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Room: 401

Session : SICOT - Foot and Ankle

Abstract number : 16077

INTERNAL FIXATION OF CALCANEAL INTRA-ARTICULAR FRACTURES

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AIM: In this study we report the early results of our prospective series of 23 osteosynthesized intra-articular calcaneal fractures with a mean 1 year follow-up. **PATIENTS AND METHODS:** 23 fractures in 22 patients with 7 type III and 16 type IV according to Sanders classification system were operated on during the last 2 years in our department. Mean patients age was about 41 years. All fractures were studied with plain X-rays and CT-scan. All patients underwent rigid osteosynthesis with titanium plates and locking screws through an extended lateral para-Achilles-to-plantar approach. Allografts and hydroxyapatite blocks for mechanical support were used in 19 cases. Talo-crural exercises were begun as soon as possible and subtalar movements 3 weeks postoperatively. Partial weight bearing was permitted at fourth week and full weight bearing after 8 weeks. **RESULTS:** Because of the small number of cases, our data do not bear statistical analysis. 14 of 22 patients are very satisfied from the result and 8 patients are satisfied. Nobody is disappointed although 5 patients have great discomfort in running. 4 patients complained of permanent mild pain in walking (Sanders IV). There was one superficial infection and one superficial skin necrosis due to inappropriate skin incision. **CONCLUSIONS:** The lateral extensile approach provides wide exposure with limited skin complications. The patients, although they have complaints, appear to be satisfied probably because they realize the severity of these fractures after the experience of a fall or high energy impact injury. We advise osteosynthesis for displaced intra-articular calcaneal fractures.

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ANKLE TUBERCULOSIS: A CASE REPORT

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The ankle joint is an uncommon location of osteoarticular tuberculosis. The aim of this case report is to describe a case of tuberculous arthritis of the ankle and the diagnostic problems that may arise and lead to a delay in treatment. We report the case of a 63-year-old man who presented with a history of pain and swelling of the right ankle lasting six months. In the last month, he had suffered from intermittent low-grade fever and chills, and he has referred to our institution for further evaluation and treatment. Physical examination revealed swelling with severe tenderness of the joint. The range of motion was limited. Admission laboratory findings were an ESR of 26mm/h, CRP of 1.4mg/dl and leucocytes 9.00x10⁹/L. Plain radiography showed osteopenic bone adjacent, an impression of soft tissue swelling and ankle joint intact. MRI was performed and demonstrated diffuse synovitis and a demarcated fluid collection. The bone scan with technetium 99m was positive. Synovectomy and curettage of the bone was performed, and microbiological and anatomopathological studies were done. Direct smear and stain of the material showed acid-fast bacilli. The polymerase chain reaction (PCR) was positive. The typical caseous granulomas were observed in the anatomopathological studies and the diagnosis was confirmed. After debridement the patient was treated successfully with a triple antibiotic regimen for 12 months. Four years later, there were extended osteoarticular lesions in the ankle joint. However the patient was asymptomatic and the range of movement of the right ankle was normal.

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HALLUX VARUS DEFORMITY - TREATMENT WITH DIFFERENT OPERATIVE PROCEDURES

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Hallux varus is a rare cause of pain in the foot, mostly occurring after failed hallux valgus surgery. We reviewed 12 patients with unilateral hallux varus treated with soft tissue techniques (4x), arthrodesis of the first metatarsophalangeal joint (3x) or with a distal chevron osteotomy (5x) with medial transposition of the first metatarsal head and reconstruction of the soft tissues on the lateral side of the metatarsophalangeal joint. 10 patients had previous hallux valgus surgery; in 2 cases the deformities were of unknown origin. 1 male and 11 female patients were followed-up on average 26.4 months postoperatively. AOFAS hallux score improved from 46 (range 10-75) to 86 (range 72-95) points. The metatarsophalangeal angle measured with the centre-head to centre-base method was reduced from -16.1° (range -35° to -8°) to 5.1° (range -15° to 21°). The intermetatarsal angle increased from 5.8° (0-11 $^{\circ}$) to 10.5° (0-19 $^{\circ}$). All patients were subjectively satisfied with the procedure. Our results indicate that joint preserving operation techniques are viable methods in the correction of mild and moderate symptomatic hallux varus deformities. Mild remaining varus deformities are well-tolerated. In case of severe varus deformity or major signs of osteoarthritis in the first metatarsophalangeal joint, MTP arthrodesis provides good results.

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ILOPROST FOR THE TREATMENT OF BONE MARROW EDEMA IN THE HINDFOOT

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Bone marrow edema is a rare cause of pain in the foot. We reviewed 19 patients with unilateral bone marrow edema of ischemic, stress or osteoarthritic origin located in the hindfoot, treated with the vasoactive prostacyclin analogue iloprost. The patients' mean age was 61.5 years (25-76) and the duration of symptoms had lasted 19 weeks before the therapy started. Bone marrow edema was located 9x in the talus, 3x in the calcaneus, 3x in the navicular bone and 2x in the cuboid. 11 cases were estimated to have a primary ischemic origin, the other 8 to be secondary to an activated osteoarthritis or to mechanic stress. Our therapy consisted of a series of five infusions of iloprost on 5 consecutive days. Mazur's foot score was used to assess function before and 3 months after therapy. Mazur's foot score improved from a mean of 54.9 (range 23-73) before, to 87.8 points (47-100) 3 months after therapy. Magnetic resonance imaging showed complete recovery of the bone marrow edema within 3 months in 12 patients (9x ischemic, 3 osteoarthritic or stress), 3x partial regression (1x ischemic, 2x osteoarthritic or stress) and no change in 4 cases with bone marrow edema due to activated osteoarthritis. We conclude that the parenteral application of iloprost might be a viable method in the treatment of bone marrow edema of different origins but especially in ischemic ones.

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TREATMENT OF A RARE CASE OF INDIVIDUAL ANKLE'S DISLOCATION

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BACKGROUND: Pure dislocation of the ankle without accompanied fractures is an extremely rare injury. **AIM:** To present an unusual case of a closed posterior ankle dislocation and its surgical treatment. **CASE REPORT:** A 45-year-old man was forced into plantar flexion and eversion of his right ankle during a fall. Ankle's joint was deformed but neurovascular structures were intact. The standard radiography revealed a posterior ankle's dislocation without malleoli fractures. The dislocation was unstable. Stress radiographic control of ankle's joint under regional anesthesia documented the complete rupture of deltoid ligament. The lateral ligaments of ankle were intact. Intraoperatively we restored both superficial and the deep portion of deltoid ligament with interbones no absorbable stitches. We sutured the anterior capsule of the ankle's joint to reinforce the joint's stability as well. Finally, we immobilized the joint with the use of an external fixation. **RESULTS:** The external fixation was removed after 6 weeks and the patient followed an intensive physiotherapy program. 14 months post injury the patient had a stable joint and full range of ankle's motion without symptoms. Stress radiographies of the ankle joint confirmed the stability and the successful restoration of the deltoid ligament of ankle. **CONCLUSION:** Ankle's joint dislocation without fracture is an unusual injury. However it requires a meticulous surgical restoration of ankle's joint ligaments to have a stable and functional joint.

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COMPARISON OF MODIFIED LINDGREN-TURAN OPERATION AND PROXIMAL CRESCENTIC OSTEOTOMY COMBINED WITH DISTAL SOFT TISSUE PROCEDURE IN THE TREATMENT OF HALLUX VALGUS

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We compared the results of moderate hallux valgus deformities managed with modified Lindgren-Turan (MLT) osteotomy and proximal crescentic osteotomy combined with distal soft tissue procedure (PCO-DST). 14 feet of 10 patients were treated by modified Lindgren-Turan osteotomy and 9 feet of 8 patients were treated by proximal crescentic osteotomy combined with distal soft tissue procedure. Patients were evaluated radiologically and clinically. In the modified Lindgren-Turan osteotomy group preoperative measurement of HVA, IMA, DMAA was $32.07\pm 8.4^\circ$, $13.86\pm 3.18^\circ$, $19.3\pm 6.77^\circ$, respectively. Postoperative values were $11.79\pm 4.80^\circ$, $6.36\pm 4.50^\circ$, $9.57\pm 3.93^\circ$, respectively. In PCO-DST group preoperative measurements of HVA, IMA, DMAA revealed $31.11\pm 8.72^\circ$, $15.33\pm 2.73^\circ$, $17.78\pm 5.15^\circ$ whereas postoperative values were $12.78\pm 3.23^\circ$, $8\pm 2.69^\circ$, $12\pm 4.82^\circ$, respectively. Preoperative and postoperative mean AOFAS scores of modified Lindgren-Turan group were 41.50 and 87.79, respectively. Preoperative and postoperative mean AOFAS scores of PCO-DST were 51.89 and 91.11, respectively. In conclusion, radiological and functional results of modified Lindgren-Turan osteotomy and proximal crescentic osteotomy combined with distal soft tissue procedure in the treatment of moderate hallux valgus deformity revealed similar results; thus we suggest that modified Lindgren-Turan osteotomy may be a preference by reason of easier surgical technique with one incision in the treatment of moderate hallux valgus deformity.

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THE EFFECT OF FIRST RAY SHORTENING AFTER METATARSAL OSTEOTOMY

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A retrospective analysis was made 4.19+/-1.29 years postoperatively of 240 modified Wilson osteotomies. This procedure involves a slightly oblique subcapital osteotomy of the first metatarsal fixed by one screw. The average decrease in the hallux valgus angle was 26+/-5, while that in the 1-2 intermetatarsal angle was 8.4+/-4, and the average shortening of the first metatarsal was 3.8+/-1.8mm. The aim of this study was to reveal the correspondence of the postoperative 2-3-4-5 metatarsalgia as well as the correspondence of the patients' satisfaction with the esthetic outcome after surgery with the first ray shortening, the decrease in the hallux valgus angle and the decrease in the 1-2 intermetatarsal angle. A positive correlation was found between 2-3-4 metatarsalgia and the first ray shortening. No correlation was found between 2-3-4-5 metatarsalgia and the decrease in either the hallux valgus angle or the 1-2 intermetatarsal angle. A positive correlation was detected between the postoperative foot alignment and the decrease in the hallux valgus angle; a negative correlation was observed between the postoperative foot alignment and the first ray shortening; there was no correlation between the postoperative foot alignment and the 1-2 intermetatarsal angle. During osteotomy of the first metatarsal, excessive shortening should be avoided in order to avoid the development of postoperative transfer metatarsalgia. The greater the decrease in the hallux valgus angle and the less the shortening of the first ray, the more positive the satisfaction of the patients with their foot alignment.

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MID-TERM RESULTS (AN AVERAGE OF 5.2 YEARS) OF STAR TOTAL ANKLE ARTHROPLASTY

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INTRODUCTION: Ankle arthrodesis is still the gold standard for ankle osteoarthritis. However, ankle arthrodesis is becoming the surgical procedure of choice in many orthopedic institutions. PATIENTS AND METHODS: Between June 1997 and June 2005, 42 total ankle arthroplasties were performed in our institution. There were 18 male and 22 female patients. Average age was 51 years (37-72), average follow-up was 5.2 years (1.4-10.1 years). Uncemented type of STAR prosthesis was used in all but one case. Pre and post operative function of ankle was assessed with the use of Kofoed ankle score. RESULTS: Average postoperative result of stable prostheses was 87 points. Six patients ended with bad result. Average postoperative ROM was 28.5° and pre-operative 24°. Five prostheses loosened, one of them due to inflammation. With loosening of the prosthesis due to any reason, average survival rate was 86.6% at 8 years. However, 12 patients were re-operated (28%) and intra- and post-operative complications were present in 20 (42%) cases. DISCUSSION: Total ankle arthroplasty is becoming a routinely used procedure in some orthopedic institutions. Relatively high incidence of complications is encountered with this type of surgical procedure. This was present in our group of patients and also described in literature. However, average survival at of average 8 years was satisfying and comparable with literature. Upon our opinion ankle arthroplasty is not suitable for all patients with ankle osteoarthritis. Thorough preoperative planning and patient selection and meticulous surgical technique are of outermost importance for good postoperative results.

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ANKLE ARTHRODESIS - SHORT-TERM RESULTS

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The objective of this study is to analyse our short-term results in arthroscopically assisted ankle arthrodesis. More than 30 different techniques have been described for ankle arthrodesis. This paper aims at emphasizing the results of a totally arthroscopic ankle arthrodesis using cancellous screws for fixation. MATERIAL AND METHOD: A totally arthroscopic ankle arthrodesis has been done for 9 patients. Seven patients were males and two females. The age of the patients ranged from 32 to 69 years. Ankle arthrodesis was done for instability and pain due to ankle arthritis. The ankles were fixed by two cancellous screws. One of the cases had a failed open ankle arthrodesis, and a bone graft was needed and was reinserted arthroscopically, too. RESULTS: Follow-up period ranges from 1 to 3 years. At 12 weeks postoperatively all joints were fused clinically and radiologically. There was one patient who showed a technical error where one screw was too long and engaged the subtalar joint. CONCLUSIONS: This study proved that arthroscopic ankle arthrodesis is a valid and a fast method to obtain ankle fusion with minimal complications. If bone graft is needed it can also be done arthroscopically.

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OPERATIVE TREATMENT OF OPEN ANKLE FRACTURES

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INTRODUCTION: The operative treatment is the method of choice in treatment of open ankle fractures. The aim of this study is to assess the outcome of different types of surgical treatment. **MATERIALS AND METHODS:** From 2002 to 2006 a total of 48 patients with open ankle fractures were treated operatively. 42 patients with type B and C fractures with the wound on the medial side of the joint, 5 patients - type A fracture with the wound on the lateral side, 1 patient - with direct trauma with wound on the lateral side. The treatment was started from primary wound look, 34 patients - open reduction and internal fixation using AO technique, 9 patients - external fixation, 5 patients - transarticular fixation with 2.0mm K-wires and cast application. **RESULTS/DISCUSSION:** The purulent arthritis of ankle joint has developed in early postoperative period in 4 patients treated with external and transarticular fixation. Arthrodesis was done in 3, 1 - below knee amputation. The functional outcomes in these 2 groups were poor. The deep infection of ankle joint has developed in 1 patient treated with ORIF technique. The arthrodesis was done in this case. The excellent and good functional outcomes in this group were registered in 30 patients with total recovery of function during 2-4 months after trauma. **CONCLUSION:** External and transarticular fixation of open ankles fractures results for poor functional outcomes. Open anatomical reduction and internal fixation using AO technique in first hours after trauma provides good and excellent outcomes without signs of post-traumatic arthritis.

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ORTHOPAEDIC HAZARD: NOISE EXPOSURE

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The study is a prospective study. The measurements for noise pollution will consist of operative orthopaedics and trauma procedures that involved the usage of orthopaedics tools such as operating drills, operating saws, mallets and other tools that may produce noise pollution. These includes: Total Joint Replacement Surgery, Spine Surgery, Sports Surgery, Tumour Surgery, Trauma Surgery, Cast removal procedures etc. Audiometric testing was carried out in accordance with Occupational and safety guidelines. PTA testing to look into noise induce hearing lost among the orthopaedic personnel. The Noise Dosimeter will be used during the Surgery and to simulate the noise without surgery. The dosimeter will be attached under the surgeons' and/ or orthopaedic personnel's gown and the microphone attached to the collar, approximately 10cm from the ear. Noise levels throughout the procedure and total noise exposures will be measured. Noise levels were recorded by the dosimeter, which accurately reflects the response curve of human hearing. Derived values will be calculated by the dosimeter software. The audiometric values will also be reported. The PTA test among the orthopaedics personnel will also be recorded.

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TREATMENT OF AO TYPE C2-C3 FRACTURES OF THE DISTAL END OF THE RADIUS WITH EXTERNAL FIXATION

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The objective of this study is to evaluate clinical and radiological outcomes of severely comminuted intra-articular fractures of the distal radius treated with closed reduction and external fixation. Forty patients (22 males, 18 females; mean age 42.8 years) with comminuted intra-articular fractures of the distal radius were treated with external fixation. Of 40 patients, 23 had C2 and 17 had C3 fractures, according to the AO classification. 8 patients had open fractures. The fractures were reduced (using axillary block anaesthesia) by longitudinal traction under fluoroscopic control, and the reduced position was retained by an Orthofix external fixation system. The fixator was used for a mean of 6.2 weeks and the mean follow-up was of 13.2 months. A modified Sarmiento scoring system was used for radiologic-anatomic and functional assessment. All of the 32 patients who were employed returned to preinjury working conditions in a mean of 3.5 months. Radiological assessment indicated that anatomical results were excellent or good in 35 (87.5%) patients and fair or poor in 5 (12.5%) patients. Functional results were excellent or good in 37 (92.5%) patients and fair or poor in 3 (7.5%) patients. Complications included pin tract infections (3 patients), early transient reflex sympathetic dystrophy (1 patient) and hypoesthesia along the superficial branch of radial nerve (1 patient). This study shows that the treatment of comminuted intra-articular fractures of the distal radius with external fixation is a safe and effective treatment modality and provides almost normal radiological and clinical parameters.

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V-Y PLASTY (TRANQUILLI-LEALI) AS TREATMENT OF FINGER TIP AMPUTATIONS

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Fingertip amputations are the most common type of amputation injury in the upper extremity and they are important because of an often disproportionately long period of convalescence. Different surgical procedures are available for reconstruction, but none is absolutely satisfactory. Twenty-two cases (19 patients) of fingertip amputation have been treated by primary skin closure using the V-Y plasty (Tranquilli-Leali). There were 14 men and 5 women. The average age was 38.7 years. The procedure was carried out under regional anaesthesia using a tourniquet. All devitalized tissue was excised and the bone was smoothed. A triangular flap with a distal base was developed. The width of the base should be the same as the amputated edge of the nail or the nailbed, and the length should be a little longer than the width. The flap was mobilized and sutured to the nail or the nailbed. Finally, the volar gap was closed. The average follow-up period was 18 months, ranging from 6 months to 27 months. All of the flaps survived and achieved normal or adequate two-point discrimination. Two patients had some loss of distal interphalangeal joint extension and five patients had cold hypersensitivity. Rapid return to work was possible in most cases. The technique is simple and presents an excellent method for fingertip reconstruction in Allen type I, II and III injuries.

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OPERATIVE MANAGEMENT OF SCAPHOID BONE FRACTURES

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INTRODUCTION: The scaphoid bone is definitely the most commonly fractured bone of the carpus and accounts for 2-7% of all fractures. It occurs mainly in young, healthy and active male individuals. The aim of the study was to evaluate and compare operative management of scaphoid bone fracture as a treatment of choice versus operative treatment as a secondary measure. **MATERIAL AND METHODS:** The research was conducted in WSzZ Hospital, Kielce and involved group of n=19 (18 male; aged 17-50) patients. The selection criteria were: scaphoid bone fracture, age ≥ 17 and application of surgical treatment. All available patients' records and operative book entries were retrospectively analysed. To assess the type of fracture, three different scales based on radiographic images (Modified Herbert staging, Russe classification, and simple anatomic classification) were applied. **RESULTS:** In examined group the primary operative procedure and operative procedure secondary to conservative treatment of scaphoid fractures were performed respectively in 13 cases and 6 cases. Patients subjected to secondary operative treatment were significantly ($p < 0.05$) younger. Bone graft was applied in 23.08% of primary and 50.0% of secondary operations. Bone resection was performed in 37.4% cases of delayed management compared to none in early management ($p < 0.05$). **CONCLUSION:** The number of secondary operative procedures for pseudoarthrosis appeared to be relatively high. Therefore, it might be reasonable either to improve conservative management or to extend indications for primary surgical treatment. Early operative management also allows reducing the extent of surgical intervention.

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EFFECTS OF FUSION ANGLE ON FUNCTIONAL RESULTS IN PATIENTS TREATED CONSERVATIVELY FOR FRACTURES OF THE NECK OF THE FIFTH METACARPAL

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AIM: To investigate whether there is any difference regarding functional results between patients treated conservatively for metacarpal neck fractures with dorsal angulation below 30 degrees and those with a dorsal angulation of 31-45 degrees. MATERIALS AND METHODS: Patients were treated with plaster splints for 5 weeks after closed reduction. Following the treatment, patients were classified into two groups according to dorsal angulation below 30 degrees (Group 1, n=12, average age: 29.5, average angulation: 25.33 degrees) and those with 31 to 45 degrees of dorsal angulation (Group 2, n=10, average age: 28.5, average angulation: 39.9 degrees). Patients were evaluated at the sixth month after treatment. Grip strength and range of passive joint movement were measured bilaterally and the results were compared statistically. The distance from fingertip to distal crease was measured. Functional scoring system was used for assessment. Occupational adequacy was investigated. RESULTS: Functional assessment was good and very good in both groups and occupational adequacy was perfect. The distance from fingertip to distal crease was 0 for all subjects. There was no statistically significant difference between the two hands regarding the rate of grip strength loss and the range of passive joint movements in metacarpophalangeal, proximal interphalangeal and distal interphalangeal joints ($p>0.05$). OUTCOMES: For fifth metacarpal neck fractures, similar results were achieved in subjects with dorsal angulation below 30 degrees and with 31-45 degrees of dorsal angulation after the conservative treatment. A dorsal angulation less than 45 degrees can be treated conservatively.

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DIGITAL EDEMA, ADHESION FORMATIONS, AND RESISTANCE TO DIGITAL MOTION AFTER PRIMARY TENDON REPAIRS

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The optimum time to start postoperative mobilisation is still controversial. We undertook an in vivo study to investigate digital edema, adhesion formations, and gliding resistance to digital motion after primary flexor tendon repairs using 102 long toes of Leghorn chickens. Apart from the normal controls, the flexor tendons were cut partially and then repaired with modified Kessler method. Digital edema, adhesion formations, and resistance to digital motion were evaluated at postoperative days 0, 3, 5, 7, 9, and 14. Digital edema was scored at 3, 5, and 7 days post-surgery. Digital edema peaked in the toes at day 3, subsided at 7 and disappeared at 9 days. Degree of digital edema correlated with the resistance to tendon motion. Restrictive adhesions formed at day 14. Resistance to digital motion did not increase significantly between days 3 and 9, and increased substantially at day 14. We suggest that the postoperative period after primary tendon repair can be divided into early (days 0 to 3), delayed (days 3 to 7 or 9), and late (days 7 or 9 to 14). The findings of current study suggest that early mobilisation may start as late as at 7 days. For individual digits, severer edema signals an increase in resistance to the motion, this should be considered when deciding how aggressive the motion should be.

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MINIMAL INVASIVE INTRAMEDULLARY OSTEOSYNTHESIS DISTURBANCE OF HEALING FOREARM

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BACKGROUND: Multi-fragmentary fractures of forearm until now have been causing significant problems in terms of choice the treatments method. The problems have been resulting from different types of fractures, multi-fragmentation or limb shortening. The new technical solutions, especially intramedullary locked stabilizers, allow for proper stabilisation of bone's fragments. It has resulted in a new possibility of surgical treatment of complicated biomechanical fractures. Its functionality is based on bridging plate according to AO classification. **GOAL:** The aim of the study is evaluation of the results of multi-fragmentary fractures' treatment and disturbance of healing forearm with intramedullary locked nails. **MATERIAL:** In our Department of Trauma Treatment and Orthopaedics, between 2003 and 2005 were treated 38 patients, in whom intramedullary locked nails were implemented. Fractures of both arms concerned 34 patients, and 4 patients were treated only because of one forearm. Surgical treatments due 18 patients were operated due to disturbance of healing. The most often used stabilization was intramedullary locked nail ChM Charfix type. **METHOD:** The patient placed on surgical table with the limb on extra table. During post surgical procedure, control x-rays were made every 6 weeks up to time of bone healing. **RESULTS:** Healing of bone fragments was noted at all patients at different time. Bone healing in the treatment of healing disturbance after 18 weeks. **CONCLUSIONS:** Implementations of intramedullary locked nail allowed for stable osteosynthesis of multi-fragmentary fractures, early convalescence, shorter hospitalisation, rehabilitation and consequently achieving higher index of positive results.

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Abstract number : 18617

PERFORATOR FLAPS OF FOREARM - APPLICATION AND LIMITATION

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INTRODUCTION: Flap basing on perforators of radial or ulnar artery has the advantage of preserving the major arterial supply. The clinical application and limitation are explored. **PATIENT AND METHOD:** From January 2005 to May 2007, a total of 8 patients with 9 flaps were performed to cover different kinds of skin defects in the hand and forearm. The primary diagnosis include 3 cases of trauma, 3 cases of infection, 1 case of malignant skin tumour and 2 cases of burns. Six flaps are pedicled while 3 are transpositional flaps. Eight are based on perforators of ulnar artery and one on radial artery. **RESULTS:** Size of flap ranging from 3x5cm to 10x12cm. Primary uncomplicated healing achieved in 5 cases. Two were complicated by residual infection requiring revision wound closure without flap losses. Two were complicated by venous congestion with distal superficial flap loss in one and partial loss in the other. The partial loss case involved over-ambitious flap design in an infected major burn case. The donor site was closed primarily in two cases, with a bilobed flap design in one cases and skin graft in the rest. The design and limitation will be discussed. **CONCLUSION:** The distal perforators system of either the ulnar or the radial artery provides a versatile blood supply for flap design to cover various kinds of hand and forearm skin defect.

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Session : SICOT - J01 Basic Science

Abstract number : 16944

NO EFFECT OF ETCHING OR PLASMA CLEANING ON OSSEOINTEGRATION OF POROUS COATED TITANIUM IMPLANTS - A STUDY IN TEN DOGS

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INTRODUCTION: Implant surface treatments that improve early osseointegration may prove useful in long-term survival of uncemented implants. PURPOSE: We investigated a specific Wet Etch surface technology, Plasma Clean technology, and conventional plasmasprayed Hydroxyapatite on porous coated titanium implants in a well-established animal model of osseointegration. MATERIALS AND METHODS: In a randomized, paired animal study with ten skeletally mature dogs, four experimental porous coated Ti implants ($\varnothing 6\text{mm}$, L10mm) were inserted into the distal femurs of each dog. The four treatment groups were: 1. Control; 2. WE (Wet Etch surface treatment); 3. WE+PCLN (Plasma cleaning surface treatment); 4. PSHA (Plasma Sprayed Hydroxyapatite). After a four-week observation period, mechanical fixation was evaluated by push-out test and osseointegration was evaluated by quantitative histomorphometry. RESULTS: The PSHA-coated implants were better osseointegrated than the three other groups ($p < 0.05$). Within the deep implant porosity, there was more newly formed bone in the control group compared to the WE and WE+PCLN groups ($p < 0.05$). There was no difference in new bone formation on the outer implant surface between the WE and WE+PCLN groups compared to the control group. No statistically significant differences were found between the four implant groups in terms of mechanical implant fixation. CONCLUSION: In terms of osseointegration PC+PSHA was, as expected, superior to the other three groups. Neither the specific surface microtexturing treatment by wet acid etching, nor the removal of organic molecular remnants by plasma cleaning offered any advantage in terms of implant osseointegration.

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Session : SICOT - J01 Basic Science

Abstract number : 17655

QUANTITATIVE TOXICOLOGICAL RISK ASSESSMENT ON MAGNESIUM ALLOYS AS RESORBABLE IMPLANT MATERIAL

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Resorbable metallic implant is an early class of "degradable" medical implant. Investigations on the use of absorbable magnesium alloys for bone fixation were recorded back in the 1900s-1930s, but uneven corrosion (and less importantly, gas accumulation) had hindered further development. Strong and corrosion resistant CoCr and stainless steel later dominated the application, and research on resorbable metal had become intermittent. In recent years, the use of magnesium alloys as cardiovascular and vessel stents and for tissue engineering had emerged. We have noticed many magnesium alloys with good corrosion profile and mechanical properties were never investigated as resorbable implant throughout the century, presumably due to the existence of "more toxic" alloying components. However, we are also aware that medical researchers should never forget the fundamentals of toxicology. As Paracelsus (1493-1541), "the father of toxicology" suggested, "All things are poison and nothing is without poison; only the dose makes a thing a poison." In Layman's words, even water can kill, if excessive. Based on toxicological knowledge, we have conducted a quantitative toxicological risk assessment on industrially available magnesium alloys, with the MRL (Minimal Risk Level) and NOAEL (No Observable Adverse Effect Level) data available from US Environmental Protection Agency and US Department of Health and Human Services. In contrast to common belief, our analysis had revealed that most common magnesium alloys should not pose significant systemic health risk; and may theoretically be safely applied as cardiovascular stent, and as scaffold or small fixation device for tissue engineering.

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Abstract number : 18088

IMMUNOHISTOLOGICAL STUDY OF A DAMAGED MENISCUS

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In this study, we clarify the process of meniscal degeneration based on histological observations. Unnecessary menisci to be discarded were collected from 20 subjects who underwent knee joint surgery. For the histological investigation, the immunohistological technique was used. Collected samples were prepared as paraffin sections and stained with HE, Alcian blue and immunohistochemical staining. RESULTS: In the normal menisci, collagen types 1 and 2 were distributed on the entire meniscus except for the circulating area. Expression of collagen type 3 was intensively observed on the exterior peripheral border and surface, and along the vessels in the circulating area of the meniscus. In the injured menisci, tear formation and fibrillation were observed, and reduced expression of collagen type 1 was observed at the corresponding injury site. At the site with relatively minor injury, up-regulation of collagen type 2 was observed as reparation; however, collagen types 2 and 3 tended to disappear at the site with severe injury. CONCLUSION: In these observations, acid mucopolysaccharide and collagen types 1, 2 and 3 existed in a good balance in the meniscus with no grossly observed injury, and the meniscal function was found to be maintained based on this balance. However, meniscal tissues are destroyed and disappear if the degree of injury exceeds the limit of reparation.

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Session : SICOT - Joint

Abstract number : 15392

QUALITY OF LIFE IN PATIENTS WITH VARUS GONARTHROSIS TREATED WITH HIGH TIBIAL OSTEOTOMY USING THE CIRCULAR EXTERNAL FIXATOR

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Generally, surgeon-driven musculoskeletal evaluation systems are used for evaluating outcomes of patients who are treated with high tibial osteotomy. In this study we investigated the effects of high tibial osteotomy using circular external fixator on quality of life. Twenty-one high tibial osteotomies of 19 patients were evaluated. Quality of life assessment was made using Short Form-36 at preoperative, before fixator removal and six months after fixator removal. After applying fixator, the physical function and physical role scores of Short Form-36 decreased and emotional role score did not improve. In other categories, significant improvements were observed when fixator in place. At sixth month after fixator removal, significant improvements were detected in all categories of Short Form-36. Although there was a decrease in physical functions after fixator application in patients who were treated with high tibial osteotomy using circular external fixator, significant improvement occurred in quality of life after fixator removal.

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Session : SICOT - Joint

Abstract number : 15479

COMPLIANCE WITH DEEP VEIN THROMBOSIS PROPHYLAXIS IN PATIENTS UNDERGOING LOWER LIMB ARTHROPLASTY

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INTRODUCTION: Although DVT prophylaxis is well established for orthopaedic surgeries, it is estimated that up to 40% of orthopaedic patients do not receive any form of prophylaxis. **AIM:** The audit aims to assess the compliance of postoperative DVT prophylaxis in patients undergoing orthopaedic surgery. **METHODS:** Prospective review of all patients undergoing hip and knee replacements in a 4-month period by case-note analysis and patient interview using standardised data collection sheets was undertaken. All patients were reviewed at Joint Replacement Clinic (or contacted by telephone) and compliance with discharge prophylactic regime was assessed. Measures for prophylaxis at our centre are aspirin 150mg daily for 6 weeks postoperatively or LMWH if aspirin is contraindicated. **RESULTS:** Overall 80 patients were included, of whom 44 underwent THR and 36 TKR. All patients received inpatient prophylaxis (aspirin unless contraindicated) and all of them were discharged with a 6-week course of postoperative prophylaxis. Compliance with aspirin or warfarin prophylaxis was as following: Seventy-six patients (95%) completed the 6-week course, 2 (2.5%) stopped prophylaxis after 4 weeks (1 due to haematuria and 1 on their own choice), 1 patient stopped taking prophylaxis after only 2 weeks because he thought he did not need it and another patient discontinued the prophylaxis due to gastrointestinal bleeding. **CONCLUSION:** Compliance with DVT prophylaxis is satisfactory in patients discharged from our department. Patients should be advised to contact their GP if they experience any problems in taking the prophylaxis so that they can be offered alternative prophylactic agents.

