally invasive combined posterior and delayed staged anterior procedure appears to be a reasonable choice. Patients and Methods: We prospectively selected 28 consecutive patients with thoracolumbar burst fractures for circumferential short-segment fusion consisting of posterior reduction and shortsegment fusion and delayed staged mini-open anterior short-segment fusion. The pedicle screw systems were removed after confirmation of posterior bony fusion to preserve as many motion segments as possible in only patients who could be treated for circumferential monosegmental fusion. Radiographic and clinical assessment was performed. Results: The mean loss of correction of kyphosis between the combined procedure and final follow-up was 3.7 ° Bony fusions was eventually achieved in all patients. There were 15 cases with monosegmental and 13 cases with bisegmental circumferential fusion. All 10 patients with an initial neurological deficit improved at least one Frankel grade; 3 improved one grade, 5 improved two grades, and 2 improved three grades. In total, 27 patients, who were P1 or P2 on the Denis pain scale, were considered to have obtained clinically satisfactory results. Conclusion: This combined procedure is less invasive than the conventional combined one and finally achieves shorter stabilization, resulting in preservation of motion segments. It thus appears to be a reasonable treatment option for thoracolumbar burst fractures.

Abstract number: 24981 CERVICAL ARTHROPATHY CAUSED BY GOUT: A CASE REPORT AND LITERATURE REVIEW ON THE MANAGEMENT

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Study design: A retrospective case report. Objective: -Raise the issue of gout as a potential cause of cervical pain and atlanto-axial subluxation -Raise the issue of the treatment options available. -Illustrate this with a case and add this to a case series. Summary of background data: The cervical spine is a rare site where tophaceous gout has been identified. There are currently 15 described cases in the literature of gouty involvement of the cervical spine with only three cases involving only the atlanto-axial region. We add the fourth of such cases and only the second to be managed operatively. Methods: History, focused neurological examination, magnetic resonance, computed tomography scan images and transoral biopsy for our case. Full literature review of pubmed, medline and embase for the remaining cases. Results: It was decided that he would be a good candidate for a C0-C6 occipito cervical fusion which has been successful thus far. Conclusion: Atlanto-axial subluxation should no longer be synonymous with only rheumatoid arthritis but also tophaceous gout. Once suspicion is raised about atlanto-axial instability management needs to come from temporary stabilisation (halo brace), definitive diagnosis (transoral biopsy) and then definitive treatment (occipito-cervicalfusion).

Abstract number: 25309 PLANE X RAYS IN LOW BACK PAIN

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Plane x rays are the simplest investigation in the management of back pain of mechanical origin in patients without neurological signs. A new Obtuse lumbosacral angle was measured on lateral view in 40 patients who had asymptomatic back but were investigated for other problems and were used as controls in 100 patients with chronic back pain of more than 3 months duration. The position of distal most transverse process on AP view was also noted. Specific physiotherapy regimes were chosen for different angle values. At three months the pain relief was noted on an average from 8 to 2 On VAS scale of 10. The angle returned to the normal value after an average 10 months of physiotherapy which was dominated by specific stretching exercises for the low back. Eighty two patients had complete pain relief. Radiological restoration of the lumbosacral angulation was confirmed at 6/9/12 months depending upon the pain relief and was taken as the end point of treatment. We conclude that restoration of mechanical alignment of the low back as seen by plane x rays is the key point in the management of chronic low back pain and this is the only investigation needed in the management of non specific back pain. The mechanics of low back pain is explained and needs to be understood for individual patient.

Abstract number: 25328 EFFECTS OF DETERGENTS ON BOVINE DISC DECELLULARIZATION FOR THE GENERATION OF NATURAL DISC SCAFEOLDS FOR INTERVEPTEBRAL DISC

GENERATION OF NATURAL DISC SCAFFOLDS FOR INTERVERTEBRAL DISC TISSUE ENGINEERING

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Study of intervertebral disc (IVD) cells in a 3D formation within a niche resembling native extracellular matrix (ECM) is important for researchers to understand the actual cell behaviour and etiology of disc degeneration/regeneration. Removal of resident cells and cellular contents whilst minimizing adverse effects on ECM from IVD is necessary in making a natural scaffold. We hypothesize that bovine discs may be effectively decellularised using a detergent to produce a scaffold resembling native IVD for disc cell investigation. Bovine caudal discs (18-20mm diameter) were harvested and incubated with either 25 mL of PBS containing 0.1% SDS or 1% Triton X-100 (TX-100) in Tris-HCL solution with protease inhibitor. Live/Dead staining and Alamar Blue assay were used to determine numbers of resident cells and their metabolic activity after treatment, respectively.0.1% SDS solution enabled removal of 69% and 73% cell contents from annulus fibrosus and nucleus pulposus respectively, whereas 1% TX-100 removed 54% from both tissues. SDS was the most efficient in removing resident cells from IVD. Being an ionic reagent, SDS has a role in solubilising cytoplasmic and nuclear membranes, which caused the disruption of protein-protein interactions and aided in the clearance of cells. The successful development of a natural scaffold will allow IVD cells to be studied in a physiological 3D microenvironment without the use of in vivo animal models. This methodology also has the potential to provide a significant source of readily available tissue for IVD degeneration/regeneration studies.

Abstract number: 25355 PERCUTANEOUS CEMENT AUGMENTATION PROCEDURES IN OSTEOPOROTIC VERTEBRAL COMPRESSION FRACTURE

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Vertebral compression fractures are commonest manifestation of osteoporosis. Percutaneous vertebral augmentation procedures Vertebroplasty and Kyphoplasty are gaining popularity for the treatment of VCF in the world of raising demands of the people. We performed a prospective, non randomized study consisting of 70 patients who were diagnosed to acute osteoporotic compression fracture. 29 patients were managed conservatively, 16 patients by kyphoplasty and 25 patients by vertebroplasty. They were followed for pain by VAS score and for functional disability by using Roland Morris questionnaire (FDI) in the immediate post operative period, 1 month, 3 months, 6 months and 12 months. Patients who underwent kyphoplasty had a mean 68.8% pain relief in the immediate post operative period as compared to after vertebroplasty (47.47%). There was no significant difference in pain and FDI scores between kyphoplasty and vertebroplasty during the 1 year period. Patients after cement augmentation procedures had better pain relief as compared to conservative group which was significant at 1, 3 and 6 months and lost at 12 months. Better restoration of functional ability was found after cement augmentation procedures significant at 1 and 3 months and lost at 6 and 12 months follow up. Cement augmentation procedures demonstrated even an additional benefit of restoration of vertebral height and deformity correction. The cement augmentation techniques are promising procedures for the treatment of osteoporotic VCF's.

Abstract number: 25473

CENTRAL NERVOUS SYSTEM EFFECTS OF NUCLEUS PULPOSUS EXPOSURE Anna ERMUND¹, Elin NILSSON¹, Helena BRISBY², Ingela HAMMAR¹ ¹Neuroscience and Physiology, Göteborg (SWEDEN), ²Clinical Sciences, Göteborg (SWEDEN)

Changes in central nervous system neuronal responses may play an important role in low back pain (LBP). Neuronal activity in the thalamus increases after acute application of nucleus pulposus (NP) onto a dorsal root ganglion (DRG). We present data on thalamic effects after NP leakage followed by compression of the DRG and changes in synaptic plasticity in the ventral hippocampus (VH), a region involved in pain perception. Rats and mice were subjected to experimental disc herniation. After 24 hours, neuronal responses in the thalamus evoked by electrical stimulation of sciatic A fibres were recorded during DRG compression. Thirty minutes later NP was reapplied onto the DRG. Neuronal responses in VH slices were investigated by current pulses (50 ms interval, 20 s between pairs). The hippocampus was further studied 3 and 7 days after NP application onto the DRG. Compression of the DRG decreased the number of evoked responses in both NP and sham animals. A repeated application of NP resulted in increased thalamic responses. In the VH 24 and 72 hours post surgery, the second pulse in a pair gave a larger response. In naïve animals, both pulses gave responses of the same magnitude. Depression of neuronal responses following mechanical dislocation may not contribute to increased pain transmission but seems to counteract NP effects. Changes in the VH were detected, indicating this area in low back pain modulation. These findings need further investigation to identify signaling pathways involved in the establishment and maintenance of LBP.

Abstract number: 25539

COMPLICATIONS ASSOCIATED WITH AXIAL LUMBAR INTERBODY FUSION

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Introduction: Axial Lumbar Interbody Fusion (AxiaLIF) is a novel minimally invasive approach for fusion of the L5 vertebra to the sacrum. This technique uses the presacral space for percutaneous access to the anterior sacrum. AxiaLIF has the potential to decrease patient recovery time, length of hospital stay, and overall occurrence of surgical complications. The purpose of this study was to evaluate complications of the AxiaLIF procedure. Methods: Patients who underwent AxiaLIF surgery between October 2005 and June 2009 were identified. We retrospectively reviewed these charts to determine what complications were encountered. Results: Of the 66 patients, 14 experienced complications (21.2%). These complications included superficial infection (4.5%), deep infection (1.5%), pseudoarthrosis (4.5%), sacral fracture (1.5%), pseudoarthrosis and sacral fracture (3%), pelvic hematoma (3%), failure of wound closure (1.5%), and rectal perforation (1.5%). Conclusions: The complication rate in the present study was relatively low (21.2%) and was lower than previously published rates for transforaminal lumbar interbody fusion (33.6%) and anterior lumbar interbody fusion (38.3%). The most common complications were superficial infection and pseudoarthrosis. We had one case of rectal perforation that required exploratory laprotomy and a loop colonoscopy. It is important for surgeons to be aware of these potential complications as many of them can likely be avoided with proper patient selection and operative planning. Pre-operative MRI, detailed physical and history, adequate bowel preparation, improved access instrumentation, and the use of live fluoroscopy can all help prevent complications with AxiaLIF surgery.

Abstract number: 25606 CORRELATION OF VERTEBRAL STRENGTH TOPOGRAPHY WITH 3-DIMENSIONAL COMPUTED TOMOGRAPHY STRUCTURE

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Introduction: To prevent intervertebral implant subsidence, the interface between an implant and the vertebral bone must have sufficient strength. Strength across the endplate is not consistent. An accurate assessment of vertebrae endplate stiffness at discrete sites before surgery could improve postoperative outcomes. Methods: In this cadaveric study, 8 lumbar vertebrae (L5, 6; L4, 2) were tested. Stiffness was assessed at 9 discrete sites of cranial and caudal surfaces with indentation testing (IT). Micro-CT images were obtained before and after IT. Micro-CT characteristic of cortical and cancellous bone were defined at 45 regions of interest with a 3dimentional coordinate system. Osteoporotic status of the vertebrae was defined using QCT criteria. Predictive models of the local stiffness were created using bone structural and density characteristics. Results: Stiffness across the tested surfaces was highly variable and was significantly decreased in osteoporotic vertebrae. Endplate thickness and density combined with trabecular density and trabecular number of adjacent cancellous bone were found to be good predictors of local stiffness. Three models based on different combinations of bone structural characteristics were created. Conclusions: The obtained results confirm the study hypothesis that strength at discrete sites of human lumbar vertebrae depends on 3demensional structure and density of the cortical and cancellous bone and that local stiffness can be evaluated using models based on vertebrae bone characteristics obtained from quantitative computed tomography images. Clinical Relevance: The use of these predictive models in the clinical setting could improve the assessment of risk for vertebrae fracture.

Abstract number: 25615 PIRIFORMIS SYNDROME FOLLOWING LUMBAR ARTIFICIAL DISC REPLACEMENT

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Introduction: Artificial disc replacement (ADR) offers an alternative solution for surgical treatment of severe lumbar degenerative disc disease. To our knowledge, no case of piriformis syndrome (PS) following ADR has been reported. Because the symptoms of PS mimic those of radiculopathy it is vitally important to differentiate the source of nerve irritation to avoid unnecessary or inappropriate procedures. Methods: Case series of four patients who developed PS following ADR. Results: Four patients, aged 38-46, developed some or all of the following symptoms after ADR: posterior leg and buttock pain, calf weakness, and toe and ball of foot numbness and tingling. The onset of symptoms ranged from six days to eight months postoperative. Each patient was diagnosed with PS through physical examination. Three of the patients received a piriformis injection and reported 50%-100% pain relief lasting one to three weeks. All four patients subsequently underwent physical therapy that provided relief of their PS-related pain and enabled them to resume normal activities. Conclusions: Piriformis syndrome has not previously been described in the literature as a sequelae of lumbar ADR. Our case series indicates that this complication may be under-diagnosed. Careful consideration following ADR is required if the patient presents with buttock, leg or foot pain, and/or numbness. It is important for physicians to recognize the symptoms and indications of PS as compared to sciatica or compression and irritation of the nerve root. The proper diagnosis of PS can save patients from unnecessary fusion or exploratory discectomy.

Abstract number: 25634 PERCUTANEOUS ENDOSCOPIC LUMBAR DISCECTOMY (PELD) FOR THE TREATMENT OF LUMBAR DISC HERNIATIONS IN DEGENERATIVE SPONDYLOLISTHESIS

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For the patients with lumbar disc herniation with a progressive neurogoic deficit, operative intervention is necessary. The conventional surgical treatment is open discectomy with laminotomy. Degenerative spondylolisthesis is a condition of older people, and defined as the presence of forward slippage of a vertebral body in the presence of an intact neural arch. It has been reported that either laminectomy or laminotomy may carry the risk of developing a progression of slip and instability. The recent development of a working channel scope and percutaneous endoscopic procedures make it possible to remove lumbar disc herniations effectively without any damage to intact neural arch.Objective: To evaluate the clinical efficacy of PELD for the treatment of lumbar disc herniations in degenerative spondylolisthesis. Materials and Methods: Five patients presented with lumbar disc herniations in Degenerative Spondylolisthesis underwent PELD. All the patients had lumbar disc herniation with a progressive neurogoic deficit. Under local anesthesia, the 6mm working channel endoscope was introduced into the epidural space. Herniated disc material was removed using forceps and laser under clear endoscopic visualization. Clinical and radiological data was reviewed postoperatively with the minimum followup of 1 years. Patient satisfaction was evaluated by the Macnab's criteria of latest follow-up. Results: All the patients showed excellent outcome at their latest follow-up. There was no progression of slip at their latest follow-up standing radiographs. Conclusion: PELD is a effective method for the treatment of lumbar disc herniations in degenerative spondylolisthesis.
Abstract number: 25637 THE POSITIVE PREDICTIVE VALUE OF PROVOCATIVE DISCOGRAPHY IN ARTIFICIAL DISC REPLACEMENT

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Introduction: Identifying the source of low back pain is challenging in many patients, despite advanced imaging techniques. Often, multiple levels will show some degree of degenerative disc disease on imaging, and determining which level(s) should be In these patients with questionable pathology, provocative treated is difficult. discography is often performed. However, the use of discography remains highly controversial. Methods: We retrospectively reviewed data from patients enrolled in an FDA IDE study that were randomized to the artificial disc replacement (ADR) arm and underwent positive low pressure provocative discography. ADR was performed at L3-L4, L4-L5, or L5-S1. Clinical outcomes (Visual Analogue Scale, VAS; Oswestry Disability Index, ODI) were assessed at 6 weeks and 3, 6, 12, and 24 months. Results: Thirty-three patients had single-level positive low pressure discograms during their diagnostic workup. At 12 months postoperative, 23 patients (74%) met the high clinical success and the minimal acceptable change criteria. At 24 months, 24 patients (73%) met the high clinical success criteria and 28 patients (85%) met the minimal acceptable change criteria. Conclusions: The positive predictive value of discography was high when using outcomes after ADR to assess the diagnosis of discogenic pain. Discography was generally reserved for patients with unclear pathology or symptomology in this study. However, even in these difficult to diagnose patients, the predictive value of positive discography was 73-85%. These results suggest that future prospective studies may benefit from using outcomes after ADR when investigating the predictive value of discography.

Abstract number: 25655

HEALTH-RELATED QUALITY OF LIFE IN SURGICALLY TREATED LUMBAR DISC HERNIATION PATIENTS -LONG-TERM FOLLOW-UP

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Health related guality of life (HRQoL) instruments has gained increased interest in the evaluation of medical treatments over the last years. The present prospective long-term follow-up study investigates the influence of preoperative factors on HRQoL and their improvement after lumbar disc herniation surgery. One-hundredseventeen patients (age 39±11 years, 46% women) surgically treated for lumbar disc herniations were evaluated with the self-completion HRQoL instrument EQ-5D. Follow-up time was 2 years and long-term (mean 6.9 years). Baseline data (gender, age and surgical level), questionnaires about leg pain duration and leg- and back pain intensity (VAS) were obtained preoperatively. 82% of the patients answered the EQ-5D questionnaire at the 2-year and 76% at the long-term follow-up Eighty-five percent of patients undergoing lumbar disc herniation surgery reported improved EQ-5D 2 years after surgery and the improvement was stable at long-term follow-up. The mean EQ-5D score improved significantly preoperatively from 0.12 to 0.69 (2-year) and to 0.74 at the long-term follow-up. However, the HRQoL for this patient group did not reach the level of the general population at any of the follow-ups which seemed to be caused by long-standing pain in a subgroup of these patients. There were no baseline factors that predicted a high EQ-5D during the two follow-ups. The pain component (VAS leg/back) and the pain/discomfort EQ-5D-domain was demonstrated to highly influence the overall EQ-5D score and its other included domains. This suggests that HRQoL instruments in painful conditions are highly influenced by the pain component.

Abstract number: 25678 CORRELATION BETWEEN PAIN/DISABILITY AND MRI FINDINGS IN LUMBAR SPINAL STENOSIS A PROSPECTIVE STUDY OF 113 PATIENTS SCHEDULED FOR DECOMPRESSION

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Background: MRI is the modality of choice in planning of spinal stenosis surgery but shows stenosis in 20% of asymptomatic subjects >60 years of age. The relationship between the EQ-5D, SF-36, the ODI, walking distance, VAS for leg and back pain and the measured dural sac area in single and multilevel stenosis remains unclear. Methods: The study group included 113 consecutive patients subsequently operated on with decompressive laminectomy. All patients completed the EQ-5D, SF-36, the ODI, estimated walking distance, VAS leg and back. The cross sectional area of the dural sac was measured at relevant disc levels from L1 to S1 using ROI technique. For correlation, the value (mm2) of the most narrow level and the number of levels with dural sac area < 70 mm2 were studied. Statistical analysis was performed with linear regression analysis. Results/interpretation: High scores on the visual analogue scale for leg pain correlated to the number of levels with significant spinal stenosis (p0.050). The general health dimension of the SF-36 correlated with minimal dural sac area (p0.044), i.e. patients with low dural sac area reported inferior general health. Perceived walking distance, ODI, other domains of the SF-36, and VAS-low back showed no correlation to dural sac area or number of levels with stenosis. Women more often had multilevel spinal stenosis (p0.038). This study indicates that functional status as measured by accepted outcome tools correlates with the morphological changes on MRI to a limited extent in patients scheduled for spinal stenosis surgery.

Abstract number: 25703 BRACE TREATMENT BY CHĂ NEAU TECHNOLOGY TYPE APPLICATION IN PATIENTS WITH IDIOPATHIC SCOLIOSIS

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The aim of the research was to estimate the efficiency of brace treatment by Chêneau technology type in patients with idiopathic scoliosis (IS) and to definite the clinical possibilities of method. Clinical and roentgenological results of 976 patients with IS were studied. At the beginning of the treatment patients were at the age of 5-17 years with bone growth maturity at stages R-0 - R-IV and S-0 - S-III by J.C.Risser and V.I. Sadof'eva tests accordingly. The deformity arches by J.R.Cobb initially was 18°-25° in 109 patients, 26°-40° in 450 and 41°-160° in 417. Treatment has been divided into the periods: brace adaptation (by 2 month), primary correction (2-6 months), brace deduction (2-9 years), corset cancellation (has began at the stage of bone maturity R-V and S-V), further supervision (1-7 years). The patients supervision general term has been 4-12 years. The results have shown that brace treatment allows to eliminate, reduce or stabilize scoliotic deformity, and in patients with aggressive forms of IS to constrain pathological process conservatively before the spine bone growth end. Application of the brace method in growing patients with initially surgical spine deformity parameters (the basic arch above 40 [°]) has shown its high-grade alternative to the operative treatment. Depending on individual aggression features of IS brace treatment was simultaneously used as conservative correction and restraint of deformity progress, and as the prolonged preparation for the deformity surgery in the period of patient spine bone growth optimum.

Abstract number: 25896

THE DUAL GROWING ROD METHOD USING PEDICLE SCREWS AS FOUNDATION IN THE BOTH OF UPPER AND LOWER INSTRUMENTED VERTEBRAE

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Introduction: The treatment of early onset scoliosis remains one of the more challenging aspects of spine surgery. The dual growing rod method provided good maintenance of curve correction. We fundamentally choose the pedicle screws as foundation in both upper and lower instrumented vertebrae, because strong construct using pedicle screws could allow correcting the curve earlier and keeping up with the growth of the spine. Method : Six patients were treated with a dual growing rod system with pedicle screws as a foundation in both ends from 01/2006 to 01/2009. The average age of 6 patients (Boy : Girl = 5:1) was 6.1 years (2 - 8). Diagnosis were idiopathic scoliosis (1), SOTOS (1), myelomeningocele (1), NF1 (1), and miscellaneous (2). All patients were followed for a minimum of 1Y (12 - 48). Results: Preop. Cobb's angle was an average of 68.7 degrees (43 - 93). Postop. Cobb's angle decreased to an average of 28.7 degrees (13 - 52). The Correction rate was an average of 60.2% (44 - 73). There were no major complications in any of the patients. Conclusion: The growing rod instrumentation with pedicle screws on both ends is a safe and effective method in controlling curve of EOS earlier in all three planes. With a careful technique, previously reported high complication rates in the growing rod system can be considerably decreased.

Abstract number: 25930

FUNCTIONAL OUTCOMES AFTER PLACEMENT OF THE INTERSPINOUS DEVICE WALLIS RATE IN PATIENTS WITH SCIATICA FOR L4-L5 DISC HERNIATION. FOLLOW-UP TO 3 YEARS.

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Objective: To assess the functional results and postoperative satisfaction in patients with sciatica for L4-L5 disc herniation were treated surgically by discectomy and placement of interspinous device in a set period of 3 years. Methods: Fifty patients (37 men and 13 women, average age 40 years) diagnosed with sciatica for L4-L5 disc herniation, documented by MRI, which were treated by primary lumbar disc excision followed by fixation of the segment by introducing Wallis interspinous device in a period of 3 years. The indications for implantation of Wallis were voluminous disc herniation and preservation of at least 50% of the height of the disc space. Were assessed pre-and postsurgical results with the implementation of the Oswestry Disability Index (ODI). Results: The results showed that 67% of patients treated with the Wallis interspinous device show significant improvement in symptomatology compared to preoperative, 26% show no improvement over the previous symptoms and 7% report greater lumbar symptoms. Conclusions: The interspinous implant as dynamic stabilizers, improve back pain associated with herniated discs, has been documented that the recurrent disc herniation, lumbar discectomy following a relapse is usually associated with low back pain intensity with radiation to the thigh and leg can reach require surgical reintervention for extension of discectomy with or without fusion. Interspinous implants such as Wallis, belonging to the broad group of stabilizers that improve the pain associated with lumbar disk herniation as well as the functionality of the column.

Abstract number: 25981 ROUTINE USE OF BALLOON KYPHOPLASTY IN POSTERIOR FIXATION OF UNSTABLE TH-L SPINAL FRACTURE

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Spinal instability and canal stenosis leading to neurological deficit are indications for spinal fracture reduction and instrumentation, pain relief is the leading cause for balloon kyphoplasty in elderly. In some A3 burst fractures minimally invasive balloon reduction via bilateral transpedicular approach was followed by polymethyl methacrylate application, intraoperative myelography and endly posterior transpedicular instrumentation. Cobb angle, clinical pain assessment score, clinical mobility scale and functional outcome were measured. We recorded significant deformity correction (body height, angulation), mild disability because of pain and of mobility, minor cement leak in some patients without clinical relevance.Experience from more than 150 kyphoplasty gave us the skill to use kyphoplasty as additional buttressing method in some A3 fractures where posterior instrumentation should be followed by anterior approach.

Abstract number: 26064

NEUROORTHOPAEDIC ASPECTS OF THE SURGICAL CORRECTION OF LIQUOR CIRCULATION DISORDERS IN PATIENTS WITH SPINAL CORD INJURY Alexander BELETSKY, Oleg DULUB, Andrey BABKIN, Sergey KORCHEVSKY, Inessa ILYASEVICH *Republic Scientific Practical Center of Traumathology and Orthopaedics, Minsk* (*BELARUS*)

The main cause of the spinal cord distant lesions with traumatic brain disease is posttraumatic syringohydromielia (28 patients). Patients were divided into 3 groups with posttraumatic syringohydromielia by its extent: local, extended and total forms. The main reasons of its formation are: liquor circulation violations (adhesive process), primary cystic cord lesions process progress, the combined liquor production violation. Active surgical treatment is indicated in patients with extended and total forms. cases of liquor circulation violation meningomyeloradikulolys, In decompression surgery, cysterno-spine grafting were carried out. No block liquor spaces, syringohydromielia total forms demanded the implementation of the cvsterno-peritoneal valve grafting. The primary positive dynamic was reached in all operated patients. Long-term positive neurological recovery dynamic was reached in 10 patients (useful motor activity development, a significant decrease in uppersegmentary neurological symptoms). However, the achievement of full recovery lost functions was failed in any of the observations. That reflects not only the need for the prompt decision to perform the surgery, but the impossibility full correction of mechanisms leading to the pathological condition.

Abstract number: 26071

DESIGN AND VALIDATION OF A SHORT QUESTIONNAIRE TO ASSESS DYSPHAGIA AFTER ANTERIOR CERVICAL SPINE SURGERY

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Dysphagia is frequent after anterior C-spine surgery. An easy-to-use instrument to quantify dysphagia (DSQ) was constructed and its validity and reliability evaluated.45 patients (22 women) with dysphagia were included; mean age 64,8±10,4 years. At the first visit the patients completed DSQ, MD Anderson Dysphagia Inventory (MDADI) and Bazaz scores. 2 weeks later they completed DSQ and a quality-of-life score: EQ-5D. Five patients missed the second occasion why 40 patients participated in the test-retest analysis and the correlation to EQ-5D.The DSQ averaged 6,3±2,7 and was fairly normally distributed as was the MDADI but not the dstribution of the Bazaz score. The DSQ correlated to the MDADI (r=-0,64, P<0,05) but not to Bazaz score (r= 0.07). The MDADI and the Bazaz score did not correlate (r=-0,12). There was a significant correlation between the DSQ at the two occasions (r=0.69, P<0.05). A Bland-Altman diagram showed good agreement between the two tests. There was a weak, but significant, correlation between the DSQ and the EQ-5D (r=-0,27, P<0,05), whereas no correlation could be detected with the MDADI; r=0.18. There was a paradox inverse correlation between the Bazaz score and the EQ-5D with higher QOL values associated with more dysphagia (r=0,31, P<0,05). We can conclude that the DSQ is a valid instrument for measuring dysphagia.

Abstract number: 26102 MICRO ENDOSCOPIC DISCECTOMY UTILIZING PROGRESSIVE LOCAL ANESTHESIA AND NERVE ROOT BLOCK

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Introduction: Microendoscopic discectomy (MED) is one of the minimally invasive endoscopic procedures for lumber nerve decompression. We started MED using METRx system under Local Anesthesia (LA) and nerve root block since 2008. We evaluate and report its clinical outcome of 13 cases. Surgical procedures: Tubular retractor was set after skin; paravertebral muscles and periosteum above lamina were anesthetized with 1% xylocaine containing epinephrine. Operations in epidural space needed additional infiltration of anesthetic, whereas additional xylocaine was not needed during laminotomy. Discectomy could be performed conventionally after nerve root block. Methods: Clinical outcomes of LA group were compared with that of 22 cases under GA. And patient's satisfaction rate after operation and complications were evaluated. Results: There were no significant differences between two groups in clinical outcomes; operative time (LA:87.6±24.2, GA:74.2±16.1min.) recovery rate of JOA score (LA:66.0±16.7, GA:69.7±17.8%) and decreasing rate of VAS score (LA:73.8±22.6, GA:84.9±19.0%). All patients treated under LA were satisfied with its clinical outcomes and 12 patients answered these surgical procedures were acceptable for them. Bradycardia as only complication occurred in 4cases. Conclusions: Our trial revealed this procedure could be performed with no technical problem and no major complication. This procedure may be able to reduce the stress of the perioperative patients further and become new minimally invasive strategy of LDH.

Abstract number: 26104

THE EFFECT OF EARLY REHABILITATION FOR LUMBAR SPINAL FUSION PATIENTS

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Background: Few studies have examined rehabilitation strategies for spinal fusion patients. No study has yet examined early start of rehabilitation for lumbar spinal fusion patients, despite the fact that this rehabilitation strategy has proven to be effective for disc surgery patients. Methods: 80 patients are randomized to either an early start of rehabilitation (6 weeks post surgery) or to a usual treatment (start 3 months post surgery). Primary outcome: Dallas Pain Questionnaire (DPQ). Secondary outcome: Oswestery Disability Index (ODI), EuroQol (EQ-5D), Low Back Pain Rating Scale absence from work and use of health care service. Follow up at baseline and 6 weeks, 3, 6 and 12 months after the surgery. To clarify the health economic aspect, a cost-benefit and a cost-utility analysis will be carried out. Results: Preliminary results from 42 patients at 3 months follow up show, that the intervention group tends to have a better performance in both the DPQ and the ODI (NS). The patients' sitting ability was significant better in the intervention group (P=0.046). The intervention group tends to score less pain compared to the control group (NS). According to the EQ-5D, the intervention group has a sigificant better performance in walking (P=0,035). The total median score is 0 (-1;1) compared to a median score of -1 (-2;0) in the control group (P=0.067). Conclusion: The preliminary results suggest that it may be considered safe for the patients to start rehabilitation already 6 weeks after the lumbar spinal fusion.

Abstract number: 26122 POSTERIOR LUMBAR INTERBODY FUSION (PLIF) FOR FAILED BACK SURGERY SYNDROME(FBSS): DOES IT WORK?

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Aim: The aim of this study is to review the functional outcome of the patients treated with Posterior Lumbar Interbody Fusion for FBSS. Materials & Methods: This is a retrospective review of prospectively collected data of 39 patients diagnosed with FBSS and treated with PLIF between June 2000 and December 2008 by the senior author in our unit. Pain and function were evaluated by VAS for Back (VAS-BP) & leg pain (VAS-LP), Oswestry disability index (NDI) and SF-36 questionnaires, and were completed pre- & post-operatively. Results: There were 39 patients (20 women & 19 men) and mean age at operation was 47.3 years (range 32 to 76.1 years). Mean duration of follow-up was 39.14 months (range 5.21 -73.5 months). The mean pre and post-operative ODI values were 54.13 and 29.14 respectively. The mean postoperative VAS for back and leg pain scores were reduced to 4.05 (Pre-op:7.38) and 3.69 (Mean pre-op 6.51) respectively. The mean preoperative SF-36 bodily pain component score was 27.42 and the mean postoperative score was 40.50. Six complications were documented. Four patients had uncomplicated dural tears that resolved completely. Two patients had superficial wound infection that resolved with oral antibiotics. Conclusions: Treatment of FBSS poses a challenge to the spine surgeons and continues to remain controversial. Various methods of treatment options are available and our study results show that PLIF can be offered as a safe and effective modality of treatment for FBBS patients.

Abstract number: 26153 SERUM 25-HYDROXY CALCIFEROL AND FLAIL BACK SURGERY SYNDROME Saranatra WAIKAKUL

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The study was done to find out the relationship between severity of pain, JOA back score and the level of serum 25-hydroxy calciferol in the patients who had flail back surgery syndrome. There were 28 flail back surgery patients in our study. All have been treated with intensive conservatively for at least 6 months. Moderate to severe pain and low back score, VAS > 5 and the score < 15.0 were observed. After vitamin D3 was given, the patients were re-examined at 3 and 6 months. Visual analog scale and the score were recorded at before and after the study. All had serum 25-hydroxy calciferol below 30 ng/ml. After vitamin D3 was added in the conservative program for 3 months, all patients have increased in serum 25-hydroxy calciferol and 21/28 became normal, > 30 ng/ml. Significant pain reduction and improvement in back score, VAS < 3 and the score > 15 were found in 19/28 patients. At 6 month follow up, all patients had normal serum 25-hydroxy calciferol and 22/28 patients have significant pain reduction and improvement in back score, VAS < 3 and the score > 15 were found in 19/28 patients. At 6 month follow up, all patients had normal serum 25-hydroxy calciferol and 22/28 patients have significant pain reduction and improvement of the score. Vitamin D is one of the most interesting factors influencing pain and loss of function in flail back surgery syndrome.

Abstract number: 26200 QUALITY OF LIFE, PAIN AND FUNCTION IN PATIENTS WITH LUMBAR SPINAL STENOSIS NOT SELECTED FOR SURGERY

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INTRODUCTION: According to the national registry for back surgery in Sweden intervention for lumbar spinal stenosis is the most commonly performed. In studies of natural history symptoms were unchanged at follow-up in 70% of the patients. OBJECTIVE: To study descriptive data in patients with lumbar spinal stenosis not selected for surgery. MATERIAL: 242 consecutive patients with lumbar spinal stenosis, referred for surgical evaluation, were retrieved from a computerized register. 40% were selected for surgery and were excluded. 143 patients were not recommended surgical treatment. Degenerative spondylolisthesis and scoliosis occurred in 26% respectively. METHOD: At surgical evaluation patients answered a computerized interview with validated questionnaires on a touch screen, recording background data, guality of life (EQ5D), pain(VAS) and function(General Function Score, GFS, walking distance). RESULTS: 58% were women with a mean age of 69yrs. 42% were men with a mean age of 65yrs. Mean EQ5D was 37(-22-80). Mean back pain (VAS) was 61(0-100) and leg pain 56(0-100). Mean GFS was 37 (0-83). Walking distance, estimated by the patients, was less than 100m in 32%, 100-500m in 23%, 500m-1km in 21% and more than 1 km in 23%. CONCLUSION: In patients with lumbar spinal stenosis not selected for surgery walking distance was longer but quality of life, intensity of back and leg pain, mean age and sex distribution was comparable with data from the national registry for patients selected for surgery.

Abstract number: 26256 MENTAL HEALTH IN ADULT SPINAL DEFORMITY PATIENTS

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Previous research has suggested that many psychological factors Introduction: influence recovery from surgery. However, there are no reports of the impact of these psychological variables in preoperative spinal deformity patients. Therefore, we gathered and analyzed patient's preoperative self-reported psychological inventories. Purpose: To verify whether Scoliosis Research Society Mental Health (SRS-MH) scores validate the preoperative patient's psychological issues of depression and anxiety. Also, to identify potential contributing factors in adult spinal deformity group. Methods: We prospectively studied 114 preoperative idiopathic spinal deformity patients who were scheduled for surgery within 90 days. Data analysis included SF-12, Beck Depression Inventory (BDI), State-Trait Anxiety Inventory (STAI) and SRS questionnaires. Multiple radiographic measures were analyzed. Results: For adult group (n=114, mean age 48.5±14, range 18-81), SRS-MH significantly correlated with BDI (r=-0.76; p=0.01), STAI (r=-0.75; p=0.01) and SF-12 mental health (r=0.81; p=0.01). Mental health scores were more abnormal than controls (p=0.0001). SRS pain (p=0.0001), function (p=0.0001) and self-image (p=0.0001) scores were more abnormal than SRS-MH scores. SF-12 physical health was more abnormal than SF-12 mental health (p=0.0001). Conclusions: SRS-MH in adult group correlated with other mental health validated instruments. In our study, adult mental health was less abnormal than their pain, function and self-image.

Abstract number: 26282 MANAGEMENT OF SUBAXIAL CERVICAL SPINE TUBERCULOSIS:

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OBJECTIVE: To evaluate the efficacy of anterior debridement, bone grafting and instrumentation in patients with subaxial cervical spine tuberculosis in reconstruction of the spine, providing pain relief, neurological recovery and prevention of deformity. METHODS: Twenty two patients with subaxial cervical spine tuberculosis involving C3 to C7 region and neurological complication (2 ASIA-B, 15 ASIA-C, 5 ASIA-D) were treated by anterior debridement, bone grafting and plate fixation over a period of five year. A four-drug antituberculosis regimen was administered for a period of 18 month. The follow-up ranged from 18 to 60 months (mean 32 months). Clinical and radiological assessment using flexion and extension radiographs was performed at 3 months, 6 months, 12 months and 24 months respectively to show any evidence of instability or nonunion. RESULTS: All cases had bony fusion. There were no increased neurological deficits. Out of 22 patients with neurological manifestations, 20 showed complete recovery (ASIA-E) and two marked improvements (ASIA-D). The neck pain score based on a visual analog scale (1-10) changed from a preoperative average of 7 to 2 at follow-up after 3 months. Kyphosis improved from 18.2 degrees (5-45 degrees) preoperatively to 2 degrees (-6-12 degrees) at the latest follow-up. CONCLUSIONS: Anterior debridement, bone grafting and reconstruction using titanium plates and screws for stabilization of the subaxial region tuberculosis is a useful adjunct in preventing neurological deficit and kyphotic deformity. A satisfactory segmental stability and fusion is achieved by this technique.

Abstract number: 26296 CLINICAL RESULTS OF CONTINUOUS EPIDURAL BUPIVACAIN INJECTION IN THE TREATMENT OF LUMBOSCIATIC PAIN CAUSED BY LUMBAR SPINAL STENOSIS AND DISC HERNIATION.

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Although epidural corticosteroid injection is commonly used for sciatica, the efficacy of continuous epidural bupivacaine injection has not been established. METHODS: In each of 24 patients with herniated nucleus pulposus (HNP) and 36 with lumbar stenosis (LS), epidural catheter was inserted and 0.125% bupivacaine was injected 2 ml/H, 12 hours a day, for 7 days. Follow-up examination included pain evaluation using VAS, and functional status using Japanese Orthopaedic Association score (JOA score) at 2 weeks, 6 weeks, and 6 months. RESULTS: Seven patients of HNP (30%) and 18 of LS (50%) showed significant improvement and returned to their work or daily living without surgery. Their mean VAS decreased from 87 to 23. Seventeen of HNP (70%) and 18 of LS (50%) did not showed improvement and 16 of HNP and 15 of LS received surgery. Their mean VAS decreased from 90 to 62, and their mean JOA score of HNP group recovered from 8 points to 21 points 2 weeks later, and that of LS group recovered from 9 to 23 points accordingly. There was no significant difference concerning improvement between HNP and LS groups. There were four minor complications. Superficial infections were detected in three patients and all of them were recovered by removing catheters and taking oral antibiotics for a few days. In one patient the catheter migrated into subdural space and caused transient paralysis in both legs. CONCLUSION: Continuous epidural bupivacaine injection can be recommended as an conservative therapy in acute phase of lumbosciatic pain.

Abstract number: 26305 INTRATHECAL MORPHINE ANALGESIA IN IDIOPATHIC SCOLIOSIS SURGERY: DOES GENDER OR RACIAL GROUP AFFECT OPTIMAL DOSING?

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Purpose: To ensure our protocol of intrathecal morphine (9-19 µg/kg) for analgesia in idiopathic scoliosis surgery was effective across gender and race. Methods: We studied 287 patients given optimal dose of intrathecal morphine. There were 246 female and 47 male patients; 224 Caucasian (CA) and 63 African-American (AA) patients. Factors analyzed postoperative Visual analog pain (1-10) scores (VAS), time to first opioid rescue dose, total morphine over the first 48 hours, and postoperative complications. Results: In females and males, the mean VAS pain scores post-anesthesia care unit (PACU) were 0.48 and 0.56, mean times to first opioid rescue dose was 16.65 and 16.72 hours, and total morphine over first 48 hours was 1.49 mg/kg. Respiratory depression and PICU admission occurred in 10 (4.1%) and 3 (6.4%) patients. Nausea and vomiting occurred in 78 (31.7%) and 12 (25.5%) patients. For CA and AA patients, mean VAS pain scores in PACU was 0.48 and 0.46, mean times to first opioid rescue dose was 16.53 and 17.2 hours, and total morphine over the first 48 hours were 1.54 mg/kg and 1.30 mg/kg. Respiratory depression and PICU admission occurred in 9 (4.0%) and 4 (6.3%) patients. Nausea and vomiting occurred in 77 (34.4%) and 11 (17.5%) patients. Conclusions: Our optimal intrathecal morphine dose provides effective and safe postoperative analgesia in patients undergoing surgery irregardless of gender or race.

Abstract number: 26313 MICROENDOSCOPIC DISCECTOMY UTILIZING PROGRESSIVE LOCAL ANESTHESIA AND NERVE ROOT BLOCK

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Introduction: Microendoscopic discectomy (MED) is one of the minimally invasive endoscopic procedures for lumber nerve decompression. We started MED using METRx system under Local Anesthesia (LA) and nerve root block since 2008. We evaluate and report its clinical outcome of 13 cases. Surgical procedures: Tubular retractor was set after skin, paravertebral muscles and periosteum above lamina were anesthetized with 1% xylocaine containing epinephrine. Operations in epidural space needed additional infiltration of anesthetic, whereas additional xylocaine was not needed during laminotomy. Discectomy could be performed conventionally after nerve root block. Methods: Clinical outcomes of LA group were compared with that of 22cases under general anesthesia (GA). And patient's satisfaction rate after operation and complications were evaluated. Results: There were no significant differences between two groups in clinical outcomes; operative time(LA:87.6±24.2, GA:74.2±16.1min.), recovery rate of JOA score (LA:66.0±16.7, GA:69.7±17.8%) and decreasing rate of VAS score (LA:73.8±22.6, GA:84.9±19.0%). All patients treated under LA were satisfied with its clinical outcomes and 12 patients answered these surgical procedures were acceptable for them. Bradycardia only the surgery was seen as operative complications in 4cases. Conclusions: This study revealed this procedure could be performed with no technical problem and no major complication. This procedure may be able to reduce the perioperative stress of the patients further and become one of the minimally invasive strategies of LDH.

Abstract number: 26319

EARLY ONSET SCOLIOSIS: THE VALUE OF SERIAL RISSER CASTS

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Purpose: We conducted a retrospective review of our results of serial Risser casting in the treatment of progressive early onset scoliosis (EOS). Methods: Fifteen consecutive patients with EOS were evaluated. We analyzed their age, gender, diagnosis, previous treatment, curvature at the initiation of Risser casting, the number of casts, their response to casting and the transition to subsequent treatment. Results: There were 7 patients with idiopathic scoliosis, 4 with syndromic scoliosis, and 4 with neuromuscular scoliosis. The mean age was 3.5 years (range, 2 to 7 years) when casting was initiated. At the time of analysis, 2 patients had undergone growing rod surgery, 6 patients were returned to bracing, 6 patients were still undergoing casting, and one patient had been lost to follow-up. The mean curvature at the initiation of casting was 75° (ran ge, 40 to 118°), and at the time of placement of the last cast was 46° (range, 20 to 95°). The mean length of cast treatment was 19 months (range, 10 to 29 months). There were 3 minor complications (skin irritation) associated with cast placement. Conclusions: Our results support serial Risser casting as safe and effective intermediate method of treatment for EOS. It can stabilize relatively large curves until the child reaches a more suitable age to change their method of treatment.

Abstract number: 26346 NECK PAIN WITH CERVICAL SPONDYLOTIC MYELOPATHY; POSTERIOR PROCEDURES WORSEN NECK PAIN: IS IT TRUE?

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Laminoplasty has been widely accepted for the treatment of cervical compressive myelopathy. However, some disadvantage has been pointed out, such as loss of cervical lordosis and range of motion, and neck pain (axial neck symptoms). We have performed segmental partial laminectomy (SPL) in patients with cervical spondylotic myelopathy (CSM) in order to resolve those problems (Spine 2009). The purpose of this study was to assess pre- and postoperative neck pain after SPL for CSM and to clarify the detail of pre- and postoperative neck pain. SPL was performed in eightyseven patients with CSM. Outcome was prospectively assessed for JOA score and neck complaints (before op. 6m and 1y after op). Neck complaints were assessed using 6 items (1) neck pain today, 2) neck pain on the average, 3) neck pain at worst, 4) neck stiffness, 5) limitation of the neck-turning, and 6) limitation of neck-up or down from Neck pain and disability scale (Wheeler, 1999). More than 2 of 10 (NRS: numerical rating scale) was judged as positive neck symptom. From the present study, there might be two types of neck pain with CSM. One is that posterior decompression of spinal cord could improve neck symptoms and another is that posterior procedure could not decrease neck pain. We should make attention to those two types of neck symptoms in discussion of neck complaints regarding posterior procedure.

Abstract number: 26356 OCCIPITOCERVICAL FUSION FOR RHEUMATOID CERVICAL SPINE AT LEAST OVER-10 YEAR AFTER SURGERY.

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Few Introduction: studies have reported the long-term outcomes of occipitocervical/thoracic fusion for rheumatoid cervical spine. The purpose of this study was to evaluate the outcome of occipitocervical/thoracic fusion at least over-10 year after surgery. Patients: Thirty-nine patients who had occipitocervical/thoracic fusion between 1987 and 1998 were evaluated. The mean age at surgery was 61 years. Results: Twenty-seven patients died before the final follow-up. Mean survival period of patients in class IIIB was 70.0 months and that for patients in non-IIIB was 109.7 months. The mean follow-up for surviving patients was 167. 2 months. Pain in the occipital region and neck recovered well until final follow-up. Assessment at 1 year postoperatively revealed that all patients recovered and reported pain as grade 0 or 1. Until the final follow-up, the recovered pain grade was well maintained in all but 3 patients. These patients had pseudoarthrosis or required revision surgery. Good neurologic recovery in patients in Ranawat class IIIB was not observed. Discussion: Some surgeons insist that prophylactic occipito-cervical/thoracic fixation would be better. However, other surgeons advocate a minimal extent of fusion, considering the invasiveness of the surgery and the patients' relatively short life expectancy. Our results showed surgery with a minimal extent of fusion maintained satisfactory long-term clinical outcomes, although adjacent segment instability occurred and required revision surgery in some patients. Rheumatoid arthritis is a systemic inflammatory disease that affects multiple organs, so we should consider tailor-made surgery based on each individual patient's condition.

Abstract number: 26434 TREATMENT OF DORSAL SPINE TUBERCULOSIS THROUGH POSTERIOR APPROACH

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Introduction: An anterior decompression followed by posterior instrumentation and anterior bone grafting is an acceptable procedure for dorsal and dorsolumbar tuberculosis. In this technique mostly patients needed intensive care post-operatively until their general condition become stable. In this study we want to analyse decompression and debridement by costo transverse and transpedicular route and posterior fixation through only posterior midline approach as an alternative procedure. Material and method: The study was conducted at Indian spinal injuries centre, New Delhi during a period from August 2006 to January 2008. Group A patients were operated through only posterior approach, they were 13 in number; while Group B patients were operated through combined anterior and posterior approach, they were 10 in number. Clinical and radiological analysis of all patients were done Observation In our study mean operative time in Group A was less compare to Group B. The mean blood loss was less in Group A patients. The Kyphosis angle measured at the time of last follow up was found to be11.50 in Group A while 10.22 in Group B patients. In Group patients rehabilitation was started early from post operative day onecompare to group B. Conclusion: This study concludes that Long-term results for neurological improvement are comparable in both groups. With only posterior approach Intraoperative bleeding and surgery duration is less in comparison to combined anterior and posterior approach. Post operative morbidity is less with only posterior approach in comparison to combined anterior and posterior approach.

Abstract number: 26647

GROWTH INSTRUMENTATION IN THE IMMATURE SCOLIOTIC SPINE

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Preservation of growth, curve control and avoidance of complications in the patient with major growth potential remain a major challenge in scoliosis surgery. Based on problems with posterior tethering with Luque Trolley technique most recent technique uses interval lengthening of the rods. Randomized studies in pigs have shown interval locking to decrease spinal growth by 70% compared to unlocked systems. The aim of the present study was to analyse correction of Cobb angle, growth preservation and complications in relation to instrumentation technique. Material and Methods: 20 patients, I median age 6 years and Cobb 78 degrees were treated from 1996 to 2009. Underlying diagnoses were SMA 7, congenital scoliosis 4, juvenile idiopathic scoliosis 3, Recklinghausen 2, Vaters 1, Prader-Willi 1, Cruzon 1 and OI 1. Convex epiphysiodesis and Luque Trolley technique was used in 7 Children, whereas interval lengthening with single or double growth rods in 13 children. Results: Postop scoliosis was reduced to median 25 degrees. In LC one early postop death in SMA patient. Over 8 years major longitudinally spine growth of 7 cm was observed in 5, chrankshaft in 4 and no growth in 2 pat. One reop with elongation to sacrum. 3 conversions to growth rod.GR group lengthened every 6m showed growth of 1,3 cm per year, rod breakage in 4, screw loosening in 2 pat. and curve progression in all pat. Recent unlocked double rods with apical control seemed most promisina. Further developed individualized techniques are needed for this heterogenic patient group.

Abstract number: 23320 RADIOGRAPHIC MEASUREMENT OF LATERAL LIGAMENT IN NORMAL KOREAN ANKLES

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Purpose: There are controversies regarding the measurement method and normal range on stress radiographs for evaluation of chronic lateral ankle instability. This study was performed to research radiologic values measured in normal Korean adults and to analyze differences by age and gender. Materials and Methods: Sixty Korean adults (20 in twenties, 20 in thirties, 20 in forties) were recruited and each of these three groups was comprised of 10 males and 10 females. The selection criteria of candidate were no history of ankle injury and no evidence of ankle instability. Radiologic measurement of talar tilt and anterior talar translation was performed through stress radiographs using Telos, and repeated two times by three researchers. Results: Ankle stress radiographs had good intraobserver reproducibility and interobserver reliability. Talar tilt and anterior talar translation were average 3.7° and 3.5mm in his twenties, 5.1° and 4.2mm in her tw enties, 3.9° and 4.1mm in his thirties, 4.8° and 3.8mm in her thirties, 3.4° and 3.6mm in his forties, 4.5° and 4.1mm in her forties. There was no significant difference in talar tilt and anterior talar translation by age. But, there was significant difference in talar tilt by gender. Conclusion: On ankle stress radiographs in normal Korean, talar tilt and anterior talar translation were average 3.7° and 3.7mm in male, 4.8° and 4mm in female. It seems to be a good reference for radiologic evaluation and for treatment of chronic ankle instability.

Abstract number: 23457 TREATMENT OF RUPTURED ACHILLES TENDON: OPEN OR PERCUTANEOS PROCEDURE

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Purpose: The aim of this study was to compare open and percutaneos surgical procedure in treatment of ruptured Achilles tendon in terms of efficiency in professional and amateur athletes. Methods: Our work included 48 professional or amateur athletes with ruptue of tendo Achillis. Age of athletes was betwen 25 and 40 years (AVERAGE 34.83 +/- STDEV 4,65). 24 athletes were operated with open procedure and 24 with percutaneos method. Period in which those procedures were made was beetwen 2000 and 2007. All operated patients were tested one year after surgical procedure. Results: Presentation and comparison beetwen open and prcutaneos method were made on isokinetic dynamometer. The group operated with percutaneos method had 20% better results then those who were operated with open procedure. Discussion and Conclusion: Percutaneos method is technicaly more easier than open method. Time spent in hospital is 14,5 times shorter with percutaneos procedure (percutaneus procedure-range 0,5-2 days, AVERAGE 0,79 +/- STDEV 0,36; open orocedure-range 10-24 days, AVERAGE 11,46 +/- STDEV 2,70; P<0,00). Return to sport activites is twice faster then in group who were treated with open procedure. We had no postoperative infections or reruptured Achilles tendon in group treated with percutaneus procedure. In group treated with open procedurewe had one patient with postoperative infection (4,2%). In our opinion the best method in surgical treatment of Achillis tendon is percutaneos method. Keywords: Achilles tendon rupture, surgical treatment, computerised isokinetic dynamometer

Abstract number: 25457

FUNCTION OF CALCANEOFIBULAR LIGAMENT IN PERONEAL TENDON DISLOCATION

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PURPOSE: The peroneal tendon dislocation combines with the ankle sprain is controversial on its mechanism and surgical treatment. The calcaneofibular ligament (CFL) is a part of the lateral ankle ligament complex and makes up the floor of the peroneal sheath. However, there are no detailed reports on the CFL in the peroneal tendon dislocation. The purpose is to assess the histological structure of the CFL and clarify its function. MATERIAL AND METHODS: Eight CFLs contained both attachments were removed from dissecting room cadavers. They were sectioned and strained with alcian blue, haematoxylin and eosin, Masson's trichrome, toluidine blue. RESULTS: The fibular attachment was more fibrocartilaginous than the calcaneal one. Many histopathologies were also found at its fibular insertion (multiple tidemarks, cartilage cell clusters and destructions of subchondral plate). The collagen fibers at the fibular attachment entered in a perpendicular direction, while they at the calcaneal one did in parallel. The CFL was crossed by and comes into contact with the peroneal tendon at the malleolar groove. The fibrocartilage layer presented at the site where ligament contact the tendon. DISCUSSION AND CONCLUSION: Our results showed the fibular attachment is more vulnerable to injury. It suggests an avulsion fracture frequently occurs at its fibular attachment. The relations between the CFL and the peroneal tendon lead to another function of the CFL works as a base over which the peroneal tendon glides. Moreover, it may facilitate to explain the mechanism by which peroneal tendon dislocation occurs.

Abstract number: 26315 RESULTS OF ENDOSCOPY ASSISTED PERCUTANEOUS ACHILLES TENDON REPAIR

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Introduction: Treatment of achilles tendon rupture approach is still controversial. However, open surgical treatment can cause some complications as joint stiffness, tendocutaneous adhesions, deep vein thrombosis, infection, and severe scar formation. Endoscopy assisted percutaneous Achilles tendon repair in is quitely popular. Materials and Methods: Between February 2007- September 2009, a total of 12 patients (mean age 33.4, 9 men, 3 woman) were included in our study. The mean follow up period was 8.2 months. All of the patients had been operated endoscopy supported percutaneous achilles tendon repair with Modified Bunnel suturation technique had been applied. Functions are evaluated with AOFAS Hindfoot Score. Results: None of the patients had developed, extension loss, wound infection, pain related scar or Achilles dysfunction. One patient experienced hypoesthesia at sural nerve innervation area and after 7 months it is improved. All patients returned to their daily activities and works in 3 months. Average AOFAS Hindfoot Score was evaluated as 95.8. Discussion: Nowadays surgical approach is more preferred because of decreased reccurence rates of ruptures, early allowance for functional rehabilitation and decreased muscle atrophy. However, open surgical treatment can cause some complications as joint stiffness, tendocutaneous adhesions, deep vein thrombosis, infection, and severe scar formation. Thus, minimal invasive fixation techniques are quitely used. Endoscopy support increases reliability of the tecnique. Both because of decreased complications and decreased surgical injury, endoscopic assisted percutaneous achilles tendon repair is a reliable method.

Poster Topic: Sports Medicine - Elbow

Abstract number: 23826 EPICONDYLITIS DIFFERENTIAL DIAGNOSIS IN SWIMMERS

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INTRODUCTION: Myofascial Trigger Points (MTP) are hyperirritable spots in skeletal muscle that are associated with a hypersensitive palpable nodule in a taut band. The area is painful to compression, causing characteristic refereed pain and hypersensitivity, motor dysfunction and even autonomic phenomena. The pattern of refereed pain and hypersensitivity constitute the key for their identification. MATERIAL AND METHODS: Non experimental study of approaching to reality and of descriptive type of 44 federated non professional freestyle swimmers who presented pain and tenderness locally to the lateral epicondyle. We used the MTP diagnostic clinical criteria proposed by Travell and Simons, exploratory tests (passive flexion of the elbow and active resisting extension of the forearm at the elbow) and unuseful tapping for relieving pain. RESULTS: The 44 swimmers 20 men (45.45%), 18-22 years old, 10 right-10 left, and 24 women (54.55%), 20-24 years old, 20 right-4 left. All cases presented the essential diagnostic criteria and pain or sensitive alteration when pressing anconeus MTP between the lateral epicondyle and the olecranon process. It was very easy to reproduce LTR manually. All swimmers experienced pain with muscle tests. No one of them referred relief with the tapping. In all of them, the MTP activation was done by elbow extension to finish the pulling phase. CONCLUSION: Whenever the diagnoses of tennis elbow or lateral epicondylitis are being seriously considered, the possibility that at least some of the symptoms are being caused by anconeus MTP must be explored.

Poster Topic: Sports Medicine - Elbow

Abstract number: 23827

MEDIAL EPICONDYLITIS DIFFERENTIAL DIAGNOSIS IN SWIMMERS

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INTRODUCTION: The insertion point of flexors and pronators into the humerus medial epicondyle can become inflamed in response to minor injury, or for no obvious reason at all. Myofascial Trigger Points are hyperirritable spots in skeletal muscle that are associated with a hypersensitive palpable nodule in a taut band. The area is painful to compression, causing characteristic refereed pain and hypersensitivity, motor dysfunction and even autonomic phenomena. The pattern of refereed pain and hypersensitivity constitute the key for their identification MATERIAL AND METHODS: Non experimental study of approaching to reality and of descriptive type of 43 federated non professional freestyle swimmers who presented pain in ulnar aspect of the arm to the fourth and fifth fingers. We used the diagnostic clinical criteria proposed by Travell and Simons, exploratory test, inicial observation and ecography. RESULTS: The 43 swimmers (19 men, 20-30 years old and 24 women, 19-31 years old) presented essential diagnostic criteria and Local Twitch Response. We could demostrate forward shoulder and unbeing able to flex the shoulder fully. The pectoralis major weakness and shortening were demostrated, distinguishing it of subacapularis MTP. These MTPs have been produced during breathing phase. The ecography was negative to show pathology in medial epicondyle. We found MTPs in hand flexion muscle in forearm. CONCLUSION: The shortened pectoralis major causes distinctive neurovascular symptoms through entrapment of the neurovascular bundle to the upper extremity, so that it is essential to keep in mind these MTPs and demonstrate them.

Poster Topic: Sports Medicine - Hand / Wrist

Abstract number: 23939

ANALGESIA POST WRIST ARTHROSCOPY – A RANDOMISED CONTROL TRIAL

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Introduction: Wrist block (WB) has been used to provide pain relief for many procedures on hand and wrist but its role in wrist arthroscopy remains unexplored. We aimed to evaluate and compare the analgesic effect of portal and wrist joint infiltration to pain relief provided by the WB after wrist arthroscopy. Materials and Methods: Patients undergoing wrist arthroscopy as a day case were randomised. 10 mls of 0.5% Levo-bupivacaine was used for infiltration of portals and wrist joint after the procedure or 15 mls for WB before the procedure. Effects were evaluated using Visual Analogue Score (VAS). Primary outcomes were pain scores, average pain scores, area under the curve pain scores and duration of effect. Results: We provide demographic data for patients undergoing these procedures in our unit, outcomes of both techniques of analgesia and compare VAS scores and duration of analgesia. There were no significant differences between the two groups with respect to age. weight, gender, and duration of surgery. The results should allow us to standardise the technique for pain relief in these patients and allow patients to make an informed choice. Discussion: Wrist arthroscopy is the gold standard in diagnosis and treatment of carpal ligament injuries and its role is continuously been expanded. Animal and human in-vitro studies show chondrotoxicity of anaesthetic agents on joint infiltration. We believe both techniques provide satisfactory pain relief but WB does not expose the patients to the potential risk of chondrotoxicity and hence should be used instead of joint infiltration.

Abstract number: 23216 ARTHROSCOPIC MANAGEMENT OF RECALCITRANT OSTEITIS PUBIS AND BILATERAL FEMOROACETABULAR IMPINGEMENT Dean MATSUDA

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This is the first reported case describing the comprehensive arthroscopic treament of bilateral femoroacetabular impingement and concurrent recalcitrant osteitis pubis. The association of intra-articular hip pathology with central pubic pain is a recent topic of interest in sports medicine often involving young athletic patients. We describe this patient's clinical course after single-stage dual-portal bilateral arthroscopic rim trimming, labral refixation and femoral osteoplasty surgery and an expanded and well-illustrated technical note highlighting a completely endoscopic pubic symphysectomy; we have professionally-edited video capture if desired for podium presentation with orientation frames as well as a rationale for preservation of the posterior and arcuate ligament. We then discuss the clinical outcome with 2 year follow-up with pain relief and resolution of her pre-operative waddling gait, as well as a healthy discussion about athletic pubalgia, especially as it may relate to femoracetabular impingement. We conclude by suggesting that our endoscopic pubic symphysectomy may not only benefit those patients with recalcitrant osteitis pubis, but may also be an attractive alternative to possible prolonged and uncertain conservative treatment in a specific subset of competitive athletes.

Abstract number: 23217 ARTHROSCOPIC HIP OSTEOSYNTHESIS

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Our presentation highlights techniques developed and lessons learned from two interesting cases of femoral head fractures, one associated with posterior hip dislocation and previously asymptomatic femoroacetabular impingement, the other a very rare isolated fracture. In one case example, a large suprafoveal osteochondral fracture was arthroscopically reduced by use of crossover techniques gained from experience performing arthroscopic femoroacetabular impingement surgery. An innovative "chopstick" maneuver was used to derotate the mobilized osteochondral fragment into anatomic position, followed by arthroscopic Herbert screw fixation. In the other case example, a "clamshell" femoral head osteochondral fracture is described. The clamshell fracture is opened and the largest fragment reduced and fixated using Acutrak screws in a completely arthroscopic manner. The rationale for performing acetabular rim reduction in this patient with asymptomatic femoroacetabular impingement prior to arthroscopic screw fixation in order to optimize the angle of attack is discussed. Professionally-edited video (upon request) and 1 and 2 year clinical outcomes are presented showing improvement in pain and activity restoration as well as radiographic fracture union without osteonecrosis or osteoarthritis. As hip arthroscopy evolves, the role of arthroscopic surgery in the traumatized hip may expand beyond diagnostic arthroscopy and foreign/loose body removal. An anatomic reduction with stable internal fixation permitting early joint motion trumps the ability to perform outpatient arthroscopic procedures. However, if the equivalent procedure can indeed be accomplished in a safe and minimally invasive manner, one can envision a future expansion of the role of hip arthroscopic surgery in fracture management.

Abstract number: 23387 UNUSUAL HIP INJURY FOLLOWING RUGBY TACKLE

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A 28 year old amateur rugby player presented to emergency with pain in the right hip following rugby tackle. He was involved in a scrum during the match when he to the ground opponent from the front. All movements of the affected hip were restricted. Xray/Judet views/ CT scan with 3D reconstruction of the pelvis revealed a posteriorfracture dislocation of hip. CT showed small area of indentation in femoral head with large fragment from the acetabular posterior wall and no incarcerated fragments in the joint. Immediate closed reduction was performed. The fracture was fixed using Langenback approach with two lag screws and reconstruction plate. He was mobilized non-weightbearing for 4 weeks. The fracture united satisfactorily with no evidence of avascular necrosis at two years. Rugby is a very popular contact sport in the United Kingdom/Europe. Hip injuries can be misdiagnosed as sprain. The characteristic fractured acetabular posterior lip and the indentation of the femoral head confirms the force vector of flexed, adducted and internally rotated leg. Prompt reduction is of paramount importance to decrease the risk of subsequent osteonecrosis, heterotrophic ossification/sciatic nerve injury. Operative treatment is required to achieve anatomical reduction of acetabular fracture, rigid fixation and early mobilization. Our case report highlights the importance of prompt recognition of this injury. Also of note is the unusual mechanism of injury in that the tackle was from the front. Immediate reduction of dislocation, anatomical reduction of fracture fragment, rigid fixation and early mobilization lead to good results.

Abstract number: 24300

NECK, SPINE AND JOINT PAIN IN FIVE DIFFERENT TOP ATHLETES

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Neck, thoracic, lumbar spine and joint pain are common complaints among top athletes. Unfortunately there is a lack of knowledge in the literature about the frequency of these complaints among athletes. The frequency of neck injuries, and low back pain, is more studied. Ninety-one athletes (divers, weight-lifters, wrestlers, orienteers, and ice-hockey players) and 21 non-athletes were studied for a MRI and questionnaire study of the thoracic and lumbar spine. The questionnaire concerned back, neck and joint pain during the last week and the last year. The total frequency of pain in all athletes during the last week/year were: neck 35/55%, thoracic spine 21/33%, lumbar spine 49/67%, shoulder 14/20%, elbow 8/7%, wrist 8/8%, hip 15/23%, knee 22/43% and ankle 11/25%. The frequency in the non-athletes were respectively: neck 9/33%, thoracic spine 18/33%, lumbar spine 36/50%, shoulder 0/9%, elbow 9/0%, wrist 0/0%, hip 9/8%, knee 10/9% and ankle 0/0%. There were no statistical difference between the athletes and non-athletes regarding all joints and the spine. The highest frequency of pain during the last week regarding the spine was found in ice-hockey players and divers, the knee in wrestlers and ice-hockey players. Top athletes in different sports reported higher frequency of pain in the neck, spine and joints in comparison to non-athletes.

Poster Topic: Sports Medicine - Knee

Abstract number: 23632

THE ANATOMY OF PES ANSERINUS FOR ULTRASONOGRAPHY.

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Background: Pes anserinus tenoditis/bursitis (PATB) is an overuse syndrome occurred to not only athletes but also patients with knee osteoarthritis. Although the benefits of Ultrasonography (US) with PATB have been discussed, they are still controversial. Some paper described US was not fit to give a diagnosis, however other paper reported the usefulness of US for pathology of PATB. US method for PATB detailed to bony landmark, probe angle etc. has not been established yet. The purpose of this study is to investigate the clinical morphology that useful to US for PATB. Materials and Methods: Eight formalin-fixed, lower leg cadaver specimens were studied. All knee joints were fixed with full extension. 1) The angle between semitendenious tendon and tibial axis, 2) the angle between medial collateral ligament (MCL) and tibial axis, 3) the widths of groove, 4) the thickness of pes anserinus on the groove and 5) the thickness of MCL on the groove were investigated. Results: The average angle between semitendenious tendon and tibial axis was 68.4 degrees. And the angle between MCL and tibial axis averaged 28.8 degrees. Whereas small groove was found as a bony landmark at the point of intersection between MCL and pes anserinus in each case. The mean longitudinal length was 19.3mm and the mean width was 9.8mm, respectively. Discussion and Conclusion; The results of this study suggested that the probe should be placed around 40 degrees to tibial axis in case of ultrasonography with PATB.
Abstract number: 23665

ANALYSIS OF MENISCUS AND CARTILAGE LESIONS DURING ANTERIOR CRUCIATE LESIONS RECONSTRUCTIONS: A RETROSPECTIVE ARTHROSCOPIC STUDY STUDY

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Aim of study - The purpose of this study was to analyse cartilage and meniscal lesions observedduring reconstruction of ACL. MATERIAL AND METHODS: A consecutive series of 234 patients who underwent ACL reconstruction werereviewed retrospectively to assess meniscal and cartilage lesions observed during the operation. The criteriastudied were age, time to surgery, preoperative laxity measured with KT2000, type and localisation of thelesions. RESULTS: For patients aged less than 30 years, 5.3% presented cartilage lesions and 40.7% meniscal lesions. In patients aged over 30 years, 21.6% had cartilage lesions and 52% meniscal lesions. Medial meniscal lesions were observed in 16.7% of knees when theoperative delay was less than twelve months versus 50% beyond 60 months. Lateral meniscal lesions wereobserved in 24% of knees before twelve months and in 25% beyond 60 months. Finally, cartilage lesionsoccurred in 16.7% of knees before twelve months and in 53.1% beyond 60 months; the medial femoral condylewas involved in 66.6% of the cartilage lesions. CONCLUSION: Preoperative laxity is strongly correlated with medial meniscal and cartilage lesions. The time tosurgery is a predominant factor for the risk of these lesions, particularly after the first year. To prevent thedevelopment of secondary osteoarthritic degradation, it would appear warranted to undertake ligamentoplasty asearly as possible, particularly when there is significant laxity.

Abstract number: 23743 PATIENT SATISFACTION AFTER DAY CASE ACL SURGERY

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Aim: The aim of this study is to assess the patient satisfaction in patients undergoing ACL reconstruction Surgery on a Day Care Basis. Materials and methods: A patient satisfaction questionnaire was sent to 40 patients who underwent ACL reconstruction surgery as a day case under care of one consultant orthopaedic surgeon. Exclusion Criteria1: Patient unfit for day surgery due to co-morbid conditions. 2. Revision SurgeryThe questions were based on admission and preparation for surgery, post operative pain, recovery and discharge process, patients were asked about pain at home and recovery. Finally they were asked about overall satisfaction. Results: 22/40 replied. All patients were happy with the admission procedure and the information provided. All patients found day care ward environment caring & comfortable. Pain control (VAS) in immediate post op period averaged 5 and on day one post op was 5. Degree of pain was not related to patient staying overnight. All patients found Day care ward facilities satisfactory. On a scale of 1-10, nine graded their experience as 10. Eighteen (82 %) patients went home the same day as planned. Discussion and conclusion: Day case ACL surgery is not yet universally accepted. Improvements in anaesthetic services & pain management has made it possible to have ACL surgery in day care centres. As evident from our results patient have high level of satisfaction if the surgery is done on day care basis.

Abstract number: 23753 MENISCAL REPAIR, IS IT A GOOD OPTION?

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Meniscal repair is a procedure that becomes recommended, the development of new repairs system made the procedure easier. In our prospective study we performed repair using a new "all-inside" system. Methods: We used the RapidLoc repair system (J&J, Mitek products) to repair tears in 18 patients. All operations were performed by one surgeon (B.P.). Evaluation was performed using the International Knee Documentation Committee (IKDC) and the Lysholm functional questionnaires. Results: The study included 18 patients in which we performed 18 meniscal repairs, the average age was 22, and the follow up was for one year. 16 males (89%) and 2 females with 16 tears of medial meniscus and 2 of the lateral. All patients had tears in cooper zones 1 and 2. An average of 2.4 sutures was used. 7 underwent concurrent ACL reconstruction, in 11 the tear was an isolated injury. The success rate by objective IKDC score was 94% who had an "A" score after the operation. The subjective IKDC score was improved from 37 to 74 (p value < 0.001), the Lysholm score was improved from 57 to 91 (p < 0.001). In one patient we didn't achieve any clinical improvement after the repair. We didn't find a relation between the age of the patient and the final results. Conclusion: According to our experience the RapidLoc meniscal repair system seems to be an effective technique for meniscal repair. We recommend to preserve the meniscus when possible using this system.

Abstract number: 23947 MANAGEMENT OF ACL INJURIES IN VARUS KNEE

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Failure to diagnose an injury of the lateral and postrolateral structures of the knee in a patient who has a known tear of the ACL can result in failure of the reconstructed ligament. Between March 2006 and January 2009, 36 patients with varus knees and ACL injury have been treated in our institute with average follow up 29 month (ranging from 8 to 42 months). Management differed according to the amount of lateral laxity. Nine patients had only ACL reconstruction, 12 patients had ACL reconstruction and valgus HTO 8 patients had valgus HTO, ACL reconstruction and reconstruction of the Postrolateral corner structures and lastly 7 patients had only valgus HTO.There were minor complications: 2 cases had post-traumatic lateral popleteal Nerve injury, one recovered and the other one treated by ankle fusion 8 months later. 2 cases had postoperative arthrofibrosis treated at 4 months by arthroscopic arthrolysis and 4 patients had persistent limitation of flexion average 20 degrees.

Abstract number: 24280 PATELLAR TENDINOSIS IN COMPETITIVE ATHLETES

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The aim of this prospective study was to detect the efficacy of the surgical treatment of patellar tendinosis and to determine the exact localization of the histopathological process (bone, bone-tendon junction or tendon) and the type of the pathological process: inflammation or degenerationWe have performed prospective study in 34 professional athletes treated with arthroscopically enhanced method of patellar apicotomy. In all patients' histopathological examination of resected bone and tendon tissue was performedAll the patients were classified as stage 3 according to Blazina and showed no improvement after at least 6 months of conservative treatment. The postoperative follow-up was from 1 to 8 years with mean value of 4.7 years. Very good results were achieved in 59 % of operated knees, good result in 35 % knees and poor result were achieved in 6 % operated knees. Pathological changes in the bone were found in 33% of operated patients, abnormality at the bone-tendon junction were found in 75% of the patients, and the changes in patellar tendon were found in all operated patients. All the changes found are of degenerative and not of inflammatory nature. Today we agree that the expression tendinitis is "out". No inflammatory cells can be found in the tendons. It has shown that there is no increase in prostaglandins in the tendinosis tendon. Histopathological studies of tendinosis tissues fibrils characteristically demonstrate hypercellularity, hypervascularity, lack of inflammatory infiltrates, and dezorganization and loosening of collagen. The clinical results and histopathological examination in our series justified our operative method.

Abstract number: 24346

TENSION CHANGES WITHIN THE ANTEROMEDIAL AND POSTEROLATERAL BUNDLES, AT DIFFERENT KNEE FLEXION ANGLES IN THREE-DIMENSIONAL IN VIVO FINITE ELEMENT MODEL OF THE ANATOMICAL DOUBLE BUNDLE ACL RECONSTRUCTION

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The purposes of this study are to evaluate the changes in tension and biomechanical behavior of the reconstructed AM and PL bundles during knee flexion after an anatomical double bundle ACL reconstruction in 3D in vivo finite knee model. Several modeling programs were used to create, manipulate, and analyze the 3D models in five subjects (5 males). Digital length of 2 virtual bundles was measured. The reaction forces and the change of stress distribution within the ligament were assessed. The contact between the AM and PL bundles or the contact between the ligaments and surrounding bony structure were also included. In both AM and PL bundles the length was longest in full extension. Both bundles have been deformed at 45 degree of knee flexion and continued to deform at 90 and 135 degree, which was more prominent in PL bundle. The reaction force of AM graft having 20N at full extension decreased slightly between 45° and 90° of knee flexion and then reached a plateau; meanwhile, the reaction force of PL bundle having 20N at full extension slightly increased at 45° of flexion, then returned to initial force between 90° and 135°. As flexion increased, the PL bundle was wrapped around lateral intercondylar tubercle of tibia, which enabled to maintain the tension regardless of loss of its linearityThe regain of ligament tension with flexion by impingement between the bundles and with surrounding bone suggest final tensioning of bundles in extension would regain joint stability at various knee positions.

Abstract number: 24352 EVALUATION OF THE POSITION OF THE FEMORAL TUNNELS IN ANATOMIC DOUBLE-BUNDLE

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INTRODUCTION: Recently, many studies showed that the double bundle ACL reconstruction is superior to the single bundle ACL reconstruction with regard to anterior and rotational stability. The double - bundle ACL reconstruction may more closely restore normal ACL anatomy. Therefore, it is important to create the femoral tunnels on anatomic insertion sites of the ACL in anatomic double - bundle ACL reconstruction. PURPOSE: The purpose of this study was to compare the position of the femoral tunnels created by the transtibial and the far anteromedial portal technique in double - bundle ACL reconstruction. MATERIALS and METHODS: Thirty two consecutive patients, 14 men and 18 women (mean age 25.8 y) underwent double - bundle ACL reconstruction with hamstrings. Eighteen ACL reconstructions by the transtibial technique and fourteen ACL reconstructions by the far anteromedial portal technique. We evaluated the position of the femoral tunnels using 3-D computed tomography. The gap between the acquired positons of femoral tunnels and the optimal position were measured. RESULTS: The far anteromedial portal technique placed the femoral tunnels closer to the optimal position compared with the transtibial technique. The transtibial technique resulted in a more anterior and superior placement of the tunnel compared with the far anteromedial portal technique.CONCLUSION: The far anteromedial portal technique can create the optimal positon of the femoral tunnels than the transtibial technique.

Abstract number: 25035 PERIOSTEUM-ENVELOPING HAMSTRING TENDON GRAFT

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Tendon-bone incorporation of a tendon graft within the bone tunnel is of priority concern when using for ACL reconstruction. Superior tendon graft-bone healing can be achieved when periosteum was sutured on the tendon inserted into a bone tunnel. This is a case series outcome study with surgical technique for single-bundle ACL reconstruction with periosteum-enveloping hamstring tendon graft at 2-7 years followup. Methods: From 2000 to 2005, ACL reconstruction with a periosteum-enveloping hamstring tendon graft was performed on 368 patients (372 knees). Of those, 312 patients who complete at least two years of follow-up were included for analysis. Four-strand periosteum-hamstring tendon grafts were used for single-bundle reconstruction. Results: The 312 study patients were followed for an average of 4.6 (2-7) years. Their median Lysholm knee scores were 56 (40 to 70) and 95 (60 to 100) points before and after surgery, respectively. After reconstruction, 85% of patients could return to moderate or strenuous activity, 5.1 % exhibited grade 2 or higher ligament laxity with anterior drawer test, and 6.1% had positive pivot shift. Complete range of motion was achieved in 88% of patients. IKDC assessment rated 93% of patients as normal or nearly normal. Conclusion: The study shows that satisfactory results can be achieved with the periosteum-enveloping hamstring tendon graft in single-bundle ACL reconstruction with minimal tunnel widening. Bone-tunnel enlargement of more than 1 mm was identified in 5.4% of femoral tunnels and 6.1% of tibial tunnels, which was less than in other studies using comparable fixation.

Abstract number: 25055

PATIENT SATISFACTION FOLLOWING DAY-CASE ARTHROSCOPIC SINGLE BUNDLE FOUR STRAND HAMSTRING ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

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Purpose: We studied the feasibility of performing arthroscopic, double-bundle anterior cruciate ligament (ACL) reconstruction as a day-case procedure by assessing patient satisfaction and radiological outcome. Methods: A preliminary analysis of patients undergoing primary ACL reconstruction demonstrated that with injection of levo-bupivacaine into the knee and graft harvest sites, peak pain scores occurred sufficiently early to allow day-case discharge. The subsequent 23 consecutive patients undergoing primary ACL reconstruction were then assessed. Clinical data was collected by case-note analysis. Patient satisfaction was assessed using a standard questionnaire and surgical technique by analysis of radiographic tunnel positions. Results: The average age was 31.4 years. Male to female ratio was 20:3. 14 patients (61%) were discharged as day-cases. 9 patients (39%) had 1 overnight stay. Reasons for an overnight stay were specified as post anaesthetic symptoms (4 patients), unsafe mobility (3 patients), patient concern (1 patient) and delayed micturition (1 patient). Of the 14 patients discharged as day-cases 13 (93%) stated that they were satisfied with their experience. 1 (7%) stated that he was not satisfied because he felt weak and unwell post-operatively. All patients' tunnel positions were satisfactory. Patients were more likely to be discharged on the day of surgery if booked as day-cases, and placed on a morning list. Patient satisfaction may be improved by additional pre-operative education, and by adjustments to postoperative analgesic and antiemetic medication. Conclusion: We conclude that daycase arthroscopic double bundle ACL reconstruction is feasible in a district general hospital, and is acceptable to most patients.

Abstract number: 25103 EVALUATION THE RESULTS OF ANTERIOR TIBIAL TUBERCLE TRANSFER-22 YEARS EXPERIENCE

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Introduction: This study evaluated the results of Anterior Transfer of Tibia Tubercle (ATTT) as a treatment of patellofemoral arthrosis (PFA), caused by different etiology. Patients and methods: The authors report a retrospective study of 182 operations of patients with ATTT, available for long term follow-up, between 1987 and December 2009. Arthroscopially noted chondromalatio patellae, lateral patellar subluxation in patients with chronic anterior knee pain, post-traumatic patellofemoral arthrosis are our indications for using Maquet or Elmslie-Trilatt-Dejour operative procedure combined with lateral release. Results: Follow-up criteria were evaluated according to the criteria described by Bandi and Ficat. The analysis was focused on complications, morphologic outcome, muscle atrophy, retropatelar facet pain. Conclusions: ATTT is effective technique, in majority of patients to return to normal life activities, without pain and with effective articular functions of knees.

Abstract number: 25235 GOUT AND COEXISTING PSEUDOGOUT IN SINGLE KNEE JOINT CONFIRMED BY ARTHROSCOPY AND POLARIZED MICROSCOPY: CASE REPORT

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Gout and coexisting pseudogout (calcium pyrophosphate dehydrate crystal deposition disease (CPPD) presenting as an acute monoarticularitis is uncommon. We describe the case of a 63-year-old man who had a gout and coexisting pseudogout affecting single knee joint. In the present report we could confirm monosodium urate and calcium pyrophosphate dehydrate crystal simultaneously from the specimen obtained during arthroscopy.

Abstract number: 25244

MEDIAL PATELLOFEMORAL LIGAMENT RECONSTRUCTION FIXED WITH A CYLINDRICAL BONE PLUG AND A GRAFTED SEMITENDINOSUS TENDON AT THE ORIGINAL FEMORAL SITE FOR RECURRENT PATELLAR DISLOCATION KNEES

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The medial patellofemoral ligament (MPFL) has been recognized as the most important factor to stabilize the patella. Thus, MPFL reconstruction has become an accepted surgical technique to restore patellofemoral instability. We recently developed a new anatomical MPFL reconstruction method using a cylindrical bone plug and a grafted semitendinosus tendon at the original femoral site to mimic the native MPFL. This study sought to evaluate our new technique for stabilizing recurrent patellar dislocation. We evaluated 31 knees from 29 cases of recurrent patellar dislocation that were surgically treated using our anatomical MPFL reconstruction. The patient age ranged from 12 to 34 years old (average 22.2 years); follow-up after surgery was between 2 and 5 years (average 3.2 years). The patients were clinically evaluated based on the Kujula score, ROM, and signs of apprehension. We used the Murchant's view to measure congruence and tilting angles. Of the 31 knees, 30 showed good clinical results following surgery, while one patient showed remaining signs of apprehension. The Kujala score increased to between 79 and 100 points (average 94.5 points) at the final follow-up compared to between 35 and 70 points (average 64 points) before surgery. ROM improved from 0 degrees to 145 degrees at the final follow-up. No remarkable patellar redislocation was reported after surgery. Radiological assessment revealed a significant improvement in both the congruence angle and tilting angle, relative to the normal ranges. From this study, our anatomical MPFL reconstruction offers a promising surgical procedure to treat patellar dislocation.

Abstract number: 25460

CAN PHYSIOTHERAPY MIMICRI KNEE INJURIES IN MRI?