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Session : SICOT - Joint

Abstract number : 15963

LATERAL MENISCUS AND LATERAL FEMORAL CONDYLE CARTILAGE INJURY BY RETAINED CEMENT AFTER MEDIAL UNICONDYLAR KNEE ARTHROPLASTY

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Complications related to UKA have been reported to include aseptic loosening, infection, patellofemoral pain, polyethylene wear, tibial plateau stress fracture and cement extrusion. Relatively few reports are available on complications specifically related to cement extrusion in UKA, and these indicate that in the main these complications concern knee symptom, such as, effusion, focal tenderness on the ipsilateral posterior compartment due to the posterior compartment cement mantle. The authors experienced an unusual case of a patient with a complex tear of the lateral meniscus and adjacent lateral femoral condyle cartilage injury in the contralateral compartment by retained cement, possibly located at the posteromedial side of the medial tibial component after unicondylar knee arthroplasty. Arthroscopic partial meniscectomy and cartilage microfracture were successfully performed. Two small cement fragments were removed from the posterolateral compartment. A sharp pain in the lateral side disappeared postoperatively and posterior knee pain was much reduced.

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Session : SICOT - Joint

Abstract number : 15974

CEMENT FIXATION USING THE WOOLLEY TIBIA PUNCH IN TOTAL KNEE ARTHROPLASTY

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PURPOSE: Various methods have been described to increase cement penetration into the proximal tibia during TKA. It is our practice to make multiple holes using the Woolley Tibia Punch to improve cement fixation. This study was conducted to determine whether this method has any effect on cement penetration. **MATERIALS AND METHODS:** Forty-four TKAs were included in this study. The punch was used to make multiple holes in the bone surface before cementing in 20 out of the 44 TKAs (group P). This procedure was not performed on the remaining 22 TKAs (group C). Cement penetration depth in the proximal tibia was compared between the two groups. True anteroposterior and lateral radiographs were taken under fluoroscopic control at one-year follow-up. All radiographs were analysed by zones as suggested by the Knee Society using Photoshop 5.0. Measurements were taken at the central point of each zone. The radiographs were additionally examined for radiolucent lines under the tibial component. **RESULTS:** Use of the punch provided a significant increase in cement penetration in all zones except zone 3. The punch allowed an average of 1.25 times better cement intrusion than in group C. Two knees (10%) in group P and 5 knees (22.7%) in group C had radiolucent lines of less than 1mm in width. **DISCUSSION:** Seven 3.4mm holes in diameter can be accomplished using the punch with a single mallet strike. The Woolley Tibia Punch is a simple and useful tool for increasing cement penetration in TKA.

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Session : SICOT - Joint

Abstract number : 16046

WEAR OF POLYETHYLENE IS LESS IN LATERAL THAN IN MEDIAL UNICOMPARTMENTAL TIBIAL COMPONENTS

Philippe HERNIGOU, Alexandre POIGNARD, Sebastien ZILBER

Hopital Henri Mondor, Creteil (FRANCE)

This study evaluated the creep and true wear in 55 medial and in 35 lateral fixed bearing unicompartmental implants that had a flat articular surface at the time of implantation. All the polyethylene components had the same design, the same sterilization and were retrieved from 11 to 244 months after their implantation. The retrieved implants were placed in a coordinate measuring machine. A three dimensional scaled image was used to calculate the total penetration of the femoral implant in relation with true wear and creep. Total linear penetration rates ranged from 0.2 to 2.6mm/year (mean 0.19mm/year) and was significantly less in lateral (mean 0.14mm/year) than in medial implants (mean 0.25mm/year). Using multiple linear regression analyses to remove the confounding effects of age, weight, gender and thickness of the implant, we found that an increase of the postoperative deformity was in relation ($p=0.03$) with an increase of wear for medial implants but not for lateral implants ($p=0.34$). The postoperative deformity has a high influence on the penetration rate of the femoral condyle in the polyethylene of medial unicompartmental fixed bearing tibial implants. This phenomenon was not observed for the lateral fixed bearing implants and wear was significantly ($p=0.01$) less in lateral than in medial implants. This phenomenon (important for the surgical technique and the choice of implant designs) may be in relation with different kinematics in the two compartments.

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Session : SICOT - Joint

Abstract number : 16080

KNEE REPLACEMENT AFTER FAILED TIBIAL OSTEOTOMY DONE WITH AN OPENING OR A CLOSED WEDGE TECHNIQUE

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The results of total knee replacement (TKR) after failed high tibial osteotomy (HTO) done with an opening wedge technique were compared to those done after a closed wedge osteotomy. Between 1985 and 1994, 60 TKR were performed after HTO done in 37 patients with an opening wedge technique, and in 23 patients with closed wedge HTO. These 60 knees were evaluated with the knee society scores. Radiological analysis included axial alignment, tibial plateau inclination, patellar height, tibial cut level and wear of the polyethylene. Technical analysis included previous incision, patellar eversion, patellar retinaculum release, bone stock, balance of ligaments, risk of impingement of central fixation in the tibial cortex. Statistical tests were the Wilcoxon and chi-square tests; p less than 0.05 as significant. Follow-up, age at TKR (M=73 years), preoperative K.S. scores and the prostheses were similar in the two groups. Technical difficulties were significantly more frequent after closed HTO than after opening HTO. The tibial cut of the closed HTO group was on average 8mm lower than in the opening HTO group. At final follow-up, scores were better in the opening group (90 and 82 points) than in the closed group (86 and 81 points). Range of motion, knee and tibial component alignments were better in the opening HTO group. Wear of polyethylene was less important in the opening group. The ability to revise a failed HTO to a TKR appears better after an opening than after a closed wedge technique.

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Abstract number : 16542

FEMORAL BOWING DEFORMITY WITH KNEE OSTEOARTHRITIS IN JAPANESE WOMEN: 2D-CT IMAGE ANALYSIS

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Japanese women with osteoarthritis of knee (OA knee) have sometimes significant Bowing of femur and tibia, which may make it difficult to perform total knee arthroplasty (TKA) with intramedullary rod. We evaluated curvature of long bone of lower limb on 51 OA knees in 44 Japanese women who underwent TKA with 2D images from multislice CT of lower limb (Siemens Sensation64 Cardiac) using image processing software Siemens syngo 3D. The following images were obtained: frontal views of femoral head center and surgical epicondylar axis (SEA) and sagittal views of middle point of SEA and perpendicular plane to frontal view. The mean angles of curvature on 2D imaging were as follows: - Femoral mechanical axis (FMA)/Femoral diaphysial angle (FDA): 7.13 ± 0.91 (5 to 9) - Femoral lateral bowing angle (FLBA): 4.39 ± 4.0 (-1 to 17)- Femoral Anterior Bowing Angle (FABA): 12.3 ± 2.8 (6 to 17) - Lower leg mechanical axis (LMA) /Tibial diaphysial angle (TDA): 0.90 ± 0.88 (0 to 4) - Tibial anterior bowing angle (TABA): 3.94 ± 1.55 (0 to 6) - Posterior condylar angle (PCA): 3.1 ± 1.94 (-3 to 7). We found that many Japanese women with varus knee had anterior and lateral Femoral Bowing frequently. In TKA for OA knee with Femoral Bowing, simple angle measurement on 2D images from CT was useful for preoperative template and accurate operation.

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Session : SICOT - Joint

Abstract number : 16585

DERQUI PROCEDURE FOR THE CHILDREN WITH REDISLOCATED HIPS AFTER SURGERY ON ACCOUNT OF DEVELOPMENTAL DISLOCATION OF HIP

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OBJECTIVE: To apply Derqui procedure to treat the children with redislocated hips after surgery because of developmental dislocation of hip. **METHODS:** Sixteen children with 16 hips underwent the second operation with Derqui procedure. In the course of performance, the contracture of tissues surrounding hip, especially that of external rotators behind hip, was fully released. A curvilinear osteotomy of ilium was made and directed toward triradiate cartilage, and then the osteotomized acetabulum was pressed and rotated distally to provide coverage to femoral head, especially at posterior acetabulum. Based on individual need, the shortening femoral derotational osteotomy was completed at the same time. **RESULTS:** The acetabular index decreased from the preoperative average of 40° to the postoperative average of 18°. The centre-edge angle ranged from 20° to 42° after surgery. All cases were followed-up from 1 to 3 years. According to McKay's criteria, 7 hips got excellent clinical result, 5 good and 4 fair. X-ray showed that 6 hips acquired excellent result, 5 good and 5 fair by Severin's criteria. None of these patients developed recurrent dislocation. 2 cases suffered nondisplaced supracondylar femur fracture respectively at four and six months postoperatively that healed eventually with tractional immobilization. **CONCLUSION:** Derqui procedure, by which the contracture of tissues around hip gets complete release and the dysplasia of acetabulum acquires satisfactory correction, is a more ideal choice for the children with redislocated hips after surgery because of developmental dislocation of hip.

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Abstract number : 16793

CORRELATION BETWEEN TIBIAL COMPONENT MALPOSITION IN FRONTAL PLANE AND SURVIVAL OF TOTAL KNEE ARTHROPLASTY

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INTRODUCTION: Malpositioning of the tibial component will interfere with the loading distribution at the surface of the implant, at the prosthesis-bone interface, and also at the level of subjacent bone, which will undergo structural changes, triggered by this abnormal loading. **MATERIAL AND METHOD:** Based on the finite elements method, we have assessed the influence of the malpositioning of the tibial component in varus or in valgus position versus the mechanical stress generated at the level of the polyethylene surface, of the bone-prosthesis interface and also at the level of the subjacent cancellous bone. We have studied 4 different positions: perpendicular to the tibial mechanical axis, 3°, 8° of varus and 3° of valgus. **RESULTS:** For malpositioning with a slight degree of varus, loosening of the tibial component is related to the polyethylene wear debris. For 8° of varus, the loosening will occur fast through a mechanism of sinking of the tibial component in the subjacent cancellous bone. Positioning the tibial component at 90° in respect to the tibial mechanical axis is critical (loading of the internal/external compartments in bipodal stance of gait cycle was 51/49 %). During the gait association of different movements at the level of knee joint, and also association of varus-valgus moments lead to different loading of the compartments. This position offer the best mechanical conditions to tibial component in terms of the tensions developed at the level of polyethylene surface and also to the loading of bone-prosthesis interface and subjacent cancellous bone.

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Session : SICOT - Joint

Abstract number : 17351

ASSESSMENT OF EARLY POSTOPERATIVE RADIOLUCENT LINE AROUND THE TIBIAL COMPONENT AFTER CEMENTLESS TOTAL KNEE ARTHROPLASTY

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INTRODUCTION: Although component positions, lower extremity alignment, and ligament balance are satisfactory after cementless total knee arthroplasty (TKA), early postoperative radiolucent line (RLL) is sometimes observed around the tibial component. We assessed the RLL clinically and radiologically. **PATIENTS AND METHODS:** Seventy-five knees of 75 patients, who underwent cementless cruciate-retaining TKA for osteoarthritis, were evaluated. We assessed the incidence and size of the RLL on the serial postoperative radiographs. We also evaluated the serial postoperative Hospital for Special Surgery (HSS) score, and calculated postoperative improvement rate of HSS score (%) in comparison with preoperative HSS score. We compared the improvement rates of HSS score between the knees with the RLL and those without the RLL. **RESULTS:** The RLL was observed in the 23 knees out of the 75 knees. All of the RLL appeared within 6 months of the postoperative period. However, not one of the RLL expanded after 2 years postoperative; moreover, not one of the RLL exceeded 3mm until the latest follow-up. The improvement rates of HSS score in the 23 knees with the RLL were not significantly different from those in the 52 knees without the RLL at any postoperative time. The postoperative component positions, femorotibial angles, and ligament balance were good in all of the 75 knees. **DISCUSSION AND CONCLUSIONS:** We suggest that the RLL is caused by micromotion of the cementless tibial component, but its appearance does not influence the clinical outcome after cementless TKA when the component positions, lower extremity alignment, and ligament balance are satisfactory.

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Abstract number : 17525

HIGH TIBIAL OSTEOTOMY BY USING EPIPHYSEAL LENGTHENING TYPE OF GIRGIN EXTERNAL FIXATORS

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One hundred and three patients mean age of 55.4 (40-66 years of age) underwent HTO operation by using epiphyseal lengthening type of Girgin external fixators between 1995 and 2006. 31 patients were male and 72 female. Mean follow-up time is 42 months (18-80 months). We used dome shaped osteotomy in proximal tibia (over tuberositas tibia) after fibular osteotomy at 1/3 proximal region. After gaining the desired valgus correction, Girgin external fixator was applied on anterolateral side of the tibia. Early mobilization started at second day postoperatively just after removal of the drains. Patients were discharged from hospital on the fourth day. Weight bearing allowed at the end of the fourth week. Postoperative results were evaluated according to IKSS. Forty patients were found excellent (38.8%), 41 patients were good (39.8%), 12 patients were fair (11.6%) and 10 patients were bad (9.7%). We observed pin tract infections in 8 patients (7.8%), loose of reduction in 4 patient (3.9%), necrosis of tibialis anterior muscle in 1 patient (0.9%) and delayed union in 1 patient (0.9%) complications. High tibial osteotomy by using Girgin external fixators has some advantages such as early mobilization and weight bearing. Changing difficulties of correction degrees after the application is disadvantage of this fixator.

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Session : SICOT - Joint

Abstract number : 18044

DIAGNOSTICS OF HETEROTOPIC OSSIFICATION AFTER TOTAL HIP ARTHROPLASTY

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Heterotopic ossification (HO) is a frequent pathologic phenomenon after total hip arthroplasty. Incidence of HO after the total hip arthroplasty is in average 43%. 47% of all studies have used Brookers system, which reproducibility has been reported not sufficient. The aim of the present study was to estimate the influence of used classification system to the evidence of HO, to assess the reliability of the classification systems and, to determine the sources of errors in the assessment-process of HO. Most often used classification systems were applied and dimensionality of HO was assessed applying digital planimetry. Kappa statistics of all the compared classification systems were calculated. Sources of errors were detected by dispersion model. Most important source of errors in the HO assessment was the error of diagnosing process. This source consisted of two components: inter-observer variation that formed 25.5% (+/-8.0%; p=0.0015) of total error and intra-observer variation that formed 60.9% (+/-7.3%; p<0.0001). Technical performing error had less contribution in total error, namely 8,0% (+/-0.6%; p<0.0001) and subspecialisation of the investigators did not cause any systematic bias having a proportion of 5.7% (+/-4.9%; p=0.2457). Reliability of the Brookers system was lowest among the compared systems. Combining the Della Valles system, which had high reliability with the Brookers system, we composed a new classification preserving high reliability. The results obtained using the new classification allow comparison with the results obtained using each of the parent classifications.

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Session : SICOT - Joint

Abstract number : 18205

IS ARTHROSCOPIC SYNOVIAL BIOPSY HELPFUL IN CLEARING THE DIAGNOSTIC DILEMMA FOR CHRONIC KNEE SYNOVITIS?

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INTRODUCTION: Knee pain and swelling associated with chronic synovitis is one of the common presentations in orthopaedics. Making a definitive diagnosis is usually not possible in many cases even after routine clinical, radiological and serological workup and hence the appropriate treatment cannot be started. Arthroscopic synovectomy offers the advantage of near total removal of pathological synovium and tissue forwarded for histopathological examination. **MATERIAL AND METHODS:** The data of all patients who underwent arthroscopic synovial biopsy for chronic knee synovitis from January 2003 to April 2007 was collected from standardized Kasturba Hospital Arthroscopic registry and clinical record maintained by Department of Orthopaedic Surgery. Out of 204 patients who underwent arthroscopic synovial biopsy, only 98 (48%) had a preoperative clinical impression. **RESULTS:** Accurate diagnosis could be made after arthroscopic synovial biopsy. Most common diagnosis was chronic non specific synovitis in 26.47% (54 out of 204) followed by 23.03% of synovial chondromatosis, 16.66% of Rheumatoid arthritis, 14.70% of tubercular synovitis and 9.31% of pyogenic arthritis. Others were pigmented villonodular synovitis, Hoffa's disease, Lipoma arborescence, Dendritic synovitis, Synovial lipomatosis, Glomus tumor, Eosinophilic synovitis and Leucocytoclastic synovitis. **CONCLUSION:** Arthroscopic evaluation of the knee joint with chronic synovitis is an excellent tool to clear the diagnostic dilemma. It also helps by removing the pathological synovium, pannus, inflammatory substances which are detrimental for the cartilage nourishment and prevents arthritis. Early and accurate diagnosis helps in initiation of appropriate treatment and preventing long-term morbidity.

Poster
Room: 401
Session : SICOT - Joint

Abstract number : 18351

RESULTS OF ZWEYMULLER CEMENTLESS HIP SYSTEM IN 462 CONSECUTIVE PATIENTS WITH 7 TO 12-YEAR FOLLOW-UP PERIOD

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INTRODUCTION: For 30 years total hip arthroplasty has been established as the treatment for severe hip osteoarthritis. Zweymuller cementless hip system proved to be one of the most successful hip designs with very good 15-year follow-up clinical postoperative results. PATIENTS AND METHODS: 462 patients were operated with SL-plus stem, BICON-PLUS threaded cup and CoCr head between 1.1.1995 and 1.1.2000. There were 294 females and 168 males. 78 patients died. 30 patients were lost to follow-up. RESULTS: Revision was performed in 15 cases. There were 3 inflammations (0.6%), four periprosthetic fractures (0.8%) and eight aseptic loosening (1.7%). Cumulative survival rate at 10 years was 92.7% for prosthesis, 96% for the stem and 95% for the cup. If aseptic loosening was defined as the end point, survival rate at 10 years was 95% for the prosthesis, 98% for the stem and 96.4% for the cup. There were no reoperations due to excessive polyethylene wear. DISCUSSION: Zweymuller cementless hip system has excellent midterm results even with the use of CoCr head. In on average 10 years after the operation, only 8 hips had to be revised due to aseptic loosening resulting in 95% survival rate of the prosthesis as a whole and excellent 98% survival rate of the stem. The system will definitely be used further and with alternative bearings similar results could be obtained also in a long-term postoperative period.

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Room: 401
Session : SICOT - Joint

Abstract number : 18531

THE ROLE OF 3D CT FOR VOLUME RENDERING OF THE ACETABULAR DEFECTS IN HIP REVISION SURGERY

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PURPOSE: To assess the utility of performing CT studies for patients with known loosed acetabular components in order to obtain 3D volume rendering of the acetabular defect. **MATERIAL AND METHODS:** 25 helical CT scanner were obtained from our patients. Individualised three-dimensional computer models of the acetabulum were generated by segmentation of the CT scans including the erasing of the femoral aspect, the implants, the cement and the artifacts. We used three different semi-automated software programs. We processed the images personally, without a radiologist intervention. **RESULTS:** The visual evaluation of the 3D models makes possible to confirm the assessment of the plain pelvis AP X-ray of the defect, using the Paprosky classification references. In 2 cases we could notice pelvic discontinuity not visible in pelvis X-rays. We could convert the 3D models to different computer formats doing them useful for preoperative dimensional and morphometric analysis, finite element analysis (FEA), preoperative 3D conventional implants simulations and custom made implant design. **CONCLUSIONS:** Considering the radiation risks and the overall costs, this procedure is useful for presumably massive acetabular defects and/or with pelvic discontinuity suspicion.

Poster
Room: 401
Session : SICOT - Shoulder and Elbow

Abstract number : 17778

ARTHROSCOPIC REPAIRS OF ISOLATED AND COMBINED TYPE II SLAP LESIONS

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INTRODUCTION: The study compares the clinical results of isolated arthroscopic repair of type II SLAP tears with those of combined treatment for type II SLAP and other associated shoulder conditions. **METHODS:** Eight subjects in Group I had isolated Type II SLAP tears. Eight subjects in Group II had Type II SLAP tear and concomitant ipsilateral shoulder conditions, including subacromial impingement in two patients, acromioclavicular arthrosis in three patients, subacromial impingement and acromioclavicular arthrosis in two patients, and intra-articular loose bodies in one patient. Arthroscopic SLAP repair was performed with biodegradable suture anchors. At minimum 2-year follow-up, the mean UCLA score for Group I (31.2 ± 2.0 points) was not significantly different from Group II (29.8 ± 1.0 points). The mean post-operative ASES score for Group I (85.1 ± 13.4 points) was significantly lower than for Group II (93.8 ± 5.5 points). The mean VAS pain score for Group I (1.7 ± 1.2 points) was significantly higher than for Group II (0.6 ± 0.5 points). Arthroscopic repair of isolated Type II SLAP had comparable results with a cohort of Type II SLAP repairs treated in combination with other shoulder conditions, with the combined treatment group having significantly better results in two of three parameters measured. Therefore, concurrent treatment of other associated extra-articular shoulder conditions improves the overall success of SLAP repair and the presence of these other conditions should be recognized and treated along with the SLAP tears in order to maximize clinical results.

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Room: 401

Session : SICOT - Shoulder and Elbow

Abstract number : 18334

ANTERIOR APPROACH AND MINIMALLY INVASIVE PLATE OSTEOSYNTHESIS IN HUMERAL SHAFT FRACTURES

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PURPOSE: The purpose of this paper is to present the preliminary results regarding minimally invasive plate osteosynthesis (MIPO) using an anterior approach in humeral shaft fractures. **MATERIAL AND METHODS:** 7 fractures were operated by a new technique, avoiding the neurovascular structures. Following AO classification there were 2 fractures type 12-A, 2 type 12-B and 3 type 12-C. For middle shaft fractures, the proximal approach of 3-5cm is realised between the biceps (medially) and deltoid muscle (laterally); the distal approach of 3-5cm is performed between the biceps and brachial muscle. For distal shaft fractures the distal approach consisted in subperiosteal dissection of the humeral supracondylar ridge. A DCP plate of 4.5 mm with 10-12 holes was used, with no previous plate molding and inserted from proximal to distal (for middle shaft fractures) and with previous plate molding and inserted from distal to proximal (for distal shaft fractures). This plate was placed on the anterior humeral face. After humeral axis length and rotation re-establishing the plate was fixed on the shaft with minimum two proximal and two distal screws. Three patients were immobilised for 2 weeks while the other four started rehabilitation immediately. **RESULTS:** There were no vascular or nerve complications. The fractures healed within a mean time of 11 weeks after surgery, with good functional results. **CONCLUSIONS:** The authors are promoting the advantages of this technique regarding safety, feasibility and stability of the construct. MIPO seems to be the best option for distal third humeral fractures.

Poster

Room: 401

Session : SICOT - Shoulder and Elbow

Abstract number : 18646

ORIGINAL ADAPTATION OF THE DEWAR-BARRINGTON TECHNIQUE IN THE TREATMENT OF ACROMIOCLAVICULAR DISLOCATIONS

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The authors are presenting a method of treatment of acromioclavicular dislocations using the Dewar-Barrington technique modified in an original manner. The originality of the technique consists in the supplementary fixation of the tip of the coracoid process using a "figure-of-eight" loop of wire, placed around the head and the prominent tip of the screw. The advantages due to this modification of the technique are: avoiding of technical difficulties, the absence of complications which could appear after the original Dewar-Barrington procedure, the shorter immobilisation period and the earlier beginning of full range of motion of the shoulder.

Poster
Room: 401
Session : SICOT - Spine

Abstract number : 16621

TRANSVERSE VERTEBRAL FRACTURE IN ANKYLOSED OSTEOPOROTIC SPINE

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There are few reports concerning a characteristic fracture in ankylosed osteoporotic spine. The fracture involves vertebral body to spinous process i.e. transverse fracture. It is often diagnosed as usual vertebral compression fracture and treated inadequately, finally severely dislocated and serious paralysis occurs. We experienced 8 cases since 2001. In gender 3 male and 5 female, and the ages were 66-85 (74.9 average). 1 case was diagnosed ankylosing spondylitis and 7 were caused by spinal hyperostosis. All cases were injured with low energy. Fracture level was T12 in 3, L1 in 2, C7/T1, L2, L3 in each 1. Bruise and swelling in back were observed soon after injury. 1 case complained numbness at the first visit; the other 7 cases did not. However, severe paralysis occurred in 4 cases (Frankel A:1, B:1, C:2) and operated by posterior decompression and instrumentation. Surgeries were severely troublesome because the interlaminar spaces were closed with bone and the bone marrow was vacant and severely fragile. Although 1 case did not recover, the other 3 cases recovered to walk. Conservative treatment was bed rest and following brace immobilisation for more than three months with meticulous CT evaluation. 3 cases were converted to surgical treatment because of paralysis and the other 4 cases were healed successfully. When trivial fracture in ankylosed vertebra, it is essential to remind a transverse fracture. When diagnosing so, strict conservative management is necessary and if paralysis or severe displacement is apparent, instrumentation surgery should be done in time.

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Room: 401
Session : SICOT - Spine

Abstract number : 17138

OUTCOMES OF MULTILEVEL ANTERIOR CERVICAL DECOMPRESSION AND STRUT GRAFTING: 10-YEAR FOLLOW-UP

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INTRODUCTION: Outcomes were examined for patients who underwent multilevel anterior cervical decompression with strut grafting and regularly attended follow-up for 10 years postoperatively. **METHODS:** Subjects comprised 19 patients (11 men, 8 women; mean age, 56.9 years; follow-up rate, 95%). Cause of myelopathy was ossification of posterior longitudinal ligament (n=10), multilevel disc herniation (n=5), cervical spondylosis (n=3) and vertebral fracture (n=1). Fusion levels were C3-C6 (n=3), C4-C7 (n=11) and C3-C7 (n=5). Fibular shaft was used as a strut graft in all patients. MRI was performed before surgery and 1, 3, 5 and 10 years postoperatively. Postoperative ADL was evaluated using JOA score, nuchal pain and restriction of motion in the cervical spine. **RESULTS:** Mean JOA scores were 11.3/17 preoperatively, 14.8 (recovery rate, 61.4%) at 1 year and 14.8 (61.4%) at 10 years postoperatively. Grasp strength and 10-s test reached a plateau at 1-3 years postoperatively. Nuchal pain was seen in 3 patients (15.8%), compared with 35% after laminoplasty in our hospital. Regarding motion of the cervical spine, 7 patients (36.9%) noticed restricted extension and 6 patients (31.6%) noticed restricted rotation. In all cases, good bone union was provided, and 1-year postoperative alignment was maintained until 10 years. **CONCLUSIONS:** As of 10 years postoperatively, some limits to ADL were encountered in this series, such as mild restriction of cervical spine motion, but good long-term results were provided.

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Session : SICOT - Spine

Abstract number : 17204

THE COMPARISON OF MITIGATIVE EFFECT OF ALENDRONATE AND RISEDRONATE ON PARTICLE-INDUCED OSTEOLYSIS IN MOUSE CALVARIAN MODEL

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PURPOSE: To compare the mitigative effect of alendronate and risedronate on osteolysis of mouse calvarian model by using titanium and polymethylmethacrylate (PMMA) particles. **MATERIALS AND METHODS:** Experiments are divided into three groups, control, titanium (Ti) particle-treated and PMMA particle-treated group. Each Ti and PMMA particle-treated group were treated with alendronate or risedronate. RANK/Fc-treated group was regarded as a positive control. **RESULTS:** Comparing the number of osteoclast and the area of osteolysis on median sagittal plane, both alendronate and risedronate had significant mitigative effect on osteolysis induced by titanium or PMMA particles. There was no significant difference on mitigative effect between two groups. There was better capability of preserving bone thickness in risedronate group than alendronate group in. **CONCLUSION:** Both alendronate and risedronate may be an effective medication on mitigation of osteolysis which induced by titanium and PMMA particles. But, risedronate showed better structural bone preserving capacity than alendronate.

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Session : SICOT - Spine

Abstract number : 17244

DOES INTRAMEDULLARY SIGNAL INTENSITY CHANGE ON MR IMAGES EFFECT ON THE SURGICAL OUTCOME OF PATIENTS WITH CERVICAL MYELOPATHY?

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PURPOSE: The prognostic significance of intramedullary signal intensity change on MR images remains controversial in cervical myelopathy. We examined whether or not high signal intensity change in T2-weighted image (T2WI) and low signal intensity change in T1-weighted image (T1WI) are related to the clinical results. **METHODS:** We performed spinous process-splitting laminoplasty in 64 patients with cervical myelopathy. Patients were classified into three groups. Group A was with no intramedullary signal intensity change on T1WI and T2WI. Group B was with no signal intensity change on T1WI and high signal intensity change on T2WI. Group C was with low signal intensity change on T1WI and high signal intensity change on T2WI. Patients were clinically evaluated using the Japanese Orthopaedic Association (JOA) scoring system for cervical myelopathy. **RESULTS:** There were not significant differences between Group A and Group B when comparing the recovery rate through the JOA score and symptom duration. However, the recovery rate of Group C was significantly lower and symptom duration of Group C was significantly longer than Group A and Group B. The patients with regression of intramedullary signal intensity change had significantly better outcome on recovery rate than the patients without regression. **CONCLUSION:** The high signal intensity change on T2WI does not indicate a poor prognosis and reflects a broad spectrum of spinal cord reparative potentials. However, the low signal intensity change on T1WI indicates a poor prognosis.

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Session : SICOT - Spine

Abstract number : 17527

SURGICAL RESULTS OF SINGLE-LEVEL ANTERIOR DECOMPRESSION AND FUSION IN ELDER PATIENTS WITH CERVICAL SPONDYLOTIC MYELOPATHY BASED ON THE INTRAOPERATIVE ELECTRONEUROGRAPHY FOR THE ASSESSMENT OF LEVEL OF OPERATION

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In anterior decompression and fusion surgery for elder patients with cervical spondylotic myelopathy (CSM), we decompress only the site demonstrating the electrophysiological findings of conduction block in spinal cord evoked potentials (SCEPs) that is compatible with both neurological and MRI findings. In this study, we want to report surgical results of single-level anterior surgery for elder patients with CSM who were followed for a minimum period of two years. **PATIENTS:** Of 83 patients with CSM who had anterior surgery from 1990 to 2005, 73 patients had single-level anterior surgery and 10 patients had two-level anterior surgery. We have recorded SCEPs recorded from needle electrodes inserted through intervertebral disk after epidural stimulation with catheter electrodes inserted into dorsal epidural space at upper lumbar or lower thoracic level. **RESULTS:** Average age at the time of operation and follow-up period was 76.9 years and 4.2 years. Average number of dural indentation on MRI T2 image was 3.2 segments and 68 patients (93.2%) had multilevel dural indentations. JOA score increased significantly from 8.2 points before surgery to 13.0 points at final follow-up. The recovery rate of JOA score was 53.0% at final follow-up. **CONCLUSION:** Surgical result of single-level anterior surgery decompressing only the level of conduction block for 73 patients was satisfactory. We should decide the level of operation in patients with CSM based on the findings of nerve conduction study using SCEP in addition to both neurological and MRI findings.

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Session : SICOT - Spine

Abstract number : 17830

LONG-TERM RESULTS OF POSTERIOR LUMBAR INTERBODY FUSION WITH OR WITHOUT INTERVERTEBRAL CYLINDRICAL CAGE

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The operative treatment of segmental instability in the lumbar spine will be successful if the stability of the segment is secured as fast and perfectly as possible. Two nearly homologous groups of patients were compared, all with isthmic spondylolisthesis grade I and II. In the first group, the vertebral bodies were fused with transpedicular instrument. In the second group, simultaneous implantation of the posterior transpedicular system and the intervertebral cage was performed. 50 patients from each of the groups were compared. There was only a minor difference in the average age of the two groups. The follow-up time in both groups was 7 years minimum - in the first group average 11.9 years and 9.3 years in the second. Evaluation was based on the Oswestry disability index before and after the operation. In both groups, the results were significantly better than before the operation ($p < 0.01$). The patients of the second group, with intervertebral cage, reported significantly less improvement (325/245) than the first group, where only transpedicular fixation was applied (333/236) ($p < 0.05$). Good early results were not confirmed by the late ones. In our opinion, this is due to the impeded and slowed down bone consolidation in the region of the cage. There is not enough space around the cage to put bone graft, and the chance for neurological complications is higher. In case of hindered bone consolidation the micro-movements induce pain and scar formation.

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Session : SICOT - Spine

Abstract number : 17945

CLINICAL REVIEW OF LOW BACK PAIN PATIENTS IN HONG KONG

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Low Back Pain (LBP) is one of the most common symptoms reported by Hong Kong people, and one of the leading causes for individuals to seek medical care. The present study investigated the characteristics of LBP in a group of highly selective patients in order to advance the understanding of factors leading to LBP, treatments, and etiology which are important for public health policy, clinical and research reasons. A total of 200 patients admitted to the Duchess of Kent children's Hospital from 1994 to 2000 were recruited for this study. The medical records of those patients, from which clinical findings and personal data of interests were collected, were carefully studied. The data were analysed and compared with previous findings. Treatment distribution, history of injury, post-treatment functional ability and pain level, recurrent rate, and distribution of etiology were analysed from the collected data. 80% of patients were treated conservatively. 24% of patients reported a history of injury. Around 40% of patients found improve and relief on their functional ability and pain syndromes respectively after treatment. The recurrent rate of LBP after treatment was found to be 7%. The majority of patients appeared to be either non-specific (56%) or discogenic (31%) in origin. Detail investigation of LBP may help finding of origins of syndrome, thus lowering the percentage of non-specific LBP. Moreover, current conservative treatments are helpful in stopping the deterioration of functional ability and pain syndromes. Further research is necessary.