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Background: In patients with medial knee pain MRI findings after extensive physiotherapy are often of an uncertain validity. Methods and Patients: 9 volunteers with no significant knee problems were scanned with a SIEMENS MRI (Erlangen, 1,5T Avanto) (pd tse tra, t2 tse tra fs, t2 tse cor fs, standard 8-channel knee coil) baseline (t1) and received intensive physiotherapy for the treatment of medial knee pain after injuries of the medial collateral ligament. Two follow up scans were performed after 1h (t2) and 24h (t3). The images were analysed by an experienced radiologist with more than 10 years experience in musculoskeletal MRI. For statistics paired two sample t-tests were applied. We tested the null hypothesis of the mean of the sample being equal to zero. Results: In t1 no edama was found in t2 a significant increase and a further rise at t3 was found. The differences between t1 and t2 are significant (t-statistic is calculated to be equal to 6.822), the differences between t1 and t3 and the differences between t2 and t3 are also significant (t-statistic of 2.195 implies that the null hypothesis is rejected at the 5% confidence interval). Conclusion: After physiotherapy a significant increase of soft tissue edema can be found in MRI, which can be misinterpreted as an injury.

Abstract number: 25523

HIGH AND LOW-POLE MRI OF THE KNEE: COMPARISON OF ACCURACY.

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PURPOSE: evaluation sensitivity, specifity, NPV, PPV and accuracy of high- and low-pole MRI of the knee joint. MATERIALS AND METHODS: retrograde investigation of 100 operated knees with lesions of medial and lateral menisci, ACL and gialine cartilage. Half of them were pre-operative evaluated using low-pole MRI (less then 1,0 T), the other half - using high pole MRI (1.5 or 3.0T). The evaluations were performed in different diagnostic centers by different radiologists. Arthroscopy was performed by skillful orthopedists in our clinic and used as gold standard. RESULTS: The most pronounced difference was seen in diagnostic of ACL lesions: for the low-pole MRI sensitivity was 40,0%, specifity - 84,6%, NPV - 47,8 %, PPV - 80,0%, accuracy - 57,5%. The same parameters for high pole MRI were: sensitivity - 82,0%, specifity - 91,0%, NPV 66,7%, PPV - 91,0%. Total accuracy of low-pole MRI was 65,7%, of high-pole MRI - 74,8%. The results were higher in Orthopaedics-specialised centers. CONCLUSIONS: high-pole MRI is significantly better diagnostic tool for lesions of the knee than the low-pole one.

Abstract number: 25709

USE OF THE GROWING FACTORS IN THE RECONSTRUCTION OF THE

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The platelets contain various growing factors (GF) that once activated give a stimulation effect on the migration and proliferation of various cellular types. The growing factors in the platelet-rich-plasma (PRP) allow obtaining a revitalization of tissue and ther faster recovery. Stimulated from the data collected in literature we have tried a new application of the GF in the surgical reconstruction of the ACL: in particular we wanted to study the effect of PRP on bleeding and post-operative painful symptomatology. We have considered four continuous series of young sportsmen operated of reconstruction of the ACL: A) reconstruction LCA with ST-Gr + GF B) reconstruction LCA with ST-Gr without GF C) reconstruction LCA with BPTB + GF D) reconstruction LCA with BPTB without GF The patients included in this study practiced different sports. Results: the pain is increased in all groups in the first postoperative day and reduced at the removing of the drains: in the groups A and C the pain is reduced with important values. The edema is very reduced in the groups A and C in III post-operative day. Conclusions: the use PRP in patients operated of reconstruction of the ACL with ST +Gr and BPTB allows the reduction of the postoperative pain, of the the blood loss and the edema versus the control groups. All this means better compliance of the patient to rehabilitation protocol and a faster return to the sporting activity and to the specific athletic practice. All this means a faster return to "SAME SPORT-SAME LEVEL".

Abstract number: 25741 PROPHYLACTIC EFFECT OF CARBOXYMETHYLCELLULOSE HYALURONANE (SEPRAFILM®) MEMBRANE ON THE KNEE ARTHROFIBROSIS (EXPERIMENTAL ANIMAL STUDY)

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We aimed to investigate the effect of Seprafilm®, a synthetic biomembran, on the intra-articular adhesion formation in an experimental arthrofibrosis model. Twenty male white rabbits were randomly allocated into two groups. A standard surgical procedure to develop arthrofibrosis (medial parapatellar arthrotomy, lateral eversion of patella, partial synovectomy, debridement of anterior supracondylar area and patella joint surface by scalpel) was performed on all rabbits' right knees. Group 1 rabbits served as controls, and in Group 2 rabbits Seprafilm® placed into the described area. In both groups, after surgery, knee joint was immobilized by no.5 wire suture passing from the ankle and groin and keeping the joint in 140° of flexion. At 6th week, all animals were sacrificed and adhesion formation was evaluated both macroscopically and histo-pathologically. All data were semi-guantified and analyzed statistically by Fisher's exact test. While all rabbits in control group displayed different rates of adhesion macroscopically (62.5% severe, 25% moderate, 12.5% mild), none in the study group had it. The average macroscopic adhesion score was 2.5 ± 0.75 in control group, and 0 in Seprafilm® group. Histopathologic evaluation also revealed microscopic adhesion in all rabbits in control group, but none in Seprafilm® group. Fibroblast proliferation in Seprafilm® group (100% mild) was significantly lower than in control group (62.5% severe, 37.5% moderate) (p<0.05). In conclusion, use of Seprafilm® as a mechanical barrier may be of value against the formation of arthrofibrosis in risky knees such as septic and traumatic ones.

Abstract number: 25771

TEMPERATURE SENSITIVE RELEASE OF PGE2 AND DIMINISHED ENERGY REQUIREMENTS IN SYNOVIAL TISSUE WITH POSTOPERATIVE CRYOTHERAPY - A PROSPECTIVE RANDOMISED STUDY AFTER KNEE ARTHROSCOPY

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Background: Local external cooling of the postoperative field is a treatment paradigm aiming for enhanced recovery after joint surgery. It is supposed to reduce pain and improve mobilization, enabling same day surgery. Hypothesis: Systematic postoperative cooling and compression after knee arthroscopy will reduce pain and also be reflected by changes in local levels of metabolic and inflammatory variables in the synovial membrane. Methods: Forty-four otherwise healthy patients were randomised to systematic cooling and compression or NO cooling and compression after knee arthroscopy. Microdialysis of the synovial membrane was performed postoperatively with measurements of PGE2, glucose, lactate, glycerol, glutamate and blood flow (ethanol exchange ratio). Local temperature was monitored as well as postoperative pain (VAS and NRS). Results: Cooling and compression after knee arthroscopy resulted in significantly lower temperature in the operated knee (skin, joint capsule and intraarticularly). This diminished energy requirements in synovial tissue and a temperature sensitive influence on inflammation (PGE2) were shown. No effect on postoperative pain was detected. Conclusion: Local cryotherapy and compression after knee arthroscopy significantly lowered local knee temperature postoperatively. A correlation with synovial PGE 2 and temperature was shown. Since PGE2 is a pain and inflammatory marker this implicates a positive antiinflammatory effect induced by postoperative local cooling and compression.

Abstract number: 25885

CAN WE PREVENT GRAFT EXTRUSION POSTOPERATIVELY?

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Correct allograft placement using the properly size-matched allograft are crucial factors that influence the postoperative results of meniscal allograft transplantation. Arthroscopic landmarks and portals for optimal visualization and guide wire placement for meniscal horn bony insertion site are described in literature, but the described technique of guide wire placement during MAT is usually by parapatellar approach which is not in anatomical direction of meniscal horn bony insertions. Our technique on MAT focuses on making the correct position of the tibia tunnel with precise entry point using the transpatellar approach. In all of our 11 consecutive cases, none of the patients presented with meniscal extrusion according to the latest follow up MRI.

Abstract number: 25966

MRI FINDINGS OF GRAFTS AFTER ACL RECONSTRUCTION USING HAMSTRING TENDONS

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We investigated the effecting factors for MRI findings of grafts after ACL reconstruction using hamstring tendons. There were twenty-two knees (twenty patients). We examined these MRI findings more than one year post-operation. The signals of ligaments' mid-substance on sagittal planes parallel to the ACL were examined, and we considered the causes efecting the difference of signals. T1 weighted imaging showed 11 knees of intermediate, 4 knees of low, and 7 knees of inhomogenous low signal intensity. T2 -weighted imaging showed 14 knees of low, and 8 knees of inhomogenous low signal intensity; 2 knees examined showed a positive pivot shift test for both intermediate signal intensity on T1 - weighted images, and on inhomogenous low signal intensity on T2 -weighted images, while others came up with various findings. Factors such as period of reconstruction, the thickness of grafts, age, sex, combined injury, and sports activity had no relation to the signals. The grafts with same signals from normal ACL all had good stability, and all of the unstable knees showed abnormal signal intensity. However, the cases showing abnormal signal intensity also included stable knees. We can only speculate that the changes in MRI signals are a result of the various states of grafts healing, and can conclude the difference in signals had no relation to the clinical results and sports activities.

Abstract number: 26016 IS RADIOGRAPHIC MEASUREMENTS OF BONY LANDMARK FOR MENISCAL SIZING RELIABLE?

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The radiologic measurement of meniscal width is widely accepted but the conventional method of measuring the length is controversized. The purpose of this study was to develop and validate the radiographic measuring method of determining the needed size of a lateral meniscal allograft. We studied forty samples of fresh lateral meniscus which was obtained during total knee arthroplasty. The sample was obtained carefully without injurring the meniscus itself and the bony attachment sites. The patient inclusion criteria was mild to moderate genu varum osteoarthritis patients with mechanical axis deviation of less than 15 degrees. On the radiographs, lateral tibial width and the distance from anterior tibia border to the posterior lateral plateau was measured using the author' protocol. Linear regression analysis was used to calculate expected meniscal dimensions from each specimen' plateau dimensions. The width and length of anatomic measurements were 26.8±2.96 and 36.6±6.10 respectively. The width and length of radiologic measurements were 29.24±2.81 and 48.08±5.64 respectively. Linear regression analysis showed the relation of the length to be anatomic=radiologicx0.7. The absolute difference of width and length were 1.95±1.43 and 2.75±2.05 respectively. Using specific medial and lateral tibial plateau width and length measurements, meniscal dimensions could be predicted with a mean error of only 5.0±5.4%. The results suggest that lateral meniscal dimensions can be predicted accurately from radiographic tibial plateau measurements, with only small mean errors.

Abstract number: 26224

TENDINOPATHY – WHERE DOES THE PAIN COME FROM?

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Tendinopathy, including pain and tissue proliferation, is suggested to be modulated via nerve factors. Thus, substance P (SP) and glutamate are known to activate glutamate receptors in a variety of pain conditions. The aim of this study was to assess the presence, tissue density and co-existence of different glutamate receptors together with glutamate and SP in biopsies of tendinopathy patients and controls.Human patellar tendinopathic (n=10) and control (n=8) biopsies were singleand double-stained immunohistochemically for glutamate, glutamate receptors (NMDAR1. Phospho-NMDAR1 (activated receptor), mGluR1, mGluR5 and mGluR6,7), the nerve marker PGP9.5 and SP and assessed subjectively and semiquantitatively with image analysis. Non-parametric Mann-Whitney U-tests for independent samples were used. Significance, p<0.05.All markers but mGluR1 were identified. The chronic painful tendons exhibited increased density of the ligands glutamate and SP and of all glutamate receptors except mGluR6,7. The most significant up-regulation of NMDAR1 (9-fold) and glutamate (10-fold) was found to be co-localized on sensory nerve fibers, blood vessels as well as on transformed tenocytes. The controls exhibited no neuronal co-existence of glutamate-NMDAR1. This study establishes that tendinopathic patients exhibit an up-regulated NMDAR1/glutamate system, which may lead to cell proliferative effects observed as angiogenesis, tenocyte transformation, and nerve sprouting. Most interestingly, the neuronal co-existence of glutamate-NMDAR1 observed in painful tendinosis, but not in the controls, strongly suggests a role in pain signalling. Operative and pharmacological approaches to modulate the nerve glutamate-receptor pathways will be investigated to improve function in tendinopathic patients.

Abstract number: 26522 KNEE DISLOCATIONS. IS RECONSTRUCTING THE POSTERIOR CRUCIATE CRUCIAL?

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Four consecutive patients (27-39 years) with knee dislocation with the anterior cruciate ligament (ACL), the posterior cruciate ligament (PCL) and the posterolateral corner (PLC) completely ruptured were operated by the same surgeon 1999-2003 with the same technique. The ACL injuries were reconstructed with a patellar tendon strip, the PLC injuries with primary repair, but the PCL injuries were not reconstructed. The operations were performed 4-11 days after injury. The postoperative rehabilitation was the same for all patients and there were tests by the same physiotherapeut after 3, 6 and 12 months. After 3 years KOOS, EQ-5D and work performance were recorded. After 6-10 years also Lysholm and Tegner score, clinical examination, standing x-ray and posterior stress x-ray (Bartlett) were included. Results: All patients were at fulltime work at both 3 and 6-10 years. One patient was back at high level sport activity but the other three had lowered their activity. One patient had Ahlbäck 1 at standing x-ray, but the other 3 had Ahlbäck 0. There were no signs of fixed posterior subluxations, but all patients had increased posterior laxity at stress x-ray. Conclusion: Patients with knee dislocations (ACL+PCL+PLC) were PCL has not been reconstructed still perform well after 6-10 years.

Abstract number: 26613

INTRA-ARTICULAR PATTERNS OF BUCKET HANDLE MENISCAL TEARS

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The purpose of this study was to assess the intra-articular patterns of rotational deformities of BHMTs based on arthroscopic findings and emphasize the importance of tear pattern recognition. F rom 2004 to 2009, forty-two patients with a BHMT diagnosed by magnetic resonance imaging underwent arthroscopic surgery. By analysing data we classified BHMTs according to the rotational directions of centrally displaced fragments. To assess the reliabilities of the agreement in ILJ classification, two Orthopaedic surgeons re-classfied BHMTs. 1 week after first trial. Intra- and interobserver reliabilities were assessed using kappa statistics. Also we address specific tear patterns; associated ACL injury, medio-lateral difference, reducibility, chronicity, and reparability. Most of the tears were able to be categorized into 3 morphologic patterns. Of the tears, 4.8% could not be categorized. BHMTs were classified, based on the rotational directions of centrally displaced fragments, as follows; the upward rotation group (type 1), the downward rotation group (type 2) and the reverse group (type 3). The most common intra-articular pattern found was type 1 (29 patients, 69%). The other patterns were; type 2 in 7 patients (16.7%), type 3 in 4 patient (9.5%). Intra-observer reliability was 0.86 in terms of kappa statistics, which implies almost perfect agreement. Mean interobserver reliability (0.67) showed substantial agreement. Tear type was correlated with reducibility. On the basis of this, the surgeon can anticipate tear patterns, which may improve pattern recognition and facilitate anatomic repair.

Abstract number: 23823

DIFFERENTIAL DIAGNOSIS OF A-C JOINT DYSFUNCTION IN SWIMMERS Luis CARRASCO MARTINEZ, Javier CARRASCO MARTINEZ, Valentin ROBLEDANO BELDA, Arnaldo RODRIGUEZ HERNANDEZ *Clinica Perpetuo Socorro, Las Palmas De Gran Canaria (SPAIN)*

INTRODUCTION: Osteoarthritis is a group of diseases and mechanical abnormalities entailing degradation of joints, including articular cartilage and the subchondral bone next to it. Clinical symptoms of OA may include joint pain, tenderness, stiffness, inflammation, creaking, and locking of joints. Myofascial Trigger Points are hyperirritable spots in skeletal muscle that are associated with a hypersensitive palpable nodule in a taut band. The pattern of refereed pain and hypersensitivity constitute the key for their identification. MATERIAL AND METHODS: Non experimental study of approaching to reality and of descriptive type of 11 federated non professional freestyle swimmers who presented pain firstly in the front of the shoulder and in the arm posteriorly. We used the diagnostic clinical criteria proposed by Travell and Simons, exploratory tests, differential diagnostic procedures and shoulder AP/AXIAL X-rays. RESULTS: The 11 swimmers (5 men, 21-35 years old and 6 women, 19-33 years old). All cases presented the essential diagnostic criteria and Local Twich Response manually. The Back-rub test showed restriction in the range of shoulder motion. The arm could not be flexed behind the ear. The flexion was not limited. Muscle strength test and passive stretching caused pain. The differential diagnostic procedures were negative so as X-rays. MTP activation was phase. CONCLUSION: The characteristic refereed the flying pain and hypersensitivity, besides the pain relief to eliminate MTP confirms the exact diagnosis, but OA signs could exist.

Abstract number: 23828

ENTHESOPATHY OF SUPRASPINATUS DIFFERENTIAL DIAGNOSIS IN SWIMMERS

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INTRODUCTION: Supraspinatus attachment inflammation could be confused with Myofascial Trigger Points (MTP), which are hyperirritable spots in skeletal muscle that are associated with a hypersensitive palpable nodule in a taut band. The pattern of refereed pain and hypersensitivity constitute the key for their identification. MATERIAL AND METHODS: Non experimental study of approaching to reality and of descriptive type of 33 federated non professional swimmers who presented pain in the middle deltoid region with some spillover to adjacent areas, and painful abduction of 90°. We used diagnostic clinical criteria proposed by Travell and Simons, exploratory test (horizontal adduction, active and passive horizontal abduction and lateral rotation, flexion with adduction and extension with adduction), both shoulders AP/AXIAL X rays and Ecography. RESULTS: The 33 swimmers, 20 men (9 right 11 left), 18-23 y o and 13 women (7 right 6 left), 19-25 y o, presented the essential diagnostic criteria and pain or sensitive alteration when pressing MTP by snapping palpation with the arm positioned in 30° of abduction, showing a vigorous LTR. The shoulder passive abduction to 90° is painful with middle deltoid MTPs not with supraspinatus tendinitis. X rays examination and Ecography showed neither subacromial pathology, supraspinatus tendinitis not subdeltoid bursitis. The activation of these MTPs was made by vigorous repetitive movements into abduction (flying phase). CONCLUSION: These swimmers show a progressive and serious impairment of strength, and a total inability to reach 90° of abduction, so they are unable to, not only, their trainings as well their daily activities

Abstract number: 25013 SURGICAL TREATMENT OF ROTATOR CUFF TEAR WITH BICEPS TENDON PATHOLOGY

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Biceps long head tendon (BLH) lesion is commonly associated with rotator cuff tears (RCT). This study is to determine the pathologic spectrum of BLH tendon in surgical cases with complete full thickness RCT. Treatment protocols for each type were postulated and clinical outcome was assessed. Methods: 176 complete RCT (1993-2005) with surgery were included. During rotator cuff surgery, BLH tendon was examined by arthroscope. 6-types-classification was applied to describe the biceps lesion. Treatments for biceps tendon pathology included tenodesis, tenotomy, debridement, and biceps re-fixation, depending on the severity. Results: 58 (33%) shoulders had type 1 lesion (tendinitis), 19 (11%) shoulders had type 2 lesion (subluxation), 16 (9%) shoulders had type 3 lesion (dislocation), 29 (16%) shoulders had type 4 lesion (partial tear), 12 shoulders (7%) had type 5 (complete rupture), and 10 shoulders (6%) had type 6 (SLAP). Remaining 32 shoulders (18%) did not present obvious pathology. More chronic or extended RCT, subscapularis tendon involvement, and degeneration-associated tear were strongly associated with an advanced biceps tendon lesion. 107 shoulders (61%) received associated procedures for biceps lesion and rotator cuff surgery simultaneously. In a minimal 2 years follow-up in 88 of 107 shoulders, 72 (82%) achieved satisfactory results. Conclusion: BLH tendon injuries are strongly associated with RCT. Early identification and repair of rotator cuff lesions may prevent further deterioration of the biceps tendon lesion. The biceps tendon lesion should be treated surgically along with rotator cuff repair to achieve better clinical outcome.

Abstract number: 25070 SUTURE MANAGEMENT IN ARTHROSCOPIC ROTATOR CUFF REPAIR Hatem SAID, Maher EL-ASSAL

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Arthroscopic surgery has become the standard management for rotator cuff tears. Technical difficulties face the surgeon especially with multiple threads and arthroscopic portals. Furthermore the introduction of the double row repair and the transosseous equivalent techniques has required more surgical skill than before. From 2006-2009, sixty two rotator cuff tears were performed in our department, we present our results of arthroscopic treatment of RC tears and elaborate on the techniques of suture management and new generation of knotless anchors.

Poster

Topic: Sports Medicine - Shoulder

Abstract number: 25158

MODIFIED WEAVER-DUNN METHOD IN ACUTE DISLOCATION OF ACROMIOCLAVICULAR JOINT (ACJ).

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Introduction: Weaver-Dunn is an established surgical technique Rockwood type - IV, V and VI injuries. The purpose of our study is to present a modification of Weaver-Dunn technique in patients with acute ACJ dislocation. Patients & Method: During January 2007 to September 2008, 15 patients (mean age 27 years, range 20-42) were managed operatively. 10 cases were type III and 5 cases type V acute (<3 weeks) ACJ dislocations. The right/left limb ratio was 13/2. Mean follow up was 10 months (6-14). The surgical technique performed included resection of the distal (approximately 8mm) part of clavicle, resection of posterior half of coraco-acromial ligament and fixation of this part to the clavicular edge. Reduction, fixation of the clavicle and reconstruction of coraco-clavicular ligaments was performed using strong synthetic suture looped around coracoid process. The anterior half of coracoclavicular ligament remained intact in all cases. In 2 cases we used posterior 2/3 of coraco-acromial ligament due to the ligament's small diameter. Results: There was 1 patient with postoperative wound haematoma which was self-recessed and 1 patient with reccurent dislocation due to clavicular fracture. 12 out of 15 patients returned to previous sport activities. Conclusions: Modification of technique consists of preserving the anterior part of coraco-acromial ligament offering a relative stability of coraco-acromial arc. The disadvantage of this technique is the high cost of synthetic suture. A long-term study could confirm the advantage of coraco-acromial ligament preservation in the treatment of acute or chronic dislocations of the acromioclavicular joint.

Abstract number: 23829

C5, C6 RADICULOPATHY DIFFERENTIAL DIAGNOSIS IN SWIMMERS

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Myofascial Trigger Points (MTP) are hyperirritable spots in INTRODUCTION: skeletal muscle that are associated with a hypersensitive palpable nodule in a taut band. The area is painful to compression, causing characteristic refereed pain and hypersensitivity, motor dysfunction and autonomic phenomena. The pattern of refereed pain and hypersensitivity constitute the key for their identification. MATERIAL AND METHODS: Non experimental study of approaching to reality and of descriptive type of 20 federated non professional swimmers who presented deep pain within the joint, projecting down the anterolateral aspect of the arm to the fingers. We used diagnostic clinical criteria proposed by Travell and Simons, exploratory tests (Hand-to-shoulder Blade Test, stretching by passive medial rotation, loading by active lateral rotation), AP/AXIAL X rays and EMG. RESULTS: All swimmers (11 men 17-30 years old, 7 in right side (63.63%) and 4 in left side (36.37%), and 9 women 19-23 years old, 3 in right side (33.33%) and 6 in left side (66.67%) presented the essential diagnostic criteria but LTR was impossible to elecit. The Mouth Wrap-around Test was restricted in all of them. X rays examination did not show pathology. EMG did not show radiculopathyTheir activation was made during flying phase (lateral rotation and abduction). CONCLUSION: Infraspinatus MTPs refer pain in the distribution of the C5, C6 spinal nerves which may cause diagnostic confusion with radiculopathy due to intervertebral disc disease. The inability to medially rotate and to adduct simultaneously is a revealing signof infraspinatus MTP but not specific.

Abstract number: 26480

CHRONIC WHIPLASH SYNDROME AFTER CERVICAL WHIPLASH INJURIES IN ATHLETIC ACTIVITIES. CLINICAL OUTCOME

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Purpose: We assess qualitatively and quantitatively the potential risk in athletic activities to sustain cervical whiplash type spine injury and chronic whiplash syndrome. Patients and Methods: We gathered information from sports accidents type whiplash that occurred in Peloponisos between 1997 and 2007. One hundredtwenty eight patients with WSI injuries were recorded in sports in our Orthopaedic Department between the years of 1997 and 2007, and classified according to Quebec Task Force (QTF) classification. The most of them classified in grade 0 according QTF (102/128). All the other patients (26/128) returned for the 6-months, 1-year and 2-year follow-up appointment. All these patients (average age, 26.8 years old) underwent clinical, laboratorial and health related quality of life scales (SF 36) and psychometric examinations (HADS). The mean posttraumatic interval was 28 months. Statistical analysis was performed using the GraphPad Prism 2.01. Results: Only 3 patients 3/128 complained for neurological signs at the time of injury. The other patients classified in the minor grades I and II according QTF classification. No patient complained for neurological signs after six months from the injury. Only two patients 2/128 remain with neck pain, vertigo, tinnitus, and tenderness, but with no physical signs [grade I] one year posttraumatic. Conclusion: Our study shows that there is a significant risk of whiplash type injuries in sports, especially indoor soccer 5x5. But serious injuries with neurologic sequelae and WAD remain very infrequent, and most these injuries have minor severity.

Poster Topic: Sports Medicine - Systemic

Abstract number: 25481 EFFECTS OF COMMONLY USED DRUGS IN SPORTS MEDICINE ON GROWTH AND CELLULAR APPEARANCE OF MESENCHYMAL STEM CELLS (MSC)

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Joint injuries cause pain, inflammation and dysfunction. Pharmacologic treatment is often initiated. There is a need to clarify the local tissue effects of these drugs and their impact on MSC as the precursor to tendons, bone and cartilage. The aim of this study was to investigate the effects of commonly used drugs in sports medicine on growth and appearance of MSC in culture. The set-up was an in vitro-study of murine MSC's. Pure active substance was added to the cultures (commonly used corticosteroids, local anaesthetics and NSAID). Growth over time was measured by spectrophotometry at set points. Cellular appearance was observed by microscopy and photo-documented.In contrast to local anaesthetics, commonly used NSAID's caused inhibition of growth and also affected the cellular appearance of MSC's in culture. The result was dose dependent. The most prominent inhibition of growth was observed by glucocorticoid treatment. This effect was also dose dependent. Commonly used drugs in sports medicine have pronounced biological effects on MSC function which are the precursors for mesenchymal tissue such as bone, cartilage and tendon. The most prominent effects were caused by glucocorticoids and NSAID. These effects might have long term influence on regeneration after tissue injury and must be taken into consideration before initiating pharmacological treatment. There is a need for new targets for treatment optimizing the balance between pain, inflammation and regeneration.

Poster Topic: Sports Medicine - Tibia/Fibula

Abstract number: 25411 NEAR INFRARED SPECTROSCOPY IN DIAGNOSING CHRONIC COMPARTMENT SYNDROME

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Near infrared spectroscopy (NIRS) measures muscle tissue oxygen saturation (StO2) non- invasively and has been used in diagnosing chronic compartment syndrome (CCS). We determined the diagnostic value of NIRS. We measured StO2 in the anterior compartment of the leg in 22 patients (17 men, 5 women age 17-60 years old) with CCS confirmed by elevated intramuscular pressure (IMP), and 5 healthy subjects (3 men 2 women, 24-36 years old) before, during, and after an exercise test. The patients and healthy subjects performed the exercise until muscle fatigue. Baseline StO2 (100%) was defined as the value recorded at rest before exercise. R90 was defined as time required for StO2 level to recover from 10% to 90% of its final value. During exercise, the level of tissue oxygenation decreased relatively to work intensity in both patients and subjects. R90 was 27 (12-70) seconds in the CCS patients and 22 (8-34) seconds in healthy subjects. No significant difference was found. The sensitivity of the test is 32% and specificity 80% at R90 >30 seconds. Conlusion: Based on our results, NIRS alone is insufficient to establish the diagnosis of CCS.

Abstract number: 23550 RESULTS AFTER IMMEDIATE OPERATIONS OF ANKLE FRACTURES IN PATIENTS WITH PREOPERATIVELY NEGLECTED TYPE 2 DIABETES

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Many studies suggest diabetes influence ankle fracture surgical outcomes, but results after immediate surgical treatments of closed ankle fractures (CAFs) in patients with preoperatively neglected type 2 diabetes (PND2) have not been documented. We contrasted the results of the immediate operations of CAF in 36 PND2 patients with those of a matched group of non-diabetic patients, using a case-controlled study. Outcomes were complications and ankle scores during the first 12 months of treatment. Compared with non-diabetic patients, immediate surgical xation of the CAF in PND2 patients showed similar results of ankle scores. Immediate surgery in PND2 patient with CAF may increase the risk of postoperative infection (13 patients; 36.1%) than non-diabetic controls (5 patients; 13.9%), but the difference was not statistically significant and did not worsen the final prognosis. These findings suggest that immediate surgical intervention is approved in those CAF patients with risks of type 2 diabetes to some extent.

Abstract number: 23750 SURGICAL TREATMENT OF FIBULA MALUNION WITH RUPTURE OF TIBIOFIBULAR SYNDESMOSIS.

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Introduction The unstable ankle fractures must be treated operatively. Malunion of the distal fibula in these fractures can lead to shortening and ankle instability. Frequently, ankle fractures are associated with widening of tibiofibular syndesmosis. Aim: The aim of this study is to present the surgical treatment of distal fibula malunion with rupture of tibiofibular syndesmosis. Patient-Method: Thirty years old patient has visited our hospital four months after an ankle fracture. He complained of persistent pain, edema and limitation of his daily activities. Valgus of the ankle and restricted ankle range of movement were obvious in clinical examination. AOFAS score was 6 of 100 (0/6/0). Ankle radiographs revealed widening of the syndesmosis and fibula malunion. We designed surgical treatment. The surgical treatment included horizontal osteotomy of the fibula over the malunion and lengthening using cortical bone graft and anatomical plate. The widening of the syndesmosis was treated with a syndesmosis screw. The length of fibula and the ankle mortise were repaired. The ankle was immobilized in a below knee plaster with the foot in inversion for 6 weeks. The patient followed intensive rehabilitation programResults Two months later the patient started walking without crutches. AOFAS score was 46 (20/16/10). At six months follow up he returned to his daily activities and his AOFAS score was 77 (30/37/10). Conclusion: The lengthening of malunited and shortened fibula must be combined with syndesmosis screw when there is a widening of mortise.

Abstract number: 24238

LONG TERM FUNCTIONAL OUTCOME OF NAVICULAR FRACTURES

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Background: Navicular fractures (NF) are uncommon and outcome remains undetermined. The purpose of this study was to evaluate functional outcome in NF. Methods: A prospective analysis was undertaken on a cohort of 64 patients diagnosed with NF between March 2002 and June 2007 at a Level I teaching trauma center. Functional status assessment included Foot Function Index (FFI) and Short Musculoskeletal Function Assessment (SMFA). Results: Thirty-eight patients with 40 NF returned valid questionnaires. Age averaged 44 years (17-72) and BMI 28.5 (18.7-48.9). Associated foot injuries included 21 cuboid, 16 metatarsal, 15 cuneiform, 11 Lisfranc, 10 talus, and 11 calcaneus injuries. AO/OTA 07 classifications were 27 Type-A and 13 Type-B fracture patterns. After mean survey follow-up of 53 months (range 23-87) average functional scores were FFI 31.8, Daily 22.7, Emotional 31.9, Arm-Hand 9.4, Mobility 27.6, Dysfunction 22.6, and Bother 23.9. Functional status was significantly worse compared to normative values in all functional scores except Arm-Hand (t-test, p<0.05). More severely injured feet (associated foot injuries >3) had significantly inferior functional status compared to less injuries or normative controls (1-Way-ANOVA, p<0.05). An associated cuboid fracture related to inferior functional status (r>=0.409; p<0.05). BMI independently contributed to inferior functional scores (p<0.01). Conclusions: Navicular fractures are debilitating injuries and long-term functional outcome remained inferior compared to normative controls. Associated cuboid fractures, increased foot injury severity, and BMI determined inferior functional status.

Abstract number: 24242

LONG-TERM FUNCTIONAL OUTCOME OF CUBOID FRACTURES

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Introduction: Cuboid fractures (CF) are rare and functional outcome remains underreported. The purpose of this study was to evaluate functional outcome in patients with CF. Method: A prospective analysis was undertaken on a cohort of 86 patients diagnosed with CF between 2002 and 2007 at a Level I teaching trauma center. Functional outcome assessment included Foot Function Index (FFI) and Short Musculoskeletal Function Assessment (SMFA). Results: 45 patients with 47 CF returned valid questionnaires. Age averaged 45 years (range 17-72) and BMI 29.0 (range 17.5-48.9). Three injuries were isolated and five open. AO/OTA-07 classification included 15 Type 84-A and 32 Type 84-B fracture pattern. Associated foot injuries (AFI) included 32 metatarsal, 25 Lisfranc, 21 navicular, 17 cuneiform, 15 calcaneus, 11 talus, Survey follow-up averaged 52 months (range 13-93). FFI averaged 35.1; SMFA indices were Daily 25.2, Emotional 35.0, Arm-Hand 7.6, Mobility 33.6, Dysfunction 26.3, and Bother 27.5. CF performed significantly worse compared to normative values in all functional scores except Arm-Hand (t-test, p<0.001). More severely injured feet (AFI>3) had significant worse functional status compared to less injured feet or normative values (1-way-ANOVA, p<0.05). An associated navicular injury related to inferior FFI (r=0.434, p=0.005). BMI independently contributed to inferior functional scores (R2>=0.322, p<0.001).Conclusion: In the long-run cuboid fractures are debilitating injuries. Increased foot injury severity and increased BMI determined inferior functional status.
Abstract number: 24247 RADIOGRAPHIC ANALYSIS IN CUBOID FRACTURES

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Background: Cuboid fractures (CF) are uncommon and foot deformity is The purpose of this study was to compare radiographic underreported. measurements based on functional outcome after CF treatment.Methods: A retrospective analysis was undertaken on 86 patients diagnosed with CF between 2002 and 2007 at a Level I teaching trauma center. Radiographic measurements [Medial-Column-Length (MedCol), Lateral-Column-Length (LatCol), Lateral-Talometarsal-Angle (LTM), Calcaneal-Pitch-Angle (LCP), Navicular-Coverage-Angle (NCA), Cuboid- and Navicular-Ground-Distance (CD/ND)] were analyzed. Clinical outcome was pain, level-of-activity (LOA), and shoe wear. Results: 68 patients with 72 fractures were included. Age averaged 40 (range 17-72) and BMI of 28.6 (range 17.5-48.9). AO/OTA-07 classification included 31 84-A and 41 84-B fracture pattern. Pain was present in 40 patients. 23 patients had a changed LOA and 20 needed customized shoe wear. Radiographic measures were MedCol 53±6mm, LatCol 32±6mm, LTM 4±9°, LCP 20±6°, NCA 9±7°, CD 25±6mm, a nd ND 40±8mm. 12 pes planus (PPD) and 13 pes cavus deformities (PCD) were radiographically identified. PPD had smaller measures for LTM and ND, but increased NCA (t-test, p<0.05). PCD had increased measures for LTM, LCP, CD, and ND, but decreased NCA and MedCol (t-test, p<0.05). Radiographic measures were not related to clinical outcome. Conclusions: Cuboid fractures are uncommon and the sequelae of foot deformity remains unclear. Weight bearing imaging and standardized radiographic measures are useful tools to identify foot deformity in CF, but did not relate to clinical recovery.

Abstract number: 24250 RADIOGRAPHIC ANALYSIS IN NAVICULAR FRACTURE CARE

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Background: Navicular fractures (NF) are uncommon. The purpose of this study was to evaluate radiographic measures after non-operative and operative treatment of NF.Methods: A retrospective analysis was undertaken on 87 patients diagnosed with NF between 2002 and June 2007 at a Level I teaching trauma center. Radiographic measures were Medial-Column-Length (MedCol), Lateral-Column-Length (LatCol), Lateral-Talometatarsal-Angle (LTM), Calcaneal-Pitch-Angle (LCP), Navicular-Coverage-Angle (NCA), Cuboid- and Navicular-Ground-Distance (CD/ND). Clinical outcome was pain, level-of-activity (LOA), and shoe wear. Results: Sixty-Nine patients with 70 fractures were included. The age averaged 39 years (17-72) and BMI 28.5 AO/OTA-07 classification types included 50 83-A and 20 83-B. (18.7-48.9). Treatment was non-operative (43) or operative (ORIF, 27). Pain was present in 32 patients. 19 patients did not return to previous LOA and 20 needed customized shoes. Radiographic measures were MedCol 53±7mm, LatCol 33±5mm, LTM 3±9°, LCP 20±6°, NCA 9±7°, CD 25±6mm, and ND 41±8mm. Rad iographic measures were not significantly different between treatment groups (p>0.05). 15 flatfoot and 18 cavus deformities were identified. Cavus had decreased medial column length (t=2.446, p=0.017) and associated with ORIF (chi-square, p=0.023). Radiographic measures did not relate to clinical outcome. Conclusions: Navicular fractures are uncommon and the sequelae are undetermined. Weight bearing imaging and standardized radiographic measures are useful to radiographically identify foot deformity in NF care. However, radiographic measures did not relate to clinical outcome, but operative treatment was prone to cavus deformity.

Abstract number: 25441

A COMPARISON OF FUNCTIONAL OUTCOME FOLLOWING CONSERVATIVE OR OPERATIVE TREATMENT OF INTRA-ARTICULAR FRACTURES OF CALCANEUM

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A prospective short term study was conducted and a comparison of functional outcome following conservative or operative treatment of intra-articular fracturese of calcaneum was done. The fracture was studied and classified using Essex Lopresti classification.All patients were treated initially using a posterior slab and limb elevation. The Operative Treatment protocol included either Essex Loprest Maneuver or Open reduction and internal Fixation with a reconstruction plate depending upon the surgeon. All surgeries which were done aimed to restore the Bohler's angle by a single surgeon and were mobilized non weight bearing with axillary crutches or a walker for a period of 6 weeks and gradual weight bearing mobilization was allowed until Union. The results were evaluated with the Ankle and Foot Society Scoring System and reviewed.SF 36 questionnaires were filled at the end of the study. A total of 26 patients were reviewed. According to the AOFAS19 scale, 63.6% all patients developed good and fair results. The SF 36 Score this present study suggested better quality of life in the operated group (P= 0.011) which was statistically significant at the end of two years. All displaced intra- articular fractures of Calcaneum should be treated with anatomical reduction and restoration of the Bohler's angle15 so to have a better and early functional outcome. However the limitations of this study included a small sample size and a better and detailed imaging modality like computed tomography should have been done in al the cases.

Abstract number: 25570 THERAPEUTIC OPTIONS IN NEGLECTED ANKLE INJURIES

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Early diagnosis and treatment are essential to reestablishment of the function of the ankle joint. When the injuries are treated late, the therapeutic option depends on local and general factors. The authors analyse 20 patients treated between 1.01.2004-01.08.2007 for ankle injuries with surgical indication. For various reasons, surgical treatment was applied after more than 4 weeks after the injury. The patients were evaluated according to: age, time from the injury; structures affected by the injury, imagistical evaluation, injuries discovered during surgery. Surgical reduction and osteosynthesis were achieved in 75% of cases, and in the remaining 25% ankle arthrodesis was necessary. The initial technique established before the surgery was applied in 17 cases. In 3 cases it was originally thought that reduction could be performed, but arthrodesis was necessary. The congruence between the state of the ankle structures, especially the cartilage, and the amount of wear on the ankle, specific to the patient, was essential in establishing the therapeutic indication. In 2 of the 15 cases, secondary ankle arthrodesis was indicated. In the case of old ankle injuries, the therapeutic option is difficult because the surgeon must adapt the state of the structures affected by the old injury to the wear on the ankle joint. The choice between stabilization and arthrodesis is made according to the state of the bony and especially the cartilaginous structures, which is evaluated imagistically and during surgery.

Abstract number: 25578 FRACTURES OF THE BASE OF VTH METATARSAL- SHOULD WE TREAT THEM?

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Fractures of the base of V-th Metatarsal are usually treated non-operatively. But there is an abundance of treatments ranging from plaster casting for six to eight weeks at one extreme to no treatment at all at the other. The purpose of this study was to evaluate current treatments to see if it had any influence on the outcome, and if the outcome was similar in all the methods, to analyse their cost-effectiveness. A retrospective analysis of 100 patients' case notes, with isolated avulsion fractures of the base of 5th metatarsal was done. According to initial treatment patients fell into three groups: 1) fully weight bear with no/or minimal tubigrip support n = 36.2) Below knee cast n = 413) Fully weight bearing in walking boot n = 23. Patients in all three groups had union of their fractures and achieved a pain free foot. But, the patients in the tubigrip group required minimal follow up (maximum 1 follow up compared to an average three follow up appointments for cast and brace groups) and minimal plater rooom support, thereby turning out to be the best group economically as well. Therefore, a policy change was instituted at our hospital and all acute base of 5th metatarsal fractures are now treated with only tubigrip. Conclusions: Base of 5th metatarsal fractures can be treated in a tubigrip, allowed to weight bear without any follow up and can result in significant cost savings for the NHS.