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Session : SICOT - Spine

Abstract number : 18012

EFFECTS OF LOW BACK PAIN ON BACK MUSCLE COORDINATION: A SURFACE EMG STUDY

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Among different pathologic conditions that give rise to Low Back Pain (LBP), abnormal back muscle contraction strategy was suspected to be a major contributory factor. However, studies in this area are few. The purposes of this study were to establish a reliable and objective assessment method which provides information on back muscles coordination during dynamic motion, and to testify the possible application of this method in LBP rehabilitation assessment. Back muscle surface electromyography (SEMG) was measured by an array of SEMG electrodes (7x3) during forward bending. The root mean square (RMS) of the SEMG signal was calculated as a function of both position and time to produce the SEMG topography. The SEMG topography of 20 healthy subjects served as the normal database and produced a reproducible activation pattern. SEMG topography of the 15 LBP patients presented varied activation pattern and were different from that of normal pattern. Corrective changes of contraction strategies revealed in SEMG topography patterns were found in some of the LBP patients after rehabilitation. In this study, the effectiveness of LBP rehabilitation was uncovered by SEMG topography, with a visible monitoring of rehabilitation progress. With this method, a practical and objective assessment for LBP rehabilitation is achievable.

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Abstract number : 18153

COMPUTER-AIDED ANALYSIS OF THE CONTACT AND MOTION FOR THE LUMBAR ARTIFICIAL DISCS

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OBJECTIVE: The back-out and subsidence of the intervertebral device(s) and junctional problem at the parafixed levels were the common complications of spinal fusion. As an alternative, the artificial disc is an innovative technique and the related research is quite active. **MATERIALS AND METHODS:** The current study was aimed to evaluate the difference in motion pattern of three artificial discs: FreeDisc, ProDisc, and SB Charite. The L4-L5 motion unit was three-dimensionally reconstructed from the CT-scanning images by the SolidWorks and Amira software. One intact and three instrumented motion units were simulated by the COSMOSMotion software. The motion locus of vertebral body and contact of the facet joints were chosen as the comparison index in the flexion/extension, lateral bending, and axial rotation. **RESULTS AND DISCUSSION:** During flexion/extension and lateral bending, the motion patterns of vertebral body and facet joint were sensitive to the prosthesis design and quite different between the instrumented and intact discs. The prosthesis design has the minor influence on axial rotation of the instrumented motion unit. Comparatively, the FreeDisc shows the similar motion locus of intervertebral flexion/extension with the normal disc. However, the SB Charite behaves more pathologically alike in lateral bending. For the FreeDisc model, the interference of the facet surfaces was the most sever among the prostheses. The modified FreeDisc demonstrated the optimal kinematic behaviour and vanishment of facet interference in comparison with the others. The current model provides a new method to evaluate the kinetic and load-transferring behaviour of the artificial disc.

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Session : SICOT - Spine

Abstract number : 18219

SIGNIFICANT DISC DEGENERATION NEEDS ANTERIOR SPINAL FUSION. RESULTS FROM A RCT WITH A LONG-TERM FOLLOW-UP

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INTRODUCTION: The choice of spinal fusion procedure for patients with chronic low back pain is still of major debate. Newly published studies indicate an overall better long-term outcome obtained by anterior column support. The purpose was to identify patients fused with an instrumented lumbar posterolateral fusion that would have benefited from a circumferential fusion. **MATERIAL AND METHODS:** From 1996-1999 a total of 148 patients with severe chronic low back pain were randomly selected for either posterolateral lumbar fusion or circumferential fusion. **OUTCOME MEASURES:** Dallas Pain Questionnaire (DPQ), Oswestry Disability Index (ODI). Patients in the posterolateral group with a poor outcome (ODI>40) were selected for investigation. The variables taken into account were: sex, age, duration of pain preoperative, previous spinal surgery, diagnose and diagnosed level preoperative. **RESULTS:** Follow-up rate of the original study was 86%. Patients achieving a poor outcome (ODI>40) in the posterolateral group were defined by: preoperative pain duration >2 years, previous spine surgery, diagnose level above L5-S1 and no decompression during surgery. This group of patients (n=10) were compared to a group of patients in the circumferential group (n=12) with the same preoperative characteristics. Comparing the two treatments based on patients containing the above mentioned characteristics and a poor outcome, a tendency was found towards a better outcome for the patients who have had a circumferential fusion. **CONCLUSION:** Patients with previous spine surgery, duration of pain for more than 2 years and diagnose level above L5-S1 are suggested candidates for circumferential fusion.

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Session : SICOT - Sports

Abstract number : 16966

A NEW MENISCUS REPAIR TECHNIQUE: BUTTERFLY TECHNIQUE

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Primary fixation strength is an important factor affecting meniscus repair. In this study primary fixation strengths of a new developed 'butterfly' suture technique which can be performed by all inside suture using Viper device were evaluated. Medial menisci of 21 one-year-old calves were used in this study. 2cm full thickness longitudinal tears were created in the centre of medial meniscus 3mm apart of its periphery. In Viper Single Suture (VSS) group vertical suture was applied in the centre of the tear with 0 PDS. In Viper double suture (VDS) group, 2 vertical sutures 1cm apart in the centre of the tear with 0 PDS was applied. In Viper butterfly (VB) group, butterfly shaped single sutures were passed around the tear and fixed with one knot. Load-failure strengths of the repairing techniques were assessed by biomechanical testing machine. Load-failure strengths of VSS, VDS and VB groups were 133.7±18.4 N, 156.3±13.1 N and 186.4±15.8 N respectively. According to these results there was no significant difference in fixation strengths of VSS and VDS (p=0.09) whereas primary fixation strength of VB group was significantly higher than that of VSS and VDS groups (p=0.001, p=0.002, respectively). Fixation strength of newly developed 'butterfly' suture technique was higher than single suture and double suture. We suggest that because of its higher primary fixation strength, 'butterfly' suture technique may improve quality of meniscal repair.

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Abstract number : 16967

EVALUATION OF A NEW ARTHROSCOPIC ALL-INSIDE MENISCAL REPAIRING TECHNIQUE

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In the present study primary fixation strengths of arthroscopic repairing techniques and also primary fixation strength of a new arthroscopic all inside suture technique were investigated. In this study right lower extremities of 50 calves with a mean age of 1 year were used. 2mm full thickness longitudinal tears were created in the centre of medial meniscus 2-3mm apart of its periphery by arthroscopic techniques. Group 1: Vertical loop suture via outside-inside technique (PDS No: 0); Group 2: Vertical loop suture by using Viper device (PDS No: 0); Group 3: Repairing with Rapidloc implant; Group 4: Repairing with H-Fix, Group 5: Repairing with Clearfix implant. Load- failure strengths of the repairing techniques were assessed by biomechanical testing machine. Mean load-failure strengths of group 1, 2, 3, 4 and 5 were 145.1±13.2, 136.1±33.2, 33.4±6.3, 20.3±3.1 and 28.3±6.3 Newton respectively. Although group 1 revealed the highest fixation strength, there was no significant difference between group 1 and group 2. Fixation strengths of group 1 and 2 were significantly higher than implant groups. There was no significant difference in terms of fixation strengths between group 3 and group 5, whereas fixation strengths of these groups were significantly higher than group 4. Vertical loop suture technique by Viper device revealed similar results in terms of primary fixation with outside-inside vertical loop suture technique which is accepted as gold standard in meniscus repairing.

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Session : SICOT - Sports

Abstract number : 17224

MINIMALLY INVASIVE TREATMENT OF EXTERNAL COXA SALTANS

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The authors present four cases of external snapping hip in three sportsmen treated with minimally invasive endoscopic fasciotomy. An identical operating technique was used in all three patients. The arthroscopic release was performed using two portals, with the patient in supine position. The portal sites are slightly distal and proximal from the greater trochanter. An approximately 4cm long transverse incision of the iliotibial band was performed using a standard 4mm 30 degree arthroscope and radiofrequency probes. It is paramount to test the effect of the procedure. The dynamic nature of hip arthroscopy allows testing, which results in the smallest possible incision. The incision has to be sufficiently large to prevent the phenomenon from reoccurring. The patients usually stay overnight and are discharged the next day. Passive stretching exercises are started immediately after surgery. Six weeks after the procedure, patients can begin to gradually return to light practice and commence light sporting activity. After a follow-up time of 25 months, there were no complications and patients were symptom and pain free and had a full range of motion in the hip. Mobilising and returning to sporting activity after the described minimal invasive technique is quicker than after a conventional open operation. The relative simplicity of the method, the known benefits of arthroscopic techniques combined with the excellent early results can make this operation attractive for both the surgeon and the patient.

Poster
Room: 401
Session : SICOT - Sports

Abstract number : 17638

THREE-YEAR RESULTS OF AUTOLOGOUS CHONDROCYTE IMPLANTATION (ACI) VERSUS MATRIX-INDUCED AUTOLOGOUS CHONDROCYTE IMPLANTATION (MACI) FOR OSTEOCHONDRAL DEFECTS OF THE KNEE

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Autologous Chondrocyte Implantation (ACI) is used widely as a treatment for symptomatic chondral and osteochondral defects of the knee. We report the minimum 2-year follow-up results of 217 patients randomised to ACI using porcine-derived collagen membrane as a cover (ACI-C) and matrix-induced autologous chondrocyte implantation (MACI) for the treatment of osteochondral defects of the knee. 217 patients (mean age 34.2) were randomised to have either ACI (92 patients) or MACI (125 patients). 1 year following surgery, patients underwent check arthroscopy (with or without biopsy) to assess the graft. Functional assessment was performed yearly by using the Modified Cincinatti Knee score, the Bentley Functional Rating Score and the Visual Analogue Score. In the ACI group the Cincinatti score increased from 45.2 pre-operatively to 56.7, 54.1, and 65.4 at 1 year, 2 years and 3 years respectively. In the MACI group the Cincinatti score increased from 45.5 pre-operatively to 59.9, 58.9, and 63.4. Arthroscopic assessment showed a good to excellent International Cartilage Repair Society score in 91.4% of ACI-C grafts and 76.1% of MACI grafts. Hyaline-like with fibrocartilage was found in biopsies of 48.6% of ACI-C grafts and 30.5% of MACI grafts. ACI grafts are more likely to produce hyaline-like or mixed hyaline-like cartilage and fibrocartilage with better ICRS grades than MACI grafts. However, this does not translate to better a clinical functional outcome. More importantly, ACI and MACI had similar results that were maintained at 3 years.

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Session : SICOT - Sports

Abstract number : 17807

ULTRASONOGRAPHIC DETECTION OF TALOCRURAL EFFUSION IN ANKLE SPRAINS

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Ankle sprain severity is difficult to assess initially. The purpose of the study is to evaluate the prevalence of talocrural joint effusion and to determine the cause of effusions by RMI. During 12 months, 110 patients were treated for an ankle sprain. 40 had joint effusion on ultrasonography and MRI, in 39 of these 40 patients MRI visualized damage to the anterior talofibular ligament (ppv 97.5%), and in 5 cases damage to the calcaneofibular ligament. In 14 cases MRI showed cartilage damage or bony contusion. In conclusion, ultrasonography is a fast and easy method to detect talocrural effusion and identify patients with severe ankle sprains.

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Session : SICOT - Sports

Abstract number : 18139

EFFECT OF LOW-INTENSITY RESISTANCE EXERCISE TRAINING WITH LOWER VASCULAR OCCLUSION PRESSURE

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Previous studies have demonstrated that a low-intensity resistance exercise combined with vascular occlusion result in a marked increase in muscular size and strength. We investigated the optimal pressure for reduction of muscle blood flow with resistance exercise to increase the muscular strength and endurance. The subjects, 21 healthy young male, were randomly divided into four groups by the different application of vascular occlusion pressure at the proximal of thigh: without any pressure (Group A), with a pressure of 50mmHg (Group B), with a pressure of 150mmHg (Group C), and with a pressure of 250mmHg (Group D). Before and after exercise period, all subjects were measured the isokinetic muscle strength at angular velocities of 60°, 180° per second (C C60,180). Exercise was performed three times a week and lasted for 8 weeks. Resistance exercise was composed of 3 types. The intensity of exercise was approximately 20% of one-repetition maximum (1 RM) for straight leg raising and hip joint adduction and maximum force for abduction training. After exercise period, all groups with application of vascular occlusion pressure demonstrated significant increases their strength at CC180, although there was a trend to increase at CC60. However, a significant increase in cross-sectional knee extensor muscle area did not find within any groups in our study. We demonstrated the resistance exercise with relative lower vascular occlusion pressure was possibly useful protocol to increase the muscle strength and endurance without any discomfort.

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Session : SICOT - Trauma

Abstract number : 15871

"Z-EFFECT PHENOMENON" IN INTERTROCHANTERIC FRACTURES TREATED WITH A PFN

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PURPOSE: We analysed "Z-effect phenomenon" in a series of patients who had a intertrochanteric fracture treated with proximal femoral nail (PFN). **MATERIALS AND METHODS:** A retrospective analysis was done on 70 cases of intertrochanteric fracture treated with PFN and available for follow-up over one year. The average age was 71.8 years. The radiological analysis included fracture stability, bone quality, accuracy of reduction, position of the implant, tip-apex distance (TAD) of the lag screw, and TAD of the hip pin. The correlation between radiological parameters and the occurrence of Z-effect was analysed. **RESULTS:** The incidence of Z-effect was 5.7% (4 cases). There was no correlation between age, sex, fracture stability and the occurrence of Z-effect. Because most patients had osteoporosis, there was no statistical significance between bone quality and Z-effect. Placement of the lag screw was not associated with Z-effect. Z-effect occurred in two of 15 cases with a TAD of the lag screw more than 25mm and in two of 55 cases with a TAD of the lag screw 25mm or less ($p=0.152$). But in case of hip pin, Z-effect occurred in zero of 44 cases with a TAD more than 25mm and in four of 26 cases with a TAD 25mm or less ($p=0.007$). Reduction status was also associated with Z-effect ($p=0.05$). **CONCLUSION:** To reduce the Z-effect phenomenon, careful surgical technique including anatomical reduction should be recommended and hip pin should not be placed too deeply in the femoral head.

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Room: 401
Session : SICOT - Trauma

Abstract number : 15944

THE CHILDREN TRAUMATISM DURING TWO DECADES (TOGLIATTI)

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110 thousand children live in Togliatti. We have carried out the comparative analysis of children traumatism for 20 years: (from 1985 to 1994 and from 1995 to 2004). In 1985 the children traumatism was in 135.8 accidents per 1 thousand children, in 2004 it was in 154.2 accidents. Street traumatism takes the first place: on average in the 1st decade it was 43%, in the 2nd decade - 46%. The greatest number of street traumas occurs in after-dinner time. Household traumas take the second place: on average it was from 38 to 43% within 2 decades. Little children fall down from beds, suffer burns from hot tea, irons. School traumas take the third place: 10% in the 1 decade, 7% in the 2 decade. The amount of sports traumas has decreased from 3.9% to 1.4%. The greatest amount of children from 8 to 12 years old have road accidents from 8 a.m. to 11 a.m. and from 3 p.m. to 7 p.m. on their way to school and back. The number of children traumas as a result of road and transport accidents has increased from 0.45% up 1.51%. The increase of amount of injured children in road accidents is also proportional: from 65 children in 1985 up to 160 children in 1994 and from 160 children in 1995 up to 210 children in 2004 that reflects the increase of intensity of motor transport movement within 20 years.

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Abstract number : 17192

FACTORS AFFECTING FIXATION FAILURE IN TREATMENT OF INTERTROCHANTERIC FRACTURE OF THE FEMUR TREATED WITH DCS

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PURPOSE: We performed this study to analyse the factors affecting fixation failures of intertrochanteric fracture of the femur by DCS in the elderly patients. **MATERIALS AND METHODS:** The failure group (group 1) had 14 cases and the control group (group 2) had matched 34 cases among 150 cases. We compared the fracture pattern, the type of reduction, the method of fixation, tip-apex distance, the location of screw within head or the presence of lateral trochanteric wall between two groups. The average age of patients was 76.1 (63-92) in group 1 and 75.0 (63-93) in group 2. **RESULTS:** There was a significant relationship between the fracture pattern, tip-apex distance, the position of lag screw, especially the posterior location, or the presence of lateral wall fracture and the postoperative fixation failure ($P < 0.05$). The use of bone cement augmentation and the central location of lag screw within head correlated with the avoidance of cutting-out of lag screw through head. But there was no relationship between the type of reduction, the use of additional fixation with screw or greater trochanter stabilizing plate and the fixation failure. **CONCLUSION:** The role of structural integrity of lateral wall support is thought to be an essential factor in successful treatment of unstable intertrochanteric fractures of the femur. Also methods such as concentric location of screw in head, minimal tip-apex distance or cement augmentation could be useful skills to prevent cutting-out by obtaining secure purchase of lag screw in head.

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Abstract number : 18602

CEMENTLESS BIPOLAR HEMIARTHROPLASTY FOR THE FRACTURE OF OSTEOPOROTIC

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PURPOSE: We evaluated the results of cementless bipolar hemiarthroplasty in patients older than 80 years of age with the fracture of osteoporotic femoral intertrochanter. **MATERIALS AND METHODS:** From March 2004 to December 2006, we performed 32 cementless bipolar hemiarthroplasties in patients older than 80 years of age. BMD T-scores were less than -3.0 in all patients. All patients were treated with primary stem, which made more distal fixation possible. The clinical results in terms of hip joint function using Clawson classification and the radiological results were analysed within more than 1-year follow-up period. **RESULTS:** All patients showed stable maintenance of implant. Recovery of hip joint function was found in 27 cases (84.3%). There were two cases of greater trochanteric nonunion which resulted in one level down in Clawson classification. There was also one case of acetabular revision due to infection which resulted in two levels down in Clawson classification. **CONCLUSION:** The results of cementless bipolar hemiarthroplasty using primary stem in the fracture of osteoporotic femoral intertrochanter were satisfactory both clinically and radiologically.

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Abstract number : 18649

RESULTS IN THE TREATMENT OF TYPE III OPEN TIBIAL FRACTURES: STUDY ON 62 CONSECUTIVE FRACTURES

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Fifty-seven patients with 62 open fractures of the tibial shaft type IIIA, B and C (Gustilo) were treated between 1.01.2001 and 31.12.2005 in the Department of Orthopaedic Surgery of the Emergency Hospital, Iasi, Romania. There were 29 cases type IIIA fractures, 26 cases type IIIB and 7 cases type IIIC (Mess score showed the viability of the limb). In 33 cases the skeletal stabilisation was achieved by Ender nailing. In 15 cases we used a bilateral uniplanar external fixator and 14 fractures were stabilised with an Ilizarov external fixator. We noted a secondary amputation after the failure of the revascularization of the limb in a type IIIC fracture. RESULTS: All fractures united; the mean time to union was 30.2 weeks-in the external fixation group and 26.4 weeks-in the Ender nailing group. Malunions occurred slightly more frequently in the external fixation group than in the Ender nailing group (15.7% versus 5.8%). We noted, also, more secondary procedures required in the external fixation group. The infection rate was 3 of 33 (9.1%) in the Ender nailing group compared to 4 deep (13.8%) and 8 pin-tract infection (27.6%) in the external fixation group. CONCLUSIONS: Our study suggests that Ender nailing has several advantages over external fixation in the management of severe open tibial shafts fractures. Based on these results, we use mainly the Ender nailing technique, as we consider it a better approach for these types of lesions.

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Abstract number : 18775

SKELETAL TUBERCULOSIS AT THE LOCAL SITE FOLLOWING FRACTURE FIXATION WITH IMPLANT

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INTRODUCTION: Prosthetic joint infections due to Mycobacterium Tuberculosis have been reported, but none around implant(s), following implant fixation of closed/open fractures. We report six such cases that had no history/clinical manifestations of tuberculosis and no evidence of a pulmonary focus of tuberculosis at the time of initial fracture fixation. **MATERIAL AND METHODS:** Six cases (age 25-65 years) of single or multiple long bone fractures underwent operative stabilisation by implants. Four patients developed discharging sinus(es) and 2 patients showed gradual loosening of implant with osteolysis without any external discharge 4-12 months after surgery. None had fever. Delayed diagnosis was established by tissue diagnosis (n=2) and PCR for Mycobacterium Tuberculosis (n=4). All patients underwent screening for immune compromising diseases which was negative. All patients put on antitubercular chemotherapy for 12-18 months. Secondary procedures were done in 5 cases. Follow-up: 2-14 years. **RESULT:** Clinical improvement observed within three months. In all patients fractures united. No recurrence of infection till last follow-up. **CONCLUSION:** In endemic zones for tuberculosis (TB), about 85% individuals harbor dormant Mycobacterium Tuberculosis (in lymph nodes or viscera in inactive granulomas - either isolated or suppressed by natural immunity) for decades without clinical overt disease. We hypothesize that decreased immunity (general and local) in response to multiple long bone fractures/surgery, allowed reactivation of latent bacteria at distant focus, with subsequent seedling at the implant site. Consider TB as differential diagnosis of persistent infection following implant surgery in endemic zones, and persistent, recalcitrant, or atypical infection, following implant surgery in non-endemic zones.

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Abstract number : 17072

MYOPERICYTOMA, PERIVASCULAR SMOOTH MUSCLE TUMOUR OF BONE, PREVIOUSLY CLASSIFIED AS HEMANGIOPERICYTOMA, HISTOPATHOLOGICAL AND IMMUNOHISTOCHEMICAL PROFILE

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The outcome in three cases of bone tumours that occurred in adults, two women and a man, ages 36, 42, 51, was without recurrence over a period of 2 years in spite of radiological malignant presentation and marginal surgical resection. The affected bones were iliac wing, proximal femur and distal tibia, respectively. Histological analysis revealed oval-to-spindle myoid appearing cells with a striking tendency for a perivascular growth, with variation from case to case and within the same case concerning the amount of a mixoid stroma. In all cases the vascular density was high with a staghorn configuration. Mitoses were few. The lesional cells showed apparent differentiation towards perivascular myoid cells as witnessed by alpha smooth muscle actin immunohistochemical expression. CD34 endothelial cell positivity highlighted the vascular density and configuration. The nuclear proliferative marker, Ki-67, was low, not over 5%. In all three cases our histological diagnosis was hemangiopericytoma. The recently described neoplasm, myopericytoma, shares many histopathological features with the previously described hemangiopericytoma and it is likely that we face the same entity. In favour of this difficult histological diagnosis due to its rarity in bone as well as its histological heterogeneity speaks the favourable outcome and the lack of metastasis.

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Abstract number : 17346

CASE REPORT: EXTRAOSSEUS EWING'S SARCOMA IN THE FOOT

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A 31-year-old man was referred to our hospital with a two-month history of a painful growth in his left foot, which had increased in size during the week before admission. His medical history was otherwise unremarkable. The physical examination showed a huge mass (10x8cm) in the sole of his left foot, very painful with movement, and with an important collateral neovascularization. The neurological examination was normal. The laboratory tests were completely normal. Radiography revealed a soft tissue mass with no bony involvement. CT scan (Fig.1) showed a large circumscribed mass with no bony involvement, probably a sarcoma like tumour. MRI study (Fig.2) revealed a soft tissue mass beneath the plantar fascia, similar to fibrosarcomas. Scintigraphy was unremarkable. At this stage, we decided to make a tru-cut biopsy; the microscopical examination showed a small round cells malignant neoplasm. Amputation above the ankle was done. He was advised for chemotherapy. After three months of medical treatment he complained of chest pain. The thoracic CT showed two involved ganglia in the mediastinum. Four months later he died.

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Abstract number : 17575

BIFOCAL TIBIAL ADAMANTINOMA - CASE REPORT. CLINICORADIOLOGICAL AND IMMUNOHISTOCHEMICAL ASPECTS

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We report a case of a young woman with a bifocal left tibial adamantinoma. She was diagnosed at the age of 17 with osteofibrous dysplasia of the mentioned bone. Because of the possibility of malignant conversion of this tumour, the patient was surveilled by clinical, radiological and nuclear examination. The treatment was conservative. After 12 years a sudden change occurred in the tumour aspect. With an immunohistochemical diagnosis of bifocal adamantinoma, we decided to perform an aggressive surgery, consisting in resection of nearly 1/2 of the left tibia. The reconstruction was achieved with a peroneal massive autograft supported with a Kuntscher nail and a bipolar tibioperoneal arthrodesis (peroneo-protibia). The partial weight bearing was beginning few days after the operation; despite the short follow-up, the early data are encouraging: there were neither signs of recurrence nor failure of the reconstruction. We emphasized the difficulty of the histopathologic diagnostic and the need of a immunohistochemical examination.

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Abstract number : 18257

INTRAMUSCULAR MYXOMA OF THE THIGH

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Intramuscular myxoma is a rare, benign, mesenchymal tumour. It contains fibroblast-like, histiocyte-like and myofibroblast-like cells in a myxoid material. The authors report a case of a 36-year-old woman located at the thigh. There are no specific clinical manifestations of this tumour. The diagnosis was established by the scan and confirmed after microscopic examination. Local excision with histological margins free of tumour provides excellent local control without recurrence. The evolution to 15 months was excellent with no recurrence signs.

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Abstract number : 18213

DERMATOFIBROSARCOMA PROTUBERANS: INTEREST OF A REDUCTION OF THE LATERAL MARGIN

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The dermatofibrosarcoma protuberans is a rare and particular fibrous tumour of the skin. It was described by Darier and Ferrand in 1924. This tumour is often diagnosed after several recurrences and is characterized by a local malignancy. Surgical treatment should contain a wide 4 or 5cm excision to avoid local recurrence. The authors present a retrospective study of eleven cases treated over a ten-year period (1993-2003). In all cases surgical resection was performed with only 3cm lateral margin and a disease free anatomic layer removed with tumour. The mean of the follow-up was 45 months. There was no recurrence case during this period. We compared our results with those from other teams in USA who practice the Mohs surgery and the results were similar. These results are in favour of a reduction of the lateral margins to 3 or 2.5cm with a disease free anatomic layer removed with the tumour.

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Abstract number : 18477

LIMB SALVAGE SURGERY IN MALIGNANT BONE TUMOURS IN CHILDREN

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PURPOSE: The historical overview of resection procedures in primary malignant bone tumours in children, performed in clinic between 1984 and 2002. MATERIAL AND METHODS: 158 patients with malignant bone tumour were treated. Development of reconstructive surgery correlates with increasing quality of chemotherapy. RESULTS AND DISCUSSION: The response on the preoperative chemotherapy is very important and has the direct influence on the type of procedure. IfThe autograft - ipsilateral proximal fibula was used as a replacement after proximal humerus resection. In the case of a graft fracture, contralateral fibula was dissected and fixed by screws. CONCLUSION: Methods mentioned above belong to experimental surgery and individual access to the patient is the most important issue.

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Abstract number : 18637

OPERATIVE TREATMENT OF HUMERAL METASTASIS

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Humeral metastasis is not uncommon in late stage cancer patients. The purpose of this study was to show that operative treatment of humeral metastasis can be beneficial and can increase quality of life in selected cases. Twenty-six patients were recruited between January 2001 and February 2007 for this retrospective study. The population selected included patients with metastatic lesion with or without fracture to the humeri with operative treatment. We excluded patients who did not receive operative treatment. A retrospective review was conducted at 3 levels: preoperative, operative and postoperative assessments. Preoperative review showed 17 known cases of metastasis, while 9 were presented in the first presentation with unknown primary; 7 patients were complicated with other medical conditions besides the primary tumour. Operative review showed 5 different kinds of operations; intramedullary nailing was performed in 15 of 26 patients for shaft metastases. When IM nail was not feasible, open treatment is indicated. Preoperative angiogram and embolization minimised blood loss when tumour needed to be removed. Postoperative review exhibited that all subjects (n=26) showed pain relief and the majority of the patients (n=25) regained relative functional restoration. Six patients were not able to be discharged after operation. The mean duration of stay after the operation remained similar (24 days). Operative treatment methods continue to exhibit benefits in regaining better quality of life for patients who have bony metastasis.

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Session : SIROT - Biomechanics

Abstract number : 15558

AN ANALYSIS OF PROXIMAL FEMORAL GEOMETRY IN PATIENTS WITH HIP FRACTURE

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Hip fractures are disabling and may be life shortening. Many studies have been carried out to define risk factors that influence skeletal fragility, including bone size, shape, and micro architecture. There is increasing evidence that proximal femoral geometry contributes to bone strength and predicts hip fracture risk. We performed a simple radiological study to investigate the relationship between proximal femoral geometry and intracapsular and extracapsular fractures of the proximal femur. Measurements of proximal femoral geometry and Singh's index were made on pelvic radiographs on the contralateral hip of 50 consecutive patients with intracapsular and extracapsular fractures. Statistical difference was analysed in the measurements between the two groups. There was no statistical difference in Hip Axis Length, Head Diameter, Neck Width, Head Trochanter Length and Femoral shaft Width between the two groups of fractures although osteoporosis was more in the extracapsular group as measured by Singh's index. Neck Shaft Angle and Neck Length were significantly greater in the intracapsular group, suggesting an etiological link. This may have implications for future screening and prevention of proximal hip fractures, particularly intracapsular fractures.

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Abstract number : 15980

INTERNAL LENGTHENING DEVICE FOR BONE LENGTHENING IN SKELETALLY IMMATURE PATIENTS

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Ilizarov technique proved to be effective in treatment of limb length discrepancy & bone lengthening. The main problem associated with such technique is the long duration of treatment with marked discomfort associated with external fixation and the complications of pin site infection and muscle fibrosis and joint stiffness due to the transfixing pins. The longer the duration of external fixation is, the more the risk of complications. Internal lengthening devices are available in the market either motorized or non-motorized to help in overcoming such major disadvantages of Ilizarov external fixation. But the available are in the form of IM nails which cannot be used in skeletally immature patients and need a wide medulla with no or minor bone deformity. The device presented in this paper is internal lengthening device and more versatile that it can be used in children and in deformed bone.

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Abstract number : 16747

LOCKED VS. UNLOCKED PLATE OSTEOSYNTHESIS OF THE PROXIMAL HUMERUS - A BIOMECHANICAL STUDY

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INTRODUCTION: Locked plates are optimal for the fixation of proximal humeral fractures. In a biomechanical cadaver study the difference between locked and non-locked osteosyntheses was investigated. METHODS: Paired humeri were harvested, bone density measured. Locked internal fixators were mounted on one specimen; identical non-locking plates were applied to the contralateral specimen for comparison. A transverse subcapital osteotomy was performed. We performed with 7 pairs static tests with increasing axial loads and with 5 dynamic tests with 10 N preload and 80 N axial load. RESULTS: In the static experiments the elastic stiffness was 74% higher in the locked group (median 80 N/mm) compared with the non-locked group (46 N/mm). The difference was statistically significant (Wilcoxon test $P < 0.05$). Similarly, the linear range until failure was definitely extended in the locked group by 64% (92 N, vs. 56 N, $P < 0.05$). Under dynamic loading the non-locked group showed fixation failures between 97,000 and 500,000 cycles. In the locked group no failure was observed until the end of the experiment at 1 million cycles ($P < 0.05$). The final deformation was found to be 1mm in the non-locked group and 0.3mm (0.2-0.3 mm) in the locked group ($P < 0.05$). The differences were found equally in lower as well as in higher bone density specimen. CONCLUSION: Because of the optimal load transfer between implant and cancellous bone, locked screw plate interface will reduce fixation failure in proximal humeral fractures.

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Abstract number : 16824

BIOMECHANICAL AND SKELETAL MECHANICAL EVALUATION OF FORCES AROUND SHOULDER JOINT USING A NEWLY DESIGNED SHOULDER HEMIPROSTHESIS

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The objective for conducting the biomechanical study is to ascertain the effectivity of the myoosseous tissue to provide satisfactory elevation of shoulder when it is fixed on the lateral offset of the newly designed shoulder hemiprosthesis using musculoskeletal mechanics. This study determines the pulling force exerted on the lateral offset during elevation of the shoulder and the pressure exerted on the glenoid surface, and their consequences during 90-degree abduction and the chance of dislocation/subluxation. The glenohumeral joint is by far the most important articulation, having the largest range of motion and more load bearing capability. During replacement of this joint, calculation of proper distribution forces is an essential requirement. The forces carried by glenohumeral joint can be as high as several times the body weight and any prosthetic replacement must, of course, be capable of withstanding these high forces. In this study biomechanical analysis of the fabricated shoulder has been performed to estimate the forces and moments acting on this newly designed replaced shoulder joint. This biomechanical analysis of the skeletal system to estimate the forces and moments acting on this newly designed replaced shoulder joint.