Abstract number: 25592 TREATMENT OPTIONS IN OPEN TRAUMA OF THE ANKLE JOINT

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Therapeutic rules are relatively clear in closed trauma of the ankle, while skin injury makes sometimes difficult the choice between different techniques, concerning the incision and the type of bone stabilization, definitely influenced by the time from trauma and by the injury of the skin. The authors analize 20 patients with open ankle trauma, operated between 01.01.2005-01.01.2008, age 24-52 yrs. The injuries were both bony and capsular-ligamentous in 13 cases, while 3 patients had open dislocations without fractures. Following Gustillo-Andersen classification, the injuries were type I-2 cases (12.5%), type II-6 cases (37.5%), type III-8 cases (50%). Different therapeutical problems were raised for each type of open injury requiring different surgical techniques, follow-up was performed until 24 months. Postoperative outcome was evaluated from the point of view of: functional recovery, social and professional re-integration, the incidence of the complications. The circumstances influencing post-operative outcome were: the time between trauma and surgery, the type of the skin and soft tissue injuries. Septic complications appeared in 12.5% cases (2 patients) with Staphylococcus aureus, without the need of implant removal. Because one of the 3 cases with type III C injury arrived at our hospital 36 hrs after trauma with irreversible ischemia, amputation was indicated. The treatment of open trauma of the ankle is difficult since the cutaneous injury narrows the therapeutical options and post-operative complications are more frequent. The key of success in these cases is represented by early surgery adapted to the soft tissue injury.

Abstract number: 25864

A CADAVERIC STUDY COMPARING TWO-HOLE LOCKING PLATE TO QUADRICORTICAL SCREW FIXATION IN MAISONNEUVE FRACTURE

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Introduction: Treatment of syndesmotic injuries is a subject of ongoing controversy. Locking plates are fixed angle device that have been shown to provide both angular and axial stability by eliminating the risk of the screw toggling in the plate. The aim of this study is to determine whether a two-hole locking plate has biomechanical advantages over conventional screw stabilisation of the syndesmosis in this pattern of injury. Methods: We have used 6 pairs of fresh-frozen human cadaver lower legs. The syndesmotic ligaments, interosseous membrane and the deltoid ligament were sectioned to simulate an unstable Maisonneuve fracture. The limbs were then mounted on a servo-hydraulic testing rig and axially loaded with 800N for 14000 cycles. Each limb was compared with its pair; one receiving stabilisation of the syndesmosis with two 4.5mm quadricortical cortical screw, the other a two-hole -3.5mm locking plate with locking screws (Smith and Nephew). Failure was defined as fracture of bone or metalwork, syndesmotic widening or axial migration>2mm. Results: All ankles showed failure of the metal work with fracture of the lateral malleolus at the level of the syndesmosis following axial loading and the application of an external rotation force at an average of 14000 cycles. In 4 of the 6 pairs, using a locking plate, the torgue required to produce failure was at least double the force required when using syndesmotic screws. Conclusion: Locking plate are more stable constructs in resisting shear stress, as well as controlling tensile forces across the syndesmosis.

Abstract number: 25980 INFERIORLY BASED FASCIOCUTANEOUS FLAP FOR LOWER 3RD LEG RECONSTRUCTIONS

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Skin & soft tissue loss to the lower one third of leg are commonly seen following rta, associated exposed fracture tibia or fibula or medial malleous. Re-surfacing exposed tibia or medial malleous after stabilizing the fracture either internally or externally is a challenging job for the surgeon dealing with trauma. Free microvascular flap is an ideal choice provided the trained team is available and it is a costly affair too. Cross leg flap is a safe flap even though it is very cumbersum to the patient but highly reliable. To strike a balance we used inferiorly based fascio cutaneous flap to cover lower one third defect in the leg sometimes we used it to cover the middle one third defect. The flap is unique flap, which contains both the medial and lateral perforators along with the sural artery flap raised in different dimension according to the defect. In the last 5 years we have perforated about 16 inferiorly bases fascio cuatneous flap to cover various defects. Patients are followed up with regular interval and the results are analyzed and reported, also compared with other flaps. As a single stage flap this flap is ideally suited for the biginners and also in the centres where microsurgical facilities are not available

Abstract number: 26405 MODIFICATION OF EXTERNAL FIXATION IN THE TREATMENT OF ANKLE AND TIBIAL PILON FRACTURES

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Introduction: Is there a possibility of a prematurely mobilisation after ankle fractures using a modified complentary external fixator with titanium sole? Material and Methods: Between 2008 and 2009 6 pilon and 10 ankle fracture dislocations have been operated at our Department using a primary complentary external fixator modified with a titanium sole. In the patient population were AO-Classification Type 43-C and -B fractures. Due to the fact of a distinctive osteoporosis there was the initial indication to use a external fixation. Because of the impracticality of half weight bearing titanium sole was amended. To comprehend the constriction the Barthel-Index was used before and after modification. Showing radiological assured fracture union the external fixator was removed after 10,00 ± 2,58 weeks. A clinical examination was done using the Olerud/Molander Score afterwards. Results: All of the operated patients with modification of the external fixator could be mobilised under full weight bearing. Not any of the patients ran into complications regarding to immobilisation. The Barthel-Index before modification $(63,12 \pm 4,42)$ could be improved afterwards (81,87 ± 3,59). A constricted mobility in the ankle was shown at the first follow up examinations (Olerud/Molander Score 55,62 ± 8,73) which showed normalisation in further progression $(63,43 \pm 5,39)$. Conclusion: Using a modification of external fixation via titanium sole in the treatment of ankle fractures particularly with regard to senior or in coordination restricted patients a prematurely mobilisation could be achieved. Complications regarding to longer immobilisation could be minimized.

Abstract number: 24263 TENSION BAND WIRING FOR OLECRANON FRACTURE USING A BRAIDED POLYBLEND SUTURE (FIBER WIRE)

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Olecranon fractures are a common injury and tension band wiring is frequently used. We report the results of surgical treatment for olecranon fractures with a braided polyblend sutures (Fiber Wire, Arthlex, FL, USA) which is a new non-metal material. [Patients and Methods] Between 2006 and 2009 we performed surgical treatment for 15 patients (7 males and 8 females) with olecranon fractures. Their mean age was 55 years old (from 19 to 81 years). All fractures were operated with Fiber Wires and two Kirschner wires or Ring Pins (Nakashima Medical, Okayama, Japan). Two or three days after operation, patients began range of motion (ROM) exercise of elbow ioint.At the follow-up we observed the X-ray, complications, ROM of the elbow joint, pain and so on in all patients. The follow-up period ranged from 3 months to 18 months with a mean of 9 months. [Results] No X-ray showed delayed and non-union in all fractures. There were no postoperative complications such as dislocation of bone fragments, displacement of materials, local irritable pain etc. Extension of elbow joint ranged from 0 to -10degree (mean -4 degree), while flexion ranged from 120 to 145 degree (mean 131 degree). All patients did not have severe pain and any skin trouble around olecranon. [Conclusion] We concluded that tension band wiring with Fiber Wire is a useful modality for olecranon fracture.

Abstract number: 24494

BIOMECHANICAL COMPARISON OF LOCKING PLATE OSTEOSYNTHESIS VS. INTRAMEDULLARY NAILING FOR THE FIXATION OF OLECRANON FRACTURES

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Introduction: Tension band wiring is the standard procedure to treat olecranon fractures. Symptomatic hardware prominence and migration of K-wires cause a high revision rate. Alternative fracture fixation devices were developed. The aim of this study was to evaluate the biomechanical stability of two new designed fracture fixation devices for the treatment of olecranon fractures in dynamic continuous loading. Methods: In eight pairs of fresh frozen cadaver ulnae simulated oblique olecranon fractures were created and stabilized using either a precontured locking compression plate, or an intramedullary locking nail. The specimens were then subjectes to continuous dynamic loading (from 25 to 200 N) performing a matched pairs comparison. The statsistical differences of the displacement in the fracture gap was determined using the Wilcoxon-test. Results: Non of the fracture fixation devices had significant advantages after 300 cycles of continuous loading according to the Wilcoxon-test concerning the paramenter of loosening. Interpretation: Both new implants show a good performance in stability concerning dynamic continuous loading for the simulation of 6 weeks of light physiotherapeutic training in cadaver upper extremities.

Abstract number: 26189 OLECRANON TRACTION USING A RECYCLED PLATE IN SUPRACONDYLAR FRACTURES NOT AMENABLE TO CLOSED OR OPEN REDUCTION

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Supracondylar fracture of the humerus is a common fracture in children for which treatment is controversial and often technically difficult, and complications are common. Open or closed reduction with internal fixation is the most common method of treating these injuries. However in some cases this can be very difficult and dangerous. If the local anatomy and swelling do not allow this treatment then non-operative measures have to be adopted. We present 15 cases of grade III supracondylar fractures of the humerus managed with olecranon traction and a recycled plate. There was marked swelling, difficult local anatomy and/or blisters in all cases. Mean average follow up was 6 months. We conclude that olecranon traction is a safe and effective method of treating these injuries. Moreover the method is also appropriate in areas where access to specialized centers in treating these injuries is either difficult or delayed. It can be effectively used in an environment that can provide ordinary paediatric medical care and general orthopaedic expertise.

Abstract number: 26216 OLECRANON FRACTURES IN CHILDREN

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Background: Fractures of the olecranon are usually described as uncommon in children and often associated with other elbow injuries. Aim: In this study clinical results in open reduction and fixation either with screws, plates or with Kirschner wires and absorbable tension-band suture or tension-band wire are compared. Material and Methods: Fractures were classified according to Bracq. The treatment consisted of open reduction and internal fixation in 15 cases, 11 males and 4 females with a mean of 7.6 years of age. Implant removal was performed after the mean of 3.5 months (range from 1.7 to 12 months). 12 patients underwent stabilization with K-wires and tension band wires or tension band sutures, one patient with isolated Kwires, one patient with screw fixation and one patient with plate fixation. Mean follow-up was 14 months (range from 7 to 48 months). At follow-up clinical and radiological assessments were performed according to the Murphy score. ResultsFracture classification according to Bracq showed 40% type C, 26.7% type D, 13.3% type A or E and 6.7% type B. At follow-up, 7 patients showed excellent results, 3 patients good results, 3 patients fair results and two patients poor results. None of the patients had developed non-union. Three patients had an extension deficit of 5°, 2 patients with tension band wires and one patient with plate fixation.ConclusionThe treatment of displaced olecranon fractures in children achieves satisfactory results from a clinical standpoint, whereas radiologic results are usually less satisfying.

Abstract number: 26455

TREATMENT OF THE COMPLEX INTRAARTICULAR FRACTURE OF THE DISTAL HUMERUS WITH THE LATITUDE-ELBOW-PROSTHESIS - A RETROSPECTIVE STUDY WITH COMPLICATION ANALYSIS

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Purpose: ORIF of comminuted distal-humerus-fractures carries high risks of complications as secondray loss of reduction and pseudarthrosis-especially in elderly patients. Total elbow arthroplasty is gaining more importance. The Latitude total elbow system is a modular, convertible implant allowing not only linked and unlinked TEA with or without radial head replacement, respecting the flexion-extension axis and three different humeral offsets. Methods: 17 Latitude elbow protheses (Tornier) were implanted 2007 and 2008 due to the following indications: fracture (9), pseudarthrosis (4), posttraumatic arthritis (3), and rheumatoid arthritis (1). 2 unlinked and 8 linked prostheses and 7 hemiprostheses were implanted. The mean age was 67 years. For the treatment of acute fractures the indication was made only in elderly patients: 77 years. Results: These patients were reexamined after 13.5 months (6-23). The mean extension deficit was 22°, the mean f lexion 126°. The mean pronation was 78°, the mean supination 79°. The mean Mayo-Sco re was 89.23. All patients reached good and excellent results except one fair result. The mean DASH-Score was 8.43. Complications: one humeral fissur, one ulnar nerve irritation, one haemtoma that requierd a revision, two triceps insufficiencies and one flexion deficit due to a coronoid-osteophyte. A secondary radial head resection had to be wound infection performed. One early could be managed with debridement.Conclusion: Our short-term results show that the aim of a painfree and stable elbow can be reached with elbow arthroplasty. Results were mostly good to excellent in our patients according to the Mayo- and DASH-Score.

Abstract number: 26474 ANATOMICAL FIT OF SIX DIFFERENT RADIAL HEAD PLATES

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Purpose: Bulky implants may lead to significant soft tissue irritation after plate osteosynthesis of radial head fractures. The purpose of our study was to determine the anatomical fit of so called precontoured radial head plates. Methods: Twentytwo embalmed radii of human cadaver were stripped of soft tissues. Six radial head and neck plates were investigated: 1. Medartis Radial-Head-Butress-Plate (MBP), 2. Medartis Radial-Head-Rim-Plate (MRP), 3. Synthes Radial-Head-Plate (SHP), 4. Synthes Radial-Neck-Plate (SNP), 5. Acumed Radial-Head-Plate (AHP) 6. Wright Radial-Head-Plate (WHP) Five parameters of anatomical fit were tested: 1.Plate-tobone contact: Plates were divided into 11 areas. Plate-to-bone distances were measured at each area with simultaneous consideration of plate thickness within the safe zone.2.Plate contact judged by 3 observers3. Pin- subchondral bone distance: Screw-contact/distance to the subchondral zone will be assessed in lateral radiographs.4.Plate-to-bone contact after adjustment of the plates.5.Reevaluation of the adjusted plate contacts by the same 3 observersResults Bone-to-plate distance for the MBP was 2,06 mm in mean (1,66-2,69), MRP 2,28 (1,83-3,14), SNP 2,51 (2,08-3,47), AHP 2,70 (2,24-3,42), SHP 3,05 (2,46-4,19) and WHP 3,12 (2,7-3,9). The evaluations by the 3 observers showed clear differences. The more points one plate achieved the better the anatomic fit. MBP achieved 65, SNP 32, MRP -21, AHP -26, SHP -114, WHP -137 points. The study is not completes yet. Final results will be presented.

Abstract number: 22834 REPEAT STRESS FRACTURE OF RECONSTRUCTION NAIL MANAGED BY REVISION STEM TOTAL HIP REPLACEMENT (THR)

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Introduction: Subtrochanteric femur fractures have higher non-union rate than intertrochanteric & shaft fractures. One of the known complications reported with intramedullary fixation is implant failure, usually as a result of fracture non-union with incidence from 0.3-5%. We report a 66yr old lady who presented with subtrochanteric fracture with nail breakage 2 yrs after exchange nailing who then underwent revision stem THR with good function. Case report 66yr old rheumatoid lady sustained left hip injury. Radiographs revealed a left subtrochanteric fracture with hip arthritis. Patient bore full weight after fracture stabilization using Recon nail. Although radiographs at 3 months revealed ununited fracture patient denied having hip pain & declined surgical intervention. However, 2yrs later patient had acute onset left hip pain with inability to weight-bear without history of trauma. She underwent exchange nailing for the non-union. At follow up, fracture appeared united radiologically & clinically, evidenced by lack of hip pain & ability to fully weight bear. After another 2 yrs, patient presented with hip pain following a fall. Radiographs revealed broken nail. A revision stem THR using a long-stem femoral prosthesis was done. Discussion Fatique fractures of recon-nails could be managed by repeat nailing, surface fixation or hemiarthroplasty. Initial nail failure followed by failure of repeat nailing, then managed by THR, makes our case unique. Surprisingly, patient remained asymptomatic for 2 yrs after the second nailing despite underlying nonunion, which was not evident on radiographs. Coincidentally, a similar fracture on the other side that was managed identically, healed after the first nailing.

Abstract number: 23771 A NEW METHOD OF DETERMINING DISTAL FEMORAL DEFORMITY

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Lower limb mal-alignment is a significant cause of degenerative change and dysfunction. The standard technique available to determine the centre of rotation of angulation (CORA), highlights it is difficult to assess and we found it to be inaccurate. We devised a novel technique which accurately determines the CORA and extent of distal femoral deformity, allowing accurate correction. Using standard leg alignment views of the normal femur, the distal femoral metaphysis and joint line are stylized as a block. A line bisecting the axis of the proximal femur is then extended distally to intersect the joint. The angle between the joint and the proximal femoral axis and the position (p) where the extended proximal femoral axis intersects the joint line are calculated. These measurements can then be reproduced on the abnormal distal femur in order to calculate the CORA and extent of the deformity, permitting accurate correction.We examined the utility and reproducibility of the new method using 100 normal femora. $= 81 \pm sd 2.5$ - As expected, correlated with femoral length (r=0.74). P (expressed as the percentage of the distance from the lateral edge of the joint block to the intersection) = $61\% \pm sd 8\%$. P was not correlated with Intra-and interobserver errors for these measurements are within acceptable limits and observations of 30-paired normal femora demonstrate similar values for and p on the two sides.We have found this technique to be universally applicable and reliable in a variety of distal femoral deformities.

Abstract number: 24081 RSA EVALUATION OF AN IMPLANT SYSTEM FOR ABOVE THE KNEE AMPUTEE PATIENTS

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Introduction: Rehabilitation of patients with high, above the knee amputations is difficult because the standard socket prosthetic devices are difficult or impossible to use. Development of transdermal osseointregrated devices allowing for the application of external prosthetic devices is a promising solution for these cases. This clinical study assesses the fixation of these components in amputee patients using radiostereometric analysis, (RSA).Methods: Twelve patients with high above the knee amputations were enrolled into an RSA study. Implanting the Osseointegrated Prosthesis for the Rehabilitation of Amputees involves a two stage surgical procedure. The prosthesis is first implanted and the skin incision is closed. Tantalum beads were placed in the bone and implant. After 6 months, the muscle and skin are closed around the distal end of the device and a removable prosthetic device is attached. RSA images were obtained after the second stage, and then at 1 and 2 vears.Results: At 1 year the median (std error) proximal/distal migration of the device was -0.03±0.04mm (range -0.23 to 0.27mm). At 2 years it measured -0.01±0.03 mm (range -0.16 to 0.15mm). There were no failures. No implant had significant progressive motion over the two year period.Discussion: The surgical technique for securing the skin to the implant to avoid skin /implant motion and infection has been perfected over 10 years. The system is a promising new technique for addressing the difficult prosthetic challenges faced by patients with high, above the knee amputations.

Abstract number: 24277

CLINICAL RESULTS IN DISTAL FEMORAL FRACTURES TREATED WITH MIPO

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Background: Comminuted fractures of distal femur with intraarticular involvement are usually difficult to treat. Usage of Angular Stabile Locking System (ASLS) with MIPO gives new opportunities in surgical treatment of these fractures. The purpose of this study was to present advantages of the method and our clinical results. Material and Methods: Between January 2006 and August 2009 28 patients with a total of 29 fractures of the distal femur were stabilized with ASLS (LISS-, LCP-DF-Synthe) using MIPO. Ten male patients and 19 female patients with a mean age of 59.5 (20-88 yrs) were included. Nine were polytrauma patients with associated injuries, tree of the fractures were open and four were periprosthetic Fx. Two of the patients died of unrelated reasons. Three of the patients were lost to follow up. According to the AO/ASIF classification there were 12, 2 B and 10 C fractures. The mean duration of follow up was 10 months. Results: Twenty-one (87.5 %) out of the 24 fracture united without mechanical complications and deep infections. Time to fracture healing averaged 3.7 months (range, 3 - 5 months) in 21 cases. Time to full weight bearing averaged 3.5 months (range, 2 - 5 months). Neer-score scale was used to evaluate the functional outcome excellent and good results in 17 patients (70.9 %).Conclusions: Less invasive technique with ASLS implants provides biomechanical stability and bio-logical fixation with low complication rates. MIPO allows early functional restoration and bone healing, without usage of grafting.

Abstract number: 24562 EFFECTIVENESS OF A DOCKING NAIL IN TREATING A FEMORAL FRACTURE AROUND THE SINKING STEM AFTER TOTAL HIP REPLACEMENT

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During osteosynthesis, stable fixation is often difficult to achieve because elderly patients have osteoporotic bone and most of the intramedullary space is occupied by the metal stem implanted in the proximal femoral shaft. Therefore, we developed a new surgical treatment for postoperative periprosthetic femoral fracture by using a trimmed intramedullary nail, which we refer to as a docking nail. The patient, a 76years-old woman, sustained a femoral shaft fracture around the sinking femoral prosthesis after cementless total hip replacement which she had undergone 2 years earlier. To treat the femoral fracture, the docking nail was cut to an appropriate length and trimmed so that it adhered to the tip of stem, on the basis of the size and shape of the stem as well as data obtained from preoperative radiographs. We then performed the same procedure as osteosynthesis by using the conventional supracondylar intramedullary nail in a retrograde manner. We did not open the fracture site and connected the docking nail to the tip of the implanted stem to maintain correct alignment. After the operation no immobilization was used, partial weight bearing was allowed at 4 weeks, and full weight bearing at 12 weeks. Within 3 months, well-aligned bony union was observed without malunion or infection. The woman did not experience any pain around the hip and fracture site during the followup period of 12 months. The use of a docking nail is less invasive and simpler as compared to other methods.

Abstract number: 25048 MINIMALLY INVASIVE PERCUTANEOUS PLATE OSTEOSYNTHESIS IN FEMORAL FRACTURES

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Aim: The evaluation of efficacy of percutaneous plate osteosynthesis in femoral fractures.Mat: 35 patients with femoral fractures treated in our hospital with this technique from 2004 were included. There were 11 intraarticular distal femoral fractures, in 10 metadyaphyseal and in 14 shaft fractures occurred. Multiple injuries were seen in 14 patients. Fracture fixation was achieved with the use of LC-DCP (8), DCS (13) and LCP (14). Immediate motion in the knee and partial weight-bearing were initiated after the surgery. Further increase of weight-bearing was allowed according to X-ray taken with 2 months intervals. Results: Immediate post-operative axial deviations exceeding 5° were not seen. One 38 y.o. woman felt from the stairs what resulted in bending the plate on 16°. Closed manual correction was performed with residual 7° of varus, consolidation in this position achieved. All fractures (except 1) united in terms from 3 to 8 months after the surgery depending on severity of the injury and the type of the fracture. 1 delayed union in 49 y.o. woman occurred: it was seen radiologically with painless full weight-bearing 6 months after the injury: bone grafting was performed. No other additional procedures were done.Mean follow-up comprised 20.3±4.6 months. The results according to Neer score comprised 87.3±4.1, mean ROM in knee was 107.1±9.1°.Conclusions: MIPPO of femoral fractures is reliable treatment modality in distal femoral fractures and also in femoral shaft fractures where IM-nailing is not available or technically possible.

Abstract number: 25278

EXPANDABLE SELF-LOCKING NAIL IN THE MANAGEMENT OF CLOSED DIAPHYSEAL FRACTURES OF FEMUR AND TIBIA -OUR EXPERIENCE

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Introduction: Intramedullary fixation is the treatment of choice for closed diaphyseal fractures of Femur and Tibia. Conventional interlocking nails depend primarily on locking screws for axial and rotational stability. We used an expandable intramedullary nail which does not rely on interlocking screws, and achieves axial & rotational stability on hydraulic expansion of the nail. The flexibility of instrumentation and the avoidance of interlocking screws make them less time consuming, with minimal exposure to radiation. Methods: We prospectively studied 32 patients of closed diaphyseal fractures of tibia and femur treated with this self locking, expandable nail. Closed or open reduction and internal fixation with expandable nail stabilises these fractures with minimum radiation exposure & operative time, as no locking screws were used. Early mobilisation and weight bearing was started depending on fracture personality and evidences of healing. Patients were followed till clinical and radiological union. Results: The average operative time was 90 minutes for femoral fractures and 53 mins for tibial fractures. Radiation exposure was minimum, average being 84 seconds for femoral fractures and 54 seconds for tibial fractures. All fractures healed with few complications. Mean time of union was 5.1 months for femoral fractures and 4.8 months for tibial fractures. Complications included infection(1), bent femoral nail(1), rotational instability(1) and delayed union(3).Conclusion: The surgical time required is less with minimum complications. The main advantage of the expandable nail is satisfactory axial, rotatory and bending stability with decreased radiation exposure to operating staff and the patient.

Abstract number: 25337

TREATMENT OF DISTAL FEMORAL FRACTURES IN A VERY ELDERLY POPULATION USING LISS PLATING. A REPORT OF OUTCOMES

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Introduction: Distal femoral fractures are a common occurrence in the elderly and their treatment is challenging due to multiple comorbidities and osteoporotic bone.Methods: We identified 24 patients who had undergone LISS plating at our institution and collected data that included patient demographics, injuries patterns, operative details and complications. We also used the Charlston comorbidity index to classify our patients according to prognostic comorbidities and a modification of the Parker mobility score to assess the preoperative and postoperative mobility. Results: There were 19 females and 5 males. The average age was 85 years(+/-6 years). The average Charlston comorbidity index was 6 (5.00-6.75). 66% were from their own home while the rest came from nursing and residential homes. The average mobility score was 4 (2.25-8.25) preoperatively. Anaesthetic time was an Mean HB drop was 2.1q/dL. 8 patients required a average of 118 minutes. postoperative blood transfusion. Total length of in-patient stay was 22 days(+/- 14). 66% required rehabilitation with the average rehabilitation duration being 53 days. Average time to full weight bearing was 96 days with the average radiological union duration being 148 days. 40% had no complications, 28% had knee pain and 4 out of 24 patients had serious complications including infection, metalwork failure, non-70% were able to go back to their premorbid mobility union and death. status.Conclusions: LISS plating is a viable and successful method of treating distal femoral fractures in the elderly, preserving mobility in the majority of patients.

Abstract number: 25632

RETROGRADE INTRAMEDULLARY NAILING FOR SUPRACONDYLAR AND INTERCONDYLAR FRACTURES OF THE DISTAL PART OF THE FEMUR

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INTRODUCTION: Retrograde intramedullary nailing represents an established fixation method for fractures of the distal femur, offering an adequate alternative to other techniques due to soft tissue dissection is minimized. The purpose was to investigate in a retrospective analysis the results of retrograde nailing in distal femoral fractures. MATERIAL and METHOD: From January 2005 to December 2008, 36 fractures of the distal femur were treated by retrograde femoral nailing. The mean age was 67,7 years (17-94) and 20% presented associated fractures. Follow up ranged between 14 and 25 weeks (19). Fractures were classified according to the AO/ASIFF classification. For fracture fixation the Distal Femoral Nail SCN (Stryker®) was used. All patients were assessed with regard to operative time, blood trasfusion, hospital stay, and postoperative complications. All patients underwent a clinical and radiological evaluation. RESULTS: Average time to surgery was 6 days (0-20). 51% cases were 33-A1 fracture type. The average operative time was 66 minutes. Mean hospital stay 19,96 days (3-80). 13 patients required blood transfusion during hospital stay. 32 fractures (88%) healed in an average of 3.9 months. There were no cases of angular malalignment, nail failure or knee sepsis. Four non-union, two cases of knee stiffness and an intraoperative fracture of the femur above the nail were the main complications in this serie. DISCUSSION: Retrograde nailing represents a reliable fixation method for extra-articular (33 - A1-3) and simple intra-articular (33 - C1-2) fractures of the supracondylar area, offering a valuable alternative with few complications.

Abstract number: 26123 PROSTHETIC USE AND MOBILITY WITH TRANSFEMORAL OSSEOINTEGRATED AMPUTATION PROSTHESIS, RESULTS FROM THE OPRA STUDY.

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Treatment with osseointegrated transfemoral amputation prostheses (OI-prostheses) has been performed in Sweden since 1990. It comprises two surgeries and rehabilitation with a total treatment period of 12-18 months. In 1999 a prospective study named OPRA (Osseointegrated Prostheses for the Rehabilitation of Amputees) was started with the aim to report outcome at 2-years following the second surgery. Among the rehabilitation details prosthetic mobility and health related quality of life (HRQL) are assessed. The study includes 55 implants on 51 patients, with 4 patients treated bilaterally. Some preliminary results have previously been reported on subsets of the material. Those include statistically significant improved general and specific HRQL among the first 18 consecutive treated patients and decreased walking energy cost and increased walking habits among 20 patients with unilateral transfemoral amputation. In June 2010 all included patients will have been followed for 2 years and analyses of definitive results can be started. In January 2010 a total of 42 patients with 46 implants (50% male, 50% female, mean age 44 years (Sd 12,9), cause of amputation; 62% trauma, 29% tumour, 9% other) had passed the 2year follow-up. Preoperatively 17% did not use any prosthesis and 60% reported daily prosthetic use. At 2-years follow-up 7% did not use prostheses at all and 87% reported to use the OI-prosthesis daily. Final outcome from the OPRA study will be reported during 2010. Preliminary results indicate that treatment with transfemoral OIprosthesis improve prosthetic mobility and HRQL.

Abstract number: 26337

A BIOMECHANICAL ANALYSIS OF LOCKING PLATE FIXATION WITH MINIMALLY INVASIVE PLATE OSTEOSYNTHESIS IN A SUBTROCHANTERIC FRACTURE MODEL

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Objective: to establish the relative fixation strengths of a locking plate, a dynamic condylar screw-plate, and a long proximal femoral nail.Methods: The study involved three groups of composite large femoral synthetic bones of 5 specimens per group; plating using a locking compression plate-distal femur (LCP-DF), plating using a dynamic condylar screw-plate (DCS), and nailing using long proximal femoral nail (long PFN). A gap osteotomy model was used to simulate a comminuted subtrochanteric femur fracture. A vertical load was applied at 10 mm/min until femur failure. Results: Fixation strength (load/moment to failure) of LCP DF (1330 N, range; 1217~1460 N) was 26.6% and was greater in axial loading than DCS (1050.5 N, range; 956.4~ 1194.5 N) and 250% less in axial loading than long PFN (3633.1N, range; 3337.2~4020.4N) (P = 0.002). Ultimate displacement in axial loading was similar for LCP-DF (18.4mm, SD=1.44), DCS (18.3mm, SD=3.25), and long PFN (16.7mm, SD=1.82).Conclusions: The LCP-DF construct proved stronger than the DCS in terms of ultimate strength by biomechanical testing of a simulated subtrochanteric femur fracture with comminution. Although the nail construct proved strongest, the biomechanical performance of the locking plate construct may lend credence to the use of a locking plate versus the DCS plate for minimally invasive plate osteosynthesis of subtrochanteric femur fractures, which may be technically difficult to fix using a nail.

Abstract number: 26543 CASE REPORT: UNUSUAL CASE OF REFRACTURE OF THE FEMORAL SHAFT IN A 16-YEAR OLD BOY

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IntroductionDue to open growth plates fractures of the long bones in teenagers represent a challenge for both the surgeon and the implant. Case ReportWe present a 16-year old boy who sustained a left femoral shaft fracture due to a motorcycle accident. Concomitantly, he had an open fracture of the left patella. He was normal weight (body mass index 20.7) Plate osteosynthesis of the femoral shaft and fixation of the patella with Kirschner wires and screws were performed the same day. Radiographs were taken routinely every second week. The patient was free of complaints 2 months after surgery. Under permission of full weight-bearing he sustained a refracture of the femur and a breakage of the plate. The implant was removed and the fracture was stabilized by intramedullary nailing. Seven months later the patient presented with a re-fracture of the femur and a bending of the intramedullary nail without having a proper accident. The nail was removed and after delayed bone healing resolved by distal dynamic sampling the patient was able to return to work 18 months after the first operation and reached his preinjury level of activity 2 years after the initial operation. Discussion The initial operation was performed by open reduction and internal fixation with plate osteosynthesis due to open growth plates. No implant failure was detected and no reason for breakage of the plate and bending of the nail was found. It still remains unclear weather the patient concealed further accidents or untimely full weight-bearing.

Abstract number: 26607 THE FRACTURES OF THE DISTALE EXTREMITY OF THE FEMUR. ABOUT 56 CASES

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This retrospective study was realized in the service of traumatology orthopaedics (Aile IV) in the TEACHING HOSPITAL IBN ROCHD in Casablanca between January, 2000 and December 2009, concerned a series of 56 cases of fracture of the lower extremity of the femur. The fractures of the distale extremity of the femur saw each other at any age, with a mean age of 38 years and of the extremes of 14 and 70 years. The most frequent etiology was the traffic road accidents(82%) We noted a clear male ascendancy (73 %). Various means of fixation were used: the screw-plate was the most used (39 % of the cases)Generally, the results were satisfactory on the functional plan in 63 % and on the anatomical plan 70 %. The cutaneous opening, the associated hurts and especially the defect of reeducation were responsible largely for various found complications which were: mal union , the gonarthrose and the stifness of the knee.

Poster Topic: Trauma - Forearm

Abstract number: 25156

LOSS OF RADIOGRAPHIC ALIGNMENT AFTER VOLAR PLATING OF ARTICULAR DISTAL RADIUS FRACTURES

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IntroductionDespite the recent trend toward internal fixation, few studies have examined patients' quality of life after volar plating of unstable distal radius fractures. The aim of this study was to evaluate the impact of loss of radiographic alignment after volar plating of articular distal radius fractures on both objective and subjective results. Methods Fifty-three consecutive patients with 5 AO type C1, 31 C2 and 17 C3 distal radius fractures and a mean age of 61 years were treated with a volar locked plating system and prospectively followed for 6 years. The clinical data were quantified with the scoring systems of Gartland and Werley and Castaing. For subjective outcome assessment, the DASH score and the Short Form 36 were completed.ResultsVolar tilt was on average 6±5 degrees immediately after surgery and 6±7 degrees at the 6-year follow-up and radial inclination changed from an average of 19±4 degrees to 17±4 degrees; the change of radial inclination was significant (p<0.05). Radial shortening was not statistically significant (p>0.05). There was no statistically significant correlation between wrist function, the development of radio-carpal arthritis and loss of radiographic alignment. Patients with radio-carpal arthritis had significantly higher DASH scores (p<0.001) and poorer results in the SF-36. DiscussionLoss of radiographic alignment after volar plating of articular distal radius fractures did not significantly affect wrist function or patients quality of life. Prospective longitudinal studies with case load estimation are necessary to confirm the present results.

Poster Topic: Trauma - Forearm

Abstract number: 26212 REMANIPULATION OF PAEDIATRIC FOREARM FRACTURES

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Our aims were to identify the re-manipulation rate in the common setup of a district general hospital (DGH). We also examined the influence of the experience of the operating surgeon and the timing of procedure upon the re-manipulation rate of these fractures.We undertook a retrospective study of all clinical notes of children admitted to Oldchurch (now Queens) district general hospital with a forearm fracture treated by closed reduction over a five-year period.We were unable to show an association between the age of the child and chance of re-displacement, nor between redisplacement and sex or type of injury. In our study there was no significant difference between the experience of the surgeon at the index procedure and a remanipulation being required. We also found that there was no significant difference with regards to the time of day the index manipulation was performed and a subsequent re-manipulation being required.Our study reveals the overall remanipulation rate at a district general hospital is comparable to the national and international published results at specialized paediatric centres. Our results also show that above-elbow casts are not better at preventing re-displacement. We can conclude that in the district hospital setting the seniority of surgeon and time of day of index surgery do not have an affect on the outcome with regards to the need for remanipulation of forearm fractures in children.

Abstract number: 23372 SYSTEMATIC REVIEW AND METANALYSIS OF THE TREATMENT OF ACUTE SCAPHOID FRACTURE

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Background The scaphoid fractures account for 50% to 80% of all carpal bone fractures in young and active individuals. Non union of the fracture occurs in approximately 5% to 10% of undisplaced scaphoid fractures. Current management varies significantly among different places and surgeons. Objectives The purpose of this review is to investigate the evidence of the effectiveness and safety of various treatments of acute scaphoid fractures. Methodology: Systematic review and metanalysis of all the randomised and guasi-randomised trials comparing different treatments of acute scaphoid fractures. Results: Seventy six potential papers have been reviewed for eligibility of inclusion criteria. Thirteen RCTs (Published 18 times) have met our inclusion criteria. The followings have been investigated:1.Colles cast versus scaphoid cast: 2. Above elbow versus below elbow scaphoid cast: 3. Colles cast with the wrist in flexion versus Colles cast with the wrist in extension.4.The effect of adjunct ultrasound treatment with standard scaphoid cast.5.Operative versus nonoperative treatment. Union rate (subgroup and sensitivety analysis for displaced vs undisplaced, open vs. percutaneous techniques) Complications ROM Grip strength. Cost. 6.Union rate versus time to union: Conclusion: Scaphoid fracture can be treated by Colles cast for up to 12 weeks. The wrist should not be in flexion. There is no advantage of an above elbow cast over a below elbow cast. Operative treatment for undisplaced scaphoid does not provide a higher union rate, but may do in displaced fractures. Open approach seems to be superior to percutaneous fixation.

Abstract number: 23385 EPIDEMIOLOGY OF HAND LACERATIONS IN A TERTIARY LEVEL HAND INJURIES UNIT IN THE UNITED KINGDOM

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This retrospective audit was carried out at a tertiary level hand injuries unit in the United Kingdom over one year on all acute hand lacerations. Details like patient demographics, mechanism of injury, weapon causing injury, place, circumstances, tetanus cover, time to presentation, digit involved, zone of injury, alcohol intake, structures involved and initial treatment until patient exit were recorded. Most patients are reviewed in the daily Specialist registrar led trauma clinic and recorded on a computerised trauma database. There is a significant throughput of cases averaging 10-15/day. There were over 700 patients with hand lacerations. Around 80% belonged to male population. 50% of these injuries happened at home and the rest were work related. 16% were related to alcohol intake. There was no difference between dominant and non dominant hands. Operative treatment was less than 24 hours in 89.3% of the cases. Tetanus cover was given at our center in 15% of the patients inspite of being referred from other district general hospitals. 1573 structures in 823 digits were involved. There were 993 tendon injuries of which 290 were on the extensor aspect while remaining were on flexor side. Among the 568 nerve injuries, 400 involved digital nerves. We believe that improvement relies essentially on better evaluation of patients whether they need a simple skill or specialist skill treatment. Prompt identification and appropriate referral is needed for good outcomes. Our audit also highlights the fact that there needs to be more awareness about tetanus cover of patients.

Abstract number: 23400 VOLAR RADIOCARPAL DISLOCATION: A CASE REPORT AND REVIEW OF LITERATURE

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Radiocarpal dislocations are relatively rare injuries caused by high-velocity trauma and commonly seen in younger age groups. We present a case of volar dislocation of the radiocarpal joint due to a complete tear of the dorsal radiocarpal ligament without any associated bony lesion. Initial radiographs of the wrist showed satisfactory radiocarpal alignment with no evidence of bony disruption or scapholunate dissociation. At follow-up one week later, examination revealed obvious joint instability with both the pain and tenderness persisting. An early surgical exploration and stabilisation of the wrist restored functional movements of wrist. We review the literature and discuss the importance of high index of suspicion in diagnosis, need for repeat imaging in severe wrist injuries and early operative intervention to deal with any such injury.

Abstract number: 23493 NECK FRACTURES OF THE FIFTH METACARPAL BONE : LOCKING PLATES OR INTRAMEDULLARY K-WIRES? COMPARATIVE STUDY ABOUT 38 CASES Stéphanie GOUZOU, SYBILLE FACCA, Reeta RAMDHIAN, Monica DIACONU, Philippe LIVERNEAUX HAND DEPARTMENT - STRASBOURG UNIVERSITY, ILLKIRCH (FRANCE)

The fracture of the fifth metacarpal bone is a commun injury. Surgical treatment is indicated when the volar displacement is superior than 45°. Non-locking plates have the most clinical complications. Is the new system of locking plates better than intramedullary K-wires? The aim of this study was to compare the results of locking plates and of the intramedullary K-wires. We reviewed 38 cases: 18 treated by locking plates (group 1) and 20 treated by intramedullary K-wires (group 2). The results were analyzed according to criteria: pain level, DASH, grip strength, joint range of motion, return to work and radiographs. There were no significant differences between the two groups, for pain level, DASH, grip strength, return to work and displacement. However we found a significant difference for range of motion, with better results for K-wires. The fifth metacarpo-phalangeal joint flexion scored 59% in group 1 and 98% in group 2 compared with the controlateral hand, and joint extension achieved 89% in group 1 and 99% in group 2. In group 1, we noticed 6 complications (3 stiffness, 1 head necrosis, 2 delayed fractures unions). In group 2, there were 7 complications (3 pin migrations, 3 neurological lesions, 1 non At the last follow up, patients treated with locking plates and no aesthetic callus). immobilization had more stiffness of the fifth metacarpo-phalangeal joint, than patients treated with intramedullary K-wires and immobilization during six weeks. Treatment with intramedullarry K-wires seems to be the reference treatment for displaced neck fractures of fifth metacarpal bone.

Abstract number: 23495

FIFTEEN CASES OF COMPLEX PROXIMAL INTERPHALANGEAL JOINT FRACTURES TREATED WITH A NEW AND USEFUL DYNAMIC EXTERNAL FIXATOR WITH DISTRACTION

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The management of complex proximal interphalangeal joint fractures of the fingers is difficult. Dynamic traction splinting systems are cumbersome and the Suzuki fixator does not prevent secondary fracture displacement. Fifteen cases were treated with a new dynamic external fixator with distraction, Ligamentotaxor®. In two cases, additional fixation was required with screws. After 10 months, grip strength scored 85.7% compared with the contralateral hand, flexion achieved 76.3° and the extension deficit was 19.6°. The VAS pain level was 1.9 and the Quick DASH score totalled 16.9. Revision treatment was needed for sepsis for one patient. A case of secondary fracture displacement was corrected in the outpatient clinic. Consolidation was achieved in every case. In conclusion, despite not altogether perfect outcomes for these complex fractures, we find that Ligamentotaxor® is a useful technique.

Abstract number: 24437

THE NUMBER OF INSTABILITY MARKERS IS A SIGNIFICANT PREDICTOR OF OUTCOME IN DISTAL RADIAL FRACTURES AND CAN BE USED AS A GUIDE TO DEVISE A STANDARDISED MANAGEMENT STRATEGY FOR THESE FRACTURES.