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Abstract number : 17232

COMPARING THERMAL PROPERTIES OF OSTEOARTHROTIC AND NORMAL CARTILAGE

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The specific causes of osteoarthritis are unknown, but are believed to be a result of both mechanical and molecular events in the affected joint. A limited number of papers have been published before on the subject of thermal analysis of normal and osteoarthrotic human hyaline cartilage. Previously, thermogravimetric methods have not been used. The thermal properties of samples were determined by differential scanning calorimetry and thermogravimetry. During arthroplasty procedures performed at the University of Szeged, degenerative human hyaline cartilage was obtained from 16 hips and normal cartilage from 7 knees. It was found that the total water content of normal cartilage is 80.79%, 52.33kJ/M energy was needed to remove the extracellular water content. Total water content of the osteoarthrotic samples was 86.71%, and 72.72kJ/M energy was used for the removal of the fluid content. The enthalpy change of the process initiated by the temperature change showed marked difference between the normal and pathological groups. Greatest change in the enthalpy was observed in normal cartilage: -811.496J/g. Consequently, these samples required the largest amount of energy for decomposition. Statistical tests proved these calculations to be significant ($p < 0.05$). This study clarifies the previously reported thermoanalytical results, with acquiring normal cartilage from live surgery, thus providing similar sample environment. The use of thermal analysis could be a simple and effective method for controlling the relationship between biomarkers and disease progression.

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Abstract number : 17310
OSTEOARTHRITIS (OA) EMPLOYED BY BIPEDAL RATS

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In order to investigate the mechanism of destruction in articular cartilage, "OA-Model" was planned by instability of knee joint due to incision MCL (medial co-ligament). The wearing out of articular cartilage with thickness was observed after 30-60 days, because of strong of stress to area incision-MCL. The irregular and dark stain was found from subchondral area to all cartilage zones. The lesion of articular surface has been gradually worn out and almost occupied by fibrous tissue from 100 days to 150 days. The erosion, ebunation were observed; besides tide mark was breached by vessels; furthermore, osteophysis prysis was found at edge of knee joint recognized.

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Abstract number : 17474

FEMORAL NECK ANTEVERSION - COMPARATIVE EVALUATION BY CLINICAL, BIPLANE RADIOGRAPHY, CT AND INTRAOPERATIVE (IN SAME SUBJECT) AND DRY FEMORA

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Various methods of measurement of femoral neck anteversion have different values. The present study was undertaken to define FNA for Indian population and its variation with other measurement methods. METHODS: FNA was calculated on 300 dry femora by Kingsley Olmsted method, and prospectively on otherwise normal living adults by CT method (n=72 hips), biplanar radiography (n=138 hips) and clinically (n=138 hips). RESULTS: The mean FNA by CT was 7.4° (SD 4.6°) and more than 75% of cases were between 3.4°-11.4°. The mean FNA by X-ray method was 11.5° (SD 5.4°) and 71 % of cases were between 6.5° and 16.5°. The mean, clinically, was 13.1° (SD 4.6°) and 75% of cases were between 9.1°-17.1°. The mean FNA on dry femora was 8.1° (SD 6.6°) and 62% of cases were between 3.1° to 13.1°. The mean FNA on right side was 1.7° less than on the left. CONCLUSIONS: FNA on dry femora was 8.1° (SD 6.6°) FNA has been found to be 7.4° (SD 4.6°) on CT (nearest to the actual). It is 4-12° lower than most of the western studies. Readings are 4.1° higher by the X-ray method and 5.7° by the clinical method. Correlation and regression equations have also been formed between the various methods and the clinical method correlates better than the X-ray method to the CT method.

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Abstract number : 17704

SURGICAL CORRECTION OF POSTOPERATIVE HALLUX VARUS DEFORMITY

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Postoperative hallux varus deformity (PHVD) is one of the foot problems after hallux valgus surgery. An original procedure for correction of PHVD was suggested by us, and it included the forming of a new ligament between the base of the hallux proximal phalanx and the neck of the second metatarsal. At operation, the medial capsule of the first metatarsophalangeal joint was released; a "Z" lengthening of the abductor hallucis tendon was performed. The long extensor of the fifth toe was used as free tendinous graft. This tendinous graft was pulled through the drill-hole in the base of the hallux proximal phalanx, and then it was passed around the second metatarsal neck. Two variants of tendon fixation to the base of the hallux were performed. The hallux was moved to the correction position; the ends of the tendinous graft were sutured. Twelve patients (14 feet) with PHVD underwent this operation between 1996 and 2007. The most frequently (11 cases) PHVD was associated with McBride-type operations. Ten patients (12 feet) were evaluated at a mean of 4.5 years (range 1-11 years) after surgery. Pain, problems with shoe wear, and metatarsophalangeal joint instability were improved in all patients. Good results were achieved in 9 cases, satisfactory - in 3 cases. Poor results were not observed. So, the method including the forming of additional ligament between the hallux and the second metatarsal is a simple procedure with good functional and aesthetic effects. This operation may be the method of choice in correction of PHVD.

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Abstract number : 18048

THE ILIZAROV HEXAPOD EXTERNAL FIXATOR FOR DEFORMITY CORRECTION AND FRACTURE REDUCTION

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OBJECTIVE: Hexapod kinematics is used to position platforms with high accuracy and stability. It is applied in flight simulators, where hydraulic cylinders control the position and attitude of the cockpit. Using this principle, an Ilizarov fixator precisely adjustable in all six spatial degrees of freedom was developed. **METHOD:** The mechanical of the hexapod consists of six pairs of ball joints to be mounted on two Ilizarov rings, which are connected with six linear actuator elements (distractors). By adjusting the lengths of the distractors the position and orientation between the rings is controlled. Due to kinematics of the hexapod, spatial stability is given without locking the ball joints. A computer software is necessary to calculate the distractor adjustments for clinical application. The developed software includes three display masks. The first mask calculates the initial geometry of the fixator. The second mask calculates the distractor length control values. The third mask calculates steps for successive corrections. **RESULTS:** The system was applied since 1996 in 246 cases for Fracture reduction, deformity correction and joint mobilisations. Maximum corrections carried out were 80mm translation, 70° angulation, 45° rotation and 80° joint mobilisation . The system was found to be useful, when a distraction has to be combined with multiaxial deformity correction. **CONCLUSIONS:** As usual with a robotic mechanic, bone movements can be accomplished with high precision. Contrary to conventional external fixators any three-dimensional movement is realisable without special planning of hinges or having the necessity to change parts of the construction during the treatment.

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Abstract number : 18209

INTERNAL FIXATION OF FEMUR. FINITE ELEMENT ANALYSIS

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Finite element analysis of the mechanical stability of some fixation techniques often used in treatment of the femoral fractures is what we have used in this research. We considered two most popular fixation devices: neutralization plate and intramedullary nail. Fixation devices were assumed to be made of stainless steel and bone tissue was modelled using nonlinear viscoelastic material model proposed by Carter and Hayes. This study should reveal advantages and disadvantages of analysed fixation devices regarding to stress distribution within the material and hence mechanical stability.

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Abstract number : 18302

A METHOD FOR CLASSIFYING THE GRADE OF THE PIVOT SHIFT TEST OF THE KNEE

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INTRODUCTION: Rupture of the ACL results in a posterolateral rotatory instability of the knee which can be evaluated using the pivot shift test. The amplitude and suddenness of the pivot shift produced is subjectively graded as 0 (absence), 1 (glide), 2 (clunk) or 3 (gross). This grade correlates with many subjective indicators of knee function. The objective of this study is to develop an objective measurement of the pivot shift which can be used to attribute the grade in a reliable manner. **METHODS:** Electromagnetic sensors were mounted to an attachment system designed to limit skin displacement artefacts. This attachment system was placed over the femur and tibia of 16 subjects in order to record knee kinematics. One or several of 7 different orthopaedic surgeons performed the pivot shift test on both knees of each subject and attributed a grade. A total of 38 knee recordings (and associated grades) were obtained. Feature extraction was used on the kinematic parameters produced from the acquired data and used to classify the recordings into their attributed grade using the k nearest neighbour algorithm. **RESULTS:** After having normalised the data for examiner technique, we were able to classify the recordings using different kinematic parameters for each grade. The classification success rates were 92%, 96%, 91% and 91% for grades 0, 1, 2 and 3 respectively. **DISCUSSION:** This classification method attained high success rates despite a small population and shows promise in rendering the pivot shift test more objective. With a larger population, success rates should improve.

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Session : SIROT - Biomechanics

Abstract number : 18341

A NEW DESIGN SUTURE ANCHOR

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INTRODUCTION: Suture anchors are widely used to secure tendons and ligaments to bone during both arthroscopic and open surgery. However, single stage insertion suture anchors, i.e. anchors that could be inserted without predrilling of the bone, are not currently available. **AIMS:** We aimed to record the impact needed for insertion of the new design of suture anchors, without predrilling, and to compare their pull out strength with another range of commercially available suture anchors. **MATERIALS AND METHODS:** The anchors were inserted in a consistent manner into animal (porcine) bone at sites analogous to common anchor sites used in clinical practice. The force required to insert the suture anchors was investigated using an impact hammer recording, the number and force of each of the hits. Pull out strength was assessed using a digital force gauge when loaded parallel, or at 90°, to the line of anchor insertion. **RESULTS:** Our initial investigations using prototype designs for small, medium and large anchors compared favourably with the Mini-mitek, GII, and Superanchor range of Mitek anchors. The most common point of failure for each of the suture anchor families was the suture itself with both suture anchor systems performing similarly. **CONCLUSION:** The new design of single stage suture anchors have an equivalent pull out strength compared with a popular commercially available family of suture anchors, but in addition have the significant advantage of being suitable for single stage insertion in many clinical settings.

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Abstract number : 18354

SUTURE STRENGTH AND STIFFNESS IN ORTHOPAEDIC SOFT TISSUE SURGERY

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AIM: The aim of our work was to characterize and compare the performance of various absorbable sutures used in soft tissue surgery in orthopaedics. MATERIAL AND METHODS: Five types of absorbable sutures commonly used in tendon reattachment were tested in order to determine breaking strength and stiffness: Vicryl, Dexon, Ticron, Panacryl and Ethibond all size 2. For every type of specimen six samples were used. Materials Testing Machine and attached load cell run with Emperor Software (MECMESIN, UK) were used for the tests. Suture samples were held on the hooks of the testing machine with a knot in the middle. Tensile load was applied at a rate of 60mm/minute, while load and displacement were recorded at a sampling rate of 100 Hz. Breaking load and stiffness were determined. RESULTS: The suture median breaking strength was Vicryl: 88.8N, Dexon: 112.4N, Ticron: 71.4N, Panacryl: 53.3N and Ethibond: 66.3N. The median suture stiffness was Vicryl: 3.4 N/mm, Dexon: 2.3 N/mm, Ticron: 3.0 N/mm, Panacryl: 0.7N/mm and Ethibond: 2.5 N/mm. CONCLUSION: As it is obvious, there is remarkable difference in breaking strength and stiffness between variable absorbable sutures which often are used for tendon or ligament repair. The surgeons need to be aware of it in order to use the appropriate suture and plan the appropriate rehabilitation of his patient.

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Abstract number : 18415

INVESTIGATING THE POTENTIAL ADVANTAGES OF A NEW DESIGN SMALL JOINT ARTHROPLASTY

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INTRODUCTION: Current existing flexible silastic joints are prone to early breakage with subsequent loss of function due to their anatomical shape, abrasion against bone and constant loading of the central section of the flexible implants. **AIM:** The aim of our new small joint design is to overcome many of the deficiencies of the flexible silastic designs while maintaining their main advantage of stabilising joint alignment throughout the flexion range. **MATERIALS:** We have investigated a number of parameters, using finite element analysis (FEA), focussing principally upon the load bearing and wear properties of the new design to both statically and dynamically applied loads with reference to the test protocol developed by the Durham group. **RESULTS:** Detailed FEA of the new joint design has highlighted the extreme potential durability of the housings and the internal flexible spacer. Our results suggest that the wear characteristics of both housings manufactured from PEEK (Polyetheretherketones) using an injection moulding process may result in the generation of considerably less wear debris compared with conventional alloy/plastic articulations. In addition, modern medical grade polyurethanes would appear to have better load bearing and wear characteristics than existing silastic materials. **CONCLUSIONS:** Clearly, if our FEA findings were to be reproduced with biomechanical testing, we would be well placed to introduce durable and readily affordable small joint arthroplasties that may well resolve our current difficulties of treating patients with moderate joint disease in addition to being a realistic alternative for patients with advanced destructive small joint arthritis.

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Session : SIROT - Fracture Healing

Abstract number : 16749

CLINICAL USE OF CONCENTRATED AUTOLOGOUS BONE MARROW ASPIRATE TRANSPLANTATION (CABMAT) FOR A NONUNION

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OBJECTIVE: The aim of this study is to introduce our manual blood-bag centrifugation technique to concentrate bone marrow aspirate (BMA) and to present a clinical experience with the use of Concentrated Autologous Bone Marrow Aspirate Transplantation (CABMAT) in the treatment of nonunion. **METHODS:** BMA was collected from both anterior iliac crests. The BMA was concentrated by a two-step centrifugation technique. (KUBOTA9800 centrifuge; KUBOTA, JAPAN). This technique reduces a typical 400ml BMA to a concentrated bone marrow aspirate (CBMA) of 30-40ml for extracting buffy coat containing abundant nucleated cells. The CBMA was percutaneously transplanted into the nonunion site under fluoroscopic control. The number of nucleated cells was estimated with a cell counter, and the number of transplanted progenitor cells, by counting the fibroblast colony-forming unit. **RESULTS:** A 29-year-old woman sustained a comminuted fracture of a left distal tibia. The fracture was internally stabilised with a plate and screws. Three months after the operation, the fracture was judged to be a delayed union, so Low-Intensity Pulsed Ultrasound (LIPUS) was applied. However, the healing process was not accelerated. Therefore, 15 months after the initial operation, CABMAT was performed. After 3 months the nonunion was united. **CONCLUSIONS:** We have demonstrated that effective bone healing of nonunion can be achieved with CABMAT that contains a cocktail of osteoprogenitor cells, other nucleated cells and osteogenic cytokines. This technique could be an easy-to-use approach for the treatment of nonunions.

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Session : SIROT - Fracture Healing

Abstract number : 18173

PARECOXIB HAS NO LONG-TERM EFFECTS ON FRACTURE HEALING IN RATS

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Cyclo-oxygenase (COX) inhibitors are useful analgesics in Orthopedics but impair fracture healing by inhibiting prostaglandin synthesis. The purpose of this study was to evaluate the long-term effect of a high dose of parecoxib, a selective COX-2 inhibitor, on fracture healing in rats, when it is applied for a short period after fracture. 23 Albino Wistar rats, 12 weeks old, were used in the study. Closed non-displaced mid-diaphyseal fractures in the middle of the left femoral shaft were generated in each animal. In the study group (12 animals) parecoxib sodium (1.06mg/kg) was administered intra-peritoneally every day for 7 days. In the control group (11 animals) normal saline was administered intra-peritoneally every day for 7 days. In both groups fracture healing (bone union and callus formation) was evaluated by radiography 6 weeks after fracture. The experimental procedure was approved by the local ethics committee. The students' t-test was used for statistical analysis. Fracture healing was lower in the study group (83% versus 91%) 6 weeks after fracture but this difference was not statistically significant ($p>0.05$). It seems that parecoxib has not a significant long-term effect on fracture healing in rats, when it is administered in a high dose and for a short period after fracture.

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Session : SIROT - Infections

Abstract number : 15755

!THE GRAFT HAS FALLEN TO THE FLOOR!!

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PURPOSE: To demonstrate the effectiveness of different antiseptics on a possible infected graft. METHODS: In 17 samples taken from patients subjected to different surgical procedures such as fractures, hip degeneration or herniated discs, bone fragments were taken to be exposed to contaminating suspension of E. Coli, Staphylococcus coagulasa positive and to floor dust, and later to the effect of antiseptics 3 different antiseptics Benzalconium Chloride, Iodopolivinilpirrolidona and laurildimetilbencil-amonio for 15 min. and, then they were analysed from the laboratory point of view. RESULTS: Except in 2 samples treated with iodopolivinilpirrolidona, in all the rest the bacterial growth persisted. The bacterial growth in the exposed bone fragments to antiseptics allows us to evaluate the little effectiveness of these. The sterilization markers (0-1-2-3) demonstrated the different degrees of effectiveness of the antiseptic used. Data was statistical significant. CONCLUSIONS: None of the antiseptics used was effective; neither did they cover the sterilization expectation to decontaminate the bone implant that had fallen to the floor. In one of the controls sample of the antiseptic there was bacterial growth, even in different lots. SIGNIFICANCE: Has just the immediate rinse with sterile water the same effect as the use of antiseptics when a graft falls to the floor?

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Session : SIROT - Infections

Abstract number : 15959

TREATMENT OF PERSISTENT EXTRAARTICULAR INFECTION USING A TEMPORARY CEMENT SPACER ON THE TIBIA AFTER ACL RECONSTRUCTION

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Postoperative infection after anterior cruciate ligament (ACL) reconstruction is an uncommon but serious complication. Although several treatments for intra-articular infection have been reported, no report has been issued on the treatment of persistent extraarticular infections, although surgeons generally agree on that local wound incision, drainage, and debridement are suitable treatments. The authors experienced reconstructed graft removal due to a refractory extraarticular infection on tibia. Early ACL reimplantation was performed successfully using a temporary cement spacer containing antibiotics and an irradiated bone patellar tendon bone allograft.

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Abstract number : 16320

IMPLANT ORTHOPAEDICS SURGERY IN HIV ASYMPTOMATIC CARRIERS: MANAGEMENT AND INFECTION RISK

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The aim of this study was to compare the short- and mid-term outcome of combined Antiretroviraltherapy (ARVT) and implant orthopaedic surgery in an immune compromised group of asymptomatic HIV-positive patients (group A) to a matched group composed of non-HIV carriers and non-immune compromised HIV carriers (group B) after similar surgery. During a 30-month period, a prospective protocol of screening and subsequent management of HIV carriage was proposed to all patients elected for internal clean trauma or cold orthopaedic implant Surgery in the Central Hospital of Yaoundé. The screening test was an ELISA, the confirmation one the WESTERN-BLOT, while the CD4 count was done by flux cytometry. All asymptomatic HIV-positive patients with less than 500CD4 (group A) were put under ARVT before or just after their surgery while the HIV-negative and HIV-positive but with up to 500 CD4 (group B) were solely operated. Polytrauma, severe neurotrauma, open injured patients and any one with a clinical HIV related symptom were excluded. The outcome was evaluated at least six months regarding wound healing, erythrocytes sedimentation rate, reactive protein and, in case of fracture, consolidation. During the 30-month period, 646 patients were admitted to the study; that is 44 in group A and 602 in group B. The demographic data, the types of orthopaedic lesions, the type of implant surgery as well as the ARVT are presented. The mid-term outcome is compared in both groups.

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Abstract number : 16605

REVISION OF INFECTED TOTAL HIP OR KNEE ARTHROPLASTY

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OBJECTIVES: To find the best alternative for prevention and treatment of infected total hip replacement (THR) or total knee replacement (TKR). **METHODS:** We present the surgical procedures practiced for infected primary THR initially operated either in our clinic or in other medical centres. The revision surgical procedures have been practiced between 5 days - 7 years after primary THR or TKR. Between 30.03.1990-30.03.2007 in our clinic 105 patients with infected THR have been operated and 12 TKR, 255 revision procedures being practiced, 128 women and 127 men. **RESULTS:** We present the infection risk factors. Unfortunately, about half of the infections still have an unknown cause - 49%. Revisions with surgical drainage followed by antibiotic therapy have been successful in 21 cases - 20% of early surgical procedures. Large debridement, implant and cement removal, implantation of a cement spacer with antibiotic followed by 6 weeks of focused antibiotics and later prosthetic replacement - is well-known as the two-stage surgical procedure. We report a 90% successful rate. Clinical and laboratory criteria along with economic considerations have not allowed more. We must say that cement spacer offers contented functional conditions and the patients do not adventure in a later prosthetic replacement. **CONCLUSIONS:** Primary hip arthroplasty is a spectacular surgical intervention but once infection appears, it must be managed as early as possible, to permit - according to the possibilities - the preservation of both the patient life, bone stock and prosthesis or its replacement.

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Session : SIROT - Infections

Abstract number : 16704

TWENTY-THREE CASES OF SEPTIC SPONDYLITIS

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Twenty-three cases of septic spondylitis treated over a period of ten years, between January 1994 and May 2006, are studied. The clinical presentation, confirmation of diagnosis, the nature of surgery and the results are analysed. Maximum number of cases was in lumbar spine. Seventy percent of cases had history of spinal intervention as a predisposing factor for spinal infection. Patients present with back pain, fever and toxemia with heamatological evidence of acute pyogenic infection. All patients were treated by anterior debridement and bone grafting. Cultures taken during operation showed growth of pyogenic organisms. All patients showed a good bony fusion without neurological deficit.

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Abstract number : 16971

PROSPECTIVE ANALYSIS OF LEAKING POSTOPERATIVE WOUNDS IN HIP AND KNEE REPLACEMENT: EFFECTIVE MANAGEMENT

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Surgical site infection after joint replacement can impose a considerable cost both to health care and to patients, while treatment contributes towards antimicrobial resistance. A prospective study was performed on 268 patients with leaking postoperative hip and knee arthroplasty wounds. All patients included in study had postoperative leaking wound on day of discharge from hospital (5th postoperative day). After discharge from hospital all these patients were treated and followed-up at home. All wounds were inspected and documented. Our analysis showed that a large group of leaking postoperative arthroplasty wounds does not require long-term hospital stay. We can manage these wounds effectively at home with good clinical follow-up. We have to register the wound condition after the replacement operation reliably. The frequency of superficial infection after joint replacement varies in different reports from 1.4 to 8.3 per cent. All discharging wounds can heal completely and quickly after local wound care. These wounds can be treated at home with the use of available resources and choosing correct patient population. This showed considerable impact on hospital bed system management and cost effectiveness. We also need to give considerable attention to treatable medical conditions, which have impact on wound healing. Our findings also suggest that patient with leaking postoperative wounds have good clinical outcome as they followed at home regularly with consistence wound care plan. We also noticed positive impact of use of resources like trained qualified orthopaedic nurses, intensive home support and social services on patient management.

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Abstract number : 17162

TUBERCULOSIS OF THE ELBOW: A CLINICO-RADIOLOGICAL CLASSIFICATION WITH PROGNOSTIC IMPLICATIONS

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Elbow tuberculosis is still encountered in the developing world. Due to the rarity of elbow TB, the diagnosis is often delayed. Unusual patterns of presentation also confuse the picture, leading to many patients being diagnosed late. The prognostic findings at presentation have not been well defined in literature and no correlation between clinico-radiological findings and need for surgical intervention have been postulated previously. We attempt to present one such classification. **MATERIALS:** 40 elbows in 38 cases (15 male, 23 female, age 6-70 years, average delay 8 months) were evaluated clinico-radiologically, and a classification formulated, on the basis of which management protocols were defined. **OBSERVATIONS:** We classified 4 distinct stages; Stage 1 (two cases), synovitis only, had the best outcome. Stage II (9) had good results with chemotherapy and physiotherapy. Stage III (22) had fair results, with motion restriction as predominant problem; stage IV (5) had the most destruction and the poorest outcome. Surgery was only needed in Stage IV and sometimes III, when osseous lesions threaten to involve the joint. The 2 bilateral cases had different stages of involvement in both their elbows. **DISCUSSION:** Flexion deformity and reduced pronation/supination were the commonest outcomes even in well managed cases. Early presentation, isolated synovial involvement and infection limited to periarticular areas were good prognostic signs. Surgery should only be reserved for Stage III/IV disease when destruction is evident or deformity is severe. Our classification helps in prognosticating the end results and defines cases that need chemotherapy alone or combined medical and surgical management.

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Abstract number : 17228

LATE HEMATOGENOUS INFECTION DUE TO SALMONELLA IN TOTAL HIP REPLACEMENT

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We describe two cases of prosthesis reimplantation after late hematogenous Salmonella infection after hip arthroplasty. In the first, caused by *Salmonella cholerae suis*, after treatment of the septic shock, a successful two-stage procedure was performed. The cementless hip reimplantation that we used has never been described. In the second case caused by *Salmonella enteritidis*, in view of the age and poor general cardiorespiratory condition of our patient we decided against two surgical sessions and the one-stage procedure was successful. Septic arthritis is a rare consequence of *Salmonella* bacteriemia. Secondary hematogenous joint involvement is seen in less than 0.3% of patients with *Salmonella* infections. Prosthetic joint infection is an infrequent, but serious complication of total hip replacement. There have been 12 reports of prosthesis infection due to *Salmonella* in the English literature. *Salmonella typhi* and *Salmonella enteritidis* are the most common serotypes involved in bone infections. In particular there have been very few reported cases of infections due to *Salmonella cholerae suis*, which is epidemiologically an extremely uncommon serotype (0.01%). It is our experience that, even in late hematogenous *Salmonella* infection cases, through the use of applications known in modern septic joint surgery, fast recovery and rehabilitation can be achieved, with a long recurrence-free period. As concerns the technical aspects of the surgery, rapid and radical eradication of the abscess is very important. It is also essential not to think in fixed schemes, but rather to consider the pros and cons of the different procedures.

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Abstract number : 17732
SPINAL SEPSIS AND SURGICAL TREATMENT
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Our experience refers to a group of 37 patients, for a 10-year period with spinal sepsis. The most frequently isolated microorganism was *S. aureus*. These results were obtained from the hotbed puncture and bacteriological exam. In 16 cases with lumbar localization we used the left retroperitoneal approach and in 5 cases the right approach. For the thoracal localization the left thoracotomy was used in 9 cases and in 7 cases a left thoracophrenotomy was performed. All cases required one debridement with removes the septic deposits and sequestra, which is then systematically excised to expose and decompress the dura and spinal cord. We applied intersomatic somatodesis of the involved segments with autograft from the iliac crest, and antibiotic therapy must be dictated by sensitivity studies. 24 cases required posterior transpedicular instrumental stabilisation. In 31 patients we obtained good results: all infections were primary eradication and correction the column in the sagittal plane was overall with fusion levels. In 6 patients the results were satisfactory because we lost the correction with 5.5 degrees, in 2 cases because of hotbed enlargement, somatodesis and debridement were redone. The debridement and interbody somatodesis by a ventral approach is our standard method for osteomyelitis and discitis. In cases with instability or kyphotic deformity we applied internal transpedicular stabilisation. The posterior fixation assures the earlier mobilization and the smaller loss of correction, so that our patients can begin rapidly the specific rehabilitation.

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Abstract number : 17728

10 YEARS OF EXPERIENCE IN SURGICAL TREATMENT OF THE THORACOLUMBAR SPONDYLODISCITIS

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During the last 10 years we treated 187 patients with thoracolumbar TB. We used for the diagnosis the clinical exam, x-ray, CT, MRI, puncture focal level and also laboratory, bacteriology and pathology investigations. All patients followed preoperative and postoperative chemotherapy according to the WHO directives. In all cases we used the anterior transthoracic and retroperitoneal approach in 81 cases on the left and in 65 cases on the right side. In 41 cases with T12-L3 location the retroperitoneal approach was completed with transthoracic approach. In all cases we performed debridement of the lesions, the restoring of the column anatomical axes and somatodesis with iliac bone autograft. In 119 patients the surgical procedure was associated with posterior extra-focal transpedicular segmentary fixation XIA. Postoperatively the patients are mobilized at 4-7 days without another external fixation. The results depend on the extension of the lesions, on how long the evolution was, the destruction of the vertebral bodies, age and general conditions of the patients, surgical procedure and postoperative treatment. We had good results in 138 patients with complete healing of the lesion, restoring of the anatomical column axes and resuming the anterior activity. The surgical treatment associated with chemotherapy makes possible the permanent healing of the TB spondylodiscitis. The iliac crest autograft has a good mechanical resistance and maintains the anatomical axes of the column. The anterior approach makes possible a better exposure, debridement of the lesion. Posterior transpedicular fixation makes possible easily mobilization of the patients.

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Abstract number : 17939

SACROILIAC JOINT TUBERCULOSIS - A CASE REPORT AND REVIEW OF LITERATURE

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Sacroiliac joint is an unusual site for tuberculosis infection. We report a case of a 22-year-old man who presented with dull aching left buttock pain and an insidiously developing swelling of about 6x8cm around the same sacroiliac joint. He soon complained of intermittent fever and some cough with expectoration. The haematological parameters were within normal limits except for an ESR of 88mm in first hour. Montoux test was further inconclusive. 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 diagnosis and multi drug chemotherapy is a cornerstone in its treatment.

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Abstract number : 18147

"DEAD SPACE" FILLING IN ORTHOPAEDIC OPERATIONS WITH HIGH RISK OF INFECTED COMPLICATIONS

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Treatment and prophylaxis of infected complications in orthopaedic surgery is relevant problem today. The risk factor of suppuration represents "the dead space" around implants, because it filled with blood and may promote bacterial grown. The aim of this study is to analyse the Taurolin-Gel 4% application for "dead space" filling in patients with high risk of wound infections after orthopaedic operations. MATERIALS: Follow-up results of 226 operations with Taurolin-Gel 4% application have been studied. Patients were observed for 2 to 12 years. 5 groups of patients have been allocated. The first group was formed by 48 patients with infected nonunions and pseudoarthroses. Second group consisted of 46 patients with early infected postoperative complications after total joint arthroplastics. The third group was made by 38 patients with chronic infection after total joint replacement on first phase of two-stage revision, consisting in installation of articulating spacer. The fourth group included 35 patients in the second phase of two stage replacement - exchange articulating spacer on final endoprosthesis. The fifth group included 59 patients with one stage joint replacement having in the anamnesis different infected complications. RESULTS: In all five groups the total of infection recurrence was observed in 9 patients (4.0%). The best results have been received in the fifth group - only in one patient (1.7%) recurrence of a slow chronic infection carrying out has been noted. CONCLUSIONS: Filling of "Dead space" cavity with Taurolin-Gel 4% after orthopaedic operations is indicated in patients with high risk of infected complications.

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Abstract number : 18203

GRANULOMATOUS OSTEOMYELITIS DUE TO BURKHOLDERIA PSEUDOMALLEI - RESURGENCE AFTER TSUNAMI

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INTRODUCTION: Granulomatous infections of bone are one of the commonest problems in orthopaedics. *Burkholderia pseudomallei*, causative organism of melioidosis in immunocompromised host, is a very rare isolate from chronic granulomatous osteomyelitis or multifocal osteomyelitis, often resistant to the antibiotics like III generation cephalosporin and aminoglycosides. Misdiagnosis may lead to improper antibiotic therapy followed by chronicity of disease and frequent relapses. Resurgence of this microbe has been documented after the Tsunami in 2005. **MATERIAL AND METHODS:** We report case series of three cases with exceptionally rare presentation of melioidosis as granulomatous osteomyelitis. 29-year-old male presented with pain and swelling of thigh for one year. Radiograph revealed features of chronic osteomyelitis. Curettage performed, histopathology revealed chronic non-caseating granulomatous osteomyelitis. Garre's osteomyelitis; with growth negative culture. Patient was treated with 3rd generation cephalosporin for 8 weeks, who came with recurrence 6 months later. Culture of the curetting now showed growth of *Burkholderia pseudomallei*, sensitive to co-amoxycylav & trimethoprim-sulphamethoxazole, on which patient showed complete recovery and no recurrence. Other two patients presented with acute multifocal osteomyelitis and were not immunocompromised. *Burkholderia pseudomallei* was diagnosed on pus culture, sensitive to amoxy-clav, doxycyline, co-trimoxazole, meropenem, and ceftazidime. **CONCLUSION:** Awareness of possibility of this unexpected organism in AFB or culture negative chronic granulomatous osteomyelitis or acute multifocal osteomyelitis should be kept in mind and should be communicated to microbiologist.

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Abstract number : 18681

AN EXTENDED SPECTRUM BACTERICIDAL TITANIUM DIOXIDE (TiO₂) COATING FOR METALLIC IMPLANTS: IN VITRO EFFECTIVENESS AGAINST MRSA AND MECHANICAL PROPERTIES

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Implant infections remain feared and severe complications after total joint arthroplasty. An even increased risk of infection has been reported for tumour and revision arthroplasty. Novel anti-infectious surface coatings are confronted with an ever-changing resistance pattern of the pathogens. Anti-infectious surface coatings aim for a high local effective concentration and a low systemic toxicity at the same time, without jeopardizing the bony in-growth of the implant. The mechanical durability of the coating itself has also to be guaranteed. We evaluated the bactericidal activity and the adhesive strength of a sol gel derived titanium dioxide (TiO₂) coating for metallic implants with and without integrated copper ions as an anti-infectious agent. Methicillin resistant *Staphylococcus aureus* bacteria (MRSA 27065), isolated from an implant-associated infection, was used as the pathogen for the microbiological investigations. Furthermore, the adhesive strength of the implant coating on titanium specimens was determined using different tests according to ISO standards. We found a significant reduction of the bacterial growth rate for the coating with integrated copper ions, where the highest reduction rate was monitored for the four-fold copper TiO₂-coating. In the mechanical tests no detachment of the TiO₂ coating from the metallic specimens was observed, which indicates an outstanding durability of the implant coating. The TiO₂ coating with integrated copper ions could hence offer a new strategy for preventing implant associated infections, with antibacterial properties not only against the most common bacteria causing implant infections, but also multi-resistant bacteria such as MRSA.