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Background: Distal radial fractures are extremely common. An effective treatment strategy is needed to ensure good outcome and resource usage. Aim: To identify the significance of the number of instability markers in distal radial fractures in predicting outcome and proposing a standardised management strategy. Methods: Data was collected retrospectively over three months at the Northern General Hospital, Sheffield. Relevant instability markers identified through a literature review were: age >60, dorsal angulation >20°, intra-articular fracture, ulna fracture, dorsal comminution, radial shortening and osteoporosis. The number of instability markers, management and outcome were recorded for each patient. Outcomes were graded as good or poor based on complications, function achieved at discharge from followup and the length of follow-up required. Results: 207 patients were included in our study. 119 patients had <=3 instability markers (Group A) and 88 had >=4 (Group B).In Group A, 91% achieved good outcome regardless of treatment type, versus 66% in Group B (p<0.001). In Group B, amongst patients who had surgery (29), 79% achieved good outcome, however those with manipulation alone (38), only 58% achieved good outcome (p=0.03).Conclusions: We have found that 4 or more instability markers are globally associated with a poorer outcome. Patients with 4 or more markers who underwent surgery did uniformly better than those with manipulation alone. Whereas, in patients with 3 or less markers non-operative management yields equally good outcome. We plan to use this as a pilot study for future primary research.
Abstract number: 24524

A PROSPECTIVE STUDY OF FRACTURE OF PHALANX & METACARPALS OF THE HAND WITH EXTERNAL FIXATOR/HYBRID FIXATION AS A DAY CARE MANAGEMENT

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Phalangeal fracture comprises 46% of the hand fractures. Conventionally these fractures were treated by buddy strapping and splinting. The commonest complications with this modes of treatment are stiff painful joints due to prolonged immobilization at fracture sites. In our study of 60 patients depending upon type of fracture whether intraarticular &/or extraarticular, with subluxation/ dislocation external fixation or by hybrid fixation was done as a day care treatment under local anaesthesia. Patients were encouraged to begin mobilization of the other joints of hands from Day 1. Controlled supervised physiotherapy of the fracture site was started soon after surgery with the fixator in place and after implant removal. During this course the operated site was protected with splinting. We achieved early rehabilitation and excellent improvement in ROM in over 90% cases, 95% fractures united clinically and radiologically in our follow up of 6 months to 1 year.

Abstract number: 24535

DISTAL FOREARM FRACTURES REDUCED BY NEW DISTRACTION DEVICE Ismail WARDAK

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Col.Dr. Mohammad Ismail Wardak MD. MS. NMH Kabul AfghanistanDistal forearm fractures reduced by new distraction device Abstract: Distal radial fractures are the most common injury in Orthopaedic trauma. The methods of treatment include closed and open reduction. Few percent of these injuries requires surgical intervention. The important step for reduction of a fracture is traction, its usually achieved by two assistant or huge apparatus using in some centers. Method and Material: from 2001 till 2009, 1100 displaced distal radial fractures treated in NMH Kabul. 37% (407) were reduced by hand traction, manipulation and cast.59% (649) of these patients treated by a new distraction device. Results: The results using the new distraction device was much better than reduction by hand traction and manipulation. 60% of the patients who treated by hand traction and casting reduced again in device with better results.15% of cases was severely displaced who had primary indication for surgery reduced by device and the surgery was not performed. 4% of these fractures fixed by internal or external fixation, according to the patient request, late presentation or re displacement in cast. Conclusion: Despite the distal radial fractures is the most common injury but few cases of these fractures end up with surgical intervention. Our device for the reduction of distal radial fractures has a simple and powerful distraction-rotation mechanism it allows the surgeon to manipulate the fracture and let the cast to set and dry in desired position while still there is continue traction.

Abstract number: 24551 LCP IN SURGERY OF COMMINUTED INTRAARTICULAR FRACTURES OF DISTAL RADIUS

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INTRODUCTION: Fractures of forearm bones are observed in 20%-36% of all other fractures. Injuries of the distal epimetaphysis of radius are most common (11%-30%) of all fractures) and occur in 90% of all fractures of forearm bones. Closed reduction and plaster cast immobilisation remains the basic method of treatment of fractures of distal radius. In operative treatment methods of internal and external fixation, and also osteosynthesis with K-wires, using a well-known Kapandji technique, in particular, are applied. According to the last publications, unsatisfactory results of treatment of fractures of distal radius reach 75%. METHODS: In the period from 2007 to 2009 46 patients at the age of 17 to 82 were operated on distal radius fractures applying osteosynthesis by LCP. All fractures were intraarticular, comminuted, type C according to AO-ASIF classification with dorsal and palmar displacement of the bone fragments. RESULTS: It should be noted that 39 patients had primary treatment closed reduction with plaster immobilization. However, after the analysis of control xray films, inadequacy of primary reduction that caused secondary displacement of fragments and necessity for the subsequent operative treatment has been revealed. The period after trauma in these patients reached 4 months that demanded corrective osteotomy with bone grafting. Both palmar and dorsal plates were applied. CONCLUSION: One should remember that the lion's share of patients with distal radius fractures is treated conservatively thus the unsatisfactory results are rather common, that requires development and introduction of optimal methods of treatment.

Abstract number: 24555

FUNCTIONAL AND RADIOGRAPHICAL OUTCOME IN PATIENTS WITH INTRAARTICULAR RADIUS FRACTURES TREATED WITH A DORSAL PI-PLATE AND A VOLAR T-PLATE - A 5 YEAR FOLLOW-UP.

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Functional and radiographical outcome in patients with intraarticular radius fractures treated with a dorsal pi-plate and a volar T-plate - a 5 year follow-up. Reiser, D. Wallgren, Ö. Pettersson, K.Dept of Hand Surgery. Örebro, Sweden.Background: The aim of the study was evaluate the long term results of double-plating. Material and Methods: 43 fractures in 42 patients, mean age 51,5. Physiotherapy was initiated after two weeks in plaster. Follow up was performed by an independent physiotherapist at 1, 6, 12, and 60 month and radio graphically after 1, 12, and 60 months. At follow up strength, range of motion, pain in activity and at rest and PRWE was evaluated. A radio graphically staging was performed with the Batra-score system.Results: Initial x-ray according to the AO staging showed a distribution of 2 B2, 2 C1, 12 C2 and 27 C3 fractures. At the 5 year follow-up active ROM extension was 47,3° (74 % of the unaffected side), flexion 58,5° (84%). Supination, pronation, radialabduction and ulnarabduction were equal to the unaffected side. Grip strength measured with Jamar dynamometer showed 33,1 kg (107%). Pain in activity VAS 0,5, PRWE 1,55. The radio graphically staging showed 25 excellent, 5 good, 2 fair and 1 poor. No posttraumatic osteoarthritis was detected. Removal of the volar and dorsal plate was performed in 22 patients (51%). Discussion: Our study showed an excellent clinical and radiological outcome, and a maintained good anatomical reduction of the fracture after 5 years.

Abstract number: 24612 USING FREE AND UNFREE TRANSPLANTATION OF M. LATISSIMUS DORSI TO PATIENT WITH VOLKMANS ISHEMICAL CONTRACTURE

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In this work have been analysed results of effectiveness surgical treatments of Volkmans ishemical contracture of the hand. 23 patients with ischemical damage have been operated with free and unfree transplantation of m. latissimus dorsi for restore function upper extremity. The microsurgical technique of surgical treatments of present condition was worked out. Clinical results at was assessment to AAOS arrangement system. The analysis of the results surgical treatment arrangement showed increasing function of ischemic upper extremity at 17 %.

Abstract number: 24895 SURGICAL TREATMENT OF AO TYPE C3 DISTAL RADIUS FRACTURES USING MULTIDIRECTIONAL VOLAR LOCKING PLATE

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Purpose: The purpose of this study was to compare the outcomes of the surgical treatment of AO type C3 distal radius fractures using APTUS multidirectional volar locking plate (MVLP). Materials and methods: This study included patients with AO type C3 distal radius fractures treated with MVLP and other VLP. The authors reviewed 13 patients who were treated by open reduction and internal fixation using the MVLP. Other 10 patients who were treated using AO locking compression plate and locking compression distal radius plate. The patients had been followed up for an average of 14.5months (range, 9-24 months). Patients were divided into two groups, MVLP group and other group. The mean age of APTUS group was 65.1 years (range, 26-84) and that of other group was 67.9 years (range, 48-78).Outcome between two groups were compared using Cooneys criteria. The loss of reduction was evaluated from radiographs taken at between just post operation and the last follow-up visit. Results: The functional outcome APTUS group was excellent in 11 and good in 2 patients. That of other group was excellent in 8 and good in 2 patients. The loss of volar tilt (APTUS group/other group) increased (0.18/1.00) degrees, radial inclination increased (0.09/1.1) degrees and ulnar varience increased (0/0.8) mm. There was no malunion infection, median compression, implant failure and subcutaneous rupture of the tendon. Conclusion: Use of MVLP is effective for AO type C3 distal radius fractures.

Abstract number: 25232

VOLAR LOCKING PLATING FOR UNSTABLE DISTAL RADIAL FRACTURES USING THE PRONATOR-SPARING APPROACH: THE DISTRACTION FOR RESTORATION OF THE RADIAL LENGTH

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Purpose: To evaluate the functional outcome of patients treated with volar locking plating for unstable distal radius fractures through pronator-sparing approach and to measure the restoration of radial length by distractive device. Materials and Methods: By the review of the records of all patients treated with volar plating for displaced, unstable distal radius fractures from March 2006 to December 2008, seventeen fractures that were treated with volar locking plating through pronator-sparing approach were enrolled and followed mean 18.0 months (range, 12-42 months). They were restored the radial length by distractive device. We analyzed the radiologic results and functional results by May wrist score and modified Gartland-Werley score system. Results: The Radiographs in the immediate postoperative period showed that the radial length was restored from mean 5.1mm to 12.5mm; radial inclination, 12% 21°, and volar tilt, -9% o 6.4°. At last follow-up, the final radial height averaged 11mm; radial inclination, 21°, and volar tilt, 6.3°. The average score on the Mayo wrist score was 91points(range, 75 100 points) and The overall outcome showed 9 excellent and 8 good results according to the modified Gartland and Werley scoring system. Conclusion: Our experience indicates that most unstable distal raidus fracture can be functionally reduced, fixed through a pronator-sparing approach and the radial length can be restored by the distraction. The combination of a pronator-spraing approach with the distraction for radial length resulted in no need for bone graft and no loss of reduction.

Abstract number: 25364

NATURAL COURSE OF DISTAL RADIUS FRACTURE IN WOMEN AGED 50 TO 75 YEARS BETWEEN THE TWO TIME POINTS OF 1 YEAR AND 2 TO 4 YEARS AFTER FRACTURE

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Distal radius fracture may cause prolonged pain and disability but the natural course is not well-known. We determined change in symptoms and physical measures occurring between 1 year and 2-4 years after fracture in postmenopausal women. Methods: This study was part of a prospective population-based cohort study in which all adult persons presenting with acute distal radius fracture were evaluated at baseline and at 1 year after fracture. The present study included women 50-75 years of age initially treated with cast or external/percutaneous pin fixation who participated in the 1-year follow-up. None had further treatment. The women were re-evaluated at mean of 39 months (range 25-55 months) after fracture including pain, DASH questionnaire, range of motion (ROM) and grip strength. Results: 50 women participated in this study (mean age 65 years; dominant hand 26). Mean VAS scores for pain with motion and activity improved significantly and DASH scores moderately. Grip strength increased significantly with an average of 2.3 kg, increasing by >4 kg in 19 patients and decreasing >4 kg in 3 patients. ROM increased significantly in most directions but the increase was modest averaging 2-4 degrees. A minimum of 10degree improvement in supination occurred in 20% and in extension in 15% but few patients improved by 15 degrees in any ROM.Conclusion: After distal radius fracture, the symptoms, grip strength and motion recorded at 1 year continue a small to moderate improvement up to 2-4 years.

Abstract number: 25535 COMPARATIVE OUTCOME OF DISTAL RADIAL FRACTURES TREATED WITH DIFFERENT LOCKING PLATES

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Objectives: The aims of this study were to determine the results of volar locking plating including the complication rates at 3 months. Methods: A retrospective data analysis was conducted for all adult patients treated with different distal radius locking plates over a three year period (2007-09) in our unit. Data obtained included age, hand dominance, type of implant used, fracture classification, length of hospital stay and complications both clinical and radiological. Distal radius fractures were classified according to the Fernandez classification and further defined as low risk (types 1, 2) or high risk (types 3, 4, and 5). Outcome was assessed at three months following the primary surgery. Results: 65 patients (66 wrists) were identified (23 male, 42 female). The mean age was 52.5 years (range 17 86). According to the Fernandez classification 71% of fractures were either types 1 or 2, 29 % were either types 3, 4 or 5. Based on the implant manufacturer the plates used were 54% Stryker Variax, 32% Synthes LCP, 14% Smith and Nephew Peri-Loc, respectively. 73% of patients had no complications. Stiffness (20%) was the commonest complication (18.2% in the low risk group and 33.3% in high risk group, P < 0.05). Only 3% required implant removal. Stryker variax plates had the highest complications (25.7%) but this was not statistically significant. Conclusion: Based on the low implant related complications we conclude that the majority of distal radius fractures can be safely treated by volar locking plating when clinically indicated.

Abstract number: 25708 SURGICAL TREATMENT OF SCAPHOID NON UNION

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Scaphoid Pseudoarthrosis frequently requires surgical treatment. The authors present a series of 38 patients, who had surgical treatment of scaphoid pseudoarthrosis by anatomic reconstruction with graft and osteosyntesis with a scaphoid screw.Patients evaluation: analysis of consolidation, evaluation of wrist mobility, grip and tip strength, determination of VAS, DASH and Mayo Wrist Score. 31 men and 7 women were evaluated. Mean age: 35,17±5,4 years. Mean follow time: 48,12 months (minimum of 12 months). Results: 85% of consolidation. Mean VAS of 2,2. Mean DASH score of 22,5. Mayo Wrist Score: 18 excellent, 7 good, 6 satisfactory and 5 bad . Mean wrist mobility: flexion 73,96°, extension 71,46°, pronation 85,2°, supination 88,96°. The difference in mobility between fractured hand vs contra lateral was not significant (p<0,05). Grip strength of the operated hand vs contra lateral hand wasnt significant (p<0,01). Four patients underwent new surgery for persistence of pseudoarthrosis and one wrist arthrodesis for unbearable pain. We performed anatomic reconstruction of the scaphoid, with iliac graft and osteosyntesis with a Herbert type screw. This allows improvement in the consolidation rate and a diminution in the time of immobilization post operatively. We present excellent clinical results, patient satisfaction and recovery of the patients function and working ability. Consolidation by this form of surgical treatment returns carpal stability and improves the mechanic pain of the patient.

Abstract number: 26406

A RETROSPECTIVE STUDY OF THE POSITION OF IMMOBILISATION AND FUNCTIONAL OUTCOME OF METACARPAL/PHALANGEAL FRACTURES

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AIMSRetrospective study of the immobilisation and functional outcome of metacarpal/phalangeal fractures presenting, with subgroup of 5th metacarpal neck fractures.FINDINGS53 patients presented with metacarpal/phalangeal fractures were followed up at 4 months (3-5 months): 41 male, 12 female, 33 years (8.75-87.39).Radiographs were assessed for angulation and displacement. Outcome was assessed by patient satisfaction with treatment and outcome, and the functional QuickDash score.RESULTSAmongst patients with QuickDash score >0, a higher score correlated with a lesser degree of satisfaction with overall treatment and outcome. Overall, there was no significant correlation between QuickDash score and severity of fracture or operative/non-operative intervention. Of the 18 patients with radiographs in a splint, 0 were in the safe position. In the subgroup of 15 patients with 5th metacarpal neck fractures, 7 managed with neighbour strapping (A) and 8 with a plaster splint (B). There was no attempt at reduction and all splints were removed at the first follow-up appointment. There was no significant difference between the groups in terms of angulation or return to work. In group A, mean QuickDash score was 2.56 and 100% were satisfied with treatment/outcome. In group B, mean QuickDash score was 12.79 and 25% of patients (2) were unsatisfied with treatment/outcome.CONCLUSIONS This pilot study does not support the use of splint immobilisation for 5th metacarpal neck fractures. A prospective randomized controlled trial is indicated. A larger study of the position of hand immobilisation in plaster is indicated.

Abstract number: 26770 DISTRACTION METHOD OF FRACTURED METACARPAL HAND BONES USING THE DISTRACTION DEVICE

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Distraction method should provide possibility of early reposition of bone fractures and movements in joints of fingers of a hand. The method allows early active movements in interphalanx and metacarpal-phalanx joints of a hand in the first days after operation and reduces time of patient's invalidity. The present research is based on experience of treatment of 23 patients with the obligue and transversal fractures which have not accreted and incorrectly accrete fractures metacarpal bones, who were on treatment in department of hand surgery Tashkent edical cademy. Operation carried out under local anesthesia with 1 % solution of Novocain. Level of blockade of nervous trunks is defined depending on localization of fractures and volume of forthcoming operative intervention. The device is placed to the patients under local anesthesia for treatment of damaged joints of fingers. After installations of the offered device the patient can independently develop interphalanx joints. The long term results of treatment from 1 year till 7 years are studied on 20 (%) of patients. Excellent and good results of treatment are received on 20 (%) of patients. on 2 (%) - satisfactory, on 1 (%) - unsatisfactory. Thus, using our distraction device on fractures metacarpal hand bones allows receiving excellent and good results of treatment at the overwhelming majority of patients and recommended for wide application.

Abstract number: 23188 INTERNAL FIXATION OF HIP FRACTURES "CAUSES OF FAILURE AND OUTCOME OF SALVAGE ARTHROPLASTY

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Introduction - Failed fixation of hip fractures typically leads to profound functional disability and pain for the individual, technical challenges for the surgeon, and an increase in the financial burden. This study had three purposes: (1) to determine the reason/s for failure of internal fixation (2) to record difficulties / complications encountered with salvage arthroplasty and (3) to compare the outcome of salvage arthroplasty with primary hip arthroplasty. Methods Between 1999 and 2005 41 patients were treated at our institution with a total hip arthroplasty for failed fixation of a hip fracture. We reviewed the charts and radiographs of all patients. We also compared the outcome of patients who underwent salvage arthroplasty (Group 1) with a matched group of patients who had a primary hip arthroplasty for degenerative disease (Group 2).Results - Failure to achieve a good reduction and optimal screw placement was evident in 80% of cases. A high incidence of complications was recorded following salvage arthroplasty. Functional outcome was statistically inferior in group1, this group also had a higher incidence of complications. Radiographs at 2 years post operatively showed evidence of femoral stem loosening in 16% of group1 compared with 3% in group2. Conclusions - When stabilising hip fractures one should make every effort to achieve optimal reduction and fixation. Salvage arthroplasty is associated with higher complication rate and poorer outcome than primary arthroplasty. We recorded a high incidence of femoral stem loosening following salvage arthroplasty and recommend more frequent follow up of these patients.

Abstract number: 23529 INNOVATIVE DEVICE FOR PLACEMENT OF DEROTATION SCREW IN TROCHANTERIC FRACTURES

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Trochanteric fractures comprise of 50% of all fractures of proximal femur and is most commonly seen in the age group of 65-75 yrs. They present with a variety of presentations like basicervical #, # with subtrochanteric extension, reverse obliquity and most often severe comminution owing to osteoporosis in this age group. Due to the unstable fracture pattern often the surgeon is in dilemma with the choice of implant. Most implants like trochanteric stabilization plate, 95 degree blade plate, DHS plating with encirclage wire are time consuming and require technical expertise to achieve desired result. In this scenario we found DHS plating with a derotation screw to be effective & simple technique. Some technical problems like parallel placement of two screws in a tight compartment required excess time & radiation. To counter this problem we devised a Zig that enables parallel screw placement with multitude of options with no requirement of Radiographic confirmation. We have a Series of 85 patients with Peritrochanteric fractures treated with this technique with mean follow up of 2 years. We have excellent results with this technique as it decreases operative time, radiation and morbity in such unstable fractures. No complications like revision of screw placement, guide wire breakage were encountered. Postoperatively all patients achieved union of the fracture and none required revision.

Abstract number: 23551 IMPACT OF SURGICAL APPROACH ON POSTOPERATIVE HETEROTOPIC OSSIFICATION AND AVASCULAR NECROSIS IN FEMORAL HEAD FRACTURES : A SYSTEMATIC REVIEW

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Heterotopic ossification (HO) and avascular necrosis (AVN) have been identified as posttraumatic complications of femoral head fractures and may lead to a restriction in hip function and permanent disability. The question regarding which surgical approach is the best for the femoral head fracture and its correlation with HO and AVN remains controversy. We conducted a systematic review in which all published studies were evaluated. We performed a literature search in MEDLINE, PubMed, EMBASE, MD Consult, and the Cochrane Controlled Trial Register from 1980 to April 2009. We found ten appropriate studies, describing 176 patients. A lower percentage of patients treated with a trochanteric flip approach was reported with HO than patients treated with anterior or posterior approach (33.3% versus 42.1% and 36.9%, respectively), although the difference was not statistically significant. The incidence of AVN was highest in the posterior approach group (16.9%), and subsequently with the trochanteric flip approach (12.5%) and the anterior group (7.9%). The investigators concluded that the use of the anterior approach may result in a higher risk for HO and the posterior approach may result in a higher risk for AVN. A new, posterior-based approach of trochanteric flip seems to be a better approach for femoral head fractures. A further case-control study would be appropriate to confirm the findings in our systematic review.

Abstract number: 23773

PREDICTIVE CHANGE TO SALVAGE SURGERY OF THE DHS DEVICE

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INTRODUCTIONThe dynamic hip screw (DHS) is a standard device for fixation of intertrochanteric hip fractures. Cut out is one of the commonest mode of mechanical failure for this device. In the literature, contributory factors to cut out are osteoporosis, fracture type, fracture reduction and implant position. The aim of this study is to determine if there are pre-operative factors which determine likely failure of the DHS device and thus salvage surgery METHODOLOGYAll patients who had a DHS fixation for intertrochanteric fracture from July 2003-May 2005 were retrospectively identified. Patients lost to follow-up or without appropriate radiographs were excluded. X-rays were reviewed pre-operatively and post-operatively. Osteoporosis, fracture pattern and quality of reduction were co-related with risk of cut out.RESULTSThere were 155 patients. Seven patients cut out. Median time to cut out was 26(SD12.6) weeks and median time to union was 2(SD1.1) months. There was an increased risk of the DHS cut out if the medial calcar was not intact(p=0.007) and tendency to cut out with fracture comminution(p=0.08).CONCLUSIONOur study highlights the importance of an intact medial calcar and sufficient bony support in the intertrochanteric region for the success of the implant. This is likely due to the fact that the DHS is a sliding device that depends on compression around the intertrochanteric region for fracture union. Patients with deficient medial calcar may benefit from bone grafting, new implant design or even a hemiarthroplasty at initial surgery.

Abstract number: 23848 A BIOMECHANICAL COMPARISON OF STATIC VERSUS DYNAMIC LAG SCREW MODES FOR CEPHALOMEDULLARY NAILS

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The purpose of this study was to compare the biomechanical stiffness of static and dynamic modes for a cephalomedullary nail used to fix an unstable peritrochanteric fracture. An unstable four-part fracture was created in 30 synthetic femurs and each was fixed using a Long Gamma 3 Nail. Mechanical tests were conducted for axial, lateral, and torsional stiffness with the lag screws in static and dynamic modes. A paired students t test was used to compare the 2 lag screw modes. The axial stiffness of the cephalomedullary nail was significantly greater (p<0.01) in the static mode (484.3±80.2N/mm) than in the dynamic mode (424.1±78.0N/mm). Similarly, the lateral bending stiffness of the nail was significantly greater (p<0.01) in the static mode (113.9±8.4N/mm) than in the dynamic mode (109.5±8.8N/mm). The torsional stiffness of the nail was significantly greater (p=0.02) in the dynamic mode (114.5±28.2N/mm) than in the static mode (111.7±27.0N/mm). A post hoc power analysis (=0.05, =0.20) proved that a difference in mean axial stiffness of 33.0N/mm, in mean lateral bending stiffness of 3.6N/mm and in mean torsional stiffness of 3.4N/mm could be determined. Given the significant reduction in axial stiffness with dynamization of the cephalomedullary nail construct, we recommend use of the static mode when treating unstable peritrochanteric fractures with a cephalomedullary nail.

Abstract number: 24235

RESULTS AND FUNCTIONAL OUTCOME OF FEMORAL NECK NON-UNIONS IN YOUNG ADULTS

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Introduction: Femoral neck non-unions (FNNU) are common complications after internal fixation of femoral neck fractures in young adults. The purpose of this study was to evaluate results and long-term functional outcome.Methods: A retrospective analysis was undertaken on a cohort of 28 patients diagnosed with FNNU between March 2002 and Dec 2007 at a Level I teaching trauma center. Outcomes were results (pain, assistive devices, shoe wear, and level of activity) and prospective assessment of functional status (Short Musculoskeletal Form Assessment [SMFA] and Short Form 36 [SF-36]). Results: 22 patients met inclusion criteria. 14 males and 8 females had a mean age of 44.1 (19-65) and BMI of 26.2 (18-41). FNNU treatment consisted of 10 intertrochanteric osteotomies and 8 arthroplasties. Pain requiring medication was present in 14 cases. Mobility assistive devices were utilized in 4, customized shoe wear was needed in 5, and level of activity was restricted in 8 patients. Functional status was Daily 32.7, Mobility 37.0, Dysfunction 28.8, Bother 26.3, PCS 32.0, and MCS 56.0. FNNU functional status was significantly reduced compared to normative values (t-test, p<0.05). BMI independently contributed to inferior functional status (Daily R2=0.375, Mobility R2=0.386, Dysfunction R2=0.348, Bother R2=0.356, PCS R2=0.445) with significance at p<0.05. Conclusion: Femoral neck non-unions in the younger adults are debilitating injuries. Long-term functional status remains reduced. BMI contributes to inferior functional status.

Abstract number: 24245

RESULTS AND FUNCTIONAL OUTCOME OF FEMORAL NECK FRACTURES IN YOUNG ADULTS

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Introduction: The purpose of this study was to evaluate long-term functional outcome, results, and complications after operative treatment of FNF in young adults.Methods: Over a five-year period, 2002-2007, 87 skeletally mature patients were retrospectively identified with a FNF at a Level I teaching trauma center. Outcomes were results, complications and prospective assessment of long-term functional status (n=53, Short Musculoskeletal Form Assessment [SMFA] and Short Form 36 [SF-36]). Results: There were 44 males and 43 females with a mean age of 44.1 (19-65) and BMI of 26.2 (18-41). 15 patients had an associated ipsilateral shaft fracture. Mechanisms of injury were 55 low-energy falls and 32 high-energy injuries. AO/OTA 2007 classification included 14 B1, 35 B2, and 38 B3 fracture pattern. Treatment consisted of 47 CRIF, 26 ORIF, and 14 hip arthroplasties. Reduction was anatomic in 16/73 (21.9%) of internally fixed FNF. Complications included 33 leg length shortening, 30 hardware problems, 26 non-unions, 18 heterotopic ossification, 13 AVN, and 2 infections. FNF without complications returned to near normal functional status, while FNF with complications had functional status significantly inferior compared to normative (1-way-ANOVA, p<0.001). Obesity (BMI>30) was related to inferior functional status (p<0.05). Conclusion: Femoral neck fractures in younger adults are debilitating injuries. If free of complications long-term functional status returned comparatively to normative controls. However, complications led to significant impairment represented by decreased functional status scores. BMI related to an inferior functional outcome.

Abstract number: 24955

"COMPOUND PERINEAL DISLOCATION OF HIP IN A CHILD: A CASE REPORT" Mayank AGRAWAL

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INTRODUCTION: Compound perineal dislocation of hip in paediatric age group is very rare and scarcely reported in literature. MATERIALS AND METHODS: We report the case of a male child aged 11 years, who presented following a motor vehicle accident with compound perineal dislocation of the left hip associated with a fracture separation of the trochanter & a fracture of the homolateral humerus with radial nerve palsy. He was treated by open reduction of the dislocation and pinning of the greater trochanter. RESULTS: After 36 months functional result of the hip was good with no signs of necrosis of the femoral head till the last follow up. DISCUSSION: The treatment consisted of emergency reduction of the dislocation and non operative management for fracture humerus. Despite this treatment, a review of the literature showed that necrosis of the femoral head is still frequent. CONCLUSION: Compound perineal dislocation of the hip in a child is rare but severe disease and its prognosis is usually poor but a timely intervention can give rise to good functional outcome.

Abstract number: 25350 INDIRECT REDUCTION OF POSTERIOR COLUMN THROUGH ILIOINGUINAL APPROACH IN CASE OF BOTH COLUMN FRACTURES

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Purpose : The purpose of this study was to evaluate the efficacy and the result of indirect reduction of posterior column through the ilioinguinal approach in case of both column fractures. Materials and Methods : Between February 2000 and January 2008, 18 patients, who underwent indirect reduction of posterior column through the ilioinguinal approach, were evaluated clinically and radiographically after a minimum follow-up of one year. Mean duration of follow-up was 52.7 months. The reduction quality, clinical results, and radiographic results were analyzed based on the criteria of Matta. Complications were recorded as well.Results : There were 13 cases(72.2%) of anatomical reduction, 2 cases(11.1%) of imperfect reduction, and 3 cases(16.7%) of poor reduction. Excellent results were graded in 12 cases clinically and 9 cases radiographically out of 13 anatomically reduced fractures. Poor clinical and radiographic results were graded in 2 of the 3 poorly reduced fractures. Complications included 3 cases with transient lateral femoral cutaneous nerve injury, which resolved during the follow-up period and 1 case with a superior gluteal artery injury.Conclusion : Indirect reduction of posterior column through the ilioinguinal approach is effective for both column fractures. During the surgery care should be taken to reduce the risk of iatrogenic lateral femoral cutaneous nerve injury.

Abstract number: 25619 CHILDHOOD PUBIC RAMI FRACTURES: NOT SO BENIGN AFTER ALL

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Pubic rami fractures are classified as benign injuries but we present an unusual case of childhood fracture malunion resulting in delayed morbidity in adulthood. The patient presented to us 30 years following the injury and we describe the symptoms and management of this rare problem.A 42 year old presented with delayed symptoms of impingement and rotational hip deformity following this injury in childhood. The fracture had healed without operative intervention and the only morbidity till then was a failed vaginal childbirth. At presentation, she had an internally rotated right leg and impingement to external rotation of the hip. She walked with an in-toeing gait. The hip joint had significant pain on attempted external rotation. Radiographs of the pelvis showed malunited superior and inferior pubic rami fractures with a large exostosis centred over the ischial tuberosity. The bony prominence encroached on the posterior aspect of the femur and restricted the normal arc of hip movement. The exostosis was excised surgically which restored a full range of hip movement. Unfortunately her exostosis had recurred requiring two further debridements. Following her most recent surgery, the patient was given 5 doses of external beam radiotherapy to reduce the recurrence of her exostosis. She remains symptom free for 18 months. As children continue to grow and develop, simple fractures of the pelvis can have significant delayed complications. Long-term review of these injuries is advocated to detect these potential morbidities early.

Abstract number: 25699 FIREARM FEMORAL HEAD OPEN FRACTURES

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The management of femoral head fractures firearm show controversial literature regarding approaches. Treatment includes surgical debridement, bone stabilization and removal of the projectile. The aim is to present our experience in the management of open fractures of femoral head by a firearm. We presented three male cases. 26 years old patient with abdominal wall projectile injury without exit. The bullet was founded in the femoral head through the acetabular medial wall. Second case an 18 years old with gunshot wound in the trochanteric region ending in the femoral head. Last case an 18 years old presenting entrance wound in the anterior hip region impacted in the anterior wall and labrum. None lesion of large vessels or neurological injury was founded. In the first two cases was performed a surgical hip dislocation retiring the bullet, adding in the second case prophylactic cannulated screws in femoral neck. The third case required an anterior hip approach (Hueter), removal of bullet and prophylactic cannulated screws in femoral neck.We founded no infection, AVN or osteoarthritis. No lead poisoning. The patients with surgical dislocation healed at a mean of 3 months. We recognized it's a small series and have a short to medium term monitoring, but has shown that early and aggressive treatment of these high energy injuries with surgical debridement and removal of the projectile by surgical dislocation and anterior hip approach allows the right solution without adding morbidity or increasing the risk of the femoral head blood supply.

Abstract number: 25783

INFLUENCES OF ROTATION ON FEMORAL NECK-SHAFT ANGLE MEASUREMENTS IN THE ANATOMIC, VARUS MALREDUCED, AND SHORTENED PERITROCHANTERIC FRACTURE.

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Varus malreduction of peritrochanteric fractures causes failures. However, measurements of the actual neck-shaft x-ray angle (NSA) are performed with the femur internally rotated to compensate for proximal femoral antevesion. Frequently patients have X-rays (XR) with an externally rotated femur. Therefore, we sought to define the reliability of in-situ NSA measurements. Methods: We performed NSA measurements of three proximal femurs with no malreduction (NM), 20° varus (VM), and 10 mm shortening (SM). We measured the NSA rotating the femur relative to the XR beam in 5° increments from 45° of internal to 50° of external rotation. Results: NSA measurement varied less than 5° with the beam angle less than 30° but exponentially increase with continued external or internal rotation for all groups. The NSA of the NM femur was 128.0°, the VM femur was 107.5°, and 127.5° for the SM femur. The femoral NSA graph for all the groups followed the following formula: NSA = 90 + (tan-1[vertical height/(offset*Cos(Beam angle))]. At 50° of external rotation, the average varus angle was 137.5° for the NM femur, 115.5° for the SM femur, and 140.5° for the VM femur. At 30° of internal rotatio n, the average varus angle was 143.5° for the NM femur, 131.5° for the SM femur, a nd 116.0° for the VM femur. Conclusion: Measurements of proximal femoral NSA are accurate to within 5° when rotation is less than 30° of the proximal femur rel ative to the XR beam.

Abstract number: 26088

NO PROLONGED GASTRIC EMPTYING TIME IN PATIENTS WITH A HIP FRACTURE; SUGGESTED NUTRITIONAL SUPPORT CLOSE TO SURGERY

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Background Fasting guidelines for elderly patients with hip fractures are the same as for other trauma patients. The reason for the recommended longer fasting time compared to patients undergoing elective surgery is a suspected stress-induced delayed gastric emptying with following risk of aspiration. Waiting time for acute surgery is often more than 24 hours for hip fracture patients, a long fasting time in patients who often are metabolically deranged already before the trauma. The purpose of the study was to investigate if a carbohydrate-rich drink could be given close before surgery and if the gastric emptying rate was delayed in patients with hip fractures as assumed earlier. Methods The gastric emptying rate of a 12.6 % carbohydrate rich drink was investigated in 10 elderly women with a hip fracture waiting for surgery. Results were compared with the gastric emptying rate for two control groups of healthy persons. The method used to assess the gastric emptying rate was a paracetamol absorption technique, an indirect measure of the rate of gastric emptying. Results The gastric emptying profiles were similar between groups. Mean gastric half-emptying time was 57 +/- 5 minutes. The healthy control groups had a mean time of 58 +/-5 minutes. Conclusions In this pilot study, we did not find delayed gastric emptying of a carbohydrate-rich beverage in elderly patients with a hip fracture waiting for surgery. A carbohydrate rich beverage may therefore be given with no additional risk of aspiration. This opens possibility to improve nutritional support close before surgery.

Abstract number: 26219 PRIMARY CEMENTED HEMIARTHROPLASTY FOR UNSTABLE INTERTROCHANTERIC FRACTURES IN ELDERLY OSTEOPOROTIC PATIENTS

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Unstable intertrochanteric fractures in patients with severe osteoporosis are among the most difficult fractures to treat. Fixation failure often leads to prolonged morbidity and poor functional outcome. Primary replacement seems a suitable option to minimize complications in this selected group of patients. A prospective study was conducted between Jan 2004 and April 2006 at a tertiary referral unit. Patients with unstable intertrochanteric fractures and osteoporosis were included. Unstable fractures were identified on radiographs by the senior author and osteoporosis confirmed from previous bone densitometry results. Patients unable to consent were excluded from the study. Twenty patients comprising of 11 females and 9 males formed the study cohort. The mean age was 69 (52 95) years and the mean follow up was 4.6 (3 6) years. One patient died on the sixth postoperative month and two patients were lost to follow up. There were two dislocations one in the immediate post operative period and the other one month later with greater trochanteric fracture. One patient had periprosthetic fracture and two patients experienced leg length discrepancy. The study showed 66% excellent and 22% good results according to the Harris Hip Score system. Primary endoprosthetic replacement has provided satisfactory results with good functional recovery in our experience. Due to unstable nature of the fracture, internal fixation has a high failure rate, especially in the presence of severe osteoporosis. Cemented hemiarthroplasty seems to be a suitable option for patients with unstable intertrochanteric fracture and osteoporosis.

Abstract number: 26361

PROPENSITY FOR HIP DISLOCATION IN GAIT LOADING VERSUS SIT-TO-STAND MANEUVERS: IMPLICATIONS FOR REDEFINING THE WEIGHT BEARING DOME OF THE ACETABULUM DURING ACTIVITIES OF DAILY LIVING.

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A large percentage of the day is spent in a sitting position. We compared hip joint stability during single leg stance (SLS) and sit to stand (STS) maneuvers using a transverse acetabular fracture model. Methods: Seven side randomized fresh frozen cadaveric hemi-pelvic specimens with proximal femurs were dissected of all soft tissues except for the acetabular labrum. Transverse acetabular fractures were created in 5 mm increments from distal to proximal. The roof arc angle (RAA) and reduction of articular surface area (RAS) were measured. A 1200 N load was applied to the acetabulum simulating the STS cycle (15° abd uction, 90° flexion) and SLS (15 ° abduction, 0° flexion). Results: The average RAA needed to dislocate in the SLS position was 71.9° in the iliac oblique (IO), 46.1° in the anterior-posterior (AP), and 25.2° in the obturator oblique (OO) X-ray. The average RAA needed to dislocate in the STS position was 101.4° in IO, 90.9° in AP, and 67.3° in OO X-ray views. There was a significant difference in the RAAs between the SLS and STS in all Roentgenograms (p<0.003). The RAS needed to dislocate the hip was significantly less (p=0.003) for the STS group (10.9%) than the SLS group (36.4%).Conclusions: There is a higher likelihood of hip dislocation with STS than SLS in simulated transverse acetabular fractures. The acetabular weight-bearing dome needed for stability of the hip is larger then previously alleged during activities of daily living.

Abstract number: 26449 LUMBAR PLEXUS AND SCIATIC NERVE BLOCK FOR ASA III PATIENTS UNDERGOING HEMIARTHROPLASTY

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Hemiarthroplasty is a rather common procedure for patients with collum femoris fracture. These patients are usually elderly people with many other chronic diseases and general anesthesia and even spinal anesthesia may be troublesome for these patients. In this paper we are presenting results of hemiarthroplasty procedure we have performed for 4 ASA III patients under lumbar plexus and sciatic nerve block.We have performed hemiarthroplasty procedure for four patients with collum femoris fracture. The mean age of the patients were 79,3 years (74-87). Three of them were females and one was a male. Preoperative evaluation revealed that all were ASA III patients. All patients were operated under lumbar plexus and sciatic nerve block. Cemented bipolar hemiarthroplasty was the choice of treatment. The patients were positioned in the lateral decubitus position. The mean duration of the procedures minutes. No complications surgical was 55 were observed. Postoperatively a successful pain control was also achieved without using excessive NSAIDs. Three of the patients could be mobilized on the first postoperative day and one on the second day. General and even spinal anesthesia have obvious risks for elder patients especially those with chronic diseases. Most anesthetics cause catastrophic systemic problems for these patients. Local anesthesia, lumbar plexus and sciatic nerve block in particular, decreases the risk of anesthesia and provides better pain control postoperatively. We conclude that lumbar and sciatic nerve block is a safe method for ASA III patients with collum femoris fracture.

Abstract number: 26499 TRAUMATIC ANTERIOR HIP DISLOCATION IN AN 8 YEARS OLD CHILD: CASE REPORT, REVIEW OF THE LITERATURE

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Introduction: Traumatic dislocation of the hip is a relatively rare occurrence in paediatric population. The trauma required to produce a dislocation varies from minimal to severe high-energy forces. Anterior dislocation of the hip in this age group should be considered a serious injury.Material and Methods: We report a case of anterior hip dislocation in an 8 years old boy who suffered a hit by a car. The childs hip was reduced under general anaesthesia without delay (1 hour after the injury) or sequelae. MRI examination after reduction revealed haematoma associated with partial rupture of the obturator externus muscle and adductor minimus muscle, without other associated lesions. After the reduction, the child was submitted to skin traction with adhesive strapping for 15 days. Subsequently, gradual weight bearing was allowed.Results: After 1 year, functional result of the hip was good without restriction of physical activity. The radiographic and MRI examination showed normal hip joints.Discussion: Despite the severe intensity of the trauma, the fact it was an anterior dislocation without associated injuries and the child had the dislocation reduced promptly, possibly contributed to the good result obtained in the follow-up. A review of the literature shows that, if the diagnosis and immediately reduction are delayed, the morbidity, such as avascular necrosis or osteoarthritis of the femoral head, may be significant. Conclusion: A poor prognosis is conferred by trauma of considerable intensity, presence of fractures associated with the dislocation, open dislocation, delayed reduction and advanced skeletal maturity of the patient.

Abstract number: 26525 TREATMENT OF TROCHANTERIC FRACTURES ACCORDING TO AO CLASSIFICATION OF FRACTURES

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This article is intended to be an analysis of our experience in the treatment of trochanteric fractures according to AO classification of fractures and based on the latest data available in literature. Trochanteric fractures represent a special problem in the traumatic pathology of the hip, due to their increased prevalence and multiple immediate and late complications that can occur. The objectives of treatment are mobilization with early weight bearing and consolidation, which are achieved by means of rigid internal fixationThe new internal fixation devices currently used in practice are preferred for their efficiency and precise implantation techniques at the fracture point. Technical problems concern the insertion of the implant and maintenance of the stability of internal fixation after fracture reduction, especially in osteoporotic bones. We conducted a clinical retrospective study on a group of patients with trochanteric fractures that had undergone surgery in our clinic between 2006 and 2009. The results were appreciated according to fracture reduction, implant type and stability, consolidation period, possibility of walking and standing on the affected limb.We suggest the utilization of AO Classification of Fractures in order to obtain the adequate implant indication for trochanteric fractures treatment. For example, an A1 fracture would be better treated by a dynamic screw (DHS), while a comminuted and unstable A2 or A3 type of fracture requires an intramedullary fixation device (like Gamma Nail).

Abstract number: 26570

A NEW SUPERELASTIC CABLE FOR BONE FIXATION IN TRAUMA: COMPARISON WITH COMMONLY USED ORTHOPAEDIC CABLES

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Purpose The initial enthusiasm for metallic cables has declined considerably with the high complication rate. Metal materials used do not provide enough elasticity that is a major problem limiting their ability to maintain compression. A new Nickel-Titanium super-elastic cable (SE) was developed and compared with commercial multi-braided cerclage cables: Stainless Steel (SS) and Cobalt-Chrome (CoCr) Zimmer cables. Method SS, CoCr, and SE cables were tested on a Material Testing Apparatus (MTS MiniBionix), in water (37C) reproducing in vivo conditions. They were loaded for 12 hours at a constant strain of the to manufacturers recommended installation force (356 N ie 80 pounds) released and reloaded to failure. Force relaxation (%loss of initial load after 12h), relative elongation ie elasticity (%) and force to failure (N) were measured.Results SE cables were 4 times more elastic than the CoCr and SS cables (p<0.05). No significant force relaxation occurred during the 12 hours (<10%). With a displacement of 1mm on a 15cm cable, SE cables maintained 90% of the initial tension compared to 5% for both the CoCr and SS cables. However, load to failure was superior for the SS and CoCr cables. Discussion SE cable appears to be a good compromise for bones fixation. The high elasticity of the SE cable prevents the loss of tension allowing increased binding stability. With a two-strand configuration, SE cables may also provide the same force to failure as the SS and the CoCr metal cables.

Abstract number: 26608 HIP FRACTURE- AUDIT OF TIME OF OPERATION FROM ADMISSION Atanu BHATTACHARJEE. A HUMPHREY

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AimAuditing pre-operative hospital stay for patients with fracture neck of femur in a district general hospital. Methods Pre-operative hospital stay is prospectively audited for patients with fracture necks of femur for four weeks during October-November 2009. Dedicated orthopaedic trauma operating list for emergency/ acute operations is extended by 150 minutes for three days a week beyond scheduled eight half-day theatre sessions according to recommendations of initial audit. Durations of hospital stay before operation is prospectively re-audited for four weeks in November-December 2009 following implementation of recommendations. Results27 patients with fracture neck of femur were operated during October-November 2009 when regular eight half-day trauma theatre sessions were in place. 14 patients (52 percent) were operated within first 24 hours, 4 patients (15 percent) within 48 hours and 9 patients (33 percent) after 48 hours. After extension of theatre time during November -December 2009, there were 24 patients with similar fractures - 13 patients (54 percent) were operated within 24 hours, 9 patients (37.5 percent) within 48 hours and 2 patients (8.5 percent) after 48 hours.ConclusionOperative treatment within 24 hours of admission for fracture neck of femur is comparable despite extension of theatre time on dedicated trauma lists. This can imply significant co-morbidity of such patients precluding early surgery. Extending theatre time led to conspicuous increase in rate of operation within first 48 hours, significantly reducing operation rate 48 hours after admission. Extending theatre, dedicated ortho-geriatric and anaesthetic team input can help achieve recomended guidelines.

Abstract number: 26720

MINIMALLY INVASIVE APPROACH FOR ACETEBULAR FRACTURES - MODIFIED STOPPA APPROACH WITH OR WITHOUT LATERAL WINDOW -

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INTRODUCTIONIlioinguinal approach is the golden standard for the operation of acetabular fractures. It can visualize 1) iliacus and sacroiliac joint through 1st (iliac) window, 2) iliopubic eminence and anterior wall thorough 2nd (between iliacus muscle and femoral vessels) window, and 3) symphysis pubica and pubic rami though 3rd (just above the symphysis pubica) window. Recently, 3rd window is used as Modified Stoppa approach, which can well visualize quadrilateral plate and medially displaced quadrilateral plate can be fixed with the buttress plate which is secured posteriorly along the sciatic buttress posterior to the joint and the quadrilateral plate. On the other hand, the second window is not necessary in certain acetabular fractures. MATERIALS AND METHODSBetween 2008 and 2009, 12 acetabular fractures were approached through modified Stoppa approach with or without lateral window. There were 8 males and 4 females. The averaged age was 48.9 years. Fracture patterns were: Both Column(BC): 5, Anterior Column(AC): 3, AC+posterior hemitranseverse: 2, Transverse: 2 cases. Complication, clinical and radiographic results were evaluated.RESULTSTwo transient obturator nerve palsies were diagnosed. One deep venous thrombosis was observed, but it was not life threatning. Heterotopic ossification lymph edema, and infection were not observed. Radiographic results were; Anatomical; 9, Imperfect: 3 cases. Clinical Results were; Excellent: 6, Good: 3, Fair: 3 cases.CONCLUSIONModified Stoppa approach with or without lateral window offers improved reduction and fixation possibilities compare with Ilioinguinal approach. However, attention should be paid for obturator nerve palsy during the exposure and reduction of quadrilateral plate.

Poster Topic: Trauma - Humerus

Abstract number: 25711

REVISIONAL OSTEOSYNTHESIS OF LONG TUBULAR BONES WITH LOCKING IMPLANTS

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Aim: Using locking implants during revisional osteosynthesis of long tubular bones.Materials and methods: The data of 87 patients who underwent revisional ostesynthesis of long tubular bones were analyzed. The age ranged from 20 to 71 years. Locking plates were used in 56 patients, and in 31 we used intramedullary locking nails. The segments we divided were following: Clavicle 8, Humerus 26, Forearm bones 10, Femur ? 23, Leg bones 20. The bone defects were filled with several materials in 70% of patients. Results: The post operative follow-up time was vaeied up to 3 years. 72 patients achieved full consolidation after revisional ostesynthesis. In one patient we observed postoperative infection of the wound which was successfully treated conservatively. The others are now in under observation with good signs for fracture union radiologically.Summary: In our point of view, the existing opinion of changing conventional type to the same new metal construction (eq. Intramedullary nail to intramedullary nail) is debatable. On the basis of our short term results, we can make a decision that using the locking implants is better than the conventional one for revisional osteosynthesis. And it allows us to mobilize the patients with osteoporosis, especially in intra-and juxta-articular fractures.

Poster Topic: Trauma - Knee

Abstract number: 24636 TREATMENT OF POSTEROLATERAL CORNER INJURY OF KNEE JOINT WITH LARS RECONSTRUCTION

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OBJECTIVE: To discuss the diagnosis and treatment of posterolateral corner injury of the knee joint, and to evaluate the clinical results after LARS reconstruction. METHODS: Sixteen cases of posterolateral corner injury of the knee were treated with existing serious varus or external rotation. At a mean follow-up of 23 months (9 to 40 months), we evaluate the clinical results using Lysholm scoring systems. Varus stress test showed that instability of varus was more than 10 degrees under the 30 degrees and 0 degrees of genuflexion respectively and external rotation test showed that instability of external rotation was more than 10 degrees when compared with normal side. Thirteen cases complicated by rupture of anterior cruciate ligament, 4 case by rupture of posterior cruciate ligament and 1 cases by rupture of both ligaments. RESULTS: All patients were followed 9 to 40 months and no patients had instability of the knee. The range of motion of the knee was from 110 degrees to 130 degrees of flexion and from 0 degrees to 5 degrees of extension. Posteroperative scores were from 86 to 100 according to Lysholm scoring systems. CONCLUSION: Injuries to posterolateral structures are frequently encountered and failure to recognize and treat this associated injury may lead to stretching or failure of the cruciate reconstruction. Early surgical reconstruction in knees with combined ACL/PCL and posterolateral instabilities achieved the best clinical results and a high rate of patient satisfaction. This injury can result in a significant degree of disability for patients.

Poster Topic: Trauma - Knee

Abstract number: 25609

PATTELAR TENDON AND HAMSTRING TENDON IN ACL RECONSTRUCTION- A COMPARATIVE STUDY

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Introduction: we use hamstring tendon and bone-patelar tendon-bone autograft to compare the results of ACL reconstruction using the same technique for fixation.Methods: between 2005-2007 we operated 70 patients with a complete ACL tear used BTB (35 patients) or hamstings (35 patients) autograft. We excluded patients with multiple ligament injuries. We used Rigid fix system to fix femoral side of the graft and bioabsorbable interference screw for tibial fixation.Patients were assessed at one and two years postoperatively, using KT-1000, IKDC score and Lysholm scale. Statistical significance was as p<0.05.Results: there were no significant differences between hamsting and BTB groups when kneeling(p=0.75), in the Lysholm(0.60), on the KT-1000 (p=0.09), or on the IKDC exam (p=0.50).Conclusions: the BTB and hamstings autograft provide similar outcomes at least two years postoperatively.
Abstract number: 26259

INTERIMS ANALYSIS OF A MULTICENTER PROSPECTIVE RANDOMIZED CLINICAL TRIAL COMPARING THE TREATMENT OF FRACTURES OF THE DISTAL FEMUR AND THE PROXIMAL TIBIA WITH MONO- VS. POLYAXIAL PLATING SYSTEMS (LISS® VS. NCB® DF/PT)

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Treatment of complex fractures of the knee (distal femur / proximal tibia) utilizing monoaxial locking plates (e.g. Less Invasive Stabilisation System, LISS®, Synthes) is considered superior to conventional plating systems. Due to the limitation that the thread forces the screw into pre-determined positions, modifications have been made to allow screw positioning within a range of 30° (Non Contact Bridging, NCB®, Zimmer). For the first time, this multicenter prospective randomized clinical trial (RCT) investigates the outcome of LISS®- vs. NCB®-treatment following complex knee fractures. Since June 2008 patients with a fracture of the distal femur or the proximal tibia (AO ASIF 41-A2, 41-A3, 41-C or 33-A2, 33-A3, 33-C) are enrolled to this study by four trauma centers in southern Germany. The study aims to include 90 patients. Follow-ups are done 1 and 6 weeks, as well as 3, 6, and 12 months following the operation. Radiologic data (e.g. axis deviation, secondary loss of realignment) as well as clinical data (e.g. pain, wound healing, Oxford Knee Score, Tegner Score) are collected. The interims analysis can revert to data of 50 patients at this time (27m, 23f; 27 NCB®, 23 LISS®). Up to now, no significant differences in the radiologic and clinical data can be observed. We present the interims analysis of a multicenter prospective RCT to compare the monoaxial LISS® vs. the polyaxial NCB® treatment following complex knee fractures. The dependance on utilization observations and lack of comparison between these systems emphasize this studies relevance.

Abstract number: 26284 THE ROLE OF DENK'S OPERATION IN THE TREATMENT OF RECURRENT PATELLAR DISLOCATIONS

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Introduction: The aim was to evaluate distal and proximal procedures to find the best guideline for the treatment of recurrent dislocations in our daily practice.Between 2002 and 2008 treated 358 patiens with patellar dislocations. We described the outcomes with Lysholm score. The patellofemoral congruence and alignment detected by radiographs. The state of the patellofemoral arthrosis was described with the help of the arthroscopical findindgs (Outerbridge). The follow up periodes were 1-6 years.Results:There were 181 monoluxations and 177 recurrent dislocations.X-ray results: Patellar morphology: Wiberg 1:10%, 2:72%, 3:18%. Trochlear morphology: Dejour et al. A:63%, B:10%, C:27%. Sulcus angle 135°>41%, 135°-145°: 25%, 145°<34%. The main Caton-Dechamps index: 1,27.In 73% we performed conservative treatment (physiotherapy, brace), in 27% operation. Within the operated group: Arthroscopy 77%, tibial tubercle medialisation 26%, lateral retinaculum release 40%, medial capsular shift 18%, in single case of extreme genu valgum we performed femoral osteotomy. Main Lysholm score before operation: 42,1 points, after operation mainly 82.6 points, specially after Denks operation:87,25points. The screws were removed mainly 8,5 months after the surgery. Discussion When the patellar tilt is increased and the patella lateralised we often use tibial tubercle medialisation, and if the intraoperative congruence-evaluation demands, carefully lateral release. In our opinion the reason of the good succes rate after Denks operation depends on the adequate patient selection, possible avoiding the operations inside the knee joint and on the early mobilisation.

Abstract number: 26597

TRAUMATIC DISLOCATION OF THE KNEE. ABOUT 14 CASES

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The traumatic knee dislocation is a rare emergency trauma and severe because of its vascular complications in particular. The road traffic accidents , unfortunately common in our country, are the main cause. Our work is a retrospective study of 14 cases collected for trauma Orthopaedics wing (IV) Ibn Rochd hospital of Casablanca between 1998 and 2008. The average age in our series was about 35 years. The posterior variety was dominant. The cutaneous opening interested a third of the cases. 30 % of these dislocations presented a complication vascular. The nervous infringement was present in 15 % of the cases. In 70 % of the cases, the treatment was orthopaedic appealing to a plaster cast (groin to toes). The external fixator was realized in 30 % of the cases.We tried to stress the importance of early diagnosis of vascular lesions for surgery urgent repairs and insist on that the therapeutic principles ensuring for victim the best chance of functional recovery.

Abstract number: 23736

FLOATING SHOULDER - OUR PRIMARY RESULTS IN OPERATIVE TREATMENT Asen BALTOV, Nedelcho TZACHEV, Borislav ZLATEV, Vladislav RUSSIMOV, Andrey IOTOV

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Aims: Our primary results of the operative treatment of the floating shoulder. Material and method: For a period of two years 8 patients an average age of 38 (21 60). All of them had polytrauma combined with chest trauma ? 6 after road accidents and 2 after height trauma. Index ISS mean 25 /16 40/. In one case we had lesion of a.axillaris and two plexus injuries. According to the classification of Euler Rëudi the scapula fractures were: A type 2; C 3 type 5; E type-1. The clavicle stabilization was done with LCP with combined holes and ostheosynthesis of the scapula fracture in two of the cases. Follow up period 3-12 months. Final functional result was accounted according to Constant Murley score. Results: We did not have any case of iatrogenic vessel neurological injury or pneumothorax. We had union of all scalupar fractures. We had non-union of one case of clavicle fracture which led to reostheosynthesis after a year. The plexus damage in one of the patients was recovered. We accounted excellent final functional result in 3 cases, good in two, satisfactory and bad in 3 patients with plexus injury. Conclusion: The floating shoulder is a rare pathology, demanding good diagnosis and adequate behavior - obligatory stabilization of the clavicle. In well expressed modifications of the gleno-polar angle, medial translocation of the glenoid and the inclination angle of the fossa glenoidalis scapula stabilization is needed. This enables early passive and active rehabilitation and recovery the shoulder motion.

Abstract number: 24267 TREATMENT OF STERNO CLAVICULAR JOINT FRACTURE DISLOCATION BY OPEN REDUCTION AND STABILIZATION BY THREADED K-WIRES

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Sternoclavicular joint connects axial skeleton to pectoral girdle. 3% shoulder injuries includes SCJ dislocation. Anterior dislocations are more than Posterior dislocation. These are caused by sport injury, car accidents and fall from height. The purpose of this study is to evaluate the treatment option for SCJ fracture dislocation by Threaded K-wire fixation?.19 patients, with Anterior and posterior dislocation, between 13 to 42 years, 3-5days old were operated. Out of 19 cases 2 are fracture dislocation of SCJ, 14 anterior dislocation and 3 cases posteriorly displaced physeal fractures. Under GA medial end of clavicle and sternoclavicular joint exposed, fracture reduced. Stabilization of reduction done by multiple threaded K-wires under C-arm control. Results analysis done in terms of pain, infection, range of movements, and recurrence at the end of 6weeks, 3months, 6months and 1year. Pain persisted till 6weeks in 7 patients, 2 had infection. All had nearly full range of movement after 3months.Anterior dislocation occurs more than posterior fracture dislocation. The physis of medial clavicle ossifies and fuses from ages 22-25 years. So, most injuries are physeal fractures. Pure dislocation are rare. All patients were stabilized by threaded K-wires of 2.5 to 3mm diameter. It is cost effective and removal is an OPD procedures. Open reduction and threaded K-wire fixation is very good modality for treatment of SCJ fracture dislocation. Threaded K-wires are of cost effective, easily available, less surgical trauma, maintain stability, needs no second surgery for removal of implants.

Abstract number: 25901 TREATMENT OF TYPE II DISTAL CLAVICLE FRACTURE USING WOLTER PLATE YOON-SUK HYUN

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This study examined the clinical results of the treatment of type II distal clavicle fracture using Wolter plate. Between 2004 and 2007, 36 patient treated type 2 distal clavicle fracture using Wolter plate were included in this study. Their average age was 32.6 years and postoperative mean follow-up period was 22.9 months. The reduction and union were qualified with immediate post-operative and final radiographs. The functional outcome was evaluated by Kona's system and Constant score. By Kona's functional evaluation, there were 22 cases of excellent, 12 cases of good and 2 case of fair and the average Constant score was 90. All of 36 cases showed bony union. As complications, there was 2 case in which the protruded hook of plate could be palpated at skin, and 1 case was acromial fracture, but all case was seen successful bony union and there was no acromioclavicular joint arthritis, infections and any other complications. Wolter plate fixation for type II distal clavicle fracture is a reliable surgical method for satisfactory reduction and rigid fixation, lower incidence of nonunion and excellent clinical result.

Abstract number: 25906 MINIMALLY INVASIVE FIXATION OF DISPLACED MIDCLAVICULAR FRACTURES WITH TITANIUM ELASTIC NAILS sung-hsiung CHIEN

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Clavicular fractures account for 2.6% of all fractures, and more than 80% involve the middle-third of the clavicle. Plate fixation of the displaced midclavicular fractures has been associated with complications such as infection, wound breakdown, nonunion, implant failures, poor cosmetic outcome, and local skin numbness. Herein, we report on a series of cases receiving minimally invasive insertion of a titanium elastic nails (TEN) to fix the displaced midclavicular fractures. From November 2006 to October 2007, we operated on 24 patients (16 men) with displaced midclavicular fractures which we fixed with TEN. The mean age of the patients was 41.57 years. The nails were inserted from the medial entry point on sternal end and passed through the fracture site under fluoroscopy monitoring. Close reduction were successful in 16 patients, and 8 patients needed open reduction. The mean operative wound length was 2.2 cm. There was no nonunion, infection, nail breakage or refracture after nail removal in our series. The mean length shortening was 0.32 cm. latrogenic perforation of the lateral cortex occurred in 2 patients, and nail misplacement occurred in 1 patient requiring revision. The mean DASH score was 6 (0 to 35; SD= 10.47) and mean Constant score was 96 (78 to 100; SD=6.34). In conclusion, minimally invasive fixation with TEN is a safe method and can be performed with minor complications. It results in good cosmetic appearance and very satisfactory stabilization of displaced midclavicular fractures.

Abstract number: 25918 INTRAMEDULLARY PINNING FOR COMMINUTED MIDSHAFT CLAVICULAR FRACTURES

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[Purpose] For the operative treatment of the comminuted midshaft clavicular fractures, plate fixation is often used to ensure better stability. However, it has the disadvantages of damaging soft tissue around the fracture site and can potentially cause bone atrophy. This report evaluates our treatment for comminuted midshaft clavicular fractures combining intramedullary fixation by Kirschner Wire and fixation of the third fragment with thread. [Cases and Method] Evaluation was made on a total of 43 cases (43 fractures) treated since 1994, comprising of 31 men and 12 women, from 14 to 72 years of age (average age 40.1); 36 cases were caused by traffic accidents, 4 from sports and 3 from other causes. A method adopted was that after making a small skin incision at the fracture site, main fragments were fixed with Kirschner Wire (open reduction technique), and then the third fragment was fixed with thread which was pierced through a groove created in the bone to prevent the thread from coming off.[Results] The method resulted in stability and reduction in post-op pain. Patients were allowed to begin shoulder motion two weeks after the operation which led to an early return to daily routines. All fractures united without malunion or malfunction. [Conclusion] Our treatment has advantages such as higher stability, less damage to soft tissue around the fracture site, and flexibility since it can be applied to any kind of comminuted midshaft clavicular fractures.

Abstract number: 25974 DISPLACED 3-PART PROXIMAL HUMERAL FRACTURES TREATED WITH RETROGRADE HALDER HUMERAL NAIL.

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Displaced 3-part fractures of proximal humerus are unstable and difficult to fix. Different methods of operative treatment are available. The aim of this study was to analyse our results in this group treated by retrograde nailing +/- cannulated screws for greater tuberosity fixation. Since January 1995, 107 patients with displaced 3-part proximal humerus fractures were treated with retrograde Halder humeral nail. 81 patients had additional proximal screw(s) fixation. M:F was 15:62. Average age: 67 years. Average follow-up was one year. Displaced greater tuberosity was reduced with stab incision and fixed with cannulated screws.Proximal rotational stability is maintained by unique 'Trio Wire'. Distal rotational stability is maintained by transverse plate, welded on distal end of nail.Postoperatively, all patients were allowed early active and active-assisted shoulder abduction and forward flexion up to 60degrees. Shoulder rotation was avoided for 6 weeks. The pain was relieved in almost all patients within a week. Average time to clinical and radiological union was 6 weeks. In 80% of patients, painless return to activities of daily living was seen by 10 weeks. In 87 patients fractures united well. 15 patients had malunion, 3 had head collapse, 2 had AVN humeral head. There was no infection or fracture. There was average loss of elbow extension of 10-15 degrees. In our experience, displaced 3-part proximal humeral fractures can be treated with this nail, which avoids major exposure around shoulder. Compared to other open procedures very minimal exposure was required to fix greater tuberosity.

Abstract number: 26376

SUPERIOR LOCKING COMPRESSION PLATING OF CLAVICULA FRACTURE NON-UNIONS WITH OR WITHOUT BONE GRAFTING - OUTCOME IN 58 CASES Matthias ERHARDT, Stefan STUDIER- FISCHER, Thorsten GUEHRING, Paul Alfred GRUETZNER, Christian FRANK BG Unfallklinik Ludwigshafen, Ludwigshafen (GERMANY)

A retrospective outcome-study with respect to the number of operations needed to reach union and the surgical technique. 58 patients treated from 2003 to 2009 were retrospectively analysed. Results: 15 patients were female. The average age was 46 years. Indication: Symptomatic non-union with disability from pain and altered shoulder mechanics. 38 patients were initially treated conservatively, 12 had a plate fixation, 6 patients were treated with elastic nailing and two patients with tensionband wiring of lateral fractures. In 2 patients a postoperative septical non-union was treated. 86% showed a bone union after the first operation with LCP. In 31 patients bone grafting was performed. In 8 patients a revision surgery had to be performed because of persisting non- union. In one of those patients union cold not be obtained even in 3 further operations with additional application of BMP-7. In two of our cases a postoperative infection occurred with following removal of the plate and no further treatment in one of them.A toto of 95% union rate could be achieved. In 52% a removal of the plate was performed. Conclusion: Superior locking compression plating in combination with bone grafting is a reliable and reproducible treatment for non- unions of the clavicula. Because of cosmetic reasons but also skin irritation about half of the plates were removed. The anterior-inferior plating could have advantages in regard of the number of plate removals.

Abstract number: 26393 UTILISATION OF INTRAMEDULLARY STRUT ALLOGRAFT IN THE MANAGEMENT OF COMPLEX PROXIMAL HUMERAL FRACTURES

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We describe the use of an intramedullary strut allograft in 11 patients (three men, eight women) with complex fracture involving the proximal humerus. The mean age of the patients was 64.8 years (54 to 72) with the dominant arm affected in nine. Four of the patients were smokers and two had undergone a period of non operative management of fracture. All fractures progressed to union at an average time interval of four months. At the final follow up the average loss of head shaft angle was 6 degrees (0-8) and all the patients had good functional outcome with an average oxford score of 19.4. This technique has potential technical advantages in the management of complex proximal humeral fractures especially when the medial hinge is lost. The rate of union has been encouraging and we recommend it as a method of treatment.

Abstract number: 23703 SACRAL FRACTURE DISLOCATION OF SUICIDAL JUMPER

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Study design : A retrospective study Objectives : The author reviews 4 atypical cases of sacral fracture composed with bilateral vertical fracture line at sacral alar area and transverse fracture at upper sacrum with the relevant literature. Summary of Literature review : Suicidal jumpers fracture has similar fracture pattern and clinical manifestation. Material and Method : From August 2003 to March 2007, 4 patients.(aged 23, 18, 25, 25) were selected who could be followed up for more than 2 years(24-48momths), they were managed surgically and conservatively. Result : The neurological function of by Gibbsons neurologic classification, the first patient managed surgically, had improved from grade 4 to 2 and walked without walking aid. The second patient managed surgically, had not improved neurologically and walked with one cane. The third patient who was managed with skeletal traction had improved from grade 2 to grade 1 by Gibbons neurological classification and walked with one cane. The last patient who was managed with bed rest only had not improved neurologically and walked with two canes. Conclusion : Fracture dislocation of upper sacrum is a very rare injury and has similar neurological symptom and fracture pattern with that of Suicidal Jumpers Fracture. The injury is almost always requires surgical intervention and is difficult to treat.

Abstract number: 24568 THE PATTERN OF MALIGNANT BONE TUMOUR IN THE SOUTH OF IRAK: A REPORT OF 150 PATIENTS

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The pattern of malignant bone lesion in the south of Irak, probably differs from the standard pattern this was very obvious after 1996. When the rapid and the mortality were very high.Delayed presentation was very significant. This probably related to the lack of clinical awareness in the initial stages. The incidence was significantly high if compared with other countries.The first histopathological diagnosis was osteogenic sarcoma (28.6%), next was Ewing sarcoma (20%), and then giant cell tumour (10.6%), all the giant cells were malignant.Pathological fracture was very rare presentation seen in one patient only. In (15.3%) there was discrepancy between clinical findings and histopathological result.The dominant site was the upper end of the tibia (39%), in (3.33%) no definite histopathological diagnosis was achieved.(80%) were socio economically disadvantaged. The two year survival rate was (35.3%), only 10 patients (6.6%) were alive after 5 years.

Abstract number: 25882 SEGMENTAL SPINE INSTRUMENTATION IN THORACOLUMBAR AND LUMBAR FRACTURES - 12 YEARS EXPERIENCE

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Introduction: Thoracolumbar and lumbar fractures are serious lesions associated with neurological deficits. The study objective is to retrospectively analyze the functional outcome of segmental spine instrumentation of unstable thoracolumbar and lumbar fractures. Material and Methods: This retrospective study included 70 patients (49 men and 21 female) with acute unstable thoracolumbar and lumbar fractures, between January 1996 and December 2007 treated with segmental instrumentation (61 with transpedicular fixation and 9 sublaminar wiring fixation). The medium age was 38 years and time of follow up was 76 months. The fractures were mostly L1. The injuries were evaluated with the Thoraco-Lumbar Injury Classification and Severity Score (TLICS) and the patients with the Oswetry Disability Index (ODI). Results: The majority of lesions (71,4%) resulted from a fall from height and mostly only 1 vertebra was affected. The angle of kyphosis was on average 22.1°. Vertebral body was completed restored in 48 cases. TLICS was 5 in 25,7%, 6 in 21,4%, 7 in 11,4%, 8 in 11,4% and 9 in 8.6%. 55,7% patients had no neurologic lesions; 7,1% nerve root, 14,3% incomplete and 20% complete cord lesion and 2,9% with cauda equina. 71,4% patients returned to work. According to the ODI 36 patients had 20-40%, 7 >40-60% and 6 >80%. Discussion: Work status correlated directly with neurological impairment but not to injury level or mechanism. Although the important trauma experienced by these patients, return to work and results in the ODI were good.

Abstract number: 26046

LUMBOSACRAL FRACTURE-DISLOCATION COMBINED WITH UNSTABLE PELVIC RING INJURY. ONE-STAGE STABILIZATION PROCEDURE USING SPINAL INSTRUMENTATION

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Introduction: Combined pelvic ring disruption with S1 fracture-olisthesis is reported to be an extremely rare injury and challenging to treat. Purpose: To present a patient with such injuries and the surgical treatment he underwent. Patient/Method: A 19 year-old male sustained a motorcycle traffic accident. He presented at the emergencies unconscious with open abdominal trauma and lower extremity dealoving injuries and underwent immediate exploration laparotomy and sigmoeidostomy. Radiologic examination revealed bilateral pubic rami fractures, S1 fracture dislocation, and fracture of the right ischial tuberocity and sacral wing with sacroiliac joint disruption. Orthopaedic intervention was decided when his general condition stabilized. Posterior spinal instrumentation system was used with transpedicular screws placed at L2, L3 and L4 vertebras and iliac crests (modified Galveston technique). For the reduction and stabilization of the pelvic ring and the S1 olisthesis, spinal rods were implanted and secured on the transpedicular screws. L5 and S1 laminectomy was performed in order to decompress the dural sack and nerve roots. Postoperative neurological status recorded severe right limb disability and loss of bladder control. Physical therapy started postoperatively to mobilize the patient as soon as possible. Result: 8 weeks postoperatively the patient was able to walk by himself and his neurological status was markedly improved. Two years postoperatively he has a minor axial low back pain, minor leg length discrepancy and sexual dysfunction. Conclusion: Challenging combined lumbosacral and pelvic ring traumatic instability can be effectively treated in an one-stage procedure through the same posterior approach by using spinal instrumentation system.

Abstract number: 23790

IS THERE ANY ROLE OF INHALATIONAL STEROIDS IN PROPHYLAXIS OF POST TRAUMATIC FAT EMBOLISM SYNDROME???

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As fat embolism syndrome is primarily a lung parenchymal disorder, it is expected that inhaled corticosteroids (Ciclesonide aerosol) given as prophylaxis may prevent the development of hypoxemia or Fat Embolism syndrome in patients at high risk for 40 cases of polytrauma patients presenting within 8 hours of this complication. injury were randomly allocated in one of the two groups. In group 1 ciclesonide 640mcg was given with a metered dose inhaler and repeated once again after 24 hours whereas group 2 was taken as control and observed for 72 hours for any episode of hypoxia by serial arterial blood gas monitoring along with haemogram, serum biochemistry, plasma lactate, platelet count, coagulogram and chest x-ray. The outcome was assessed using schonfeld?s criteria for the eventual outcome of subclinical or clinical fat embolism syndrome. RESULTS- Out of 20 patients in each group, 6 patients developed subclinical fat embolism syndrome whereas 3 from ciclesonide prophylaxis group and 8 from controls developed clinical fat embolism syndrome. There is no statistical significance found between the eventual outcomes of subclinical or clinical fat embolism syndrome between the ciclesonide prophylaxis and control group, although there was trend seen in the possible preventive efficacy of inhalational steroid in the present study but it did not reach to the statistical The prophylactic role of inhalational steroid in post traumatic significant level. subclinical and clinical fat embolism syndrome is statistical insignificant in present study.

Abstract number: 24918

INCIDENCE OF DVT AFTER SURGERY FOR ACETABULAR FRACTURES

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Introduction DVT and resultant pulmonary embolism (PE) are the life-threatening complications for patients with acetabular fracture. The current retrospective study investigated the relationships between clinical parameters and postoperative DVT diagnosed by multi-detector row CT (MDCT) in patients treated operatively for acetabular fracture. Materials and Methods Thirty patients (7 women and 23 men, average age at injury: 50.2 yrs old) with acetabular fracture were treated at Fukuyama City hospital. Three were excluded because of the absence of enhanced CT. On the 7th day after surgery, CT scan with contrast medium was performed to detect DVT. Serum concentration of D-dimer, BMI, and period from admission to operation were compared between DVT group and no DVT group. Results Nine (33.3%) of 27 were diagnosed as DVT, and two of 9 (22.2%) were as no symptomatic PE. Serum D-dimer level, BMI, and period from admission to operation of DVT group and no DVT group were 20 g/ml, 24.9, 8.0 days, and 14g/ml, 23.3, 5.3 days, respectively. There were no significant difference between two groups statistically. Discussion Serum D-dimer level at post-op, BMI and the waiting period before operation did not significantly related to DVT in this series. As our results suggested that there is a substantial risk of DVT in patients with acetabular fracture, the identification of DVT by enhanced CT should be routinely performed. MDCT was useful to detect both venous embolism in lower extremities and arterial embolism in the lung simultaneously.

Abstract number: 25009 DISLOCATION OF PUBIC SYMPHYSIS WITH LOCKING

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Pelvic ring disruption that results in overlapping dislocation with locking of pubic symphysis is uncommon. A locked pubic symphysis occurs due to compression of the pelvic ring, when the intact pubis getting trapped against the contralateral pubis. The injury pattern is rarely seen in clinical practice, and only a small number of patients with this injury have been reported in the English literature since its original description by Eggers in 1952. A proposed mechanism of injury for a locked symphysis is forced hyperextension and adduction of the hip resulting from a lateral compression force to the pelvis. This injury causes a rupture of the ligaments that normally stabilise the symphysis. The displaced pubis may lie either anterior or posterior to the contralateral pubis. This injury is commonly associated with urogenital injuries. Very little was written in literature about management of such injuries though closed and open reduction techniques were described. Closed reduction is difficult to achieve and also difficult to maintain. Open reductions are associated with high rate of infections due to associated urogenital injuries. We report a case of dislocation of pubic symphysis with locking in a 27 year old male patient. He also had a rupture of urethra. We did an open reduction and tension band wiring placing screws in a staggered fashion to maintain the reduction. He had urethroplasty about three months later when the patient became fully ambulant. Four years following the procedure the pelvis remained stable at the symphysis.

Abstract number: 25213 QUALITY OF LIFE IN PATIENTS OPERATED FOR PELVIC OR ACETABULAR FRACTURES CAUSED BY SUICIDE ATTEMPT BY JUMPING

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Survivors after jumping from height as a suicide-attempt can sustain serious pelvic or acetabular fractures requiring surgery. The combination of psychiatric disorder and somatic injuries makes treatment and follow-up difficult. Our aim was to evaluate survival and patient-reported outcome in this patient-group.During the period 2003-2004, 12 patients (11 female, 1 male) operated for a pelvic or acetabular fracture sustained when jumping from height as a suicide-attempt.were prospectively included. Eight patients were below 30 years of age. At two years the HRQOL (Health.Related Quality of Life) questionnaire SF-36 and the Life-Satisfaction questionnaire LiSat-11 were used to describe patient related outcome. Thereafter a structured psychiatric interview SCID-I (Structured Clinical Interview for DSM-IV Axis I Disorders) was done to evaluate recurrence of self-destructive behaviour. At four years all patients were still alive. Only one patient had made a new suicide-attempt. Eight patients gave adequate reply on SF-36 and LiSat-11 at two years. In all domains patients scored lower than a norm group with the relatively lowest values in physical domains. However, in this traumatized group of patients scores for the young individuals were higher than expected, who assessed QoL as much better than the middle aged patients. This study showed a low recurrence rate into suicidal behaviour in patients sustaining a pelvic or acetabular fracture after surviving a suicide-attempt by jumping. All patients were alive at four years and HRQOL and lifesatisfaction was reported higher than expected in the young patients.

Abstract number: 25319 IMPLANT REMOVAL IN THE TRAUMATOLOGIC SURGERY

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Currently, each surgeon solves a problem of the implant removal procedure differently. Thus the defining moments usually are traditions which have developed in the concrete clinic, own surgical experience, the quality of the formerly placed implant, a presence or an absence of the complications after the osteosynthesis. However, relying on the literary data, about 30-35 % of these operations are frequently carried on with unforeseen difficulties and even complications. The main reasons for this are: firstly, an absence of a single attitude towards this problem, and secondly, a lack of the information about the osteosynthesis, which is very important for the surgeon who carries on the implant removal operation. Following the above, on the basis of our own clinical experience, an evaluation of the complications and the literary analysis, we had developed a concrete indications (absolute and relative) and contra-indications to the implant removal operations. In order to adequately prepare for the placed implant removal operation, our aim is to document in details the technical and anatomical features of the osteosynthesis. This given, absolutely necessary information in the aggregate with other features of the osteosynthesis in each concrete patient has given us a ground for the Passport of an internal fixator, which professionally documents the osteosynthesis. In our opinion, following the expedient indications or contra-indications and the detailed documentation of the osteosynthesis allow us to reduce the cases of the complications in the implant removal process.

Abstract number: 25370

PITFALLS AND COMPLICATIONS WITH LOCKING COMPRESSION PLATE (LCP) FIXATION

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Introduction: LCP has been widely applied for fracture fixation as an internal fixator with angular stability and preservation of periosteal blood supply. However, there have been several reports about the problems related to these implants. In this study, we reviewed fracture cases treated with LCP in our facility to investigate clinical results and complications. Methods: 181 cases of 172 patients (102 male and 70 female) were included in this study. Average age at the time of injury was 43 years old and plate removal was performed in 52 cases. Distribution of plates, numbers of MIPO, peri-operative and post-operative complications were investigated.Results: Distribution of plates fixations was as follows: clavicle 12cases, humerus 33 cases, radius 61 cases, ulna 8 cases, pelvis 5 cases, femur 17 cases, tibia 36 cases, fibula 9 cases. MIPO was performed in 41 cases. Complications during operation included screw breakage: 2 cases, screw removal difficulty: 8 cases. Post-operative complications were infection: 3 cases, delayed union: 4 cases, screw loosening: 2 cases, soft tissue problems: 5cases.Conclusions: Accurate indications for fracture fixation when applying LCP should be considered very carefully. Difficult implant removal and soft tissue problems due to its bulky profile seemed distinctive complications of LCP. Pre-operative planning and understanding of biomechanical principles of osteosynthesis are essential.

Abstract number: 25577 DIAGNOSIS AND TREATMENT IN CRUSHING TRAUMA

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PURPOSE Complete diagnosis of trauma includes not only the injuries, but also the mechanism, suggesting the trauma energy. The purpose of this study is to establish a therapeutic protocol depending on clinical aspects .MATERIAL and METHOD- This prospective study analyses 165 patients admitted in our hospital between 01.06.2004-01.01.2008 with a diagnosis including crushing. The main clinical aspects of these casese were: crushing without fracture, fracture, open injury, compartment syndrome (with or without fracture), acute peripheral ischaemia. The authors describe the algorithm for diagnosis (including laboratory findings and complementary examinations) and treatment (following MESS_Score) for these cases. RESULTS In 78% of crushings of the shank compartment syndrome appeared (82% of the cases with fracture and 64% of cases with crushing without fracture). Fracture appeared in 75% of the cases, and open injuries only in 60% of the cases. 40% of the crushings produced complex trauma (vascular or nervous injury), acute peripheral ischaemia appeard after 25% of the crushings.CONCLUSIONS-The crushing mechanism is associated with high energy trauma, which can produce severe injuries, with different clinical aspects. Initial correct diagnosis, followed by specific monitoring and treatment provides the favourabla outcome of the patient. The recomended treatment is surgical-fasciotomy. The eficacy of the treatment is reflected in decrease of fatal complications (renal failure, MSOF) and favorable local outcome.