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Session : SIROT - Infections

Abstract number : 18772

RHODOTORULA RUBRA AS A CAUSE OF PERSISTENCE OF INFECTED FEMORAL NONUNION IN AN IMMUNE COMPETENT PATIENT: FUNGAL NONUNION IN A LONG BONE!

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INTRODUCTION: Rhodotorula species has emerged as a significant cause of infection in immunosuppressed hosts and in patients with foreign devices, especially with indwelling venous catheters in malignancy. We present first case of Rhodotorula infection in a patient with infected nonunion of a long bone fracture. **MATERIAL AND METHOD:** A 30-year male developed postoperative infection following interlocked intramedullary nailing of closed fracture of shaft of left femur. Patient was subjected to multiple debrima, Fixator application, multiple IV and oral antibiotics, and Gentamicin beads implantation and bone grafting over a nine months period, with no avail. Patient also developed infection at bone graft donor site. The debrided tissue specimen and later the discharge from bone graft donor site were sent for aerobic, anaerobic, fungal and mycobacterial cultures. Culture from both sites showed growth of Rhodotorula rubra and MDR Acinetobacter species. The fungus is usually considered as normal contaminant. After 10 days repeat sample for culture again showed profuse growth of same fungus. **RESULTS:** Amphotericin-B was then started which rapidly led to healing of wound. Repeat cultures for fungus taken during wound healing, after starting amphoterecin, were negative. The patient was thoroughly screened for immunocompromised status twice (at 3 months interval) which was normal. Fracture united over ensuing 4 months with bone grafting. **CONCLUSION:** Rhodotorula rubra is yeast like fungus with cosmopolitan distribution. Improperly sterilized dressing material may introduce this fungus in the wound. This case highlights the need to consider fungal etiology in a non-healing wound. It responds favourably to antifungal drugs.

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Abstract number : 18774

SEQUEL TO OSTEOMYELITIS VARIOLOSA - A FORGOTTEN ENTITY

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INTRODUCTION: Smallpox was eradicated in 1980; hence orthopaedic manifestations of this disease are largely forgotten. Last case reported in 1979. One may encounter sequel of this disease, which may require correct diagnosis and sometimes unusual implant fixation. We report two cases. **MATERIAL AND METHODS:** Case 1: a 64-year-old male suffered traumatic fracture shaft right humerus. X-rays showed deformed elbow, elongation and prominence of both the condyles and excavation of trochlea and capitulum portion. The humerus was markedly decreased in its diameter, with extremely narrow medullary canal. Opposite elbow showed similar changes clinically and radiographically with multi directional instability. These radiographic findings were considered characteristics of prior variola infection. Presence of this deformity since childhood and smallpox scars all over body confirmed variola etiology. The fracture fixed with square ulnar nail (because of sclerosed, narrow, deformed, medullary canal) bone grafted followed by cast. Fracture united at 4 months. At 13 years postinjury, there was sound union with preinjury elbow range of motion. Case 2: a 53-year-old male presented with contusion of left elbow. X-ray showed no fracture, but similar deformities as in case I. Both elbows showed multi directional instability and smallpox scars were present all over body confirming variola etiology. Patient was treated nonoperatively and regained preinjury status gradually. **CONCLUSIONS:** Elbow joints commonly involved. The joints may be subluxed, flail, ankylosed, dislocated or show precocious osteoarthritis. The bones may be irregular, sclerosed or thickened. Difficulties, differentials and typical features of sequel of variola osteomyelitis will be discussed.

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Session : SIROT - Joint Replacement

Abstract number : 15569

PIGMENTED VILLONODULAR SYNOVITIS - AN UNUSUAL COMPLICATION OF OXFORD UNICOMPARTMENTAL KNEE REPLACEMENT LEADING TO FAILURE AND REVISION

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BACKGROUND: Pigmented Villonodular Synovitis (PVNS) is a rare disease of the synovial membrane. Its relationship to unicompartmental arthroplasty is unknown and it has never been reported as a complication of this procedure. **METHODS:** Retrospective review of the notes of two patients who presented with this rare condition after Oxford unicompartmental arthroplasty (Biomet, UK). We present their cases and discuss the difficulties we faced in their management. **DISCUSSION:** These cases are remarkably similar in their presentation. The diagnosis was confirmed histologically in both cases. We mainly focus on the diagnostic difficulties and our treatment strategies in both cases. We also review the current literature on this unusual disease.

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Session : SIROT - Joint Replacement

Abstract number : 15570

THE BIRMINGHAM MIDHEAD RESURFACING ARTHROPLASTY: INDICATIONS FOR ITS USE AND SHORT-TERM OUTCOME

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AIM: Metal on Metal (MoM) resurfacing arthroplasty has grown steadily in popularity over the last decade especially for treating young, active patients. While MoM articulations have been widely described in association with conventional arthroplasty and hip resurfacing prostheses, very little has been written or said about the Birmingham Midhead Resection (BMHR) prosthesis (Smith and Nephew, UK). This implant, which has unique features and indications for use gives the surgeon another bone conserving option for managing patients with poor bone quality in the femoral head and proximal neck. METHOD: Prospective study of eight patients who had the BMHR prosthesis inserted. Pre and postoperative clinical assessment along with the Harris Hip score, WOMAC score and Oxford scores were performed and standard X-rays. We discuss their presentation, diagnosis and our indications for using the BMHR prosthesis. Their short-term outcome at an average of ----months is also presented. RESULTS: Six male and two female patients were included. Average age was 43.7 years old. They all participated in high levels of sport though not professionally. Preoperatively average Harris hip score was 49.9, WOMAC score was 38.4 and Oxford Hip Score was 32.6. At an average 6-month follow-up their scores were 90, 10 and 15.6 respectively. They had all returned to their sports unhindered. We discuss their presentations and specific indications for the mid head resection arthroplasty.

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Abstract number : 16673

THE BENEFITS OF ENDOPROTHESIS BY RESURFACING METHOD

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PURPOSE: Resurfacing Endoprosthesis is a new method, definitely superior to the endoprosthesis techniques currently used, due to its immediate post-operator recovery, at distance, being followed by a full recovery of the pelvic member function, also having a low rate of post-operator issues. **MATERIALS AND METHODS:** We treated 32 patients with primary or secondary arthrosis at the Orthopedic-Traumatology Clinic of the University Emergency Hospital Bucharest between 2005 and 2007. Sex ratio: 22 men and 10 women. Age between 20-30 in the case of 11 patients, 30-40 in the case of 17 patients, over 40 in the case of 5 patients. The recovery was very fast, within a short period of time the patient being able to make complex movements of normal amplitude, totally forbidden in the case of total prosthesis with small head. **RESULTS:** After operation the patients mobilised with a progressive loading with support within the first 7 days; afterwards they loaded fully with the help of 2 sticks for another 7 days, giving up one of the sticks within 21 days. One month after operation they were moving with full loading without any support, movements being recovered partially. **CONCLUSIONS:** The importance of this type of arthroplasty comes from the fact that it addresses to the young patients who keep bone capital, maintains the femoral neck vascularisation, being able to get back to intense physical effort, to get back the full movement of the hips' articulation, also the lack of a major issue in the hip arthroplasties represented by luxation.

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Session : SIROT - Joint Replacement

Abstract number : 16692

NO EFFECT OF WET ETCHING OR PLASMA CLEANING GRIT BLASTED TITANIUM IMPLANTS ON MECHANICAL FIXATION AND OSSEOINTEGRATION

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INTRODUCTION: Interaction between implant surface and surrounding bone determines initial implant fixation. Adherent pro-inflammatory agents such as bacterial endotoxins may negatively affect implant osseointegration, and micro-textural surface structures may positively affect osseointegration. **PURPOSE:** Therefore, the purpose of this study was to investigate the implant fixating effect of both removing all surface-adherent pro-inflammatory agents by plasma cleaning together with the effect of wet etched micro-textural changes on grit blasted implant surfaces. **MATERIALS AND METHODS:** The study consisted of two paired animal sub-studies in 10 skeletally mature Labrador dogs. Each dog had 2 implant pairs inserted press fit in the proximal tibiae: 1) Ti Grit Blast vs. Ti Grit Blast with wet etched surface, and 2) Ti Grit Blast vs. Ti Grit Blast with wet etched surface, which was additionally plasma cleaned. Observation time was four weeks. Implant performance was evaluated by histomorphometric investigation (tissue-to-implant contact, periimplant tissue density) and mechanical push-out testing. **RESULTS:** We found no statistical significant improvements by plasma cleaning or wet etching of the grit blasted implant surfaces, neither in regards to osseointegration, nor to mechanical fixation. **CONCLUSION:** Extensive endotoxin removal by plasma cleaning and wet etching of grit blasted implant surfaces did not prove any beneficial effect on osseointegration and mechanical fixation in this press fit canine implant model.

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Session : SIROT - Joint Replacement

Abstract number : 16846

TOTAL HIP ARTHROPLASTY USING CYLINDRICAL CEMENTLESS STEM IN JAPANESE PATIENTS

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The femur in Japanese is usually short, excessively bowed, and with a narrow canal. We report clinical and radiological results of total hip arthroplasty using AML cementless stems (DePuy, USA) in Japanese patients. MATERIALS: Fifty joints in 44 patients including 40 developmentally dysplastic hips were followed for 11 to 19 years. Mean age at the operation was 58 years and average height and body weight were 152cm and 56kg. RESULTS: The average Harris hip score improved from 46 points preoperatively to 87 at the final follow-up. Thigh pain appeared in 6 joints (12%). Dislocations occurred in 11 joints (22%) and 11 acetabular components were revised because of wear or breakage of polyethylene liner and dislocation. Press-fit of the stem was achieved in 39 joints (78%) immediately after the surgery. Forty-nine stems (98%) showed bone ingrown or stable fibrous fixation. All stems which showed press-fit at postoperative XP achieved bone ingrown fixation at the final follow-up. No stems were revised. Survival rates were 100% in the femoral side and 78% in the acetabular side. DISCUSSION: One of the causes of the high incidence of dislocation was the small ball head diameter. The structural problems of the acetabular component also caused a high incidence of the PE liner breakage. But the AML stem produced stable fixation following high reproducibility for straight insertion with press-fit. The simple cylindrical shape of the distal portion of the stem is less affected by deformity of the proximal femur of DDH.

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Session : SIROT - Joint Replacement

Abstract number : 16941

OUR FIRST EXPERIENCE WITH THE PROXIMA DEPUY SURGERY

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INTRODUCTION: We would like to present hereby our 2 year-experience with implantation of the Proxima DePuy using surgical technique "round the corner". PURPOSES: This relatively new technique has been introduced to Czech orthopaedic community only about 2 years ago. It offers us and our patients a completely new on look on total hip replacement. HYPOTHESIS: Will our expectations for this new out coming hip implant be fulfilled? MATERIAL AND METHODS: Implantation of the Proxima DePuy hip arthroplasty to group of 28 patients. RESULTS: In our group of patients we had complication 1x perioperatively - fissure of femur metaphysis, 3x postoperatively - SVT, FiS, paralytic ileus, trombophlebitis superficialis. On postoperative X rays we noted 2x varus position of endoprothesis. DISCUSSION: Presentation of 3 surgical approaches - their advantages and disadvantages. Highlights on surgeons failure using the "round the corner" technique. X-ray gallery of our patients. CONCLUSION: The boom versus the real profit which can be achieved by using the "round the corner" technique of implantation the Proxima DePuy arthroplasty.

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Session : SIROT - Joint Replacement

Abstract number : 17050

INFLUENCE OF IMPLANT DESIGN ON METAL WEAR AND BIOLOGICAL RESPONSE FOLLOWING RESURFACING ARTHROPLASTY

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Metal on metal articulation generates nanoparticles that have been shown to produce intracellular changes at the molecular level - chromosome breaks and translocations, and aneuploidy. Design features of the head and cup determine the volumetric wear, particularly during the bedding-in phase. It has been suggested that the design features of the prostheses from different manufacturers will provide very different wear characteristics. This respective clinical study assessed 2 resurfacing devices in current use. Blood metals were monitored preoperatively and at 6, 12 and 24 months. Molecular changes in peripheral blood T lymphocytes were also analysed at these time intervals. Preliminary data with six-month follow-up have identified no difference in blood metal levels or in mutagenic changes in peripheral blood between these two implants. These findings again emphasize that in-vitro findings should be extrapolated to the clinical setting with caution.

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Session : SIROT - Joint Replacement

Abstract number : 17132

RADIOGRAPHIC STABILITY AND POLYETHYLENE WEAR RATE IN UNIFORM CEMENTLESS TOTAL-HIP-ARTHROPLASTY FOR THE PATIENTS WITH RHEUMATOID ARTHRITIS AND OSTEONECROSIS OF THE FEMORAL HEAD - PROSPECTIVE COMPARISON STUDY FOR 10 YEARS

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PURPOSE: The purpose of this study was to clarify whether or not there are any differences between the patients with rheumatoid arthritis (RA) or idiopathic osteonecrosis of the femoral head (ION) concerning the radiographic stability and the polyethylene wear rate at the mean 10-year (6-15) follow-up period after undergoing the same cementless total-hip-arthroplasty (THA). **METHOD:** We evaluated 32 patients with RA or ION who underwent cementless Mallery-Head THA (Biomet Inc.) between 1992 and 2000. RA Group consisted of 16 hip cases (50-year-old and 10-year follow-up) and ION group comprised 16 cases (55 yrs, 10 yrs). The radiographic instability in the cup was defined as the development of radiolucent line (>2mm) or the shift of the cap (>4mm). As regards the stem instability, the progressive subsidence (>3 yrs) and the development of radiolucent line on porous surface were established as benchmarks. Polyethylene linear wear rate was also measured. **RESULTS:** All cases in both groups showed stable radiographic fixation of both the cup and the stem. The linear wear rate of 0.126(mm/yr) observed in RA group showed no significant difference compared with 0.134 observed in ION group. **CONCLUSION:** Mallery-Head THA has demonstrated stable fixation in all cases in RA group as well as in ION group during the 10-year follow-up period. There is no difference between RA group and ION group with respect to the polyethylene wear rate.

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Abstract number : 17623

PREDICTION OF SAGITTAL PELVIC ROTATION IN PLAIN PELVIS X-RAY

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Different methods had been described to estimate the degree of sagittal pelvic rotation in plain pelvic AP XR. Tang measured the obturator foramen ratio, which was defined as the tallest height over the widest width of the right obturator foramen. Katada and Ando measured the pelvic-tilt index, which was defined as the vertical diameter of the obturator foramen divided by the horizontal diameter of the pelvic foramen. Nishihara estimated the pelvic flexion angle by calculating the ratio of the vertical diameter of the pelvic foramen to the horizontal diameter. In our study, 15 sets of plain pelvic AP XR were randomly selected from our XR database for patients having avascular necrosis of hip. Values were then calculated according to methods described by Tang (Mean 0.86, SD 0.11, Range 0.66-1.14), Katada and Ando (Mean 0.68, SD 0.09, Range 0.47-0.85), and Nishihara (Mean 0.68, SD 0.09, Range 0.47-0.85) respectively for reference. Plain pelvic AP XR were then taken in 13 sets of cadaveric bony pelvis in pre-determined degree of sagittal pelvic rotation (pelvis in neutral sagittal rotation, in 10°, 20°, 30°, 40°, 50° hyperextension, and in 10°, 20°, 30° hyperflexion). The effect of sagittal pelvic rotation on the values calculated by the methods described by Tang, Katada and Ando, and Nishihara were then studied. **CONCLUSION:** Sagittal Pelvic rotation can be assessed by using Plain Pelvis X-Ray.

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Session : SIROT - Joint Replacement

Abstract number : 17772

MODIFICATION OF THE FEMORAL STEM "IMPLANT-S"

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"Implant S" femoral stem (previously named "Implant Elite") is a straight anatomical stem made of titanium. It has grit blasted distal part with longitudinal riffling, plasma-spray coating of proximal and intermediate part and enhanced metaphyseal part. In accordance with observational data, secondary biological fixation of these stems in proximal part of femur occurs in 20% approximately. We observed 2 cases of fatigue fractures at the boarder of proximal and medium parts of stem in the group of 74 stems (2.7%) in terms of 1.5-2 years after operation. There were signs of distal secondary fixation in all of these cases. We have performed the series of modeling of mechanical system "femoral stem - femur" by finite-element method. High risk of overstrain of femoral stem when tight fixation of proximal part is insufficient was established. On the basis of these data we modified the design of stem. The new femoral stem named "Implant Pro". It has lesser length, polished distal part for preventing tight osteointegration. Plasma-spray coating was kept only on proximal part. In the medium part plasma-spray coating was changed on grit-blasted surface. Geometric parameters of medium and proximal parts of stem were changed for the achievement of better strength characteristics in the probable point of overstrain and fatigue fracture. The achievement of more proximal fixation for bone preservation and better durability of the stem were the aims of these changes. It is the authors' opinion that "Implant Pro" stem is suitable for more young and/or active patients.

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Abstract number : 17983

IN VIVO OXIDATION OF RETRIEVED UHMWPE INSERTS WITH GAMMA-RAY AND ETHYLENE OXIDE GAS STERILIZATION IN TOTAL KNEE PROSTHESES

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Many previous studies reported that the gamma-sterilized UHMWPE containing free radicals degraded with substantial oxidation in vivo. It has been concern that such degraded UHMWPE might decrease wear resistance or fracture toughness. In this study, we evaluated the influence of gamma-ray and ethylene oxide gas (EOG) sterilizations on in vivo oxidation of seven retrieved total knee prosthesis (TKP) of clinical use for 6-23 years by using a microscopic Fourier transform infrared spectrophotometer, by the oxidation index according to ASTM F2102. The UHMWPE inserts of EOG sterilizations are three, and that of gamma-ray sterilizations are four. The oxidation index of the gamma-ray sterilized insert was higher compared with that of EOG sterilized one in the both worn and unworn area. There was no difference between the oxidation index in the worn area and that in the unworn area in each cohort. Some of previous studies reported that the oxidation index was lower in the worn area than in the unworn area in total hip prosthesis. In contrast in TKPs in this study, the oxidation index of worn area was almost the same compared with unworn area. It is that because the UHMWPE insert was fully exposed to the body fluid containing oxygen. Free radicals produced by gamma-ray sterilization are also responsible for oxidative degradation. In conclusion, the sterilization methods affect in vivo oxidation, and gamma-ray sterilization has an undesirable influence (e.g. delamination and fracture) upon wear resistance of UHMWPE TKP inserts.

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Session : SIROT - Osteoporosis

Abstract number : 16274

A NOVEL TECHNIQUE IN APPLYING SKELETAL TRACTION FOR LONG BONE FRACTURES

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BACKGROUND: Prior to the 1900s, femoral-shaft fractures were treated with various types of splinting. In 1907 and 1909, Fritz Steinmann and Kirschner respectively developed the first traction treatment modalities with the use of pins or wires under tension. A single pin is usually placed either at the distal femur or proximal tibia when applying skeletal traction for treating femoral fractures. Complications associated with skeletal traction include pin track infection and loosening 1 which may require repositioning of the pin and inefficient traction forces applied across the fracture. Pin-fixation problems are particularly severe in patients with osteoporosis, which can be a relative contraindication to external fixation and presents a challenge for any fixation technique 2. **METHOD AND DISCUSSION:** We propose a novel technique in applying skeletal traction, two Denham pins are placed into the proximal tibia 2.5cm posterior to and 2.5cm distal to tibial tubercle, the pins are then connected with a Hoffmann external fixator connector producing a stable construct. Traction is then applied to both pins through free weights attached to a pulley at the end of the bed. This technique was used effectively in elderly osteoporotic patients who had sustained femoral supracondylar fragility fractures and were not fit for operative fixation of the fractures. There was no incidence of pin loosening or pin-site infection noted. This technique can be safely applied for the treatment of long bone fractures effectively, particularly in osteoporotic patients where pin loosening and poor pin fixation are more likely to occur.

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Session : SIROT - Osteoporosis

Abstract number : 17399

ULTRASOUND DENSITOMETRY EVALUATION IN POSTMENOPAUSAL WOMEN WITH COLLES' FRACTURE

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This research aimed at studying the bone tissue state among women with Colles' fracture by means of the ultrasound densitometry method. The total of 34 healthy postmenopausal women 42-74 years old (62.1 ± 7.5) with Colles' fracture in their anamnesis (CF) were examined by ultrasound bone densitometer "Achilles+" (Lunar Corp., Madison, WI). The control group included postmenopausal women without any osteoporotic fractures in their anamnesis (WF), being standardized by age, BMI, etc. The speed of sound (SOS, m/s), broadband ultrasound attenuation (BUA, dB/MHz) and a calculated "Stiffness" index (SI, %) were measured. The main risk factors for the osteoporotic Colles' fracture turned out to be a menarche after 15 years, an early and late menopause. 29.3% of CF had a bone tissue SI coinciding with the baseline of fracture risk or under it. Only 12.5% of CF were noticed to have a normal bone tissue. The ultrasound parameters were veritably lower among postmenopausal women with CF than among WF (SOS: CF - 1524 ± 28.4 ; WF - 1543 ± 24.3 , $p < 0.05$; BUA: CF - 102 ± 17.8 ; WF - 109 ± 12.0 , $p < 0.05$; SI: CF - 76 ± 14.9 ; WF - 85 ± 13.5 , $p < 0.05$; all values are the mean \pm SD). In summary, ultrasound densitometry is an effective screening method to reveal the women of risk group with future osteoporotic Colles' fracture in postmenopausal period.

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Session : SIROT - Osteoporosis

Abstract number : 17436

STRONTIUM FORTIFIED CALCIUM COMPOUND STIMULATES OSTEOGENIC FACTORS EXPRESSION AND NEW BONE FORMATION IN LARGE ANIMAL MODEL

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INTRODUCTION: Strontium is one of the most exciting concepts in the field of osteoporosis by concomitantly inhibiting bone resorption and enhancing bone formation. We hypothesized that, with the supplementation of a novel strontium fortified calcium compound, calcium will supply nutrition for bone while strontium will display synergistic effects for enhancing bone formation activity. **METHODS:** 18 ovariectomized goats were divided into four groups: group 1 (3 goats) control; group 2, 3 and 4 (5 per group) were treated daily with 100Ca, 100Ca+24Sr, 100Ca+40Sr mg/kg orally for 16 weeks, respectively. Strontium and calcium contents in serum and bone were determined. BMD of the lumbar vertebrae was measured by DXA. MRNA was isolated from bone matrix and evaluated by RT-PCR to determine the transcription activities of key osteogenic factors. **RESULTS:** Combination of Sr and Ca treatment significantly increased Sr concentration without changing in Ca concentration. BMD of group 2 and 3 slightly increased from 0.160±0.005 to 0.163±0.013 and 0.170±0.015gms/cm², respectively. BMD of group 4 was significantly increased by 9.4% (p<0.05). Calcium significantly depressed TNF- α expression (p<0.05). IGF-I and Runx-2 expression increased, while TNF- α expression decreased in group 3 and 4. However, a considerable increase of Runx-2 and decrease of TNF- α were only found in group 4. **CONCLUSION:** An increased BMD indicates that strontium combined with calcium stimulated bone formation. Increased IGF-I, Runx-2 and decreased TNF- α expression confirm the anabolic and antiresorptive activity of strontium on bone.

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Session : SIROT - Osteoporosis

Abstract number : 17475

PRELIMINARY RESULTS OF USING THE VIBRATION PLATFORM IN TREATMENT OF OSTEOPOROSIS

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INTRODUCTION: Osteoporosis is known as the "silent epidemic". Bone density loss progresses without noticeable symptoms. Once a fracture has occurred, the risk of a future fracture is at least doubled within one year. **METHODS:** We present our preliminary results of using the vibration platform in treatment of osteoporosis. 20 women over the age of 60 with osteoporosis fracture diagnosed by DXA were treated with alendronate. 10 of them received also a dynamic motion therapy (DMT) by vibration platform. **RESULTS:** All patients have at least stopped the evolution of the osteoporosis. The DXA measure increase averaging 0.5% in 6 month. The patients who received also a DMT, 5 days per week - 20 minutes per day, increase in averaging 1%. **CONCLUSION:** These results are preliminary. This study shows that using the DMT in treatment of osteoporosis is efficient as adjuvant therapy. We hope in future to increase the number of patients in this study.

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Abstract number : 18017

EXPERIMENTAL AND CLINICAL RESEARCH INTO EFFECTIVENESS OF CALCEMIN FOR PROPHYLAXIS AND TREATMENT OF OSTEOPOROSIS

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The aim was to estimate the effectiveness of calcemin drug for prophylaxis and treatment of osteoporosis in experimental study, healthy elderly people, and patients with proximal hip fractures in anamnesis. During the experimental research 18 adult rats were examined and divided into three groups (I - intact animals, II - rats after surgical castration, III - operated animals treated with calcemin). 12 somatically healthy postmenopausal women with osteoporosis or osteopenia (HW) and 10 patients with hip fractures (HF) were clinically examined and prescribed 1 tablet of calcemin twice a day. We have examined 20 patients who were not treated with calcium drug during the period of follow-up. The bone state was evaluated by its solidity, chemical composition, mineral component's ultra-structure, questionnaire (visual analogy scale (VAS)), ultrasound densitometry. Application of calcemin for rats after experimental ovariectomy brings considerable improvement of bone solidity, changes in chemical bone composition. Analysis of calcemin's effectiveness in treatment of HW revealed reliable decrease of vertebral pain syndrome over 6 months of treatment (index dynamics (ID) by VAS - 2.4 ± 0.4 sm, $p < 0.05$) compared to lack of reliable ID. Application of calcemin to treat HF led to the reduction of pain syndrome in the damaged extremity (ID according to the data of VAS: -2.3 ± 0.4 sm, $p < 0.05$), improvement of functional status of the extremity (ID by Neverov's scale: -0.8 ± 0.3 points, $p < 0.05$). **CONCLUSION:** Calcemin is an effective means for prophylaxis and treatment of osteoporosis.

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Session : SIROT - Osteoporosis

Abstract number : 18182

INCIDENCE OF OSTEOPOROSIS IN MEN

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INTRODUCTION: The goal of the study is to assess the incidence of osteoporosis in male patients. **PATIENTS AND METHODS:** We observed a number of 100 consecutive male patients hospitalized with fractures in our orthopedic department. The period of study was September-October 2008. The main average age was 47.3 (from 23 to 87). We perform a DEXA osteodensitometry using a General Electric device as soon as the treatment of the fracture was done. We realised a complete medical history and laboratory tests in order to found lifestyle habits, conditions and diseases which can be associated with osteoporosis. **RESULTS:** We found osteoporosis in 17 patients, and osteopenia in 23 patients according to the T-score. The most common factors associated with osteoporosis and osteopenia were - smoking (37), old age (n=27), low calcium intake (23), excessive alcohol use (19), gastroenterological diseases (14 - irritable bowel syndrome, hepatic cirrhosis), prolonged use of certain medications (11 - steroids, anticonvulsivants, aluminium-containing antiacids, loop diuretics, insulin), long immobilisation in hemiplegia (1), ankylosing spondylitis (1), multiple myeloma (1). **CONCLUSION:** The osteoporosis in men is not such a rare disease.

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Abstract number : 18194

PLAIN RADIOGRAPH BASED SCREENING TOOL FOR ASSESSMENT OF BONE DENSITY

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INTRODUCTION: Osteoporosis is highly prevalent in India. An estimated 31 million people in India are reported to be affected by it. Several techniques exist for performing densitometric measurement of bone; however most of these modalities are expensive and require a visit to the secondary or tertiary hospital. Plain radiograph can reveal bone erosion but quantification of bone density is not possible. **AIM:** To analyse the efficacy of a plain radiograph based screening tool for evaluating the bone mineral density. **MATERIAL AND METHODS:** A simple image analysis algorithm is used, on standardized digitized radiographic images of the hand using MATLAB® for Windows. The data obtained are then compared with those of quantitative computed tomography (QCT) values from the same patients, using linear regression analysis using SPSS (version 11.0). **RESULTS:** The statistical analysis showed definite correlation between the data from QCT and Image analysis algorithm. Moreover the technique is also sensitive to differentiate between normal and osteopaenic or osteoporotic bones. **CONCLUSION:** The radiographic estimation of bone density using image analysis algorithm provides an alternative to other expensive bone density estimation modalities. It also can be used as an effective screening tool for osteoporosis.

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Abstract number : 18582

EXCESS MORTALITY AFTER HIP FRACTURE AMONG OLDER WOMEN AND MEN: EVIDENCE FROM DATA SEARCHES AND LIFE-TABLE ANALYSES

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OBJECTIVES: To determine the magnitude and duration of excess mortality after hip fracture in older women and men, both in terms of relative and absolute excess mortality. **DATA SYNTHESIS:** Time-to-event meta-analyses based on survival curves from 24 cohort studies indicated that during the first three months after hip fracture the pooled relative hazard (RH) of death is 5.36 (95% confidence interval: 4.61-6.23) in women and 7.29 (5.68, 9.36) in men. Beyond the second year after fracture, the pooled RHs in women and men are 1.55 (1.38, 1.75) and 1.35 (1.25, 1.46), respectively. Life-table methods estimated that women sustaining a fracture at age 70 have an excess mortality of 3%, 5%, 9%, and 15% at 1, 2, 5, and 10 years after injury, respectively. Likewise, men at age 70 have an excess mortality of 7%, 9%, 13%, and 17%. At age 75, these differences in absolute risk of death are 5%, 7%, 13%, and 20% in women and, 11%, 14%, 19%, and 20% in men, respectively. At age 80, the differences are 8%, 12%, 19%, and 21% in women and, 17%, 21%, 24%, and 19% in men, respectively. **CONCLUSIONS:** Compared to age and sex-matched controls, hip fracture patients have a significant five- to sevenfold increased risk of death during the first three months. In both genders, excess mortality persists over time. At any given age, relative and absolute excess mortality after hip fracture is higher in men than in women.

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Abstract number : 18593

RISK OF RENAL FAILURE IN ELDERLY PATIENTS TREATED WITH AINS FOR HIP ARTHRITIS

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Very old persons (> 80 years old) have frequently chronic renal insufficiency (CRI) stage II (Cl cr = 60-30ml/min) or stage III (Cl cr = 15-30ml/min) in spite of normal ranges of blood urea and serum creatinine. This situation might be misleading for practitioners in recommending long-term treatment with nonsteroidal anti-inflammatory drugs (NSAIDs) for chronic pain induced by hip arthritis, extremely frequent in this category. METHODS: A prospective study of 22 patients aged 80 years admitted in the Geriatric Department of "Dr. C.I. Parhon Hospital" for chronic pain due to hip arthritis was conducted. Renal function was assessed by creatinine clearance (calculated by Cockcroft-Gault formula). Our patients received AINS treatment for 7 days and the impact over renal function was measured afterwards. RESULTS: All patients had no symptoms of renal deficiency and their serum levels of urea and creatinine were normal. However, Cl cr showed that 10 patients had CRI stage III (group 1) and 12 patients had CRI stage II (group 2). After 7 days of AINS treatment, 6 patients from group 1 (60%) and 4 patients from group 2 (33%) presented a significant decrease in Cl cr while maintaining normal ranges of serum urea and creatinine. CONCLUSION: It is extremely important to monitor Cl cr while prescribing AINS treatment in elderly patients with chronic pain due to arthritis because any other renal tests might be inconclusive regarding to negative side effects of these drugs over renal function.

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Session : SIROT - Tissue Engineering

Abstract number : 16884

BIODEGRADABLE FILMS IN TRAUMA AND ORTHOPEDIC SURGERY

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Resorbable materials have gained a considerable position in the daily routine of surgical disciplines. Since the development of synthetical macromolecules, the range of indications for the use of such materials has widened significantly in our daily routine. Suture materials, mesh, tissue pads, clips, screws and anchors are in use. More recent developments in the orthopedic and trauma surgery include wound dressing materials and films for the prevention of adhesions and ossifications. This appears to be the beginning of an era of new materials as these implants not only fulfil a temporary biomechanical role but also can release a controlled amount of biologically active substances at a set time frame. Also they are potential carriers for transplants on a cellular level. Now, there are six resorbable or biodegradable films or foils on the market that are used or can be used in the field of orthopedic and trauma surgery. These are foils made of following materials: carboxy-methyl-cellulose and hyaluronic acid (Seprafilm®), oxidised regenerated cellulose (Interceed®), polydioxanon (PDS®) and copolymers of lactid und caprolacton (Topkin®, Oprafol®, Mesofol®). Main indications for their use are wound dressing, especially after split skin graft and thermal wounds, prophylaxis of adhesions and prevention of the formation of synostoses and heterotopic ossifications. The results of clinical trials are promising and the increasing number of publications in the last 5 years is an expression of increasing demand of these materials. However, it could be an expression of the growing interest in drug delivery techniques as well as in tissue engineering.