Abstract number: 25858 MANAGEMENT OF A PATIENT WITH 10 FRACTURES IN ONE LEG: APPLYING THE DAMAGE CONTROL CONCEPT

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Trauma is the first cause of death for age 0-45, the third cause of death for all ages. Several years ago, it was popular to use the total care principle in the management of polytrauma patients aiming to fix as many fractures as possible in one single session. Recently, damage-control theory has gained popularity due to the potential of reducing morbidity and mortality. We present the application of this concept in a 24 year male, who had a car accident & sustained 10 fractures in his left leg. After initial management & resuscitation the patient had immediate debridement and reduction of the open fracture dislocation of the 1st metatarsal head and reconstruction nailing for the fractures of the shaft and neck of femur(intracapsular). The patient was stabilized again, and two days latter, he had a second look and debridement of open wounds and fixation of other fractures. Namely; proximal proximal tibia, distal fibula, distal tibia, & multiple metatarsal fractures. The patient had prophylactic antibiotic and DVT measures, and started physiotherapy in the first week of treatment.By three months, the patient was fully weight bearing and showed signs of fracture healing. At 6month- follow-up the progress was satisfactory and the patient was able to go back to work on a light duties

Abstract number: 26119

THE PROPOSAL OF NEW CLASSIFICATION AND TREATMENT PROTOCOL FOR SEGMENTAL DESTRUCTIVE LIMB INJURIES WITH INTACT DISTAL PART Cedomir VUCETIC, Goran TULIC, Borislav DULIC, Cedo VUCKOVIC, Aleksandar TODOROVIC

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A segmental destructive limb injury with intact distal part represents quite a challenge for a surgeon if a limb salvage procedure is intended. We have encountered two major types and two subtypes of these injuries. Type A injuries are transversal destructions whilst type B are longitudinal segmental destructions. We divided these major two types in two additional subtypes each: A1-transverse segmental soft tissue destruction without any bone involvement; A2 transverse segmental destruction involving bone; B1 longitudinal segmental soft tissue destruction without bone involvement, and B2 longitudinal segmental destruction with bones involved. The rational concept for treatment protocol for type A injuries would be to debride soft tissues and shorten the bone as needed in order to achieve contact between preserved parts of the limb. Type B injuries require extensive debridement and reconstruction of soft tissue defect with composite flap while preserving the bone length if possible. If not, the bone may be shortened initially, with elongation procedures performed when the soft tissues sufficiently recover. This approach shorten now, elongate later should be reserved as salvage procedure only for the most severe injuries. In our experience shortening of up to 5 cm on forearm and upper arm does not significantly impair limb function and appearance, which makes a subsequent elongation optional. Treatment based on this classification and its rational enables improved limb survival, wound and fracture healing, better infection control and earlier rehabilitation. We feel that the functional and esthetic outcome in patients with these injuries completely justifies described approach.

Abstract number: 26269 THE EFFICACY OF INITIAL FRACTURE MANAGEMENT IN A LARGE ORTHOPAEDIC TRAUMA UNIT

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Introduction: Outpatient fracture care is dealt with by Accident and Emergency (A&E) and orthopaedics utilising A&E and fracture clinics. Current working time directive legislation has led to the use of more nurse practitioners instead of junior doctors in the initial assessment and management of these cases in A&E. We analysed the efficacy of this process. Methods: A retrospective patient note analysis was conducted for referrals to the fracture clinic of a large trauma hospital over a four week period. Information collected included A&E diagnosis and initial treatment, orthopaedic diagnosis, time from injury to appointment and appropriateness of fracture clinic referral. All referrals were evaluated by an orthopaedic consultant.Results: 400 referrals were identified (216 male, 184 female) over a four week period. The average age was 33 years (range 4 - 93). For only 12% of referrals was an orthopaedic opinion sought prior to referral. The majority (75%) of patients referred to fracture clinic were seen either by nurse practitioners or junior doctors. Fracture clinic referrals were skewed by region with 50% of referrals being made for hand and wrist injuries. Fifty per cent of fracture clinic referrals could have been managed between A&E and primary care. Conclusion: The management of musculoskeletal trauma remains suboptimal with inefficient use of orthopaedic services. The patient load could potentially be halved with further training of frontline A&E staff and timely orthopaedic input with targeted training of common hand, wrist, foot and ankle injuries taking precedence.

Abstract number: 26387 BILATERAL TRAUMATIC MAJOR AMPUTATION OF THE LOWER EXTREMITIES -GENESIS AND OUTCOME

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Aim: Injury patterns resulting in bilateral traumatic major amputation of the lower extremities are examined in respect to cause, rehabilitation capabilities, reestablishment of mobility and return to workplace.Methods:Injuries resulting in bilateral lower extremity amputation during the past 5 years were identified. Cases were examined according to mechanism, severity of additional injuries, fatalities, extent of mobility, number and type of prosthetic implants, and ability to return to work.Results :12 patients between 9 and 77 years of age were treated; seven of which were transferred from another hospital. Mechanism of injury was always high impact trauma; 8 of those had multiple severe injuries. Apart from the 6 patients who were run over, there were 4 work related injuries from high pressure machines, one explosive injury, and one patient in whom the lower extremities were left as stumps after a burn injury. There was one fatality was due to hemorrhagic shock. After careful stump conditioning, bipedal ambulation was reestablished in a total of 9 patients with bilateral leg prosthetics. 7 patients were able to return to work. One patient received bilateral Endo-Exoprostheses, and one patient received a bilateral C-Leg prosthesis.Negative predictors of walking ability with prostheses include advanced age and soft tissue problems. Conclusion: Even after mutilating injuries resulting in bilateral major amputation of the lower extremities ambulation remains possible. After life saving therapies are carried out, therapy should be begun in a center capable of prosthesis fitting and specialized rehabilitation and prosthetic ambulation therapy.

Abstract number: 26454 NEURONAL FACTORS SUBSTANCE P AND NEUROPEPTIDE Y IN FRACTURE REPAIR

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The occurrence and role of local neuronal factors, substance P (SP) and neuropeptide Y (NPY), in fracture healing is not known. The present study investigated the correlation between bone turn-over and side-specific presence of SP and NPY in angulated versus straight fracture repair. Tibial fractures in Sprague-Dawley rats were fixed with intramedullary pins in straight alignment and anterior angulation, respectively resulting in a convex and concave side under different load. Fracture repair was assessed by radiography, histology, and semi-quantitative immunohistochemistry between days 3-84 post-fracture.Abundant SP/NPY-nerve ingrowth was observed in the fracture callus reaching a side-symmetrical peak at day 21-35 in straight fracture. The angulated fracture exhibited during days 1-21 (inflammation/regeneration), a higher SP/NPY-density on the concave bone forming side (345% increase in bone-thickness) compared to the convex side (21%) (p< 0.05). During remodeling, days 21-84, a side-symmetrical disappearance of SP/NPYfibers was seen in straight fracture. Remodelling in the angulated fracture, however, exhibited higher SP/NPY-density on the convex bone resorbing compared to the concave side (p< 0.05). Our study suggests that neuromediators SP/NPY during early fracture repair stimulate bone formation, while during remodeling increased SP/NPY in unloaded areas at the fracture site may stimulate resorption. It may prove that unloading during fracture remodeling in addition to increase the occurrence of SP/NPY leads to up-regulation of their receptors on bone-resorbing osteoclasts. These findings may explain contradictory observations that SP in vitro timedependently could stimulate both formation and resorption of bone.

Abstract number: 23046

MANAGEMENT OF DIFFICULT FRACTURE OF TIBIA BY ILIZAROV TECHNIQUE RAJESH RAJULE, rohit LUTHRA, vishnu YADKIKAR *PRAVARA MEDICAL COLLEGE, ahmednagar (INDIA)*

ABSTRACTMANAGEMENT OF DIFFICULT FRACTURE OF TIBIA BY ILIZAROV In this era of high velocity trauma, injuries resulting in severe bone TECHNIQUE loss & soft tissue damage are very common. Problem is increased due to infection & non union. We have included following fractures as difficult fracture. 1] Compound . comminuted fracture of tibia. II] Fracture of tibia with soft tissue & Severely comminuted diaphysial fracture of tibia with bone loss. 1111 extension into neighboring joint i.e. Pilon fracture & tibial condvle fracture. IV] Infection. In such difficult fracture as mentioned above, use of any other modality of treatment such as interlock nailing, dynamic compression plating & external fixator does not remain, a full proof management. In such situations, we have used Ilizarov technique. We have done 60 cases in last 2 years at Pravara rural hospital, Loni & got good results in them. This technique has advantage like three dimensional fixation of fracture, use of controlled distraction osteogenesis, early mobilization of adjacent joint & partial weight bearing as early as possible. In our study, we found that on an average ring frame was used for 3 to 4 months. The results were encouraging, yet we have given PTB caliper to these pts after removal of frame.

Abstract number: 23232 TRANSVERSE INCISION FOR THE MANAGEMENT OF INFECTED NON-UNIONS OF TIBIA.

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We are describing a transverse incision that we have found very useful in performing surgical procedures where the fractured site needs freshening, excision of the necrotic bones or shortening. Operative procedures using this technique has been extensively used by us since 1980 and we have registered 1187 cases with average follow up of 10 years. The incision is transverse and can be performed in any part of leg and extends from 1cm lateral to anterior border of the tibia and runs medially till 1cm medial to medial border of tibia. The incision allows adequate visualization of the interested area, less of periosteal stripping, ease of closure, no post operative wound dehiscence and cosmetically very much acceptable.

Abstract number: 23538

COMPARATIVE STUDY BETWEEN INTRAMEDULLARY INTERLOCKING NAILING AND MINIMALLY INVASIVE PERCUTANEOUS PLATING (MIPO) USING LOCKING COMPRESSION PLATE (LCP) IN CLOSED DIAPHYSEAL TIBIA FRACTURES

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Introduction: Tibial diaphyseal fractures are the most common type of long bone fractures encountered by Orthopaedic surgeons world over with an incidence of 26 per 100,000 in an average population. The ideal treatment for these fractures still remains elusive. Aim: the purpose of this study was to evaluate the results of Minimal invasive percutaneous plate osteosynthesis(MIPO) using locking compression plate (LCP) in tibial diaphyseal fractures and to compare the results with that of interlocking nailing. Material and methods: 28 patients with closed fracture both bones of leg were treated with either plating (MIPO using LCP) or intramedullary interlocking nailing. The treatment option was decided by randomization using a random number table. Both the groups were comparable in terms of age, sex, site of fracture and mode of injury. Final results at union were graded according to the Johners and Wruhs criteria. The results were analyzed using appropriate statistical tests. Results: There were no statistically significant differences in the two groups with regard to operative time, union time, range of motion of knee, ankle and subtalar joints, complication rates and final Johner and Wruhs grade. However, statistically significant difference was found in the incidence of anterior knee pain (P < 0.05) with 7 out of 15 patients of interlocking nailing having anterior knee pain at final follow up. Conclusion: MIPO using LCP appears to be a good alternative to interlocking nailing in the treatment of tibial diaphyseal fractures.

Abstract number: 23739

FLEXIBLE INTRAMEDULLARY NAILS(ENDERS NAIL) IN THE TREATMENT OF TYPE III B TIBIAL DIAPYSEAL FRACTURES.

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Background : There are 60 fatal accidents/10,000 vehicles per year in India as compared to 2-3 fatal accidents/10,000 vehicles per year in developed countries . In this context, the evaluation of the role of flexible Intramedullary (Enders) nails in primary stabilization of open type III B fractures of the tibial diaphysis was necessary in a country like ours where resources are limited. Methods: This study was conducted in Medical Trust Hospital, Kochi, Kerala, India. Included 29 patients with open type III B tibial diaphyseal fractures admitted between June 2003 to June 2007. After primary debridement, all cases were stabilized by using Enders nail. Soft tisue coverage done by plastic surgeonResults: 6 cases (20.68%) had superficial infections .1 case (3.44%) had deep infection . 1 case (3.44%) had fat embolism, and 1 case (3.44%) had ARDS. Out of 29 cases, 2 lost to follow up. So we were having 27 cases for definitive procedure. Exchange nailing was done in 20 (74.07%) patients. 2 cases (7.4 %) were treated with Ilizarov ring fixator device.1 case got infected after bone grafting, later converted to Ilizarov fixator.1 case (3.7%) was converted to external fixator and cast treatment.3 cases united with Enders nail.None required amputation. Conclusions: Our results show that Enders nailing for type III B open tibial shaft fractures can be carried out safely and effectively by an experienced surgical team with decreased infection rates and satisfactory outcomes.

Abstract number: 23768 MINIMAL INVASIV TREATMENT OF TIBIAL PLATEAU FRACTURES

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The tibial plateau fractures necessitate a perfect alignment, because they have joint trajectory. It is difficult to treat these fracture especially type 5 and type 6 Schatzker. Beside the standard treatment with one or two plates and screws, we used the reduction of the fractures fragment with K wire under RX and arthroscopic control, and then we fixed the fragments with K wire and screws.We used this technique for the treatment of 148 tibia plateau fractures. We used Schatzker classification for their identification. For this technique we used different kind of material: K wire, screws, external fixation, fluoroscope, and arthroscopy. First of all it is important to establish the fractures type.It is essential in the preoperative diagnosis the laboratory investigation; radiological, and CT scan. The preoperative planning is necessary. The advantages of this method are: minimal blood lost, small infection rate, good mobilization of the knee without pain, cheaper implants. We used a single dose of antibiotics during surgery and anticoagulant for thrombembolism prophylaxis. This kind of articular fractures requires perfect alignment of fractures fragments. We consider this technique minimal invasive is useful for the treatment of this kind of fracture and in most cases we have good outcome.

Abstract number: 24502 EVALUATION OF TREATMENT OF DISTAL TIBIAL ARTICULAR AND NON ARTICULAR FRACTURES BY OPEN REDUCTION AND FIXATION BY THE INVERTED CONTOURED T-PLATE NEHAD EL MAHBOUB

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The optimal treatment of distal tibial articular and non articular fractures has not been well defined. Recommendations for surgical treatment include open plating, percutaneous plating and external fixation. Distal tibial fractures may be the result of high energy trauma with multiple metaphyseal fragments with severe soft tissue injury. Another type of these fractures is the result of low energy trauma with a spiral fracture and minimal soft tissue injury. Twenty distal tibial articular and non articular fractures were treated by open reduction and internal fixation by using the inverted contoured T-plate after plating the fibula if fractured and through the determined criteria of patients selection to minimize soft tissue complications. According to Ruedi and Allgower classification, there were 14 cases type II and 6 cases type III. .Bone graft was used in 5 cases .All cases united without a second procedure from 14 to 20 weeks with average 15.1 weeks according to the subjective, objective and radiographic categories of Baird and Jackson there were 6 patients with excellent results, 12 patients with good results. 1 patient with fair result and 1 patient with poor result. The follow up period ranged from 6 to 12 months. In this technique the open reduction offers anatomical reconstruction of the joint if disrupted, restoration of tibial alignment and fixation of the anterolateral fragment through the same incision and the inverted contoured T- plate offers a stable fixation which matches the anatomy of the medial part of the distal tibia.

Abstract number: 25695

OSTEOSYNTHESIS OF LONG TUBULAR BONES FOR FRACTURE CONSEQUENCES WITH HYDRAULICALLY EXPANDABLE NAIL (HEN)

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of Aim: То analyze the effectiveness using HEN during fracture consequences.Material and methods: 37 patients underwent surgery with HEN from the age of 19 to 51 years. The following are the segments where we used HEN: Humerus 2, Femur 16, Tibia 19. HEN was used in 30 patients with old and nonunion fractures, in 5 patients after correcting osteotomy and in 3 patients with infected, non-union fractures. In 30% of patients osteosynthesis with HEN was performed at the ishtmal/osteotomy/fracture nonunion regions and the other 70% of osteosynthesis was performed at supra or sub-isthmal region of the long bones. Auto bone grafting was performed with HEN in 12 patients with hypotropic pseudoarthrosis.Results:Post operative follow up time was vaeried up to 2 yrs. In 23 patients, the complete clinical and radiological consolidation was achieved. The other patients are now under follow-up with good radiological prognosis. Summary: The following advantages are we observed: It reduces operation time, intra-/post operative blood loss, radiation to the patient and the medical personals. We noticed that stability of fixation with HEN is identical or more than the fixation stability of conventional blocking nails during osteoporosis, supra and sub-isthmal fractures and non-union. The stable fixation allowed us to activate the patient in the early post operative period which is especially important to the patients with juxta-articular fractures.

Abstract number: 25807 COMPLICATIONS AND OUTCOMES OF THE VERSANAIL (DEPUY) TIBIAL NAILING SYSTEM

Peter RALTE, Kumar GUNASEKARAN, Peter HUBKA, Renga SUBRAMANIAN, Mysore MADHUSUDAN, Syam MORAPUDI, Raja RATNAM, Mohammad WASEEM *Macclesfield District General Hospital, Macclesfield (UNITED KINGDOM)*

PURPOSE: To assess the outcomes of tibial shaft fractures treated with Versanail (DePuy). METHODS & MATERIALS: Between July 2006 and April 2009 44 tibial shaft fractures were treated with the Versanail (Depuy) reamed interlocking tibial nail system. There were 30 men and 14 women with an average age of 39.9 years. The most common mechanism of injury was a mechanical fall followed by various sports related injuries. Most fractures occurred at the junction of the middle and distal third of the tibia (30, 69.8%). Comminution of the tibia was seen in 14 (32.6%) cases of which 4 were segmental fractures. Associated fibula fracture was seen in 38 (86.4%) cases. There were 10 (23.3%) open fractures. The AO type A1.2 was the most common fracture pattern seen.RESULTS: Average time to full weight bearing was 3.1 months and the average time to union was 6.0 months. Delayed union was encountered in 6 patients (13.6%) and in all cases fracture union was achieved following dynamisation performed at an average of 5.2 months post procedure. Discomfort due to locking screw irritation was encountered in 5 (11.6%) cases which resolved following removal of the offending screw(s). Wound infection was identified in 3 patients (7%). One patient underwent removal of metalwork at 11.4 months post procedure due to anterior knee pain caused by a proximally protruding nail. Two Gustilo-Anderson type iniuries patients. both with 3b required skin grafting.DISCUSSION: Anterior knee pain following tibial nailing has a reported incidence of 56 69% however our study only demonstrated 1 (2.3%) such case. Discomfort due to locking screw irritation was common (5, 11.6%). Other well known complications such as compartment syndrome, fat embolism and deep vein thrombosis were not encountered in our study.

Abstract number: 26031 COMPARATIVE STUDY OF RESULTS OF INTERLOCK NAILING IN OPEN AND CLOSED TIBIAL DIAPHYSEAL FRACTURES

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Present study comprised of 30 cases of tibia fracture. Majority of the patients were males (83.3%). The average age of the patients was of 27.5 years Of the total 30 cases, 18 were closed, 7 grade I compound fractures, 3 grade 2 compound fractures and 2 grade III A compound fractures. Most of the cases were of type A3. The patients were followed up for a minimum period of 6 months the average duration being 38 weeks. The average time of union were best in A1 (spiral undisplaced) fractures i.e. 15.6 weeks. There was a delay in union seen as comminution increased. The time of union had significant association with type of communition (p<0.05). The average union time was of 18.93 weeks. There was only difference of 1-2 wks in time of union between closed fractures and grade-1 & 2 compound fractures. Union time difference between close & open grade-3 was found statistically significant, (p-value: 0.0497) while associations between closed and open grade-I & II was not significant. Overall there were 56.7 percent excellent, 20 percent good, 16.7 percent fair and 6.7 percent poor results. Reamed interlocking tibial nail is a simple, easy and excellent method of treating unstable and displaced closed tibial fractures as well as open grade I and II tibial fractures. The role of tibial interlocking nail in open Grade IIIA and severely comminuted C1 and C2 fractures is questionable with p value of 0.047.
Abstract number: 26471

TWO-STAGE OPERATIVE TREATMENT OF HIGH-ENERGY COMPLEX PILON FRACTURES

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INTRODUCTION: The basic treatment concepts include anatomical reduction and stabilization of the fibula and distal tibia and early mobilization of the ankle. Application of these techniques to high-energy injuries resulted in a high rate of complications, most commonly soft-tissue problems and infection. Primary external plate fixation instead of fixation decreases the risk of early complications.MATERIALS AND METHODS: We treated 24 patients with complex high-energy pilon fractures using two-stage method from 2007 to 2009. We used AO/ASIF classification: 43A 4, 43B 6, 43C 14. At first step external AO tubular fixator fixed all fractures. After 5-7 days the ex-fix was removed and plate osteosynthesis was done. The mean hospitalization time was for an average of 15 days. RESULTS: The long-term results were observed in 20 patients. The patients were allowed to bear partial weight at an average of nine weeks and full weight at an average of thirteen weeks after the injury. Two complications were registered: 1 secondary wound closure, 1 superficial wound infection. DISCUSSION: Open reduction and internal fixation of severe pilon fractures directly after have been associated with a high rate of complications. Extensive operative dissection through the poorly vascularized and traumatized soft-tissues of the distal tibia, combined with the implantation of subcutaneous plates, leads to these complications. CONCLUSIONS: The goal of the treatment of complex pilon fractures is to obtain union of the fracture and to restore normal function of ankle joint. Two-stage surgical treatment results using AO techniques provides excellent and good outcomes.

Abstract number: 26587

DISTAL TIBIAL LOCKING PLATES: DO WE FULLY APPRECIATE THE RISKS? Sean MCKENNA, Alan JOHNSTONE

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Background: Locking plates are commonly used to treat metaphyseal fractures of the tibia. When used to treat the majority of proximal fractures, locking plates are effective and have a low complication rate. However, little is known about their efficacy in the treatment of distal tibial fractures. Aims: The purpose of this study was to assess the clinical outcome, and in particular, the complications associated with using locking plates to treat distal tibial fractures.Patients & Methods: From a total of 44 distal tibial fractures (43 patients) treated with a locking plate at a level-one trauma centre, the clinical and radiological details of 38 fractures were available for retrospective review following completion of treatment. Predetermined general and local factors, commonly recognised to give rise to poorer outcomes and complications, were recorded along with the final outcomes.Results: According to AO classification, there were five A, eight B and twenty-five C fractures, and five were open. 13 (35%) patients had one or more complication: deep wound infection (5) with one patient requiring a below knee amputation; superficial wound infection (2); nonunion (5); prominence of metalwork requiring secondary removal (3). Despite our attempts to identify patients at risk of complication, no trends were identified. Conclusion: Despite the obvious clinical benefits of using locking plates to treat fractures at other anatomical sites, the clinical outcome of distal tibial fractures treated with locking plates is unpredictable.

Abstract number: 26605 INTRAMEDULLARY NAILING OF DISTAL TIBIAL FRACTURES LOCATED WITHIN 5 CM OF THE ANKLE JOINT

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Background: Treatment of distal tibial fractures located within 5 cm of the ankle joint has always been controversial. In this study we have evaluated the results of intramedullary nailing of distal tibial fractures located within 5 cm of the ankle joint. We have also discussed our decision making in the treatment of these fractures using illustrative cases to show our indications for intramedullary nailing, our techniques to obtain closed reduction using polar wires and the need for built in compression in the construct to promote collapse at the fracture site and thus aid fracture healing. Methods: A retrospective study looking at 26 fractures over a three year period that involved the distal 5 cm of the tibia being treated with intramedullary nailing. These fractures were classified according to AO classification.6 fractures with intrarticular extension needed closed reduction using polar wires and supplementary screw fixation to achieve anatomical reduction before nailing. We included both closed and open fractures. Results: Good anatomical reduction was achieved and maintained in 16 of the 18 patients. Acceptable radiographic alignment defined as < 5° of angulation in any plane was achieved in 92 % of patients. All fractures healed clinically and radiologically at an average of 17 weeks. 11 patients were able to mobilise independently without pain by the end of 3 months. Average hospital stay was less than 1 week. Conclusion: Intramedullary nailing is an effective alternative method in the treating both closed and open distal tibial fractures as well as those fractures with articular extension.

Abstract number: 26614 TIBIAL PILON FRACTURES. ABOUT 47 CASES

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Traumatology surgery service of the hospital lbn Rochd (wing. 4, Casablanca (MOROCCO)

A retrospective study has been done for 47 cases of tibial pilon fractures at the department of orthopaedic and traumatologic surgery during 13 years, from January 1992 to December 2005 with a mean follow-up of 2 years. The fracture of the tibial pilon represents 13,5% of ankle traumatism, it is the prerogative of the young person as the mean age of our patients was 39 years old with a male predominance.We noted a rate of associated disease at 31%. The etiologic circumstances are dominated by the high energy traumatism as the fall of high height in 53% and the road trafficaccidents in 40%. The radiological exploration consists in radiography of the ankle from the face and the profile that permitted the diagnosis and the analysis of the various anatomopathologic types. According to VIVES classification adopted at the department, the complex fractures are the majority in 71% of cases. The cutaneous wounds were present in 29% of cases. The surgical treatment by internal osteosynthesis fractures was practiced in 72,5% of cases, the combined treatment in 19% of cases and the treatment by external fixation in 8,5%. The functional results according to de la caffiniere have been good in 52% of cases, medium in 24% and bad in 24%.We couldnt notice a correlation between the functional results and the radiological results, the laters have been good in 24% of the cases, satisfactory in 38% and bad in 38% of the cases.

Abstract number: 23033

BONE GIANT CELL TUMOR-A CASE REPORT WITH 13 YEARS FOLLOW UP Stamatis PARASCHOU, Helias ANASTASOPOULOS, Polykarpos FLEGAS, Anestis KARANIKOLAS

Orthopaedic Clinic-General Hospital Kilkis, Thessaloniki (GREECE)

Bone giant cell tumor mostly occurs in young adults between 20-40 years old. There is a female predominance of about 1.5 to1. It affects the epiphyses of long bones and more than half of the tumors occur around the knee but almost all bones have been involved. The origin of giant cell tumor cells is unknown and its biological behavior is peculiar. It is a benign tumor ,occasionally malignant, and benign pulmonary metastases have been reported. Recurrence after meticulous excision of the tumor is indicative of malignancy. The purpose of this article is to present a 29 years old patient suffering from giant cell tumor of the left lateral femoral condyle, with three recurrences following three curettages with bone grafting and a final knee arthrodesis. During the last 6 years no recurrence occurred . I would wish to be accepted as a Poster.

Abstract number: 23036 CALCANEUS CYST-A CASE REPORT

Stamatis PARASCHOU, Helias ANASTASOPOULOS, Polykarpos FLEGAS, Panagiotis DIONELLIS, Anestis KARANIKOLAS *Orthopaedic Clinic-General Hospital Kilkis, Thessaloniki (GREECE)*

A patient with calcaneus cyst is presented-rare location-the diagnostic and therapeutic approach are described and we review the literature. A male 37 years old came to our clinic because of ankle injury after a fall. The plain radiographs showed a multicameral cystic lesion of the left calcaneus which was demarcated by a thin border of sclerosis. CT imaging confirmed the radiographical findings and estimated the cystic dimensions . The patient underwent cystic curettage with bone grafts. Weight bearing was allowed 3 months after operation. At recent follow up 8 months postoperatively radiographically the grafts have been completely incorporated and the patient has returned to his previous activities. Please to be accepted as a poster

Abstract number: 23420 MULTICENTRIC METACHRONOUS GIANT CELL TUMOUR OF VERTEBRAE AND TIBIA.

Sunil Gurpur KINI, Aditya N AGGARWAL, M P SINGH, Sudhir KUMAR University College of Medical Sciences, New Delhi (INDIA)

AbstractBackground Multiple metachronous giant cell tumours (GCT), occurring in an individual are extremely rare.Purpose A patient presented with GCT of multiple thoracic and lumbar vertebrae, 14 year subsequent to occurrence of GCT of proximal end of left tibia.Study design Case report.Method Forty-year-old male presented with upper motor neuron paraplegia with sphincter involvement and complete sensory involvement below T11 spinal level. There was a surgical scar of resection arthrodesis of left knee for GCT proximal tibia. Radiographs showed compression of T8, T10, T12, L1 and L4 vertebrae. Routine haematological investigations including serum PTH levels were normal. MRI scan and CT scan showed expansile mass lesion and compression of cord at D12 and L1 vertebrae. Posterior decompression and stabilization was performed.Results As the second focus of the disease occurred 14 years after the appearance of initial lesion, the second independent focus of the disease, rather than a metastasis, is the likely cause.Keywords Multicentric - Metachronous - Giant cell tumour - Spine

Abstract number: 23502

OSTEOSARCOMA: A RARE CAUSE OF PAINFUL ENLARGEMENT OF THE HALLUX.

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Malignant osseous and soft tissue tumors of the foot are rare. We report a case of osteosarcoma in the proximal phalanx of the hallux in a 45-year-old man and allude to the clinical manifestations, radiological evaluation, histopathological appearances and principles of treatment. In patients with foot-related symptoms, a high index of suspicion for pedal osteosarcoma is required lest the diagnosis will be delayed or overlooked

Abstract number: 23782 CHONDROBLASTOMA OF THE DISTAL RADIUS: EN BLOC RESECTION AND JOINT RECONSTRUCTION WITH FIBULAR GRAFT.

Patricia SANCHEZ-HERNANDEZ, Luis COLL-MESA, Raquel VAYAS-DIEZ, M. Angeles AYALA-RODRIGO, Cesar ANDARCIA-BAñUELOS, Sofia GARRIDO-RIOS, Nieves HERNANDEZ DE LEON, Manuel GONZALEZ-GAITANO, Javier ARA-PINILLA

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Chondroblastoma is a benign bone tumour arising from a secondary ossification centre in epiphyseal plates and apophyses in older children and adolescents. The lesion is rare accounting for approximately 1 to 2 percent of all benign bone tumors and is histologically characterized by chondroblastoma cells, osteoclast-like giant cells and sometimes reactive osteoid . We report a rare case of a young man with an aggressive Chondroblastoma of the distal aspect of the left radius which was treated with en block resection and joint reconstruction with free fibular graft. The functional results are excellent after 15 years follow-up. In conclusion, the most common treatment consists of curettage combined with packing of the cavity with bone graft or polymethylmethacrylate but En Bloc resection and joint destruction and/or tissue mass achieving excellent local control and good functional results.

Abstract number: 23788 A CASE OF EXTRA-ABDOMINAL DESMOID TUMOR AFTER CERVICAL LAMINOPLASTY

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Introduction: Desmoid tumors (DT) are rare, nonmalignant, slow-growing neoplasms with the potential for locally aggressive growth invading surrounding structures. We report a case of extra-abdominal DT arising in the operation scar of cervical laminoplasty.Case:A 63-year-old male presented three months history of a slowly growing painless mass situated over the left nuchal region 13 months after cervical spinous process-splitting laminoplasty for cervical myelopathy. A firm and immobile, 4x3 cm mass was located at the left side of the operation scar. MR image revealed low signal intensity on T1WI, low and high intensity on T2WI, and the mass was diffusely enhanced by Gadolinium. Marginal excision was performed to preserve paravertebral muscles and to prevent postoperative axial pain. Microscopic findings showed that the tumor was composed of proliferation of fibroblastic or elongated spinIde cells with abundant fibrocollagenous stroma, invading to surrounding skeletal muscle fibers with atrophic change. The tumor was diagnosed as extra-abdominal DT. Three years following surgical excision there was no evidence of recurrence. Conclusion: The factors contributing to the etiology of DT are pregnancy in fertile female, hormonal constitution in fertile female, minor bone malformation and surgical trauma including previous operation. Several authors reported abdominal or extraabdominal DT after operations such as cervical laminectomy, suboccipital craniotomy, thyroidectomy, mammaplasty for breast carcinoma, laparoscopy, cesarean secsion, thoracotomy for a vagotomy, and lumbar spinal operation. Cervical laminoplasty might be one of the etiology in our case.

Abstract number: 23846

METASTATIC CARCINOMA TO SUBCUTANEOUS TISSUE AND SKELETAL MUSCLE

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Metastatic carcinoma to subcutaneous tissue or skeletal muscle is relatively rare, and few studies on case-series are reported. Differentiation between primary soft tissue sarcoma and metastatic carcinoma to soft tissue is important at presentation because the treatments and prognoses markedly differ. We retrospectively reviewed records of 11 patients with soft tissue metastasis in our institution from 1996 to 2009 to consider usefulness of methods for confirming diagnosis as soft tissue metastasis and determining the primary site. In 9 cases of 10 patients who underwent MRI, findings consisted of (1) poorly circumscribed high intensity lesions around tumor on T2-weighted images, and (2) irregular peritumoral enhancement and (3) poorly enhanced lesions on the center of tumor on T1-weighted images. Serum C-reactive protein level was slightly high in 7 of 9 patients. Immunohistochemical findings of biopsy specimens were more valuable for diagnosing as soft tissue metastasis and determining the primary site. The expression patterns of cytokeratin 7 (CK7) and cytokeratin 20 (CK20) and tissue-specific antibodies such as thyroid transcription factor-1 (TTF-1), PE-10, MUC5AC, and CDX2 were particularly valuable diagnostic markers. Although 9 of 11 patients had poorly differentiated carcinoma, the primary site could be determined in 4 patients with CK 7 /CK 20 immunophenotype and positivity for tissue-specific antibodies. Even in the other 5 patients, CK 7 /CK 20 immunophenotype provided useful information for determination of the primary site. Immunohistochemical examination was thus helpful in the discrimination of primary origin in soft tissue metastasis of carcinoma.

Abstract number: 23855 EVERYTHING IS NOT TUBERCULOSIS

Mrinal SHARMA University College of medical sciences, delhi (INDIA)

Primary malignant sarcomas of spine are rare constituting 3.5-14.9% of all primary bone sarcomas and 3.2% cervical of all spine. An 11 yr girl presented with pain in cervical spine and torticollis on the right side for 3 months. Tenderness and restricted movements without neurological deficit. Radiographs revealed lytic lesion C2 with increased soft tissue shadow and MRI a lesion in C2 with paravertebral soft tissue collection with compression on cord.Diagnosed as Potts spine C2. The patient given ATT, planned for CT guided biopsy and kept on crutchfield tong. discharged on cervical orthosis after 6 weeks. The patient presented after 3 weeks complaining of severe pain in the neck and weakness in all 4 limbs and incontinence of urine. The patient had upper motor signs on presentation. Radiographs revealed destruction of C2 vertebral body and MRI and CT demonstrated gross destruction of C2, compression of cord. Taken for decompression, biopsy and fixation posteriorly, revealed grevish white cheesy material with complete destruction of C2.As lesion was vascular, debulking to relieve cord compression and occipito-cervical fusion was done. The tissue subjected to histopathology which turned out to be undifferentiated Ewings Sarcoma. The patient was given chemotherapy which she responded to but later developed wound dehicence.she expired.Though tuberculosis is endemic here, suspicion must be kept for malignancies that mimic Potts spine. Tissue diagnosis is the key form the basis of treatment.

Abstract number: 24093 DEEP SUBMUSCULAR PAROSTEAL ANGIOMYXOLIPMA IN A CHILD

Ji-hyo HWANG Kangnam Sacred Heart Hospital, Hallym university, Seoul (KOREA)

Angiomyxolipoma is a rare variant of lipoma, which is described by Mai, 1996, at first. The nine cases of which have been reported to date. Microscopically, the lesion consist of adipose tissue with the paucicellular myxoid areas and fat tissue with numerous thin, dilated, and congestive blood vessels. The reported cases mostly located to the superficial layer on the scalp, subungual, extremities in adults. We report one case of angiomyxolipoma located in the subvastus and parosteal of the distal femur around knee joint in child.Key word : angimyxolipoma, child

Abstract number: 24114

LOW GRADE OSTEOSARCOMA, PAROSTEAL OR INTRAOSSEOUS, A RARELY RECOGNIZED ENTITY, WITH POSSIBLE LONG TERM DISASTROUS SURGICAL CONSEQUENCES; CLINICAL AND HISTOPATHOLOGICAL PRESENTATION OF FOUR CASES, TWO OF THEM SYMPTOMATIC FOR EIGHT TO TEN YEARS. Doina POP, Mihai POPESCU

Faculty of Medicine Carol Davila Bucharest, Bucharest (ROMANIA)

Juxtacortical or intramedullary, well diferentiated osteosarcoma is clinically characterized by a long term history of dull pain and swelling and a histopathological frame of fibro-osseous proliferation with subtle minimal atypia. Radiographically, the malignant appearance, especially in early phases is overlooked though retrospectively recognized. Fallacious attitudes by non action may result in big tumors, possibly deddiferenciated, manageable only by radical surgery. The actual presentation focuses on some of our extreme cases, two with very early nonspecific clinical findings but histologically recognizable as malignant and two others evolving for 8-10 years, as slowly growing expansible masses, at the time of presentation necessitating radical surgery. All patients were women in the second decade of life. As to the localization, one was proximal humeral, two proximal tibial and one distal tibial. The humeral and one proximal tibial were parosteal osteosarcomas with soft tissue involvement but retaining the histological features of well differentiated osteosarcomas. Two other cases, with proximal juxtacortical and distal intramedullary localization radiologically early lesions imitating tibial were а sessile and respectively a bone cyst. The histological diagnosis of osteochondroma osteosarcoma was regarded with suspicion. The aim of this presentation is to draw attention on histological features of parosteal and well differentiated intramedullary osteosarcoma and its clinical and radiological misleading behavior.

Abstract number: 24167 A NEW ANTERIOR SINGLE INCISION SURGICAL TECHNIQUE FOR FOREQUARTER AMPUTATION

Ashok KUMAR, Sameer NARANJE, Himanshu GUPTA, Shah KHAN, Chandra YADAV, Shishir RASTOGI

All India Institute of Medical Sciences, Delhi (INDIA)

Background: Conventionally described standard techniques of forequarter amputation may not be suitable for our patients presenting with neglected or maltreated very large tumors of the proximal humerus. Patients and Methods: Eleven patients with unsalvageable malignant tumors of proximal humerus, who underwent forequarter amputation using a new technique between Jan 2008 to 2009, were retrospectively analysed. This new single incision anterior approach involves supine positioning of patients, ligation of axillary vessels in the axilla followed by resection of muscles from lateral border and inferior angle of scapula, resection of lateral one third of clavicle; resection of muscles from vertebral border and superior angle of scapula by applying superolateral traction without any incision over acromioclavicular axis or posterior scapular skin. Results: The average age was 16.27 year; minimum follow up was 6 months (range, 6-18 months) and included seven males and four females. Average duration of surgery was 62 minutes (range, 55 90). Blood loss ranged from 400-750ml. One patient had wound necrosis and was managed with debridement and skin grafting. One patient had superficial infection; one patient with metastatic lesion died at 6 months follow up. Conclusions: Technique is safe, easy, less time consuming, involves small single incision in supine position, has better wound healing and can be used for both small and large tumors of proximal humerus with or without involvement of axillary vessels. Although there was no local recurrence for last 18 months but a long term follow up is required to comment on its actual rate.

Abstract number: 24256 IS THERE NEED FOR RECONSTRUCTION AFTER EXCISION OF DISTAL ULNA FOR GCT?

Mandeep DHILLON, Sharad PRABHAKAR, Raghav SAINI PGIMER, Chandigarh (INDIA)

Giant cell tumour rarely involves the distal ulna; the literature has sporadic cases reported, and significant debate rages about the need for reconstruction after distal ulnar resection. The uncommon presentation often leads to diagnostic delays, and some of the cases reported have attained large sizes prior to diagnosis, leading to procedures ranging from soft tissue stabilization to bone graft reconstruction of the surgical defect. Materials: We analyzed 4 patients with Giant cell tumour of distal ulna, with specific reference to the need for additional reconstruction; the radiological and functional outcome of extra-periosteal distal ulna resection without reconstruction was assessed at a mean follow up of 9 years post surgical excision. Observations: We encountered no radiological evidence of recurrence, radio-ulnar convergence and ulnar translocation of carpus in any case. Functional outcome was graded as excellent in 3 and good in one patient. All patients could continue their profession, with one being an ICU Nurse, being able to handle heavy patients. In conclusion, we suggest that there is no need of additional reconstructive procedures after distal ulna resection for GCT; an adequate functional outcome is seen, and patients have an acceptable grip strength. Delayed presentation allows the tumour to grow to large sizes; reconstructive procedures, which come at the cost of additional morbidity, complications and technical skills, and are not routinely justified for this rare condition.

Abstract number: 24311 AN UNUSUAL PRESENTATION OF PIGMENTED VILLONODULAR SYNOVITIS AFTER UNICOMPARTMENTAL KNEE REPLACEMENT

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INTRODUCTION Pigmented villonodular synovitis (PVNS) is a benign proliferative condition affecting synovial joints resulting in villous or nodular changes in the synovial tissue, large effusions and bone erosion. The incidence is 1.8 per one million population and knee is the commonest joint to be affected. PVNS is uncommon after knee replacement and we report an unusual case of PVNS after unicompartmental knee replacement. CASE REPORT A 68-year-old gentleman presented with one year history of activity related anteromedial knee pain without any mechanical symptoms. He underwent unicompartmental knee replacement 4 years ago and was asymptomatic till his symptoms started insidiously one year ago. Clinically he had a well healed surgical scar, moderate effusion, mild tenderness over the medial tibial plateau, and no signs of instability with the last 10 degrees of flexion restricted. Radiographs showed good alignment of the unicompartmental prosthesis with no evidence of loosening. Blood investigations including inflammatory parameters were within normal limits and bone scan including an Indium white cell scan ruled out evidence of infection or loosening. He underwent arthroscopy of the knee which showed evidence of pigmented proliferation with villous appearance of the synovial tissue. Arthroscopic debridement with synovectomy was done and histological analysis of the synovial tissue confirmed the diagnosis of pigmented villonodular synovitis. CONCLUSION This case report highlights a rare presentation of pigmented villonodular synovitis after unicompartmental knee replacement. We suggest considering PVNS in the differential diagnosis of knee pain in patients with previous unicompartmental knee replacement.

Abstract number: 24435 EN BLOC RESCTION OF OSTEOSARCOMA OF PROXIMAL FIBULA: AN ANALYSIS OF 8 CASES

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Background and purposeOsteosarcoma of proximal fibula is a rare entity that poses a great surgical challenge to an Orthopaedician. Limb salvage is the goal of treatment and this entails sacrifice of the common peroneal nerve as well as the anterior tibial artery. Also the loss of lateral collateral ligament and biceps attachment leads to unavoidable knee instability which requires special reconstructive procedures.Methods From 2002 to 2008 eight patients with non metastatic osteosarcoma of fibular head were treated in our institution with Malawer type II resection. Special attention was paid to reconstructing lateral collateral ligament and to post operative knee stability. All the patients completed the standard course of neoadjuvant and post operative chemotherapy.ResultsNegative margins were achieved in all the 8 patients and consequently none required secondary resection or amputation. Seven of these patients are still alive without evidence of any disease. . All these patients have full ROM of the knee and no problems in carrying out their activities of daily living. None of the surviving patients has any evidence of local recurrence at the last follow up visit. DiscussionOur results indicate that the sacrifice of common peroneal nerve ensures a wide margin of resection which in turn correlates with long term survival. Also our technique of reconstruction of lateral knee structures has produced good functional outcome without significant postoperative knee instability.