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Abstract number : 17517

BOROSILICATE SCAFFOLD FOR TISSUE ENGINEERING

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INTRODUCTION: Borosilicate glass shows great potential in bone tissue engineering due to higher bioactivity and better controllable degradation than traditional 45S5 bioglass. Therefore, such a material can be made as a template to fabricate bio-scaffold. **MATERIALS AND METHODS:** The interconnected porous scaffold was made based on the composition of 6Na₂O -8K₂O -8MgO -22CaO -2P₂O₅ -18SiO₂ -36B₂O₃ by replication method. The dissolution behaviour and bioactivity of such scaffold was evaluated in SBF solution at body temperature. **RESULTS AND DISCUSSIONS:** The original porosity of scaffold was measured ~76%, soaking in SBF solution after 1, 3, 7, 15 and 30d, the pore size slightly increased from original 300-500 um to around 600-700 um, thus the compressive strength decreased from 11.2 MPa to 8.8, 7.2, 6.4, 4.8 and 2.4 MPa respectively. EDX showed that all the composition decreased dramatically except Ca and P. In particular, B decreased rapidly in 3d, but released slowly later. Fine nucleation was detected on scaffold surface even soaking in SBF solution for just 1d and grew with time. Although no significant XRD peaks were detectable, the increased Ca and P content indicated the precipitate of bone-like material, where the Ca/P ratio was close to the stoichiometric ratio for HAp: 1.67. **CONCLUSIONS:** Borosilicate glass was an ideal material for the fabrication of scaffold due to high bioactivity, well mechanical property and completely degradation. The coming next work for biocompatibility is necessary due to the reported toxicity of borate.

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Abstract number : 17714

FATE OF ETHYLENE OXIDE STERILIZED ALLOGRAFTS

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INTRODUCTION: With newer techniques of reconstruction, allografts are becoming more accepted in Orthopaedics. Ethylene Oxide sterilized allograft has all properties of ideal graft and avoids donor site morbidity. Purpose of this work was to study usefulness of ETO sterilized allografts required for various Orthopaedic surgeries where bone grafting is indicated. **PATIENTS AND METHOD:** Study comprises of 12 men and 9 females from 1 1/2-65 yrs of age who required ETO sterilized allografts required for various Orthopaedic operations like vertebral body fusion, delayed union, nonunion and as a filler for bone cavities, between March 1997 and November 1998. Allografts were procured from femoral heads after hemiarthroplasty, patellectomy, amputated limbs, excised head radius and lower end ulna, pieces of cancellous bone and excised spinous processes at Laminectomy. **RESULTS:** Follow-up of each patient ranges from 2 1/2 to 4 years. Status of allograft incorporation was classified as good (complete incorporation) in 19 (90.48%) and poor (no incorporation) in 2 (9.52%) patients as seen on roentgenogram. Incorporation of graft took 5 months on average, range being 3-24 months. **CONCLUSION:** Decal-bone, formalin preserved and deep freeze dried allografts have their own problems from procurement to cost. ETO sterilized allografts supersede others as grafts. As grafts are treated with Hypochlorite solution, all viruses including Retrovirus are destroyed. Preparation and use of ETO sterilized allografts are simple, involve less finance and technical expertise, are equally good for nonunion compared to autografts and formalin preserved allografts can be stored for long time.

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Session : SIROT - Tissue Engineering

Abstract number : 17738

THE SURGICAL TREATMENT OF LIMB LENGTH INEQUALITY, BONE LOSS AND NONUNIONS OF LONG BONES WITH EXTERNAL FIXATOR ILIZAROV

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External fixation with fixator Ilizarov has the unique feature of allowing a controlled adjustment of the rigidity of fixation during the progress of the limb length inequality, bone loss and nonunions of long bones. The study comprises 46 patients. Lengthening and rebuilding the bone with external fixator Ilizarov was applied at 12 patients for humerus, 15 patients for femur and 19 patients for tibia. The lengthening was performed from 4cm to 21cm. During the lengthening process and during the bone rebuilding process the patients followed a complex rehabilitation programme adjusted to each situation, having some common points: early mobilization with loading at almost every case of nonunions and partial loading in case of bone loss, improving muscle strength and articular mobility. Good results were obtained in 31 patients with limb equalizing bone stock restore, nonunion and bone loss with improving muscle strength and articular mobility. External fixation Ilizarov has the advantages of external fixation at some distance from the hotbed with mechanical control possibilities and bone elements stabilization. Only external fixation Ilizarov makes possible any maneuver of compacting, lengthening, rotating, and in the same time, partial or total loading of the inferior limb. External fixation Ilizarov makes possible immediate movement in proximal and distal articulations of the limb. As greater inequality and bone loss, as much you need to use external fixation Ilizarov, in the same time making possible to move the articulations and to line the inferior limb, accelerating bone union.

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Session : SIROT - Tumours

Abstract number : 15976

THE ASSOCIATION OF RADIOLOGY AND PAAF FOR DIAGNOSING MYELOMAS

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Extramedullary plasmocytomas are uncommon neoplasias of plasmatic cells which can leave the bone marrow and give rise to a solitary tumour of plasmatic cells (primary extramedullary plasmocytoma) or be present as a manifestation of a previously known or unknown multiple myeloma (secondary extramedullary plasmocytoma). CASE STUDY: The subject is a 54-year-old male with interesting antecedents that begin with a pathologic fracture of the right humerus, whose x-ray showed a lytic lesion of a permeating nature, suggesting a possible diagnosis of myeloma or plasmocytoma. A cytology examination was conducted to obtain material for an immunocytochemical study, and a cellular block, that led to the diagnosis of plasmocytoma. DISCUSSION: The radiological and cytological findings suggest a differential diagnosis between plasmocytoma, high degree lymphoma, poorly differentiated carcinoma and even melanoma. The association of a cytological image together with immunocytochemical typification makes a definitive diagnosis possible. PAAF is a highly useful method to detect primary myeloma which also saves the need to perform open biopsies. Therefore, it is recommended to perform the PAAF, guided by the radiological image, on patients with radiological destructive bone lesions (4).

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Abstract number : 16258

PERIOPERATIVE HEMORRHAGE AND TRANSFUSION IN ORTHOPEDIC ONCOLOGY

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Musculoskeletal tumour surgery in the West African subregion is rapidly evolving. This is associated with significant blood losses necessitating large amount of transfusion. Allogeneic blood transfusion has been associated with increased recurrence of malignancies fraught with complications. This study evaluates the blood loss and transfusion requirements in musculoskeletal tumour surgeries. The study was done over a 5-year period. 74 surgeries performed in 58 patients. Data used were age, sex, tumour type, procedures, blood loss/transfusion and complications. The age range was 7 to 85 yr; mean of 26.1 years. [M:F ratio 1.6: 1]. Benign bone tumours accounted for 55%, primary malignant lesions diagnosed in 41% of cases. Secondary malignant tumour was in 4% of cases. Tourniquet was possible in only 36%, the operation time range from 42 to 184 minutes [mean 67.5 minutes]. Range for total blood loss was 5 to 4950mls. Mean blood loss was more for procedures such as forequarter amputations, above knee amputations and resection/reconstruction. Significant correlation between total blood loss and operation time was observed. Blood transfusion required in 57.1% of the surgeries. Number of units transfused range from 0 and 4500mls. Early complications noted include, febrile reaction [33%], malaria fever [21%], hemolytic reaction [6%]. Blood loss in Orthopedic Oncology is high. Use of autologous blood transfusion and recombinant erythropoietin is recommended.

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Abstract number : 16916

IMMUNOHISTOCHEMICAL ANALYSES OF BETA-CATENIN AND CYCLIN D1 EXPRESSION IN GIANT CELL TUMOUR OF BONE (GCTB): A POSSIBLE ROLE OF WNT PATHWAY IN GCTB TUMORIGENESIS

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AIM: Giant cell tumour of bone (GCTB) is a benign neoplasm but occasionally shows local recurrence, and histologically consists of osteoclast-like giant cells (OGC) and stromal mononuclear cells (SMC) which possess the ability of proliferation and osteoblastic differentiation. Activation of Wnt signaling can induce osteoblast differentiation and osteoclastogenesis during bone resorption process. This study analysed the profile of beta-catenin and cyclin D1 expressions in GCTB to elucidate an involvement of Wnt pathway in tumorigenesis. SUBJECTS AND METHODS: We performed immunostaining for beta-catenin, cyclin D1 and Ki-67 with 11 of GCTB tumours including 4 recurrent cases which were surgically resected. RESULTS: All GCTB displayed beta-catenin and cyclin D1 expressions. Beta-catenin stain was mainly observed in nuclei of SMC and in cytoplasm of OGC. Cyclin D1 immunoreactivity was found in OGC, while Ki-67 immunoreactivity was restricted to SMC. The levels of nuclear beta-catenin (60.3 vs. 40.4%) and Ki-67 labeling index (LI) (19.2 vs. 16.8%) were significantly higher in recurrent tumours than in primary. However, the level of cyclin D1 LI in OGC was not higher in recurrent tumours than in primary (10.0 vs. 11.6%). DISCUSSION AND CONCLUSION: Accumulation of nuclear beta-catenin in SMC may be associated with tumour proliferation and recurrence in GCTB. Cytoplasmic beta-catenin expression in OGC may be associated with up-regulation of cyclin D1 overexpression and subsequently induction of OGC in GCTB. Thus, this study suggested a possible role of Wnt pathway during GCTB tumorigenesis.

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Abstract number : 17021

GIANT CELL TUMOUR OF POSTERIOR CRUCIATE LIGAMENT (PCL)

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Tenosynovial giant cell tumours (TGCT) are hyperplastic formations arising from synovial tissues of the joints and tendon sheaths. TGCT of tendon sheath are rarely intra-articular. In literature, there is only one case of TGCT arising from PCL (1). We report a 54-year-old female referred to our clinic for right knee pain. No bone pathology was detected in radiographies. In MRI, a regular contoured mass localised in PCL was detected. The mass was totally resected arthroscopically. The histopathological study revealed giant cell tumour (GCT) of tendon sheath with cells including normochromatic nucleuses showing isositosis and isocaryosis. No recurrence occurred in 36-month follow-up. Tenosynovial giant cell tumours typically do not involve the larger joints and are very rarely placed intra-articularly (2). In literature, there is only one case of tenosynovial GCT arising from posterior cruciate ligament. Magnetic resonance imaging is reported to be the best diagnostic technique for this entity (3). We state that localised GCT of tendon sheath can be placed as a unique lesion in posterior cruciate ligament and total arthroscopic resection is possible. 1 - Sheppard DG, Giant-cell tumour of the tendon sheath arising from the posterior cruciate ligament of the knee: Clin Imaging 1998 Nov-Dec; 22(6):428-30. 2 - Otsuka Y, Tenosynovial giant cell tumour arising from the anterior cruciate ligament of the knee. Arthroscopy 1996 Aug; 12(4):496-9. 3 - Kitagawa Y, MR imaging for preoperative diagnosis and assessment of local tumour extent on localised giant cell tumour of tendon sheath. Skeletal Radiol. 2003 Nov; 32(11):633-8.

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Abstract number : 17568

TUMOURS OF BONES AND JOINTS AMONG TANZANIANS; ARE THEY INCREASING?

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INTRODUCTION: Disease trend and Epidemiological observation of routine data is crucial in determining any change that may have passed unnoted. Tumours of bones and joints need similar consideration to know if there is any change over time that may call for attention. OBJECTIVES: To determine the proportion of bone and joints tumours among new patients at Ocean Road Cancer Institute (ORCI) in mid 2000s. METHODOLOGY: Record review of ORCI new patients for 2005, 2006 and 2007 was done. Data were entered and analysed using EPI info. RESULTS: In 2005, 0.8% of 2465 new patients at ORCI had tumours of bone and joints. This proportion was 1.1% and 1.99% of 2512 and 2738 for 2006 and 2007 respectively. DISCUSSION: In the three-year period (2005-2007), there was an overall increase of new patients with an increase of patients with tumours of bone and joints from 0.8% in 2005 to 2% of all new patients in 2007. Tumours of bone and joints need to be investigated further to know the reasons of their increase in Tanzania. This is because they are becoming common than in the past.

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Abstract number : 17613

PRIMARY SJOGREN'S SYNDROME WITH RENAL TUBULAR ACIDOSIS MIMICKING SPINAL METASTASIS

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OBJECTIVES: A rare case of primary Sjogren's syndrome with renal tubular acidosis affecting spine is reported. **SUMMARY OF BACKGROUND DATA:** Primary Sjogren syndrome is a chronic autoimmune disorder of the exocrine glands with associated lymphocytic infiltrates of the affected glands. Most patients usually have sicca symptoms and some may have extraglandular skeletal symptoms. There have been few reports about skeletal radiologic findings in primary Sjogren's syndrome affecting spine. **METHODS:** A woman had severe back pain, chest wall pain not responding to any conservative treatments and also had lost body weight in 2 Kg a month. On physical examination she had severe tenderness over thoracic, lumbar spinous process and thoracic cage. There was no abnormal finding on plain X-ray but, bone scan showed multiple hot uptakes on thoracolumbar spine, multiple sites of rib. Thoracic and lumbar spine MRI demonstrated diffuse heterogenous signal intensity changes and mild contrast enhancement on vertebral body, pedicle and spinous process compatible to spinal metastasis. **RESULTS:** We did not find any malignant lesion but, biochemical finding showed renal tubular acidosis. She was confirmed with primary Sjogren's syndrome with renal tubular acidosis. She improved after taking alkalinization with bicarbonate, potassium repletion and vitamine D supplement. **CONCLUSION:** A rare case of primary Sjogren's syndrome with renal tubular acidosis is reported with describing the roentgenographic findings of spinal lesion in primary Sjogren's syndrome.

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Abstract number : 17687

EVALUATION OF ENDOPROSTHETIC REPLACEMENT IN GIANT CELL TUMOURS OF BONE

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INTRODUCTION: GCT of bone is a rare tumour with unpredictable biological behaviour and treatment response. In view of its benign nature, there is an apprehension in doing wide excision and endoprosthetic replacement for these lesions. METHODS: We evaluated the functional outcome of endoprosthetic replacement in GCT of various metaphyseal locations. Ours was a retrospective study for last 10 years. A total of 42 cases of GCT of various locations were evaluated. We had used cemented, titanium, customised prostheses. GCT with Campanacci grade III were only considered for endoprosthetic replacement. RESULTS: Average age in the study was 38.3 years. There were 23 cases of distal femur, 12 proximal humeral, 4 distal tibial, 2 distal humeral and 1 distal tibial lesion. Average follow-up was for 6.2 years. Six cases were lost to follow-up. Two patients developed recurrences. 8 patients had superficial infection. There were no revisions. The results were evaluated using the MSTS Functional Scoring. There were 15 cases with excellent, 23 cases with good and 4 with poor functional outcome. CONCLUSIONS: Although long-term results are awaited, our initial early results have shown a good functional outcome in patients undergoing endoprosthetic replacement for giant cell tumors of metaphyseal locations of different sites. Careful patient selection is a must for selecting patients requiring endoprosthetic GCT of bone.

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Abstract number : 18174

FUNCTIONAL AND ONCOLOGICAL OUTCOME IN LYMPHOMA OF BONE TREATED BY LIMB SALVAGE SURGERY AND RECONSTRUCTION WITH CUSTOM PROSTHESIS

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AIM: To find the functional and oncological outcome of patients who underwent limb salvage surgery and custom mega prosthesis for lymphoma of bone. **MATERIALS AND METHODS:** Eight patients with lymphoma of bone underwent limb salvage surgery and reconstruction with custom made prosthesis. Males predominated in the study with the average age of 30 years. Lower limb was commonly involved: 6 patients had tumour involving the femur. Five patients had pathological fracture. Resection and reconstruction was done using custom mega prosthesis. Proximal humeral prosthesis was used for proximal humeral tumour and proximal femoral or total hip prosthesis for proximal femoral lesion. Each patient had total femoral prosthesis and total knee prosthesis. **RESULTS:** With an average follow-up of 78.6 months, two patients died of disease and one patient was alive with disease. The patient with femoral shaft lesion had intraoperative vascular injury requiring vascular repair. The patient with total knee prosthesis had superficial skin necrosis which required skin cover. The functional outcome was excellent in 1 and good in 4 patients. **CONCLUSION:** Limb salvage surgery with custom prosthesis appears to be a viable option in the treatment of lymphoma of bone with good oncological and functional outcomes.

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Room: 601
Session : Club Foot

Abstract number : 17665

TREATMENT OF CLUBFOOT WITH PONSETI METHOD: EARLY EXPERIENCE RESULTS

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Conservative treatment of clubfoot with Ponseti method has become increasingly popular worldwide in orthopaedic practice. 25 feet of 14 patients treated with Ponseti method were reviewed. There were 12 male, 2 female patients with a mean age of 3 months (4 days-10 months). In 11 patients, the deformity was bilateral. 5 feet of three patients have been treated with different methods before (three feet with casts, one foot with posterior and one foot with posteromedial release). The mean cast number was 6 (5-8 casts). In 20 feet, we performed percutaneous Achilles tenotomy. After tenotomy, 3 weeks of casting followed by 3 months of full time bracing is performed. Then, patients were followed by 12-14 hours of bracing in a day. The mean follow-up was 12 months (5-20 months). 21 feet of 11 patients (84%) were treated successfully by Ponseti method. The cast number was more than the others in the treated group before. There was a resistance to correction especially to equinus and varus on these feet. In three patients, we observed recurrence. They all were uncompliant to the brace treatment. They were treated by repetitive casting and bracing. We needed to perform one posteromedial release and one achilloplasty with posterior capsulotomy to achieve correction in two patients with resistant feet. The Ponseti method is a safe, effective and low-cost treatment for idiopathic clubfoot. The success rates are dependent on compliance of brace treatment.

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Session : Club Foot

Abstract number : 19216

EXPLORING THE TREATMENT OF BRAIN PARALYTIC EQUINOVARUS

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METHODS: 300 cases (1 to 9 years older) of brain paralytic equinovarus were divided into 3 groups and carried out medical activities . The first group who did not have fixed deformity undergoes rehabilitation therapy under the protection of the brace. The other two groups were those who had fixed deformity. The second group were treated with soft tissue releasing of ankle and tender transfer－dynamic balance of strength of ankle muscles simultaneously. The third group were treated with soft tissue releasing of ankle under the protection of the brace and observed the development of deformity up to school age (7-9 years older) firstly. If foot deformities were not relieved or promoted, the group were treated with the second operation of soft tissue releasing in ankle area or transfer－dynamic balance of strength of ankle muscles, and treated with the above two operation according to concrete condition. At last, the patients were followed up till relative stable condition(18 years older) Results （According to the standard of curative effect evaluation）the excellent rate of the first group was 34％, the second group was 58％,the third group was 96％(P<0.05). **CONCLUSIONS:** 1. The first treatment for brain paralytic equinovarus without fixed deformity was rehabilitation therapy under the protection of the brace. 2. Brain paralytic equinovarus accompany with fixed deformity should be treated with soft tissue releasing of ankle as soon as possible for preventing equinus skeletal deformity. 3. Because cerebral palsy was stationary lesion and muscle strength and motion was developmental, dynamic balance of strength of ankle muscles should be performed in school age. Early treatment by tender transfer－dynamic balance of strength of ankle muscles was not the optimal therapeutic plan. 4. Two-step procedures were better than one-time operation in actual effect.

Poster
Room: 601
Session : Club Foot

Abstract number : 19217

RESULTS OF THE PLANTAR FASCIA TENODESIS TECHNIQUE FOR TIBIALIS ANTERIOR TENDON TRANSFER

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INTRODUCTION: Tibialis anterior tendon transfer is an established technique for treating dynamic residual clubfeet, and occasionally, dynamic equinovarus feet in cerebral palsy and other pathology. Several tenodesis techniques have been described. However, there has been no prior study evaluating specifically the efficacy of the tenodesis techniques. We report on our results of the plantar fascia tenodesis technique used for tibialis anterior tendon transfer.**METHODS:** The study group comprised 66 cases (57 patients) of tibialis anterior tendon transfer using the plantar fascia buried suture tenodesis technique. There were 36 males and 21 females with an average age of 5.2 years (range 1.5 to 11 years). Post-operative care included 6 weeks of non-weight bearing in a cast followed by 6 weeks in a weight-bearing short-leg cast.**RESULTS:** Average follow-up time was 43.2 months (range 24 months to 119 month). There were no tenodesis failures and no permanent complications. There was a five percent (three patients) minor complication rate. One patient developed a plantar ulcer and granulation tissue which eventually resolved with oral antibiotics and topical silver nitrate treatment. One case of plantar stitch abscess and pain necessitated two surgical debridements and antibiotic treatment before resolution. One patient developed a dorsal foot sinus tract infection, fifth metatarsal osteomyelitis, and plantar stitch abscess and pain. After surgical debridement and antibiotic treatment he eventually recovered fully.**DISCUSSION AND CONCLUSION:** Plantar fascia suture tenodesis technique is an effective method for securing tibialis anterior tendon transfers with no failures or permanent complications noted in our series. Attention to surgical technique can help avoid short-term complications such as stitch abscess, local infections, plantar ulcers, and plantar pain.

Poster
Room: 601
Session : Club Foot

Abstract number : 19254

ROLE OF DISTRACTION IN THE MANAGEMENT OF SCARRED CLUBFOOT DEFORMITY

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INTRODUCTIONThe treatment for the relapsed clubfeet was usually surgical by means of repeated soft tissue release, which however led to the functional impairment. We tried to use the distraction regimen for the management of scarred clubfoot deformity, which relapsed from previous surgery. **MATERIALS & METHODS**Five cases with nine clubfeet relapsed from surgery were collected for this study. All had the stiffened foot and ankle because of significant scar. According to ICFSG classification for outcome evaluation of the clubfoot treatment (2003), every foot had the scores of more than 44 in total. One patient with bilateral clubfeet was treated mainly using Ponseti method with particular effort to correct the equines deformity by means of calcaneus distraction. The other four patients were treated mainly using Ilizarov external frame with the distraction regime. **RESULTS**Nine scarred clubfeet were fully corrected. Using Category I morphology of ICFSG classification (2003), the average score was 1.9 in all the cases, respectively 1.0 in the cases treated with Ponseti method and 2.1 in the cases treated with Ilizarov method. **CONCLUSION**Gradual distraction plays the useful role in the treatment of relapsed and stiff clubfeet with the scar contracture due to the previous extensive surgery. Mini-invasive procedure is strongly recommended for the management of this type of clubfoot deformity so that the morphological correction can be achieved while the function can be preserved with better expectation under the assistance of rehabilitative therapy.

Poster

Room: 601

Session : ISMISS - Endoscopic Spinal Surgery and Complementary Techniques

Abstract number : 17448

MICROENDOSCOPIC DISCECTOMY FOR LUMBOSACRAL FAR-LATERAL DISC HERNIATION

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The specific anatomical structures of lumbosacral junction make the surgical posterior approach to lumbosacral extraforaminal zone technically challenging. Microendoscopic discectomy (MED) via a lateral intermuscular approach can facilitate to reach the extraforaminal zone and provide well-illuminated visualization of the site of the lesion regardless of its depth. The purpose of this study was to describe the MED technique for lumbosacral far-lateral disc herniation (FLDH) and evaluate the preliminary clinical results. Consecutive 17 patients surgically treated for FLDH at L5/S1 by the MED were reviewed. The patient population consisted of 9 men and 8 women whose mean age at the time of surgery was 62 years. Initial 10 patients underwent the MED with partial resection of the L5/S1 facet joint and the L5 transverse process. By contrast, the MED with partial resection of the sacral ala performed in latest 7 patients. Painful postoperative dysesthesia was revealed in one of the initial patients and major surgical complications such as surgical site infection and nerve injury were not documented. On postoperative CT evaluations, the complete preservation of the facet joint was observed in the latest 7 patients. In clinical evaluations, fifteen patients (88%) were evaluated as good results, based on the Japanese Orthopedic Association lumbar score and visual analog scale, at the mean 20 months after surgery. In conclusions, we found the MED is a useful minimally invasive procedure for lumbosacral FLDH and its clinical results were in accordance with those of conventional procedures.

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Room: 601

Session : ISMISS - Endoscopic Spinal Surgery and Complementary Techniques

Abstract number : 17632

COMPARISON OF TWO MINIMALLY INVASIVE OPERATIVE TECHNIQUES FOR LUMBAR DISC HERNIATION

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INTRODUCTION: Several less invasive operative techniques have been used for lumbar disc herniation (LDH) to diminish soft tissue damage and bony resection. However, few reports have described the difference among these techniques. **PURPOSE:** To compare microendoscopic discectomy (MED) to open discectomy with small incision for LDH. **MATERIALS AND METHODS:** 96 Patients with LDH were operated between February 2002 and January 2008. 52 patients underwent MED, and 44 patients underwent discectomy by open method. Operative time, blood loss, recovery rate of JOA score, and postoperative complications were compared between the two techniques. Resection of facet joint was calculated according to plain X-ray and compared between the techniques. **RESULTS:** Blood loss and recovery rate of JOA score were not significantly different between the two techniques. In first 30 patients of either technique, operative time of MED was significantly longer than that of open method. However, in following patients, operative time of MED was not significantly different from that of open method. In both techniques, postoperative hematoma was seen in 3 cases. Dural tear was seen in 5 patients in MED, and in 4 patients in open method. Resection of facet joint was significantly larger in open method than in MED. **DISCUSSION:** Although learning curve is sharp in open method with small incision, resection of facet joint is larger. Although learning curve is steep in MED, it can be safe for neural tissue because of obtaining enough visual field, resection of facet joint can be diminished. MED method should be recommended for LDH.

Poster

Room: 601

Session : ISMISS - Minimally Invasive Spinal Surgery

Abstract number : 17635

**TREATMENT OF PAINFUL OSTEOPOROTIC VERTEBRAL FRACTURES WITH VERTEBRAL AUGMENTATION TECHNIQUES:
EARLY RESULTS**

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According to the increase in elder population, increasing number of osteoporotic vertebral fractures are being seen. We evaluated our results of vertebral augmentation on 7 patients' 12 levels of osteoporotic vertebral fractures with regard to level and duration of the fracture, preoperative and postoperative pain levels and complications. There were 5 female and 2 male patients aged between 66 and 80 (mean age 71.4). We performed vertebroplasty on 5 patients' 7 levels and kyphoplasty on 2 patients' 5 levels. History, physical examination, X-rays and vertebral MRI with STIR sequences were evaluated preoperatively. Two of the fractures were on T12, 5 on L1, two on L2, two on L3 and one was on L4. As normally, most of them were on thoracolumbar junction. The Visual Analog Scale (VAS: = no pain, 10 very severe pain) was used to evaluate the effectiveness of the procedure. Meanly 2.3cc (1.5-4cc) cement per level was injected into the body of vertebra. Patients were mobilised after the operation and discharged the next day. VAS, found as 8.6 before the operation progressed to 3 after the operation. On the first month follow-up, all of them returned to their daily life. Mean follow-up time was 14 months (6-23). On two patients of vertebroplasty, asymptomatic cement leakage was seen. There was no intracanal leakage or neurologic deficit and no infection. Vertebral augmentation techniques are safe and effective methods in the treatment of osteoporotic vertebral fractures in geriatric age group.

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Session : SICOT - Foot and Ankle

Abstract number : 16540

SYMPTOMATIC FREIBERG-KOHLER DISEASE IN ADULTS - REPORT OF THREE FEET AND REVIEW OF LITERATURE

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Freiberg-Kohler's disease of the tarsal navicular is common in children and it becomes asymptomatic at long-term follow-up. Its detection in adults due to symptoms is rare and there are not many reported such cases in the literature. We herewith present two adult patients (one bilateral and other unilateral) with pain and swelling of the foot with no prior history of similar symptoms in childhood. Both did not sustain any injury to the foot nor had any evidence of limp while walking in the childhood. The radiographs revealed stage IV avascular necrosis of tarsal navicular in all three feet and arthritis of the neighbouring joints. Patients improved with conservative treatment and did not need further investigation or management.

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Session : SICOT - Foot and Ankle

Abstract number : 17159

OPEN TALAR DISLOCATION TREATED WITH SUBTOTAL TALECTOMY. A CASE REPORT WITH 27-YEAR FOLLOW-UP

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Traumatic open dislocation of the talus is a rare injury. Its treatment is a challenge for Orthopaedic Surgeons. A 31-year-old female sustained an open talar dislocation due to a bike accident. There were neither associated fractures nor damages of the nerves and vessels of the ankle area, according to radiographic and clinical examinations. We took cultures and the patient underwent copious irrigation and debridement. We decided to proceed with subtotal talectomy and reimplantation of the domus of the talus because there were some soft tissues attachments to it. The patient needed to return to the operating room for multiple redebridements and delay closure. At the latest follow-up 27 years after injury we did not observe infection. The domus of the talus fused with the tibia. The patient complained for mild pain and instability mainly while ascending and descending stairs. We consider that subtotal talectomy is an acceptable method of treatment for pure open talar dislocations compared with total talectomy or reimplantation.

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Session : SICOT - Foot and Ankle

Abstract number : 17356

SURGICAL TREATMENT OF ANKLE ARTHRITIS: ANKLE ARTHRODESIS

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Ankle arthrodesis is a surgical technique to reduce the pain associated with ankle arthritis by getting the bones around the ankle to grow together. The surgery requires the removal of the joint cartilage, proper positioning of the ankle and foot, and placement of screws, plates, rods, or pins to hold the position while the bone knits together into a solid painless structure. The foot must be positioned with regard to overall limb alignment and in the optimal position for function. When good surgical technique is used in carefully selected patients, ankle arthrodesis can be a reliable procedure for the relief of functionally disabling ankle arthritis, deformity and pain.

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Session : SICOT - Foot and Ankle

Abstract number : 17611

ASSOCIATED OSTEOTOMIES IN SCARF OPERATION FOR HALLUX VALGUS

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The chosen operation kind depends on the hallux valgus type, the first ray morphology and the forefoot anatomic relations. The pursuits are the intermetatarsal and metatarsophalangeal angles correction and the length ratio restoration according to Lelievre's curve ($M1=M2>M3>M4>M5$). During 2001-2005 from 151 patients following Scarf operation in our clinic, in 60 cases were associated other surgical techniques like:- hallux first phalange osteotomy - 11 patients;- Veil osteotomy for MII +/- MIII - 32 patients;- proximal phalange osteotomy for II, III and IV rays - 17 patients. Postoperative care, clinical and radiological results at one year and complications rate were similar with those recorded only with Scarf osteotomy.

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Session : SICOT - Foot and Ankle

Abstract number : 17809

SURGICAL TREATMENT OF FIFTH TOE VARUS ANGULATION

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Varus deformity of the fifth toe also known as bunionette or tailor's deformity is rather rare in orthopedist' practice in comparison with other deformities of the forefoot. Patients' complaints and inefficiency of conservative treatment make us think about necessity of surgical correction and what is the most important, about choice of operation technique. Rontgenologic classification divides this pathology into 3 types depending on 5th metatarsal bone head size and increase of metatarsal angle between 4th and 5th metatarsal bones. Depending on deformation degree, roentgenological picture, results of plantographical analysis and taking into consideration presence of any pathology in forefoot we used different types of osteotomy of 5th metatarsal bone. Having done optimal choice of osteotomy type it is possible to restore proper load distribution on forefoot, unload middle part of transverse arch which leads to recovery of normal forefoot biomechanics. In postoperative period, patients limited load on forefoot up to 1.5 months; additional immobilization was not used. Results were evaluated basing on roentgenological correction degree, plantography and degree of cosmetic reconstruction. Basing on our modest experience we can conclude that decision about surgical treatment tactics and optimal type of operation helps to achieve reconstruction of transverse arch, normal biomechanics of forefoot and improve patient's life quality.

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Session : SICOT - Foot and Ankle

Abstract number : 18037

AN UNUSUAL MECHANISM AND TYPE OF FRACTURE DISLOCATION OF THE TALAR NECK - CASE REPORT

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Fractures of the talus are rare injuries. Half of these are neck of talus fractures. Hawkins classification is routinely used to grade the fractures of the neck of talus. We describe the mechanism and treatment of a previously unreported type of fracture dislocation of the talus. A young male patient incurred an inversion/plantar flexion injury of the foot whilst running down a hill. The patient presented with a painful and swollen foot and was not able to weight bear. It was an isolated closed injury with no neurovascular deficit. X-rays showed a completely displaced fractured talar neck with dislocation of the sub-talar and talo-navicular joints. The tibio-talar joint was intact. This injury did not fit into the Hawkins classification. Within a few hours of presentation the patient underwent an open reduction using an anterior approach followed by internal fixation with a cancellous lag screw. The patient was placed in a below knee non weight bearing plaster for three months. Graduated weight bearing was started after this. The patient has been followed up over twenty-six months. Clinically and radiologically the fracture had united. There was no evidence of avascular necrosis or collapse. The patient now has a full range of pain free ankle and subtalar movements and has no difficulty with weight bearing. The patient has returned back to work. This mechanism and subsequent injury has not been previously described in the literature. There have been no reported complications including avascular necrosis or collapse.