Abstract number: 24461 PATIENT SURVIVAL AND COMPLICATIONS AFTER SURGERY FOR SKELETAL METASTASES FROM LUNG CANCER

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Background: The benefit of palliative Orthopaedic surgery for lung cancer patients with bone metastases and a short expected survival is often difficult to predict. The aim of the study was to assess survival rates and to identify predictors of survival after surgery for skeletal metastases. Methods: This study was based on data recorded in the Karolinska Skeletal Metastasis Register. We extracted all lung cancer patients who had surgery due to skeletal metastases 1987 to 2006. Kaplan-Meier and Cox-regression analysis was used calculate cumulative survival and predictors of survival.Results:We identified 98 lung cancer patients treated surgically for skeletal metastases. The median survival time after surgery was 2.6 months. The cumulative 12 months survival after surgery was 13%. There was a statistically significant difference between the median survival after spinal surgery (1.8 months) compared with extremity surgery (3.5 months). Metastatic lesions in the vertebra (OR 1.8, p=0.049), complete pathologic fractures (OR 1.9, p=0.043), low hemoglobin levels (OR 2.8, p=0.004) and the absence of postoperative radiotherapy (OR 1.9, p=0.04) were identified as independent negative predictors of survival. The reoperation rate was 15% and complications treated non-surgically were seen in 5% of the patients.Conclusions:Bone metastases and their subsequent surgical treatment in lung cancer patients are associated with considerable negative effects on both morbidity and mortality. The information in this study helps to set appropriate expectations for these patients, their families and surgeons.

Abstract number: 24884 MELORHEOSTOSIS: TWO CASES REPORT

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Melorheostosis is a very rare disease, about one in a million. It usually occurs at tubular bone, such as hands and feet. Melorheostosis can be readily diagnosed on X-ray, with its characteristic dripping candle wax appearance and hyper-pigmentation appearing on the bone. Patient can present at any age with a variety of symptoms, including pain, limb swelling, and limitations in motion of affected limbs. There is no specific treatment for Melorheostosis. We are going to present our two cases and their treatment.

Abstract number: 24890 ORTHOPAEDIC INTERVENTION AND OUTCOME IN PATIENTS WITH METASTATIC BONE DISEASES

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[Background] Although new chemotherapeutic agents have improved the survival of cancer patients, the incidence of metastatic bone diseases (MBDs) has increased. Several treatment modalities are indicated in patients with MBD. We retrospectively evaluated the efficacy of our treatment and prognosis in patients with MBD.[Methods] Between 2006 and 2009, 68 patients with MBD42 men and 26 women (average age, 63 years; range, 31 79 years) visited our institute. The primary cancer sites included the lungs (20), gastrointestinal tract (8), colorectal region (7), liver (7), prostate (7), breast (5), kidney (2), and other organs (6); the primary site was unknown in 6 patients. The locations of MBDs included the spine (27), femur (16), pelvis (11), humerus (8), and other parts (6). Fourteen patients were diagnosed with multiple bone metastases. [Results] During the mean follow-up period of 14 months (range, 1?38 months), 38 patients died of disease and 17 were alive with disease; 13 patients were lost during follow-up. The 1- and 3-year survival rates were 34% and 15%, respectively. Pathological fractures and paralyses were observed in 18 and 6 patients, respectively. Twenty-four patients underwent surgical treatment, and 8 underwent conservative treatment with radiotherapy. Zoledronate was administrated in 23 patients.[Conclusions] The longer the patient survives with cancer, the more complicated the treatment of MBD becomes. Surgical intervention is required for pathological fractures and paralyses. The treatment aimed at achieving local control, functional restoration of the affected parts, and improvement in the quality of life.

Abstract number: 24903 THE INFLUENCE OF HEAT ON EXTRAVASATION OF IRON-OXIDE NANOPARTICLES IN A TUMOR MODEL

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Intro: Iron-oxide nanoparticles (USPIO) have proven to be biocompatible and without significant cytotoxicity in humans and they could possibly become useful in future cancer therapy if coupled with anti-cancer agents.Mild hyperthermia can disrupt tumor vessel endothelial barrier, increasing vascular permeability, allowing USPIO particles to diffuse into the interstitial space of tumor. In this study we have investigated the effect of various lengths of localized mild hyperthermia (41,5°C) on the extravasation of i.v injected USPIO particles in a murine tumor model to determine the optimal heating length.M&M:Animals were randomized into groups: 1, USPIO particles only: 2, USPIO particles and 5 min hyperthermia: 3, USPIO particles and 30 min hyper-thermia and 4, USPIO particles and 60 min of hyperthermia. N=9 in each group. Animals were MR scanned prior to injections and after 90-, 390- and 1140 min.Results: Change in T2* in response to heating length shows a significant difference between animals heated for 30- and 60 minutes compared to animals heated for 5 minutes and controls (USPIO particles and no heat) (p<0.05).T2* decreases rapidly after 90 min. and incline slightly on scans 390, 1140 min. After 24h, T2* value in the control group, is 39.5 +/-4.3 compared to 27 +/-3.2 in the group receiving heat for 60 minutes and after 90 min the values are 31+/- 5.6 and 10 +/-2.1. There is a fine relationship between heating length and T2* value throughout the data.

Abstract number: 25073 A PSEUDO-ANEURISM IN A PATIENT WITH A SOLITARY OSTEOCHONDROMA OF THE DISTAL FEMUR. A CASE REPORT.

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Osteochondroma is the most common benign bone tumor, and is often diagnosed as an incidental finding. Mostly asymptomatic, they can cause mechanical symptoms depending on their location and size. To our knowledge, not a single case of a pseudo-aneurism of the femoral artery related with an osteochondroma has been reported in the literature so far, although are previous reports of hematoma formation near the bone lesion. This article presents a rare case of a large pseudoaneurism in a patient with a solitary ostechondroma of the distal femur. Case report: 40-year-old man presented with a 9-month history of pain and a progressive growing mass in the posteromedial region of distal left tight. No history of trauma. Physical examination showed a tender, not fixed, painless mass palpable in the posteromedial region of the distal left tight. Radiographs and MRI showed a bony exostosis localized on the posteromedial aspect of the distal third of femoral shaft, irritation in adjacent soft tissues, with various masses -probably hematomas-; the largest producing mass effect and inflammatory changes in muscular tissue. The patient underwent surgery with diagnosis of osteochondroma plus hematomas in the tight. A well-margined, friable tumor was localized contained in the surrounding tissues, during the procedure the wall broke starting bleeding profusely. The arterial wall lesion was repaired. A sessile exostosis was indentified, excised and sent to pathology, along with the remaining mass. Five days later a second procedure was performed to place an endoprosthesis in the left femoral superficial artery in a stenotic zone.

Abstract number: 25119 PAIN RELIEF IN TUMORAL FRACTURES OF THE SPINE TREATED BY PERCUTANEOUS KYPHOPLASTY

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Introduction: Percutaneous kyphoplasty is a minimally invasive, radiologically guided procedure in which bone cement is injected into structurally weakened or destructed vertebrae. In addition to treating osteoporotic vertebral fractures, this technique gains popularity to relieve pain by stabilizing vertebrae compromised by, for example, metastases, aggressive hemangiomas or multiple myeloma that are at risk of pathologic fracture. Material and Methods: Retrospective study including 44 patients (67 fractures) who undergone percutaneous kyphoplasty from one or several tumoral fractures of the spine between January 2006 and February 2009. 77% were female. The mean age was 67. VAS scale and Karnofsky index were both measured pre and postoperatively. The most frequent lesion found was metastases from a primary tumor followed by myeloma. Results: All patients were seated 24 hours after surgery. Partial or complete pain relief was obtained in 91% of patients (40/44); significant results were also obtained with regard to improvement in functional mobility and reduction of analgesic use. The mean value of the visual analogue scale (VAS) was 5.9 preoperatively, and significantly decreased to 3.3 one day after kyphoplasty. We reported 4 new vertebral fractures and no cases of cement extrusion during the follow-up. We didn't report any case of neurological dysfunction after surgery. Discussion: Most cases in our study show a significant improvement in pain and functionality with no associated complications. Kyphoplasty cement augmentation has been a safe and effective method in the treatment of symptomatic vertebral neoplasic compression fractures

Abstract number: 25123 LOWER END TIBIA GIANT CELL TUMOUR TREATED BY MODIFICATION OF BLAIR FUSION : A CASE REPORT OF TWO CASES.

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Aggressive juxta-articular giant cell tumours of the distal tibia are guite rare and present a great challenge to the average orthopaedic surgeon. We present the result after resection arthrodesis with ankle fusion with a modification of Blairs method in two patients with giant cell tumours of the lower end of tibia. In both these patients, tibio-talar fusion was achieved using the osteotomised anterior cortex of the tibia and the grooved superior surface of the talus. Fibula was used to augment the graft. Both the patients had good functional outcome with this mode of treatment and there was no recurrence till the last follow-up after nine years and one vear respectively. Reconstruction after excision of tumours of the lower end of the tibia has also been a difficult proposition with literature varying from fibula grafting to iliac bone grafting and to cementing. This method of using the anterior cortex of tibia for reconstruction has proved to be a relatively easy, cost-effective and less timeconsuming method of achieving tibio-talar fusion, though a larger number of patients may be needed to adequately prove its efficacy.

Abstract number: 25126 OUR EXPERIENCE OF DIAGNOSTICS AND SURGICAL TREATMENT OF LARGE JOINTS BONE NEOPLASMS

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6873 patients with different tumors of bones and joints were treated in our clinic. We have analyzed 1915 cases of bone neoplasms of large joints (benign 1381. malignant 534). Shoulder girdle tumors were in 537 patients, pelvic girdle in 480, knee joint in 878. Benign neoplasms: the first place was occupied with hereditary osteochondromatosis, the second with giant cell tumor, the third with bone cysts. Malignant neoplasms: the first place in shoulder and pelvic girdles and the second place in the knee joint bones were occupied with osteosarcoma; Ewing sarcoma the second place in shoulder girdle, the third in pelvic girdle, and the sixth in the knee joint bones. On the basis of the analysis of our material (clinical analysis, X-ray, CT, MRI, radionuclide scintigraphy, histochemistry, immunohistochemistry, biochemistry, ets.) and comparisons of clinical, X-ray and morphological data we have determined the patterns of some tumors clinical course and potential of malignant transformation of some benign tumors (chondroma, osteochondroma, giant cell tumor, osteoblastoma, etc.). In terms of these investigations we suggested the concrete recommendations of early diagnostics and rational surgical technologies.

Abstract number: 25137 DIAGNOSTICS AND SURGICAL TREATMENT OF BENIGN NEOPLASMS OF THE SHOULDER GIRDLE, STERNUM AND RIBS

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The diagnostic features of clinical and X-ray manifestations of benign neoplasms of shoulder girdle, sternum and ribs were studied in 411 patients. The osteochondromas and bone cysts were occurred more often 155 and 124 patients accordingly. Chondromas were occurred in 35 cases, giant cell tumor in 29, osteomas in 21, fibrous dysplasia in 21, chondroblastoma in 8, osteoid osteoma in 4, fibrous histiocytoma in 3, osteoblastoma in, chondromyxoid fibroma in 2 and hemangiomas in 2.The most typical manifestations of all these neoplasms were revealed. It was established, that bone cysts and osteochondromas were localized the most often in the proximal third of humerus, osteoma in scapula, and fibrous dysplasia in ribs.The most rational methods of surgical treatment, depending on clinical manifestations, histological structure and prevalence of a neoplasm, were determined; and we developed some new original surgical technologies, that allows to preserve shoulder joint and extremity function.

Abstract number: 25160 SOLITARY PATELLA METASTASIS FROM RENAL CELL CARCINOMA; A RARE CASE REPORT

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We report a rare case of a solitary metastatic lesion to the patella in a 74 year old male who was subsequently diagnosed with renal cell carcinoma (RCC). The patient presented to our clinic in May 2009 with a 12 month history of left anterior knee pain. X-ray revealed a large osteolytic lesion and an associated pathological fracture. Subsequent investigations demonstrated a large mass arising from the upper pole of the left kidney. Metastatic lesions were found bilaterally in both lungs and adrenal glands and a smaller metastatic / synchronous lesion was found in the right kidney. Due to the advanced stage of the disease and the associated short life expectancy, a decision to treat our patient conservatively was made. Excluding leukaemias, the most common form of bone neoplasm is metastatic carcinoma. Tumours of the patella are extremely rare and account for less than 1% of primary bone tumours. Patella tumours are unique in that primary neoplasms, the majority of which are benign, are far more common than metastatic lesions. There have been 25 cases of patella metastases documented in English literature. Of these, our case represents the fourth to originate from a RCC. This case demonstrates the atypical nature in which RCC may first present with up to 30% of patients presenting with metastases. Importantly, this case highlights the need to consider other less obvious causes in the differential diagnosis of anterior knee pain, particularly in the elderly patient where such symptoms may be attributed to osteoarthritis.

Abstract number: 25230

POLYOSTOTIC FIBROUS DYSPLASIA WITH ULNAR NERVE DYSFUNCTION Luis COLL MESA, Nieves HERNANDEZ DE LEON, Manuel GONZALEZ GAITANO, Julio VEGA SANGINES, Pedro Javier PEREZ LORENSU, Maria PORRAS SANCHEZ

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Fibrous dysplasia is a benign medullary fibro-osseous disease in which normal marrow and cancellous bone are replaced and weakened by immature woven bone and a dense fibroticstroma containing a disorganized matrix of bony trabecular spicules. This skeletal tumor may involve one bone (monostotic) or multiple bones (polyostotic) and occurs throughout the skeleton with a predilection for the long bones, ribs, and craniofacial bones. The lesion is often asymptomatic but pain, swelling, bony expansion in superficial bone and fractures may be part of the clinical spectrum. Neurological symptoms are very uncommon. We present a case of a 55 vear-old woman who was referred to us presenting pain in her left elbow and symptoms of ulnar nerve dysfunction. The radiological study showed cortical and cancellous bone defects involving left distal humerus, proximal ulna and radius with margins well defined, bone sclerosis areas and thinned and expanded cortex near epitrochlear canal. The diagnosis of Polyostotic Fibrous Dysplasia was confirmed by biopsy. The treatment of choice was resection of exostosis and neurolysis achieving a complete recovery of the ulnar nerve function. In conclusion, clinical symptoms in conjunction with radiological findings and biopsy are useful tools in the diagnostic and operative planning of Fibrous Dysplasia and surgery can be indicated for correction of deformity, prevention of pathologic fracture, and/or eradication of symptomatic lesions.

Abstract number: 25246

THE ROLE OF PI3K/AKT PATHWAY IN BONE AND SOFT TISSUE SARCOMAS Yoshiki YAMAGAMI, Toshiaki HITORA, Osamu NAKAMURA, Tetsuji YAMAMOTO Department of Orthopaedic Surgery, Kagawa University, kita-gun, kagawa (JAPAN)

INTRODUCTIONThe phosphatidylinositol 3-kinase (PI3K)/Akt pathway plays an important role in various cellular processes including cell growth, survival, and motility. We examined the expression of Akt and the existence of PI3K/Akt pathway in human bone and soft tissue sarcoma cell lines.MATERIALS AND METHODSCell lines and reagent: 3 human osteosarcoma cell lines and 3 human MFH cell lines were used in this study. Akt inhibitor X, a specific Akt kinase inhibitor was used. The inhibitory effect of Akt inhibitor: The cell proliferation was assayed using the MTS assay. Cells were pretreated for 24 or 48h with Akt inhibitor. The percent viability of each well was calculated.Western blotting: Cells were pretreated for 60 min with Akt inhibitor, and immunoblotted with anti-AKT1/2/3 and anti-phospho-AKT1/2/3 antibody. Apoptosis Detection: ApoStrand ELISA Apoptosis Detection Kit which detects single-stranded DNA was used. RESULTSThe effect of the Akt inhibitorAkt inhibitor inhibited the cell proliferation of all cell lines. Expression of Akt and phospho-AktNot only Akt but phospho- Akt were expressed in all cell lines. Phosphorylation of Akt was decreased by Akt inhibitor in all cell lines. Apoptosis Detection An apoptotic effect of Akt inhibitor was detected in all cell lines. DISCUSSIONIn our study, Akt phosphorylation was detected and Akt inhibitor decreased the phosphorylation. Moreover, Akt inhibitor inhibited cell proliferation and induced apoptosis. These results suggest that PI3K/Akt signaling pathway exists and plays an important role in bone and soft tissue sarcomas.

Abstract number: 25452 COMPLICATIONS OF SURGICAL TREATMENT OF EXTREMITY AND TRUNK SOFT TISSUE SARCOMA

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INTRODUCTIONThe management of Soft Tissue Sarcoma is often associated with extensive tissue resection to achieve a good margin. We reviewed significant complications following surgical treatment for soft tissue sarcoma of the extremity and superficial trunk. PATIENTS AND METHODThis is a 7 year retrospective study involving patients presenting with extremity and trunk soft tissue sarcoma from January 2002 till December 2008 at the Royal Liverpool and Broadgreen University Orthopaedic Oncology unit. The minimum follow up period was 12 months and all patients records were reviewed with emphasis on significant post operative complications.RESULTS126 patients were eligible for the study with age range between 16 years and 96 years. The histological profile included, fibrosarcoma in 24% [n=30], liposarcoma in 23% [n= 29], leiomyosarcoma in 19% [n=24], undifferentiated sarcoma in 10% [n=13]. There were 41 % high grade, 13% intermediate and 32% low grade tumours. A significant proportion of the masses were located in the thigh and buttock [55%]. Wide local excision was possible in 48%, and amputation was performed in 13% of the patients. The common complications include treatment failure in form of local recurrence in 17.5% [n=15] and distant metastases in 15.1% [n=13]. Surgical complications such as seroma formation [22%] and wound infection [11.6%] were also recordedCONCLUSIONThe management of soft tissue sarcoma is associated with significant morbidity. Adequate awareness about the common complications and appropriate preoperative treatment plan may improve the overall management of patients.

Abstract number: 25490 DIAGNOSTIC DELAY IN BONE METASTASIS FROM OCCULT MALIGNANCY

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INTRODUCTION: Bone metastasis is a serious condition. When it occurs without a history of any other malignancy, it is not easily differentiated from spondylosis deformans or osteoporotic fracture, which could delay the commencement of treatment. We reviewed our patients to determine the delay in diagnosis and to investigate useful examinations for diagnosis, which could help to shorten the delay.MATERIALS AND METHODS: A retrospective review of 29 consecutive patients with bone metastasis without a history of any other malignancy was undertaken. The period before diagnosis was evaluated. It was classified as the period from the onset of symptoms to the first visit to a doctor (the first period) and the period from the first visit to a doctor to the diagnosis of bone metastasis (the second period). RESULTS: The diagnosis of bone metastasis was made at the first visit for only 3 patients. The medians of the first and second periods were 2 and 7 week, respectively. These periods had no relationships with age, gender, metastatic site, or primary site. The examination method that was basis of the diagnosis of bone metastasis was MRI in 16 patients, and the reason why the examination was carried out was aggravation of symptoms in 18 patients. DISCUSSION: This study suggested that early diagnosis of bone metastasis in patients without a history of any other malignancy is not easy. It also suggested that early recognition of aggravation and the use of further examination method such as MRI are important for the early diagnosis.

Abstract number: 25496 COMPLEMENTARY RELATION BETWEEN MRI AND FNAC IN CLINICAL DIAGNOSIS OF SOFT TISSUE TUMORS

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Introduction: Making a clinical diagnosis of a soft tissue tumor is difficult. MRI can show the signals of whole a lesion and the relations to the adjacent tissues. However, the signals of lesions on MRI are frequently nonspecific for diagnosis. On the other hand, the fine needle aspiration cytology (FNAC) differentiate between benign and malignant soft tissue lesions when adequate material is collected. However, the material is frequently so small and occasionally insufficient. As mentioned above, MRI and FNAC have complementary relation in diagnosis of soft tissue tumors theoretically. Through the recent clinical practice, the relation between MRI and FNAC in clinical diagnosis was reviewed. Materials and methods: A retrospective review of 147 patients (153 lesions; 137 benign and 16 malignant) who underwent both preoperative MRI and FNAC was undertaken. The diagnostic rates of MRI and FNAC were calculated based on their results. The interrelationships between the two results were also reviewed. Results: Regarding differentiation between benign and malignant lesions, the diagnostic rates of MRI and FNAC were 82% and 84%. The diagnostic rate of both MRI and FNAC was 94%. In 56% of the lesions which could not be diagnosed by MRI, FNAC made diagnoses of them. Discussion: When both MRI and FNAC are used as preoperative examinations for soft tissue tumors, the diagnostic rate is improved, probably because of their theoretical complementary relation.

Abstract number: 25702 PATELLAR CHONDROSARCOMA ASSOCIATED WITH DISTAL FEMORAL ENCHONDROMA " A CASE REPORT "

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INTRODUCTION: We present a case of patellar and capsule-synovial chondrosarcoma associated with distal femoral enchondroma, who finally undergo to high thigh amputation. CASE REPPORT: A woman 37 years old presented in our Clinic for right anterior knee pain, swelling and decreased range of motion for more than 10 months. Biopsy was undertaken, in the condition of multiple surgery around the knee in the past. The histo-pathological result was enchondroma of the femur and uncertain for the patella. As the right knee continue to be extremely tender to palpation in the region of the patella and knee bending was restricted secondary pain, we decided to undertake patelectomy and muscle tendon transfer, sinovectomy and distal femoral biopsy once again. The microscopic result concluded patellar and capsule synovial chondrosarcoma moderate differentiated grade G2 associated with distal femoral encondroma. After surgery, the patient felt well and was transferred to an Oncologic Clinic to continue the chemotherapic treatment and finally high thigh amputation was decided in a medical team consulting and performed. At one year the patient feels good and had returned to daily homework thanks to external limb prosthesis. DISSCUSIONS: A Medline search and the research of specialty literature, as far as we could get information on the topic, did not yield any previous report of such an association between distal femoral enchondroma and patellar and capsulesynovial extension chondrosarcoma. Radiological diagnosis of different patella tumors is challenging and anatomo-pathological analyses may be difficult, but certain in results when bone biopsy is well performed.

Abstract number: 25785 SIMPLE BONE CYST IN PELVIC AREA

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A 15 year-old woman was referred to us presenting pain in left pelvic area of several months' duration with a lytic, well marginated and multiloculated lesion in iliac wing.Radiological and anatomopathological findings showed a simple bone cyst mimicking aneurysmal bone cyst. The treatment of choice was curettage, local adjuvant (Hydrogen Peroxide) and bone grafting achieving excellent results. The simple bone cyst is a common, benign, fluid-containing lesion and usually occurs in infancy and teenage.This tumor is found in 3% of all biopsies of primary osseous neoplasms and arises in the methaphyses of the long bones, beneath the growth plate.Ninety-four percent of unicameral bone cysts occur in the proximal humerus and proximal femur. Simple bone cyst can produce pain and swelling but, more frequently, patients present with a pathological fracture.Despite their benign nature, these cysts require treatment to prevent recurrent fractures, prolonged restriction of activities, and deformities or even shortening of long bones.

Abstract number: 25803

PRIMARY EXTRACRANIAL MENINGIOMA OF THE LOWER LIMB

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Meningiomas are one of the most common primary intracranial tumors and their locally aggressive clinics are commonly known. In this case report, we present a rare case of primary extracranial meningioma which is located in the anteromedial aspect of the groin. This presentation is about a 40-year-old male patient with a complaint of a rapidly growing painless stiff mass located in his left femur. The MRI examination revealed that the lesion is well circumscribed and with isosignal intensity to muscle on T1 and with a relatively hiperintense on T2-weighted imaging. The histopathological analysis of the specimen from excisional was typical of meningioma showing bland spindle cell proliferation with a whorling pattern. Tumor cells were positive for EMA and Vimentin, and negative for S-100 protein. In summary, the primary ectopic meningioma is unusual seen neoplasm. It should be included in the differential diagnosis of soft-tissue spindle-cell tumors, it can be identified by its characteristic morphology and immunoprofile.
Abstract number: 25839 PRESERVATION OF FEMORAL HEAD IN CLEAR CELL CHONDROSARCOMA TREATED THROUGH SURGICAL HIP DISLOCATION. A CASE REPORT Dante PARODI, Jaime LOPEZ, Javier BESOMI, Carlos TOBAR, Joaquin LARA Clinica Alemana de Santiago, Santiago (CHILE)

Clear cell chondrosarcoma (CCC) is an infrequent variant of chondrosarcoma characterized by low grade of malignancy, propensity to arise in the epiphyseal area of long bones, progressive clinical course and late methastasis. It is more frequent in men than women with a extensive age range. Clinical features are non-specifics; the most frequent symptom is long standing local pain, sometimes referred to the adjacent joint. Histologically CCC is characterized by tumor cells with abundant clear cytoplasm and round nuclei arranged in a lobulated growth pattern, and in some cases confused with aneurismal bone cysts. Typically, the radiography shows a geographic osteolytic area located in epimetaphysis or epiphysis with sclerotic and well-defined margins. We present a case of epiphyseal femoral CCC, with surgical treatment with preservation of the femoral head and clinical and radiological followup for 5 years, without recurrences or methastasis.

Abstract number: 25842 THE IMPACT OF PATHOLOGICAL FRACTURES ON THERAPY OUTCOME IN PATIENTS WITH PRIMARY MALIGNANT BONE TUMOURS

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In this study we investigated the implications of pathological fractures on therapy outcome in patients with primary malignant bone tumours and determined whether limb salvage can be safely performed. A retrospective analysis of 447 patients with malignant bone tumours was performed. Multivariate Cox regression analysis was used to investigate the influence of pathological fractures and further independent variables on survival rate. In 52 of 447 patients, the primary malignant bone tumour was complicated by a pathological fracture. These fractures were more common in malignant fibrous histiocytoma of the bone and in the tumour stages IIa/b and III. Ablative surgery was performed in ten patients and limb salvage surgery in 42 patients. The mortality risk for patients with pathological fractures was significantly increased by a factor of 1.82 (p=0.015), and overall duration of survival was significantly lower in the fracture group, with a median of 6.2 years (p<0.00001). In univariate and multivariate analysis, fracture, higher tumour stages and resection margins remained a significant predictor of worse survival. Overall survival, rate of local recurrence and distant metastases were not affected by the type of surgical treatment selected; there was no difference between the patients who underwent limb salvage and those who underwent an amputation. Pathological fracture in patients with primary malignant bone tumours is a predictor of worse survival and significantly increases mortality risk. Reconstructive surgery did not influence the survival rate, showing that limb salvage therapy is safe when adequate resection margins are achieved.

Abstract number: 25861

CLINICAL RESULTS OF ENDOSCOPIC CURETTAGE FOR CYSTIC LESIONS IN CALCANEUS

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<Introduction> In Nov. 1992 we started endoscopic curettage without bone grafting for enchondromas in hand and have got good results. We now perform this procedure for other benign bone tumors. The purpose of this paper is to evaluate the results of endoscopic curettage without bone grafting for cystic lesions in calcaneus.<Materials and Methods> Eight patients with cystic lesion in calcaneus underwent endoscopic curettage without bone grafting at our hospital from 1998 to 2008. The average age at surgery was 18.5 years-old and the mean follow-up period was 35.4 months. There were four solitary bone cysts, two aneurysmal bone cysts and two chondroblastomas. Usually two portals were made with several millimeter skin incisions and fenestrations of cortex bone. Thorough curettage of the tumor was performed using curettes and electrical shaver under endoscopic visualization.<Results > Good visualization through arthroscopy was obtained in all patients. New bone formation was observed by roentgenogram in all the patients 3.3 months after surgery averagely in spite of no bone grafting. There was no infection and no recurrence.<Discussion and conclusion>The advantages of this procedure are as follows; 1. Less surgical insult, 2. No need of bone grafting, 3. Easy to evaluate the remnant of curettage due to magnified observation, 4. Less blind areas than conventional method, 5. No need of immobilization, 6. No need of postoperative rehabilitation with early recovery of function. We conclude that this procedure is one of the good choices for the treatment of cystic lesions in calcaneus.

Abstract number: 25894 PROXIMAL PHALANGEAL EXOSTOSIS OF THE LITTLE FINGER

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The authors present the case of a thirty seven year old woman who attended with a three day history of a painless swelling over the dorso-radial aspect of her right little finger, overlying the distal end of the proximal phalanx. There was no history of trauma or injury. All finger and joint movements were preserved. The patient was otherwise fit and well. On examination, a firm, fixed and non-tender 9x7 mm swelling was discovered on the dorso-radial aspect of her right little finger, overlying the distal proximal phalanx. Plain radiographs and ultrasound revealed a 6x5x3 mm thick bony outgrowth of the distal dorso-lateral shaft of the proximal phalanx, with stretching of the overlying extensor tendon/ligament complex. This was surgically removed. Histology revealed woven and lamellar bone covered by a fibrous cap consistent with a benign exostosis. An exostosis is a rare benign bone tumour arising on the surface of a bone. There are many reports in the literature regarding subungual exostoses of the thumb, fingers and toes. However a solitary exostosis on the proximal phalanx of a finger is indeed a rare occurrence; there have been fewer than five such cases reported in English literature. A solitary exostosis on the proximal phalanx in the little finger has not been reported previously. We believe this to be the first of its kind.

Abstract number: 25905 MULTIPLE ENCHONDROMATOSIS, AN UNUSUAL ENTITY: CASE REPORT AND LITERATURE REVISION

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Enchondromas are common intraosseus benign tumor which develops in close proximity in growth plate cartilage. Enchondromatosii or Ollier' disease is defined with the presence of at least three enchondromas. It is characterized by asymmetric distribution of the lesions and extreme clinical variability. Clinical problems include skeletal deformities, limb length discrepancy and the potential risk for malignant change. We present the case of a 16 year old female with clinical and radiographic diagnostic of multiple enchondromatosis when she was 3 year of age, and the patient was kept under strict observation. At 15 years of age she began with skeletal chronic pain in arms, knees and feet, with no limb length discrepancy and clinical symmetric skeletal deformities in both knees and shoulders. The patient had no functional disability and her height had no alterations according to her age percentile. The radiographic lesions were seen at both femurs, humeral shaft, clavicles, scapulas, fibular and tibial heads, and toes. Of all this lesions the right clavicle and scapula, both humeral shafts, left distal femur, both fibular and tibal heads and 2nd and 3erd right distal phalanx were the only ones that produced symptoms and were removed surgically whit open excision and post surgical pathology results. There were no complications. Multiple enchondromatosis is a entity that is characterized by symetrical deformating lesions in long bones that produce height alterations and limb discrepancy. This patient had symmetrical lesions and although she had skeletal deformities these ones did not compromise the patients functionality and height.

Abstract number: 26054 OPERATIVE MANAGEMENT OF A DISTAL RADIUS METASTASIS

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The aim of the study is to present the radiological and functional outcome of a rare metastatic tumor in distal radius. This is the first case in english literature of such a long follow up.A 53 year old man right handed presented with a history of right wrist painHis x-rays revealed a lytic lession in distal radius. He was under close monitoring and chemotherapy with oncologist team. After 8 weeks presented with a fracture and extension of the lesion. His primary tumor was clear cell renal tumor, with lung metastasis. He was treated with "sutent" asunitinib kinase inhibitor. After oncologist consultation desicion was made to stabilise the fracture withaout tumor excision. The osteosynthesis was made by using plate on plate locking system by Syntes and cement to further enchance the screw stability. After 2 1/2 years follow up, he remains pain free with good functional outcome

Abstract number: 26072 RESPONSE OF GIANT CELL TUMOR OF BONE TO CALCITONIN TREATMENT A REPORT OF TWO CASES

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Giant cell tumor (GCT) of bone is a benign but locally aggressive tumor that usually involves the end of long bones. Our study was dealing with a 54 years old woman and 16 years old boy having respectively a GCT of right distal radius and left great trochantera. The tumoral margins were well definited in x rays. CT scan showed some interrupted cortical sites without soft tissue extension. After confirmed diagnosis the 2 tumors were curetted and injection of calcitonin was done in the residual cavities. The calcitonin injection were done postoperatively daily by a percutaneous approach for a mean period of 15 days.X rays control showed gradually circumferential bone condensation until complete filling of the tumoral cavity. At respectively 3 and 1 year follow up, our cases were out of disease with a good function. The first main purpose of curettage is complete removal of tumoral tissue, it must be aggressive reaching all tumoral walls. This procedure is difficult in some deep locations. Therefore, adjuvant therapy by calcitonin is considered as an additional treatment in case of curettage insufficiency. The abundance of multinucleated osteoclast-like giant cells is a histological hallmark of the GCT. The anti-osteoclastic effects of calcitonin on GCT have been well investigated. The drug has been demonstrated to have receptors on the osteoclast-like giant cells. This may reduce the rate of local recurrence following surgery in patients with GCT of bone.

Abstract number: 26095

PATHOLOGICAL FRACTURES TREATED WITH THIRD GENERATION CEFALOMEDULLARY NAILS

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Introduction: We report our experience in the treatment of femur pathological fractures with third generation CMN. The predispositional point in the area of the proximal femur. Aims: The aim of the treatment of these patients is to improve their quality of life and to protect the function of the damaged limb.Materials and Methods: December 1999 December 2008 we operated on 39 patients - 13 men and 26 women, the average age of 61 (20-84). They were most frequent at the following cases: 17 Ca gl.mammae, 6 Myeloma, 5 Ca pulmonis, 6 Ca gl. prostatae, 1 Ca coloni, 1 Ca uteri and 1 Adenocarcinoma of gl. sublingvalis. We had 1 osteid osteom and 1 displasia fibrosa. We reamed the channel in 16 cases and we did not ream in 23 cases. The average operative time was 90 min. The average blood loss was 300 ml. Results: We registered bone union on the 4th -6th month in 26 patients. Three patients had exitus letalis up to one month and ten patients were not traced to bone union because of lethal end. For the functional results using the Enneking scale. We registered the following results: excellent- 20, good 4 and satisfactory 2. The complications that we observed were: one case of non-union, one case of broken distal interlocking nails, 2 cases with Z effect and one case of migration of antirotation screw.Conclusion: The 3-rd generation CMN is minimally invasive method which provides a better biomechanical stability compared to plate fixation.

Abstract number: 26171 GIANT CELL TUMOR OF THE METACARPAL - A RARE ENTITY Tarun SURI

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Giant Cell Tumor (GCT) or Osteoclastoma is a benign locally aggressive tumor with a tendency for local recurrence. 85-90% of cases occur in the long bones. Only 2% of cases occur in the hand, and thereto metacarpal involvement is a very rare occurrence with only a few cases reported in the literature so far. We report 2 cases of GCT of metacarpal in a young individuals. Histopathological diagnosis was made after an incisional biopsy. Ray amputation was done in case 1 and metacarpal reconstruction using iliac crest graft in 2nd case. both patients had a good function of the hand in follow up.

Abstract number: 26191 DE-DIFFERENTIATED CHONDROSARCOMA OF THE HAND – A RARE PRESENTATION

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Chondrosarcoma is an uncommon malignant bone tumour characterized by formation of cartilage by tumour cells with a reported incidence of 9% amongst primary malignancies of the bone and is often located in pelvis and long bones. Chondrosarcoma of the hand and feet is a rare entity. There are only three reported cases of de-differentiated chondrosarcoma of small bones of hand and feet reported in literature. We present the clinical and radiological presentation, management and follow up of a patient who was diagnosed to be a case of de-differentiated chondrosarcoma on histology (the most malignant variant of chondrosarcoma).

Abstract number: 26329 SOFT TISSUE SARCOMAS

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are often guite large at presentation and close to Soft Tissue Sarcomas Neurovascular Structures . Between 2004 and 2009 we operated on 34 Soft Tissue Sarcomas thigh tumors of ages between 25 yrs to 67 yrs .Lower Limb accounted for 24 tumors and the largest tumor was 38cm .. All tumors had MRI and in 96% of them had needle biopsy was sufficient for diagnosis . Preop Embolization was used for 5 tumors. Flaps were done at the same operation in 4 cases. Radiation was used in 27 cases and 22 had Chemotherapy . To ensure complete tumor removal after tumor was removed the assistant was asked to point out doubtful tissue which was also removed . All patients were followed up, the shortest being 1 year and the longest 7 yrs. There were no post op Nerve palsies. The maximum operating time was 6 hrs 10 minutes and the maximum blood used was 8 units. All patients was except one able to walk unaided and reached preop functional status. There was one case of local recurrence which had re excision .There were 2 cases of distant metastases. There was always excess skin due to large size of tumors and excess skin was removed . In 6 cases there was skin necrosis which was resutured . In the medial thigh tumors lymph may necessitate leaving drain longer. We believe meticulous dissection and complete removal of tumor gives good results and improves long term prognosis.

Abstract number: 26340 INTRANEURAL LIPOFIBROMA OF THE MEDIAN NERVE A RARE CAUSE OF CARPAL TUNNEL SYNDROME

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Median nerve compression in the carpal tunnel is mostly idiopathic and a cause of significant disability. Other common causes are Colles fracture, ganglions and lipoma. We present the case of a 40 year old male who developed symptoms of fatigue and paraesthesias after prolonged writing. A clinical diagnosis of carpal tunnel syndrome was made. MRI of the wrist showed diffuse lipomatous proliferation of the median nerve suggestive of hamartoma. Intra-operatively, marked thickening of the nerve was seen. Nerve sheath biopsy was taken and decompression of the canal done. Patient had relief of symptoms post-operatively.

Abstract number: 26583

LEIOMYOSARCOMA OF A LOWER LIMB: CASE REPORT AND REVIEW OF LITERATURE

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A 58 year-old woman was referred to us with pain and big mass in the posteromedial area of her right thigh. Radiological and anatomopathologic findings showed a leiomyosarcoma. A wide resection, reconstruction of cutaneous defect and oncological therapy was the treatment of choice with local and systemic control of the disease. Leiomyosarcoma is a malignant tumour composed of cells showing distinct smooth muscle features. It occurs most frequently in the uterus, bowel, vascular tissues, and less commonly in somatic soft tissue or bone. The most important prognostic factors by far are tumour location and size, which are strongly interrelated. In conclusion, the management of leiomyosarcoma clearly should involve a multidisciplinary approach requiring the consideration of surgery, radiation and even chemotherapy to have the best outcomes.

Abstract number: 26601 LOCAL DOXERUBICIN APPLICATION FOR THERAPY OF SINGLE BREAST CANCER METASTASIS. A CASE REPORT.

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We describe a case of single breast cancer metastasis to pelvic bone in 50 years old female patient managed operatively with bone removal followed by local doxerubicin application. The presence of cancer cells in excised tissues was confirmed by histological preparation. Six months later the same place was revised and the successful treatment was confirmed by normal histological examinations. The bone cavity was filled with bone allografts that healed completely during next six months.

Abstract number: 26683 RESECTION ARTHRODESIS FOR GIANT CELL TUMOURS AROUND THE KNEE-TECHNIQUES AND RESULTS

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Background: Segmental resection of bone in Giant cell tumor around the knee, in indicated cases, leaves a gap which requires complex reconstructive procedure. This study analyzes reconstructive procedures in terms of morbidity and complications encountered. Materials and Methods: Thirteen cases (lower end femur-six and upper end tibia -seven) of GCT around the knee, Campanacci Grade II or Grade III were included. Mean age was 25.6 years Resection arthrodesis with telescoping over intramedullary nail (n=5), resection arthrodesis with intercalary allograft threaded over long intramedullary nail (n=3) and resection arthrodesis with intercalary fibular autograft and simultaneous limb lengthening (n=5) were procedures performed. Results: Shortening was the major problem following resection arthrodesis with telescoping over nail. Infection was the major problem in all cases of arthrodesis with intercalary allograft threaded over long nail and required multiple drainage procedures. In the third patient, allograft sequestrated. The patient underwent sequestrectomy, telescoping of fragments and ilizarov fixator application with subsequent limb lengthening. After resection arthrodesis with intercalary autograft and simultaneous lengthening the resultant gap (~15cm) was bridged by intercalary nonvascularized dual fibular strut graft and corticocancellous graft. Simultaneous limb lengthening with distal tibial corticotomy was performed on ilizarov fixator. The complications were superficial infection, stress fracture of fibula. Time taken for union and limb length equalization was one year. Conclusion: Resection arthrodesis with intercalary fibular autograft and cortico-cancellous bone grafting with simultaneous limb lengthening achieved limb length equalization with relatively short morbidity.

Abstract number: 26728 ANEURYSMAL BONE CYST UNUSUAL PRESENTATIONS

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Anurysmal bone cyst usually involves long bones metaphyseal region in childen. Unusual sites are vertebrae, pelvis & other ares of bodythis usually a benign pathology but at times recurrence is troublesome. Treatment is usually by curettage & bone grafting where ever possible. Radiotherapy is also an option where ever surgical intervention can not be done. We present few cases of pelvic bone cyst which if not treated properly can be trouble as bleeding may be uncontrolable or in big cavities in childern filling the cavity with graft may be pain staking.few cases of pelvic bone aneurysm are presented to hogh light the problem