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Room: 601

Session : SICOT - Foot and Ankle

Abstract number : 18092

LFTA RECONSTRUCTION - A NEW SURGICAL METHOD

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New surgical method for treatment of chronic instability of ankle joint is presented by author. Technique of Williams procedure is improved and described. Surgical technique, postoperative protocol and physical therapy are presented. A cohort of 47 patients with minimal 2-year follow-up is presented. Only 2 poor results are explained; other patients are satisfied and results are excellent or good.

Poster

Room: 601

Session : SICOT - General orthopaedics

Abstract number : 16299

INTRA-ARTICULAR MIGRATING BONE MARROW EDEMA SYNDROME

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BACKGROUND: Intra-articular shifting of bone marrow edema syndrome (BMES) is a very unusual pattern of disease which has been previously described in only a few cases and may raise the suspicion of an aggressive disease. **METHODS:** We reviewed 8 patients (4 female, 4 male) with unilateral BMES located in the knee. The patients were aged 39-56 years (mean 50.2). In all patients bone marrow edema (BME) found in the primary magnetic resonance imaging (MR imaging) shifted within the same joint, i.e. from the medial to the lateral femoral condyle or to the neighbouring bone. Conservative therapy including limited weight-bearing for a period of three weeks was provided for seven patients after initial detection of BMES and one patient underwent surgical core decompression twice. **RESULTS:** MR imaging showed complete restitution in 6 cases and small residual edema in one case. A final MR imaging control was not obtained in one painless patient. In one patient, avascular necrosis of the contralateral hip was evident after 16 months. Improvement of the MR imaging pattern was correlated with the clinical outcome in all patients. All patients became asymptomatic after a mean of 9 months (6-11). **INTERPRETATION:** Intra-articular shifting BMES is a condition seen very rarely. The disease is self-limited so that conservative therapy can be recommended.

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Room: 601

Session : SICOT - General orthopaedics

Abstract number : 16797

PHARMACOTHERAPY OF PAIN AND HEALTH RELATED QUALITY OF LIFE IN PATIENTS AFTER TOTAL HIP OR KNEE REPLACEMENT

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INTRODUCTION: The quality of life is usually assessed 6 months post-operation. The fact that the early period of first weeks after the surgery has major impact on patients' recovery time is commonly omitted. One of the main reasons for patients' limited everyday activity is postoperative pain. **AIM OF THE STUDY:** The aim of the study was to assess postoperative pain and quality of life in patients after orthopaedic surgery procedures. **MATERIALS AND METHODS:** The study included patients treated in Orthopaedics and Rehabilitation Clinic of II Medical Faculty of Medical University of Warsaw in September and October 2007. In the study, the data concerning patients' age, gender, BMI and coexisting chronic diseases were acquired. Visual Analog Scale (VAS) and short form McGill questionnaire were used to evaluate pain intensity. Modified SF-36 scale was used to assess postoperative quality of life. All of the data concerned the 1st, the 5th and the 7th day after the operation. **RESULTS AND CONCLUSIONS:** The early results show that patients perceive their early postoperative quality of life as low. It seems to be due to improper pain management and lack of standard pain pharmacotherapy scheme. A common use of standard ketoprofen doses (4x100mg) is not an effective method of postoperative pain management. It prolongs the recovery period what influences negatively the quality of life. It also leads to longer hospitalization what is unfavourable in terms of cost effectiveness.

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Room: 601
Session : SICOT - General orthopaedics

Abstract number : 16804

WAITING TIME FOR ELECTIVE TOTAL HIP ARTHROPLASTY: INFLUENCE ON POSTOPERATIVE QUALITY OF LIFE AND PASSIVE RANGE OF MOTION IN HIP JOINT

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INTRODUCTION: According to the literature on this subject, the final clinical effect of total hip replacement is due to many factors. One of them is the time from occurrence of the first symptoms of degenerative joint disease of the hip to the operation. **AIM OF THE STUDY:** The aim of the study was to evaluate the influence of waiting time for elective total hip arthroplasty on patients' postoperative quality of life and passive range of motion. **MATERIALS:** 113 patients were included in the study (67 females, 46 males). Age of patients ranged from 42 to 88 years, mean age was 67 years. **METHODS:** Retrospective analysis included patients' medical data with a special consideration of chronic diseases and BMI. WOMAC Index was used to assess postoperative quality of life of the patients. Patients were divided into groups according to the waiting time for THR. Mean age and mean BMI of patients in all groups were comparable. **RESULTS:** In WOMAC scale patients of group I acquired better mean results than patients of groups II, III, and IV. In WOMAC scale evaluated pain intensity turned out to be higher when arthroplasty waiting time was longer than 1 year. Passive range of motion in hip joint evaluated by physical examination correlated with results acquired by patients in WOMAC index. **CONCLUSIONS:** Prolonged waiting time of patients suffering from degenerative joint disease of the hip for elective total hip arthroplasty has a negative influence on clinical effects of the treatment.

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Room: 601

Session : SICOT - General orthopaedics

Abstract number : 16811

SELECTED CLINICAL RISK FACTORS AFFECTING THE FREQUENCY OF POSTOPERATIVE BLOOD TRANSFUSION AND THE QUALITY OF LIFE AFTER THE OPERATIONS IN THE NON-ANEMIC PATIENTS WHO UNDERWENT ELECTIVE TOTAL HIP REPLACEMENT

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INTRODUCTION: Total hip replacement may occur the safety method but it has to be marked that it affects mainly aged people with a lot of intraoperative risk factors. The most common complication is bleeding. PURPOSE: To determine the risk factors which positively correlate with the number of postoperative blood transfusion after total hip replacement. The impact of intraoperative bleeding on the quality of life after surgery. MATERIAL: 82 patients were qualified, 56 women and 26 men in the mean age 65 (42-88). 2 kinds of prostheses - cemental and uncemental - were used. METHOD: 2 groups. The first group included 32 patients followed uncemented total hip replacement. Second group - 50 patients with cemented prostheses. Selected risk factors were: age, sex, BMI and chronic diseases. Moreover, the comparison included the quality of life in the patients after postoperative blood transfusion and in the patients without any transfusion. Harris Hip Score, Oxford Hip Score, Postel Merle d'Aubigne and Hospital for Special Surgery Score were used. RESULTS: Determined risk factors: sex (female), BMI>25, hypertension, ischemic heart disease, which have an important influence on the frequency of blood transfusion after surgery. Patients after blood transfusion during the total hip replacement estimated their quality of life much worse than those without excessive blood loss. CONCLUSIONS: Taking the results into consideration, there was determined the special procedure which may help to qualify the patients for the proper type of total hip replacement.

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Room: 601

Session : SICOT - General orthopaedics

Abstract number : 17869

CLINICAL DATA IN REHABILITATION BETWEEN THE DIRECT ANTERIOR AND DIRECT LATERAL APPROACH IN TOTAL HIP ARTHROPLASTY

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Direct anterior approach (DAA) in total hip arthroplasty (THA) is reported to be less invasive. We investigated on comparison study of clinical data in rehabilitation between the DAA and direct lateral approach (DLA) in total hip arthroplasty within 6 months. Between April 2006 and March 2007, 74 hips were selected from 37 patients of osteoarthritis without any comorbidity. Twenty-two hips were used DAA, 52 hips used DLA in primary cementless THA. Ages are group DAA: average of 64.1±13.4, group DLA: average of 63.7±9.7. Length of incision for group DAA: average of 8.1±0.9cm, group DLA: average of 8.7±0.9cm. The same anesthesia, NSAID, as well as critical pathway were used on both groups. On all THA cases, St Nabor cup and Duetto SI stem were used. Recovery rate of quadriceps femoris muscle strength in DAA was significantly higher than that in DLA at postoperative one week. On the other hand, recovery rate of adductor muscle strength at postoperative 1 month and straight leg raising test at postoperative 2 weeks in DLA was significantly higher than that in DAA. There was no significant difference in two groups regarding VAS of pain, Barthel Index as ADL evaluation, gait ability, recovery rate of muscle strength on gluteus maximus and gluteus medius, as well as straight leg raising test in each period. This study demonstrates that DAA was a less invasive surgery in THA compared with DLA within one week.

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Room: 601
Session : SICOT - Hand and Wrist

Abstract number : 15336

CARPO-METACARPAL DISLOCATION - A CASE REPORT

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PURPOSE: To report a case of complete carpo-metacarpal dislocation in a patient. **MATERIALS AND METHODS:** A 34-year-old man had a fall and sustained swelling and pain. On examination he revealed a total impaired mobility and an important swelling of the hand without vasculonervous disorders. X-ray revealed a pure anterior dislocation of the carpo-metacarpal joints. He was surgically treated in the emergency theatre. K-wires were used to stabilise the joints and a cast for immobilization for 6 weeks. **RESULTS:** At follow-up, outcome was good. **CONCLUSION:** This case report highlights the need for high index of suspicion for carpo-metacarpal dislocation in a patient with wrist swelling after trauma; although carpo-metacarpal dislocation is rare injury.

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Room: 601

Session : SICOT - Hand and Wrist

Abstract number : 15579

SUCCESSFUL CASE OF HAND REPLANTATION AND REVASCULARIZATION WITH BAD FUNCTIONAL OUTCOME

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Traumatic hand amputation is a very severe injury. Hand replantation is complex and requires technically demanding surgery. We report a case of a successful surviving of a replanted hand in a 35-year-old male patient with an unfortunately bad end result of the treatment. The patient with an amputated left hand (disarticulation) had a surgery 4 hours postinjury. The urgent surgical procedure required a debridement, the excision of the first row of the carpal bones, external fixation of the wrist, vascular anastomoses, nerve repair, tenorrhafies, skin sutures and decompression skin incisions. The successful operation did not have a successful follow-up due to the patient's psychiatric problems and lack of rehabilitation in the psychiatric institution where the treatment was continued. The successful surgical performance can unfortunately be ruined due to an inadequate treatment follow-up or the wrong selection for such a demanding surgery. The survival of the amputated hand can be achieved surgically, but refunctioning does not always depend on the surgery. It also depends on the very patient, his motivation, rehabilitation, as well as on the proper selection for such a demanding and complex surgical procedure.

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Room: 601

Session : SICOT - Hand and Wrist

Abstract number : 16062

INFECTED NONUNION BOTH BONE FOREARM WITH VOLKMANN ISCHEMIC CONTRACTURE TREATED BY CUSTOM MADE EXTERNAL FIXATOR - A CASE REPORT

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A 4-year-old male child was admitted with history of falling from tree and sustained injury to right forearm 4 months prior to admission. The patient has taken native treatment and developed compartment syndrome for which fasciotomy and skin grafting was done elsewhere. Patient presented to us with persistent discharge of pus from the radial aspect of mid forearm right side. Clinically the skin was hyperpigmented, with gross deformity at the mid 3rd of forearm. The distal radial fragment was found protruding outside. The fingers were clawed and no movements were possible. The radial pulse was felt well. Skiagrams of forearm showed nonunion of both bones forearm with sclerosis of distal fragment of radius. The child was treated with appropriate antibiotics and the exposed distal fragment of radius was nibbled and umax external fixator was applied. Since the distractor was too big for the child, custom-made external fixator device was used. Once the infection got under control, shortening of ulna was done. Distraction started using the custom-made ex fix device applied and the deformity was well corrected. The fracture united well and the child has satisfactory function. **CONCLUSION:** Limb salvage surgeries should be always thought of in order to retain the normal limb as well as to obtain reasonable functional range of motion. To conclude, in children and in patients with short forearm this custom-made ex fix device can be used as it gives good deformity correction.

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Room: 601

Session : SICOT - Hand and Wrist

Abstract number : 16300

THUMB CARPOMETACARPAL JOINT DISLOCATION: SURGICAL TREATMENT

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AIM: To present a rare injury of thumb carpometacarpal (CMC) joint dislocation and its suitable surgical treatment. PATIENT AND METHOD: A 40-year-old farmer fell on his right hand with the thumb in full flexion. The mechanism of injury was the axial compression of the 1st metacarpal. The diagnosis was easy with a standard radiography. The dislocation of the joint was unstable. We operated the patient in a few hours with regional anesthesia. The dislocation was reduced. First, we repaired the volar ligament of the thumb CMC joint with a Mitec anchor in to trapezium to restore the joint stability. We reinforced the joint stability with suturing the CMC joint capsule. Finally, we maintained this stabilization with a mini external fixation. RESULTS: The external fixation removed in 6 weeks and a rehabilitation program was started. Thumb CMC joint is stable and painless 1 year post injury. The patient has not any restriction in his daily activities. CONCLUSION: Thumb CMC joint dislocation is unstable injury and requires proper surgical restoration of volar ligament and the capsule of the joint, in maintaining of CMC stability and the significant function of the thumb.

Poster

Room: 601

Session : SICOT - Hand and Wrist

Abstract number : 16784

COLLES' FRACTURE AS AN IMPORTANT THERAPEUTIC PROBLEM IN THE 21ST CENTURY

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INTRODUCTION: Colles' fracture is one of the most commonly occurring fractures. Despite the fact that fracture of distal extremity of the radius was described in 1814 by Abraham Colles, treatment of this trauma is still a vital problem and not always a therapeutic success. Most of the cases are treated nonoperatively by reposition and immobilisation. Nowadays, it is considered that anatomical reposition is the most important factor determining the result of treatment. **AIM OF THE STUDY:** Evaluation of the influence of the position of bone's fragments after the fracture and patient's age on anatomical outcome of the Colles' fracture reposition. **MATERIALS AND METHODS:** The study included patients treated in Orthopaedics and Rehabilitation Clinic of II Medical Faculty of Medical University of Warsaw. There were 123 patients (109 females and 14 males) with isolated Colles' fracture treated nonoperatively. Mean age of patients was 65 years. Medical documentation was analysed including radiograms of the forearm before and after reposition. The most important factors were angles of inclination (dorsal and radial) between the fragments assessed with diagnostic programme. **RESULTS AND CONCLUSIONS:** The results show that high level of dislocation of the fragments and age over 60 have a negative influence on the reposition. It turned out that fully correct anatomical outcome was achieved only in 15% of patients with at least one of the risk factors. It is an argument for changing the classification to operative treatment.

Poster

Room: 601

Session : SICOT - Hand and Wrist

Abstract number : 17104

NEGLECTED SCAPHOLUNATE DISSOCIATION WITH NECROSIS OF SCAPHOID

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AIM: To present an unusual case of neglected scapholunate dissociation with aseptic necrosis of scaphoid's proximal pole and its surgical management. PATIENT AND METHOD: A professional hand-ball athlete, 25-year-old, referred severe pain to carpus, 3 months after the initial closed trauma. The grip strength of the injured hand was decreased. Clinically the range of motion of carpus was decreased, as well. Watson's point was positive. We detected an increased distance between scaphoid and lunate and an increased palmar flexion of scaphoid in radiography. MRI showed an aseptic necrosis of the proximal pole of scaphoid and ruptures of both the scapholunate and the scapho-trapezo-trapezoid ligaments. First we have immobilized his carpus with a cylinder cast for 3 months. A new MRI showed the re-vascularization of the scaphoid's proximal pole. Finally the patient has treated using the flexor carpi radialis and scaphoid-trapezoid ligament repair (Brunelli's method). RESULTS: The patient has not any symptoms 9 months post surgery. The range of motion and the grip strength of the carpus have restored. CONCLUSION: Brunelli's method is a proper treatment option for scapholunate dissociation that it corrects anatomically the carpal instability.

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Session : SICOT - Hand and Wrist

Abstract number : 17157

MADELUNG DEFORMITY

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We want to present our experience from the treatment of the rare Madelung deformity. Four patients with five Madelung deformities were treated over the last 10 years in our clinic. Three of them were males and one female. The age of the patients ranged from 10-15 years, mean age 11.8 years. Two of the deformities were congenital, two due to previous wrist injury and one caused by wrist septic arthritis. All patients underwent corrective osteotomy of the distal part of the radius and shortening of about 1cm of the ulna. The radius osteotomy was fixed with plate in two cases and K-W in three ones. The ulna was fixed with plate in four cases and once with K-W. Follow-up averaged 6.9 years. We had one ulnar nonunion and 2 recurrences of radial deformity in the patient with septic wrist arthritis who needed two reoperations with a final fair result. The other three patients (four deformities) had an excellent or good result with a decrease in the range of wrist motion about 5°-8°. In one patient the length of the ulna was 1cm longer than the radial one without causing any functional problems.

Poster

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Session : SICOT - Hand and Wrist

Abstract number : 17292

PSEUDOVOLKMAN SIGN IN CHRONIC OSTEOMYELITIS RADIUS

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Chronic osteomyelitis can present various secondary problems. We present here an interesting presentation of chronic osteomyelitis of the radius. A 35-year-old lady presented with deformity in the hand and a discharging sinus over the volar aspect of the middle of the forearm. The patient had developed secondary contractures of the long flexors of the forearm. The volkmans sign was positive highlighting the involvement of the deep layer of forearm. The x-ray revealed chronic osteomyelitis involving the whole diaphysis of the radius and a sequestrum lying on the volar aspect. The patient was surgically managed by sequestectomy and saucerisation. Postoperatively the patient was put on active exercises and passive stretching. The infection healed and the deformity corrected over the next 6 months. The aim of presenting this case is to highlight this unusual problem and its successful management. We have called it PseudoVolkman's since the etiology is not vascular but infective.

Poster

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Session : SICOT - Hand and Wrist

Abstract number : 17799

THE USE OF ILIZAROV TECHNIQUE IN TREATMENT OF WRIST DEFORMITY SECONDARY TO RADIOULNER DISCREPANCY

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Wrist deformity secondary to radioulnar discrepancy is not uncommon. Radioulnar discrepancy may be congenital, post-traumatic (following malunion, non union or epiphysial injury), inflammatory, neoplastic or iatrogenic following segment resection. The condition may occur with or without wrist contracture in long standing cases. The technique involves Ilizarov lengthening of the shortened bone segment to equalize the radioulnar relation and correct discrepancy. The aim of treatment was to improve wrist function and cosmeses. 12 cases were done. In 7 cases the radius was responsible for the discrepancy and the ulna was involved in 5 cases. The discrepancy was ranged between 2 and 6.5cm. The condition was unilateral in 11 patients. Flexors contracture was present in 3 cases. Z-skin plasty was done in 2 cases. The wrist deformity was fully corrected in 7 cases, residual deformity in 3 cases and total failure in 2 cases.

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Session : SICOT - Hand and Wrist

Abstract number : 17960

IMPORTANCE OF THE ARTHROSCOPY FOR THE MINIMAL INVASIVE TREATMENT OF WRIST FRACTURES - MID-TERM RESULTS (25 CASES)

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It has been over 70 years since the American Michael Burman first recorded his early experience of arthroscopy of the wrist. However, it is only in the last decade, with the development of smaller instruments, that radiocarpal joint arthroscopy has been carried out significantly more frequently. Enhanced knowledge of the biomechanics and pathology of the carpus, the radiocarpal joint and the distal radioulnar joint has improved the diagnosis and therapy of distal fractures of the radius with concomitant injuries to the adjacent cartilaginous structures. The advantage of arthroscopy is that it allows a critical examination of the irregular articular surface and diagnosis of such concomitant lesions of ligamentous and cartilaginous structures. Irregular articular surfaces can be treated by reduction and stabilised by minimally invasive procedures with arthroscopic monitoring. With an appropriate technique and with due consideration for the anatomical structures, arthroscopy is a procedure that involves minimal soft-tissue injury and a low complication rate. Type B-I-III and C-I-(II) fractures should be seen as indications for arthroscopy, especially in the case of sagittally oriented fractures in young patients.

Poster

Room: 601

Session : SICOT - Hand and Wrist

Abstract number : 18031

MULTIPLE SKELETAL INJURIES AROUND WRIST - A CASE REPORT

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A 27-year-old male patient presented to us with history of direct injury to wrist following a RTA and sustained seven injuries around wrist including distal radial fracture, DRUJ subluxation, fracture scaphoid, and Lunate dislocation, Fracture base of 1st metacarpal, Fracture shaft of 1st metacarpal and 1st metacarpophalangeal dislocation with median nerve neuropraxia all in a single wrist. Patient was immediately treated by surgery with open reduction of lunate dislocation and distal radial fractures with K wire fixations and closed reduction of metacarpal fracture along with closed reduction of MCP dislocation with K wire fixation. In view of subsequent skin necrosis further immediate reconstruction procedures were avoided. All fractures except scaphoid fracture healed and subsequently in view of early arthritic changes in wrist joint it was decided to wait till patient develops significant pain for considering delayed reconstruction procedures. Following 30-month follow-up, now patient has good range of painless wrist movements. This case is being presented here as we did not find any such injury description in literature and also to highlight the difficulties we faced during treatment. **KEYWORDS:** Wrist, Fracture, Dislocation, Arthritis.

Poster

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Session : SICOT - Hand and Wrist

Abstract number : 18043

ARTHROPLASTY FOR POST-TRAUMATIC OSTEOARTHRITIS OF THE INDEX FINGER METACARPOPHALANGEAL JOINT IN YOUNG INDIVIDUAL

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Intra-articular fractures of the head of the index finger metacarpal are at risk of developing traumatic osteoarthritis. The use of MCPJ Arthroplasty in post-traumatic arthritis is not routinely performed especially in young individual. We present a case initially managed by external fixation resulting in a non functioning stiff finger, which did not respond to tenolysis or arthrolysis, but improved significantly with a MCPJ arthroplasty. CASE REPORT: A 26-year-old man sustained intra-articular fracture of metacarpal head of index finger. Initially patient underwent closed reduction and external fixation. External fixator was removed after two months once the fracture had united. Eight months following surgery the index finger was stiff and had radiological signs of osteoarthritis. At this stage extensor tendon tenolysis and MCPJ arthrolysis was performed, with Adcongell application. Only 10 degrees of flexion was gained at the MCPJ following the second surgery. Two years following the injury a piro carbon (name of implant) MCPJ arthroplasty was performed. A dorsal approach was made with a local impaction bone grafting technique. 18 months after the joint replacement, the patient had full pain free range of movement in the hand with good grip strength, and had returned back to work. Pre and post arthroplasty DASH scores were 18.33 and 11.66 respectively. Patient satisfaction score (VAS) was 9/10. Post-traumatic MCP joint arthritis in young individuals can be treated with arthroplasty. Our 18-month follow-up shows excellent function, with high patient satisfaction and back to the work.

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Session : SICOT - Hand and Wrist

Abstract number : 18069

GALEAZZI-EQUIVALENT LESIONS IN ADOLESCENTS

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BACKGROUND: Fracture of radial shaft with disruption of distal radio-ulnar joint is a rare injury in children. An equivalent injury in children is a fracture of radius with separation of distal ulnar physis or a fracture through ulnar metaphysis. **MATERIAL AND METHODS:** Two cases of adolescent galeazzi-equivalent fractures are described. 1st case is a 13-year-old girl with history of falling on ground with fracture M/3-D/3 radius with fracture ulnar metaphysis with dorsal displacement of distal ulna, close reduction was unsuccessful, ORIF with IM nail for radius and K-wire fixation for ulna was done. 2nd case is 16 year male with twisting injury forearm with fracture M/3 radius with separation of distal ulnar physis, ORIF with reduction of ulnar physis was done. **RESULTS:** 1st case developed osteomyelitis of ulna (was compound grade 2 fracture) and delayed union, treated with antibiotics and immobilisation and is under follow-up. Fracture in 2nd case had interposition of extensor carpi ulnaris tendon with periosteum, it united in 4 weeks. **CONCLUSION:** Galeazzi-equivalent fractures are a rare injury, close reduction is usually unsuccessful, ORIF with rigid fixation of radius with careful exploration of ECU tendon and reduction of ulnar physis is required. **KEYWORDS:** Galeazzi-Equivalent lesions, Epiphyseal injury, Open reduction.

Poster

Room: 601

Session : SICOT - Hand and Wrist

Abstract number : 18166

EXTENSOR TENDON INTERPOSITION IN DISTAL RADIAL FRACTURE

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A 17-year-old gentleman presented with a Grade I open distal radial fracture following a road traffic accident. He was hemodynamically stable with no evidence of neurovascular compromise to the limb. Radiographs showed a comminuted extraarticular volarly displaced metaphyseal distal radial fracture associated with fracture of ulnar metaphysis. He underwent wound exploration, washout and debridement of the dorsally situated puncture wound. The fracture could not be reduced by closed methods and hence a volar approach was used for open reduction. However, reduction was still not possible and hence a dorsal approach was used to explore the cause of difficult fracture reduction. The extensor tendons were found to be interposed in the fracture site. The extensor tendons were released from the fracture site following which the fracture was well reduced. The radial fracture was stabilised with a volar plate and the ulnar fracture with a k-wire. A prophylactic carpal tunnel decompression was performed. Postoperatively the patient recovered well and at follow-up patient had good radiographic evidence of fracture healing with satisfactory functional recovery. This case report highlights a rare case of irreducible distal radial fracture due to interposed extensor tendons and a good functional recovery after surgical intervention.

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Room: 601
Session : SICOT - Hand and Wrist

Abstract number : 18171

TREATMENT OF THE RHEUMATOID HAND

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PURPOSE: Early preventive surgery may avoid serious deformities in the hand. **METHODS:** There are different types of deformities of the rheumatoid hand. The early, moderate and severe. For the early ulnar drift, when the joint is well preserved, a dorsal synovectomy is performed with plication of the radial collateral ligament on the radial side. The extensor indicis proprius is transferred to the radial side of the extensor hood, and the extensor digiti quinti minimi is transferred to the radial aspect of the extensor hood. The extensor hood is rerouted over the summit of the MP joint. For the moderate and severe ulnar drift, when there is subluxation or dislocation of the MP joints and there is already alteration of the articular cartilage, synovectomy is again done through a dorsal approach. Resection of metacarpal heads follows, the ulnar intrinsics are resected, the radial collateral ligament is preserved. Silicone prostheses are inserted through drill holes on each metacarpal head. These prostheses are then inserted into the base of the proximal phalanges. The radial collateral ligament is then repaired and transferred proximally to the distal part of the metacarpal. Again for this procedure the extensor indicis proprius and extensor digiti quinti minimi are transferred on the radial side of the extensor apparatus. Eventually the extensor hood is centralized over the dorsum of the MP joint by plicating the extensor hood on the radial side. **SUMMARY:** Results were: Excellent 56%; Good 25%; Fair 19%. **CONCLUSION:** Serious deformities can be prevented by early surgery.

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Room: 601

Session : SICOT - Hand and Wrist

Abstract number : 18298

EPIPHYSEAL INJURY OF THE DISTAL RADIUS - AN UNUSUAL VARIANT

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A 15-year-old child presented with a swollen and painful right wrist following a fall on the outstretched arm. On examination there was a clinical deformity of the distal forearm with no distal neurovascular deficit. Radiographs showed an unusual fracture pattern of the distal radius. There was a primary metaphyseal fracture with vertical extension of the fracture into the physis associated with epiphyseal separation. The patient underwent manipulation under anaesthesia and below elbow cast with satisfactory fracture reduction. Postoperatively, the patient recovered well and at latest follow-up one year after injury there was good radiological union of the fracture and no residual deformity. He regained full range of pain free movements in the wrist. The epiphyseal separation was similar to Salter Harris Type II injury and the vertical extension to the metaphysis similar to the Paterson Type A injury. However this injury was a variant of both these types could not be classified according to these commonly used classification systems for distal radial epiphyseal injuries. This case report highlights a rare presentation of distal radial epiphyseal injury and good functional recovery following nonoperative treatment.

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Session : SICOT - Hand and Wrist

Abstract number : 18402

THE WOUNDS OF WRIST: COVERAGE OF THERAPY AND RESULTS: ABOUT 365 CASES

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This is a retrospective study for a series of 365 wrist wounds gathered in the service of orthopedic trauma-CHU IBN ROCHD during a period of 10 years (1996-2006). The purpose of this work is to see the various aspects of epidemiological, lesional, and treatment of these injuries. The majority of our patients were young (mean age 26.5 years), male (88.2%), and the right side was the most frequently reached (65%). The circumstances were dominated by carelessness (45.8%). The right hand was most frequent (65%), and the damage tendon was found in 88.9% of cases and nervous injuries (56.8%). Vascular injuries were found in 47.2% of cases. The majority of our patients were treated immediately after the injury. The results were excellent and good in 61.2% of cases, average in 22.6% of cases and bad in 16.2% of cases. The wounds of wrist injuries are frequent and severe as they can engage the functional forecast so the treatment should be urgent and careful with a good knowledge of anatomy.

Poster

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Session : SICOT - Hand and Wrist

Abstract number : 18716

FLEXOR TENDON ON INJURY OF HAND AT ZONE II - EARLY OR DELAYED SUTURE?

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BACKGROUND: The healing of a sutured tendon in the hand usually occurs with an unwanted amount of scarring that defeat good results. Many variables have been studied over many decades; timing of repair was a matter of debate. Zone II is the area where those variables mostly affect the results of treatment. **OBJECTIVE:** To study and evaluate the results of early or delayed repair under the effects of our local variables. **METHODS:** Prospective study of 85 patients, which had flexor tendon repair at zone II by the primary repair, delayed primary repair and tendon graft. **RESULTS:** Results showed primary repair ended with better functional results than those with delayed repair and than those with tendon graft. Excellent and good results were 83.7% in the early repaired group versus 43.8% in the delayed group; these results were statically significant; $P=<0.0002$. **CONCLUSION:** We conclude that early suture is better than delayed suture and call on casually doctors to refer patients to hand surgery unites to have better end results in this difficult area of treatment.

Poster

Room: 601

Session : SICOT - J01 Basic Science

Abstract number : 15334

SPONTANEOUS RUPTURE OF QUADRICEPS TENDON AND TOTAL JOINT ARTHROPLASTY IN OCHRONOTIC ARTHROPATHY- A CASE REPORT

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Ochronosis or alkaptonuria is a rare autosomal recessive condition disorder due to deficiency of the enzyme homogentisic acid oxidase. Deficiency of this enzyme leads to the three cardinal features of alkaptonuria - the presence of homogentisic acid in the urine, ochronosis (bluish-black pigmentation in connective tissue) and arthritis. We report a case of a 50-year-old man with ochronosis presenting with spontaneous rupture of quadriceps tendon. He later underwent total hip and knee arthroplasty due to ochronotic arthritis. In the literature, previously, only one study reported tendon ruptures in ochronosis and few studies reported joint arthroplasty for ochronotic arthritis, but this is the first report of a case of ochronosis in which the patient had tendon rupture and joint replacement.

Poster

Room: 601

Session : SICOT - J01 Basic Science

Abstract number : 15835

NO EFFECT OF KETOPROFEN AND MELOXICAM ON BONE GRAFT INGROWTH

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BACKGROUND: There is a rising awareness that non-steroidal anti-inflammatory drugs (NSAIDs) and especially the cyclooxygenase-2 (COX-2) selective ones may affect bone healing in a negative way. However, we have used NSAIDs to prevent heterotopic ossification in combination with acetabular reconstructions using impacted bone grafts in both primary and revision hip surgery. The long-term clinical results are satisfying, making it hard to believe that NSAIDs have an important negative effect on graft incorporation. Therefore we hypothesized that the effect of NSAIDs on the incorporation of bone grafts is limited. We studied the effect of two different NSAIDs on bone and tissue ingrowth in a bone chamber model in goats using autograft, rinsed allograft, and rinsed and subsequently irradiated allograft. **METHODS:** 27 goats were divided into three groups, 9 received no NSAIDs, 9 received ketoprofen and 9 received meloxicam, all for 6 weeks. In each goat 6 bone chambers were implanted, 2 filled with autograft, 2 with rinsed allograft and 2 with irradiated rinsed allograft. The amount of bone and total tissue ingrowth was measured and compared between the different groups. **RESULTS:** No difference was found in bone ingrowth between the different groups. Also the total amount of fibrous tissue ingrowth did not differ between the different treatment groups. **CONCLUSION:** Both ketoprofen and meloxicam do not alter bone ingrowth in titanium bone chambers in the goat. This confirms our hypothesis that the effect of NSAID on the incorporation and ingrowth of bone graft is limited.

Poster

Room: 601

Session : SICOT - J01 Basic Science

Abstract number : 16032

ADOLESCENT IDIOPATHIC OSTEONECROSIS OF FEMORAL HEAD - A CASE REPORT

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AIM: To report a case of Adolescent Idiopathic Osteonecrosis of Femoral Head. MATERIALS AND METHOD: An 18-year-old boy presented to our institution with pain at the right hip for the past 8 months, limping for the past 4 months and shortening of right lower limb for the past 3 months. No past history of trauma, infections, or history of steroid intake. On examination, Gait - a combination of short limb and Trendelenburg gait; ASIS on right at a higher level, Greater trochanter elevated, broadened and thickened; there was a fixed flexion deformity of 10 degrees and further flexion up to 110 degrees; adduction deformity of 20 degrees with 10 degrees of further adduction; rotations-sectoral sign positive; apparent shortening of 4cm, true shortening of 2cm (supratrochanteric). X-rays revealed osteonecrosis of right femoral head with gross flattening and hinged abduction. MRI confirmed the changes. CONCLUSION: Adolescent Idiopathic Osteonecrosis of Femoral Head is a very rare condition reported in the literature and authors wish to discuss the features and outcomes of this condition.

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Room: 601
Session : SICOT - J01 Basic Science

Abstract number : 16668

CMC PUDDY WITH OR WITHOUT EQUINE COLLAGEN LYOPHILISATE IN HUMERUS DRILL DEFECT - A PILOT STUDY IN SHEEP

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INTRODUCTION: The need for alternatives to autograft in bone defects has led to many new products. COLLOSS® E, an equine collagen lyophilisate, has previously shown osteogenic properties in other experimental settings. **MATERIALS AND METHODS:** Six sheep underwent a bilateral humerus drill defect (10mm deep and 11mm in diameter). In each animal, the drill hole was filled with a puddy consisting of 100mg carboxymethyl cellulose (CMC), 100mg collagen powder, and 1ccm autologous full blood in one side, and a combination of this puddy and 20 mg COLLOSS® E in the other. The animals were divided into three groups of two animals and observed for 8, 12 and 16 weeks. Bone formation in the drill holes was evaluated using QCT. On a three sampled scan plane, a 5x5mm and a 10x10mm region of interest (ROI) was created. For each ROI a mean total density of each implantation site was calculated. **RESULTS:** No significant difference in defect healing by density was detected. There was no convincing tendency to better healing in the COLLOSS® E-treated groups at any time point. This was the case for both ROI. There was a tendency to increased healing by density with increased observation time independent of the treatment groups. **CONCLUSION:** In this pilot study, there was no significant increase in bone density measured with QCT when COLLOSS® E was used to promote bone healing in humerus drill defect. Histomorphometry and μ CT are to be performed to validate/support current results.

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Room: 601
Session : SICOT - J01 Basic Science

Abstract number : 17249

IS THERE A CORRELATION BETWEEN DEGREE OF CARTILAGE DEGENERATION AND CRUCIATE LIGAMENT DEGENERATION? A PRELIMINARY EVALUATION IN KNEE OA

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Osteoarthritis is now known to affect joint structures other than cartilage. The cruciate degeneration and its relative significance have not been previously documented in detail. **MATERIALS:** 23 knees undergoing TKA for OA were assessed for macroscopic and microscopic appearance of cruciate ligaments and articular cartilage. Ligament degeneration was classified according to microscopic degeneration. Tibial articular cartilage was scored microscopically using the ICRS scoring system. Arthritic changes in cruciate ligaments were correlated with those in tibial articular cartilage. **RESULTS:** Gross appearance of ACL was normal in 6, abnormal or ruptured in 17; PCL appeared grossly normal in all. Microscopically, degeneration was absent in 3 ACLs, mild in 5 and moderate to severe in 15. PCL degeneration was normal in 4, mild in 11, moderate/severe in 8 (loose fibrous tissue, cystic degeneration). Medial tibial cartilage was most severely involved, with fibrocartilage seen in 52% and cell clustering in 61%. **CONCLUSION:** Medial tibial cartilage degeneration correlated significantly with cruciate ligament degeneration. ACL is involved at a much earlier stage, while PCL changes become significant with disease progression. Macroscopically, sound PCL does not imply a mechanically sound PCL, as microscopic degeneration has usually set in. This has relevance in cases where decision for PCL retention at TKA is taken on the basis of intra-operative evaluation of the ligament; our study could not define if the PCL changes were due to some primary biochemical changes taking place in the ligaments or secondary to the mechanical stresses leading to OA.

Poster
Room: 601
Session : SICOT - Joint

Abstract number : 15406

BIPOLAR HEMIARTHROPLASTY FOR FRACTURE NECK OF FEMUR IN THE ELDERLY - THE INDIAN SCENARIO

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INTRODUCTION: Fracture neck of femur is one of the commonest problems that an orthopaedic surgeon faces in his practice. It is sustained by elderly persons following trivial trauma. With life expectancy increasing in each decade, the no. of cases is on rise. It is the commonest cause of mortality and morbidity in our population. The present study assesses the results of bipolar hemiarthroplasty in the Indian subcontinent and evaluates the results and compares them with those available in the literature. **MATERIAL AND METHOD:** A retrospective study was conducted at our institute from Feb. 2001 to Jan 2006. 100 cases with fracture neck of femur without any pre-existing arthrosis or disease like RA, neoplasms were treated by bipolar hemiarthroplasty with impaction bone grafting. Patients were followed up for an average of 15 months. **RESULTS:** The result of the study were analysed by the Harris Hip score system. The score of the last follow up was taken into consideration. We had excellent results in 48 cases, good results in 40 cases, fair in 8 cases and poor in 4 cases. **CONCLUSION:** Finding from the present series along with those of other studies support evidence that bipolar hemiarthroplasty is a better treatment option since it is less expensive, provides better stability, permits early weight bearing ambulation, shortened hospital stay and allows early rehabilitation for Indian patients.

Poster
Room: 601
Session : SICOT - Joint

Abstract number : 15681

PATELLA RESURFACING DURING TOTAL KNEE REPLACEMENT - HAVE WE GOT THE ISSUE COVERED?

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AIM: To investigate the current opinions of consultant surgeons on the practice of patella resurfacing during total knee arthroplasty (TKA) in the UK. METHODS: A questionnaire-based study was performed involving practicing surgeons who currently performed total knee replacements. Consultant Orthopaedic surgeons were identified from the British Orthopaedic Association membership database. Ethical permission to identify these individuals and contact them by mail was acquired and a questionnaire posted to each member assessing seniority, subspecialty interest, number of TKAs performed annually, whether they resurfaced the patella and their indications for resurfacing. Results were tabulated using Microsoft Excel and analysed. RESULTS: Forty-eight percent of the questionnaires were returned. Of these 67.3% were specialist knee surgeons. Twenty-eight percent always resurfaced, 48% resurfaced the patella selectively and 24% never resurfaced.

Poster
Room: 601
Session : SICOT - Joint

Abstract number : 15709

THE RADIOLOGICAL ACCURACY OF IMPLANT POSITIONING AND SOFT TISSUE BALANCE IN TOTAL KNEE ARTHROPLASTY WITH THE USE OF NAVIGATION SYSTEM

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INTRODUCTION: The radiological accuracy of positioning of the implants and soft tissue balance in total knee arthroplasty (TKA) were analysed between two groups those with and without the navigation system. **MATERIALS AND METHODS:** One-hundred thirty TKA in 89 cases (male 18 cases, female 71 cases) were evaluated. The diagnoses were osteoarthritis in 59 cases, femoral osteonecrosis in 7, rheumatoid arthritis in 20, and two other cases. In group A, TKA was performed in 26 joints with image less navigation system. In group B, TKA was performed in 104 joints with the use of the ligament balancer. The HSS knee score, the range of motion of the knee, duration of surgery, pre and postoperative femoro-tibial angles, postoperative functional axis, varus or valgus instability after surgery, and the tilting angle of tibial component in epicondylar radiographs were measured for comparison between two groups. **RESULTS:** Although the time of operation was significantly longer in group A, we found no difference in HSS score, the range of motion, femoro-tibial angle, and varus or valgus instability between two groups. The postoperative functional axis was 0.9° varus in group A, and 2.1° varus in group B. The tilting angle of tibial component showed 1.9° varus and 2.2° varus respectively. Although we found no difference of the mean postoperative functional axis and the tilting angle of tibial component between two groups, group B has more outliers than group A. **CONCLUSION:** The computer navigated TKA may provide better postoperative functional axis and ligament balances.

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Abstract number : 15862

METALLOSIS AFTER REVISION OF A FRACTURED CERAMIC HEAD ONTO A METAL-ON-POLYETHYLENE ARTICULATION - A CASE REPORT

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A ceramic articulation thought to be superior to metal-on-polyethylene due to its extremely low coefficient of friction and its potential for resistance to wear. But ceramic is brittle, which makes it theoretically susceptible to fracture. Although many authors reported that metal-on-polyethylene articular pairing had good results after ceramic head fracture, there were few reports about complication due to remaining ceramic particle after revision surgery. We report a case of severe metallosis which is thought to be due to third body wear by remaining fractured ceramic particle after revision total hip arthroplasty.

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Abstract number : 15968

PROSPECTIVE RANDOMIZED CONTROLLED TRIAL OF ONE STAGE VS. TWO STAGE THA IN AN ASIAN POPULATION

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We compared the safety and outcome of one stage bilateral total hip arthroplasty with those of two stage procedure during different admissions in a prospective randomized controlled trial in an Asian population. Of 168 patients included in the study, 83 patients had a single stage procedure while 85 patients underwent a two stage procedure. Most of the patients (59.9%) suffered from inflammatory arthritis. Intraoperative complications, early systemic complications, operative time, component positioning, functional scores, restoration of limb length equality, and survival rates on short to intermediate term follow-up were similar in the two groups. Total estimated blood loss was significantly lower in patients undergoing one stage procedure than that in patients who underwent a two stage procedure, but the transfusion requirements were significantly higher in the former group (p value 0.001). The hospital stay was significantly shorter in the single stage group, 7.25 ± 1.30 days (range 5-20) in single stage group against 10 ± 1.65 days (range 8-24) in two stage group, p value 0.023. We believe that a one-stage procedure is safe and appropriate in our population.

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Abstract number : 16124

A CASE OF PERFORMING A SECOND TKA FOR MRSA INFECTION AFTER BILATERAL TKA

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An 80-year-old female, who had a complication of MRSA pneumonia after bilateral TKA and postoperative hematogenous infection on both legs, was investigated. Two-stage replacement was performed after placing an antibiotics-loaded cement spacer mold. We used TKA with NexGen LCCK (Zimmer) for reconstruction. It proves a wide variety of size and supplemental augmentations allows for setting of proper joint lines for any bone defects. In order to prevent hematogenous infection, it is important to suspect any potential source of infection. Our experiments also found that functions could be reconstructed and patients showed a high level of satisfaction. However, there is a possibility of infection recurrence which requires careful follow-up.

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Abstract number : 16209

PIGMENTED VILLOUS-NODULAR SYNOVITIS OF KNEE JOINT IN CHILDREN: TWO CASES OF ARTHROSCOPIC DIAGNOSIS

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Pigmented villous-nodular synovitis (PVNS) is an aggressive local synovial proliferative disease of an unknown etiology. Occurrence of disease is 1.8:1,000,000, more often at people of 30-40 years old. The trauma of the affected area revealed at 50% of patients. Since 2005 we diagnosed arthroscopically 2 cases of PVNS in children. Patient N., 16 years old, arrived with pain in the left knee joint at walking, periodic swelling during 2 months. The fact of sharp trauma was denied. Therapy at out-patient department was without improvement. Analyses of blood, the X-ray, MRI findings were nonspecific. At diagnostic arthroscopy 50ml of dark blood were evacuated. Traumatic intra-articulate damages were not revealed. In a joint cavity revealed massive racemose, brownish yellow and brown growth of synovial membrane. Target biopsy material: a villous hypertrophic synovial membrane with extensive vasculature and fibrous changes. The diagnosis: pigmentary villous-nodular synovitis, diffuse form. Patient H., 10 years old, arrived with similar clinical manifestations. The disease anamnesis was 6 years; therapy of various suspected diseases did not lead to improvement. One month ago, at a joint puncture, blood was received. Arthroscopic and histological findings were similar to the first case. The diagnosis of PVNS was made. Such clinical signs, as dough, moderately painful at palpation synovial membrane of the superior volvulus, recurrent haemarthrosis, mechanical pseudo-blockade are nonspecific, however characteristic signs of presence of PVNS. Knee joint arthroscopy with target biopsy performing is a unique method of proper diagnostics of the given disease in children.

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Abstract number : 16245

COMPLICATIONS OF HIP JOINT REARTHROPLASTY

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GOALS: The goal of our research was to establish the significance of the difference between various endoprosthesis models in terms of the length of the duration of the implants as well as in terms of other complications. **MATERIALS AND METHODS:** The research included 215 revisions hip endoprosthesis done on the Clinical Hospital Osijek, Department of Orthopaedic Surgery between 1994 and 2007. Out of those having received surgery, a total of 29% were male and 71% were female. 64.2% were cement endoprosthesis; 30.2% were uncemented, and the remaining 5.5% remained. **RESULTS:** The Wagner-type of revision hip endoprosthesis was most frequently used (44.2%), followed by the S-ROM type (34.4%), and followed by the KAR type (21.4%). To a great extent (76.3%) there were no postoperative complications after implantation. Migration occurred in 9.8%, luxation in 6%, migration and luxation together in 1.4%, infection in 2.8% and remaining complications occurred in 3.7%. **CONCLUSIONS:** Appropriate preoperative preparations, good operative planning, careful operative technique and thorough experience of the surgeon will undoubtedly reduce the number of complications.

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Abstract number : 16250

THE FIN REVISION RING FOR ACETABULAR BONE LOSS

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The use of homologous bone transplantation and a press-fit acetabular cup is the best available option in cases of serious bone loss. The FIN acetabular revision system (Gruppo Bioimpianti, Milan, Italy) consists of a first-implant acetabular cup to assemble with a ring with an obturator hook and cranial fins that anchor to the ilium by means of spongiosa screws. The system thus makes it possible to increase the fixation of the implant during the operation if the first implant cup and the bone transplant do not guarantee sufficient stability. From February 2005 to December 2006, in our Orthopaedic Division we used the Fin cup with the revision ring in 11 patients (9 females, 2 males) with an average age of 78 years (range 65-87). There were 4 cases of aseptic loosening with Paprosky IIa bone-loss, 6 cases of Paprosky IIb bone-loss and in one case it was used following an intraoperative fracture of the posterior acetabular wall during a primary arthroplasty. The patients were monitored with postoperative X-ray tests and clinical and X-ray tests at 1 month, 3 months (in the 8 cases in which we used a homologous bone transplant), 1 year and 2 years. The average follow-up was 18 months (maximum 2.5 years, minimum 1 year). All the patients resumed full load-bearing within three months from operation. All X-ray testing showed stable implants and excellent protection of the transplants.

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Abstract number : 16297

BONE MARROW EDEMA SYNDROME IN PREGNANT WOMEN: TREATMENT WITH ILOPROST

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RATIONALE: Bone marrow edema syndrome (BMES) of the femoral head in pregnant women is a very rarely seen disease with disabling pain in the hip, beginning in the second or third trimester and persisting after parturition. **METHODS:** We treated 4 postpartal women (6 hips) presenting femoral head BMES with infusions of the prostacycline analogue iloprost (20µg for 5 days) followed by 3 weeks of partial weight-bearing. **FINDINGS:** Symptoms regressed rapidly during and after therapy. After 4 weeks, all patients were asymptomatic, with no limitations in ambulation. In the MRI assessment, complete regression of BMES could be detected in three patients and minor residual BMES in the femoral neck of one patient (one hip) after 3 months. Pain did not recur in any patient at a mean follow-up of 31 months (14-43 months). **INTERPRETATION:** The vasoactive drug iloprost has good analgesic potency in the treatment of postpartal women suffering from BMES and accelerates the natural course of the disease.

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Abstract number : 18800

LOCAL INFILTRATION ANALGESIA (LIA) IN JOINT REPLACEMENTS

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INTRODUCTION: Postoperative pain has been underestimated and a significant health care issue. In orthopedic surgery total joint replacements are painful procedures. Peripheral nerve blocks, continuous epidural analgesia or morphine intravenously may work well, but also influence patients negatively. **METHODS:** The aim of postoperative pain relief should preferably block the pain where it originates, efficiently and long-lasting with a minimum of side effects. By multimodal local infiltration of intra- and periarticular tissues with a mixture of local anesthetic (Naropine®), NSAID (Toradol®) and Adrenaline, pain is blocked and pain signals prevented from reaching the CNS. The patient's general condition and the muscle function in the operated extremity are not affected, promoting rapid recovery. The perioperative infiltration normally provides excellent pain relief for 18-24 hrs. At the end of surgery, a catheter is placed intra-articularly for additional installation of local anesthesia. **RESULTS:** LIA was introduced in Scandinavia 2001 for hip and knee arthroplasties. The majority of the patients are mobilised within 6 hours postoperatively, independently mobile within 1-2 days and discharged from hospital within 3 days. Prospective and randomised studies are published; the results are uniformly in favour of LIA. Toxic reactions are not reported and no increased incidence of infections related to the catheter. **DISCUSSION:** LIA provides excellent pain relief with minimal effect on motor function and general condition. The result is improved outcome with less pain, less complications, immediate mobilisation and shorter hospital stay. LIA is safe, and compares favourably with other techniques.

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Abstract number : 16783

APPROACH OF TIBIAL BONE DEFECTS IN PRIMARY TOTAL KNEE ARTHROPLASTY

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INTRODUCTION: Tibial bone defects in primary TKA are typically asymmetric and peripheral, although contained deficiencies may occur. Various techniques are available to compensate for bone defects in primary TKA: lower tibial resection; translation of the tibial component; cement filling, autologous bone graft; allograft; metallic wedges. The use of stems is necessary when the reconstruction of bone defect renders the tibial component unstable. **MATERIAL AND METHOD:** Between 2000-2007, from 247 primary TKA 26 necessitating reconstruction of tibial bone defects. In 17 cases we have used cement filling of the defect and for 9 cases we have used autologous bone graft; 2 of them necessitated stem protection. For one case we have used a wedge. The average follow-up was of 18 months, and we have considered radiological aspects and also the functional outcome using KSS scale. **RESULTS:** In all cases when we have used the bone defects cement filling technique, the functional outcome was excellent. With an average follow-up of 12 months we found out that all the autologous grafts were integrated, and that the functional outcome was also very good. **CONCLUSIONS:** Reconstruction of tibial bone defects must restore the optimum maximal surface of bone-prosthesis interface and also respect the rectangularity between tibial mechanical axis and joint line. The type and the size of the bone defects are the major concerns regarding the surgical technique chosen for the reconstruction of tibial defects.

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Abstract number : 16894

PRELIMINARY RESULTS IN HIP RESURFACING (BHR) IN YOUNG PATIENTS

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INTRODUCTION: The aim of this study is to evaluate the preliminary results obtained in our department with hip resurfacing using BHR prostheses for young patients. MATERIAL AND METHOD: 11 patients (7 women and 4 men) between 19-48 years underwent 13 surgical procedures (2 patients bilateral) performed by two surgeons. Two approaches (lateral and posterior) were used. Follow-up period was 10 months - 2.5 years postop. Short-term evaluation was done clinically (Harris hip score) and radiologically (positioning and migration of prosthetic components and bone remodelling). RESULTS: Long-term results could not be obtained but short-term results turned to be excellent. One complication was observed (dislocation of the prosthetic components which was treated non-operatively with good result). No femoral neck fractures or migration of components were found. CONCLUSIONS: Resurfacing hip procedure represents a surgical option for young patients who need to undergo a hip replacement. Long term results from literature, although few, are more than encouraging. Reproducing them means a very good alternative in hip replacement from the surgical technique point of view, by saving the bone stock for future revisions.

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Abstract number : 16849

REVISION TOTAL HIP ARTHROPLASTY - MASSIVE ACETABULAR BONE LOSS: OUR EXPERIENCES

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INTRODUCTION: The increasing occurrence of aseptic loosening, often accompanied by extensive acetabular or femoral defects, confronts the surgeon with severe difficulties. The strategy of treatment depends on the extent of the acetabular or femoral defect, age and general condition of the patient. **PATIENTS AND METHODS:** Between January 2004 and June 2007 we performed 18 reconstructions of the acetabulum with Burch-Schneider reconstruction ring. The preoperative acetabular deficiency was determined from the preoperative radiographs and operative reports accordingly to AAOS classification. The mean follow-up time was 2.6 years. **RESULTS:** According to the criteria for clinical evaluation, 78% of patients showed successful clinical results with an average HHS at the final follow-up examination of 82 points. **CONCLUSIONS:** The Burch-Schneider ring is an established and reliable implant for cup revisions in the presence of combined or large segmental acetabular defects.

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Abstract number : 16871

CEMENTLESS TOTAL HIP ARTHROPLASTY IN DISLOCATED DYSPLASTIC HIPS WITH SUBTROCHANTERIC FEMORAL SHORTENING

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Total hip arthroplasty in dislocated developmental hip dysplasia is a technically demanding procedure with higher complication rates. The anatomic abnormalities and younger ages of patients deteriorate the results. Restoration of the anatomical hip centre generally needs shortening of the femur in order not to overstretch the neurovascular structures. We performed cementless total hip arthroplasty with subtrochanteric transverse osteotomy on 44 hips of 31 patients (12 Crowe III and 32 Crowe IV). There were 29 female and 2 male patients. The average age at the time of the operation was 43.2 (range 22-63 years) and mean follow-up period was 46 months (range 12-70 months). In 6 acetabula, we had to use structural femoral head grafts. Harris hip scores improved from 36.2 to 83.8 with good and excellent results in 81.8%. We stabilised the osteotomy line with low contact plates and screws on 10 patients when rotational stability was in doubt. We observed 5 nonunions which had not been stabilised in the index operation and treated successfully with internal fixation and autogenous grafting. Totally, the mean union time at the osteotomy line was 4 months (range 2.5-14 months). At the latest follow-up, leg length discrepancy was >2cm in 6 patients and was <2cm in 25 patients and the Trendelenburg sign of 28 hips became negative. Two dislocations, one acetabular component displacement under the structural graft and two superficial infections were seen. Subtrochanteric transverse osteotomy is a safe and reliable method of femoral shortening in dislocated hip arthroplasty.

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Abstract number : 16917

FEMORAL HEAD AND NECK FRACTURES DEVELOPED IN AVASCULAR NECROSIS OF THE FEMORAL HEAD - A REPORT OF 4 CASES

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Femoral head and neck fractures during the course of avascular necrosis are rare, with only few reports in the English literature. Moreover, there are very few reports on an analysis of the patterns of these fractures. Four cases of femoral head fracture caused by minor trauma, which were quite different from the crescent fractures during the course of avascular necrosis were analysed in regard to the underlying disease, causes, sites, types, directions, pattern of fractures and the injury mechanism of the fractures. The results are reported with special regard to the pattern of the stress fracture of the femoral head neck during the course of avascular necrosis.

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Abstract number : 17024

STAHELI'S SLOTTED ACETABULAR AUGMENTATION IN THE TREATMENT OF PERTHES DISEASE IN CHILDREN

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OBJECTIVE: To study the indication and the experiences of Staheli's slotted acetabular augmentation in the treatment of Perthes disease in children. **METHODS:** Twenty-six patients with Perthes disease were treated by Staheli's slotted acetabular augmentation. The series consisted of 22 boys and 4 girls (right 18 cases, left 8 cases). According to Catterall's classification, 3 cases were graded as group II, 12 cases were graded as group III and 11 cases were graded as group IV. **RESULTS:** All patients were successfully followed-up for a period from 6 months to 3 years (the mean of 2 years and 1 months), and were assessed clinically with McKay Criteria and radiologically with Willett assessment. The clinical results showed that the overall excellent or good rate was 98.16%. The radiological results showed that epiphyseal height, percentage of acetabular cover and centre edge angle significantly increased ($P<0.001$), Sharp angle significantly decreased ($P<0.001$), the continuity of Shenton's line and the form of femoral head was obviously improved. **CONCLUSION:** Staheli's slotted acetabular augmentation should be an effective procedure for treating Perthes disease in children.

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Abstract number : 17102

PITFALLS AND COMPLICATIONS OF MEDIAL OPEN WEDGE HTO

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Medial open wedge high tibial osteotomy (HTO) has gained popularity recently over the lateral closing wedge. This is due to many advantages including maintaining the shape of the upper tibia and avoiding patella baja, besides the reproducibility of the operation. However, there are certain pitfalls in using this technique such as over tightening of the medial compartment, due to incomplete MCL release, or changing the upper tibial slope. Complications may also occur such as intra-articular fractures, breaking of the lateral cortex and nonunion of the osteotomy site. We discuss the pitfalls and how to avoid them and managing the complications intra and postoperatively if they occur.

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Abstract number : 17160
SUPRACONDYLAR FEMORAL OSTEOTOMY FOR VALGUS KNEE

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This retrospective study examined the results of supracondylar femoral osteotomy for valgus knees. Twelve patients with valgus knees treated surgically between 1992 and 2007 were reviewed. Mean patient age was 27.5 years and follow-up averaged 37.5 months. The cause of the deformity was poliomyelitis in 6 patients, previous injury in 4 patients, while no apparent cause was found in 2 patients. The axis deviation ranged from 11°-23° (mean 16°). We proceeded with a closed wedge osteotomy in 9 patients, while 3 patients underwent an open wedge osteotomy. The osteotomy was fixed with L plate in 3 patients, with DCS in 7 patients and with external fixation in 2 patients. All osteotomies healed within 4.1 months on average (range 3-5 months). The correction of the axis was 9° on average (range 4°-12°). We did not observe any complications except a decrease in the range of knee movements in 3 patients.

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Abstract number : 17197

TREATMENT OF FEMORAL NECK FRACTURES BY BIPOLAR HEMIARTHROPLASTY THROUGH SHORT EXTERNAL ROTATOR PRESERVING MIS APPROACH IN PATIENTS WITH NEUROLOGIC DISORDERS

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PURPOSE: To evaluate the clinical results treated by short external rotator preserving (ERP) posterior approach in bipolar hemiarthroplasty for treatment of femoral neck fractures in patients with neurologic disorders. **MATERIALS AND METHODS:** This retrospective study includes 16 patients with neurologic disorders, who were operated on by the ERP posterior approach (Group 1) and 22 patients of age-matched randomized control (Group 2), who were operated on by the conventional posterolateral approach. **RESULTS:** The mean operation time was 44.6 minutes in group 1 and 39.8 minutes in group 2. The amount of postoperative blood loss was 89.2ml in group 1 and 124.8ml in group 2 ($p<0.05$). There were no significant differences in early postoperative complication rate including wound problem, deep vein thrombosis or infection and the hospital stay. There was no dislocation after operation in group 1. But one patient (4.5%) had dislocation in group 2. Five patients (31%) died within postoperative 1 year in group 1 and four patients (18%) died in group 2 ($p<0.05$). **CONCLUSION:** Short external rotator preserving posterior approach can be an effective method in treatment of displaced femoral neck fracture by bipolar hemiarthroplasty in patients with neurologic disorders which is considered as high risk of dislocation. Also, it decreases the postoperative blood loss and the needs of postoperative abduction brace.

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Abstract number : 17230

NAVIGATED TOTAL KNEE ARTHROPLASTY IN CASE OF SEVERE DIAPHYSEAL DEFORMITIES

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We want to present a special application of computer navigated total knee arthroplasty, where this relatively new technique ensures the optimal solution for this particular case. The patient suffered polytraumatisation caused by a traffic accident 47 years ago. His femoral and tibial diaphyseal fractures healed with significant deformities on the right side, with a biplanar deformity (varus and retrocurvation) on the right femur, and uniplanar deformity (valgus) on the tibia. After the recovery the patient denied any corrective operation of the lower limb. Consecutive knee osteoarthritis developed. According to the American Knee Society Score the patient had a knee score of 22, and a functional score of 45 at admission. Active knee flexion was 5-40 degrees, with significant pain during motion. Operation was performed by Johnson&Johnson DePuy Ci navigation, which is an implant specific, passive marker technology based, CT-free device. We implanted PFC Sigma cruciate retaining modular total knee prosthesis. Significant diaphyseal deformities prevented the use of intramedullary guiding in our case, and the extramedullary guiding procedure would not yield a correct anteroposterior implant alignment beside varus-valgus positioning. Navigation ensures this alignment with correct varus-valgus and transepicondylar alignment as well. In our view, the use of navigation was the best available solution in this case to decrease the postoperative complications (malalignment) to the minimum. We wanted to present a special application of computer navigated total knee arthroplasty, where this relatively new technique ensured the optimal solution for this particular case.

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Abstract number : 17278

SALVAGE OF AN INFECTED NONUNION INTERTROCHANTRIC FRACTURE

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Although intertrochanteric fractures commonly unite, surgeon may always come across situation with lag screw cutout with infected implant with demanding patients. We present a case of a 58-year-old male who underwent DHS fixation for intertrochanteric fracture. In the course of time the implant got infected and led to infected non-union with screw cut out. Although option of Girdlestone arthroplasty was an option in this situation, it would not have given an advantage of sustained local antibiotic concentration as a hip spacer would. A two-stage surgery was planned. In first stage infected implant removal with removal of head was done. A joint spacer (commercially available in market) made of antibiotic impregnated bone cement was used for 8 weeks. At 8 weeks when the wound was dry and serial ESR and CRP reports were normal, a second stage surgery was performed with removal of spacer and total hip replacement. Postoperative period was uneventful. There were no signs of infection and surgical wound healed normally. Judicial application of principles of infection control can in this era give an otherwise bed-ridden patient a very good function.

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Abstract number : 17350

COMPUTER ASSISTED AND ROBOTIC SURGERY IN TOTAL HIP ARTHROPLASTY

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The robotic surgery is born with the objective to make the process of the prosthesis more precise and infallible. This method has the disadvantage of having the highest costs for the purchase of the robot itself, slows for the evaluation of the patient and for the interpretation of data acquired, and the surgical times, with its consequences (drug use anaesthetics, blood loss, increased risk infectious etc.). The robot was not infallible, however, and in case of error we have a further extension of surgical time. The navigation in prosthetic surgery (computer assisted surgery) is the same requirement that led to the development of robots to help the surgeon to reduce the possibility of error. The greater precision in the surgery compared to traditional technique is undeniable, even if we do not have data which show most effective duration of plants compared to traditional technique. This technique is also relegated to a secondary role until there will be available software which will expand the use of the method to more complex diseases.

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Abstract number : 17358

TOTAL HIP ARTHROPLASTY IN YOUNGER PATIENT AND SPORTING ACTIVITY

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A retrospective analysis has been made of 286 patients with a mean age of 40.9 years, who had undergone a total hip arthroplasty between 1994 and 1998. We have observed a significant increase in the percentage of patients that practiced more than one sport activity after surgery; the number of patients practicing contact sports has been annulled. Moreover, all patients, after surgery, have begun to practice at least one sport activity.

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Abstract number : 17380

USING AN OVAL CUP IN A BIG DESTRUCTION OF ACETABULUM IN THE LAST 10 YEARS

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AIM: At the orthopedic department of UKC Maribor we have been implanting oval cups since 1997. Our aim was to present analysis of oval cup usage in extensive acetabular destruction, where the shape of acetabulum is oval. METHODS: A series of 44 operations, because of extensive acetabular destruction of the hip joint, resulting from prosthesis loosening or primary hip arthrosis. Different sized oval cups were used and were fixed with screws; the remaining acetabular space was filled with spongiose bone graft. Follow-ups lasted 3, 6, 12 or 24 months and included a clinical examination and radiological analysis. RESULTS: 43 patients have been treated and 44 cups implanted. The average age of the patients was 68.4 years (45-83). 41 (93.1%) operations were revision operations. 3 luxations (2 cases pertaining to long-lasting loosening of the hip prosthesis and consequent atrophy of the hip musculature and 1 case of improper alignment of the cup angle) were found. Sciatic nerve damage occurred in one case. During follow-ups two patients showed signs of prosthesis loosening (after 3 weeks and 8 months respectively). In these cases we implanted a cement cup or used a Bicon cementless cup. CONCLUSIONS: According to the preliminary results, the usage of the oval cup for correcting an oval defect has proved successful. In the past five years the frequency of our usage of such a socket has risen, due to the ever-growing number of revision operations.

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Abstract number : 17388

CONGENITAL DISLOCATED HIPS ANKYLOSED IN EXTREME ADDUCTION (FULLY CROSSED LEGS) TREATED BY TOTAL HIP REPLACEMENTS (A CASE REPORT)

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INTRODUCTION: We are presenting a very rare case of a patient with congenital dislocation of both hips and ankylosis of hips in extreme adduction, treated by hip replacement on both sides. **CASE REPORT:** The patient, a 61-year-old woman, was treated of developmental hip dislocation of both hips in early childhood. When she was thirty, after her second birth, she was suffering from pain and restricted movement of both hips. Disease has progressed quickly and hips became fully stiff. Next thirty years, woman was restricted to live only in her house. The patient was presented in our department with: ankylosis of both hips in extreme adduction (fully crossed legs), very slow gate with two canes and contracture of both knees (flexion up to 45 degrees). The patient was treated initially with total hip replacement and adductor tenotomy of the left hip. Because of pelvis obliquity and dislocation of the right hip, her right leg was abbreviated for 10cm. Next 45 days the patient was bedridden and then she started to walk with walker. Second operation, also hip replacement of the right hip, with adductor tenotomy, we have performed after 6 months (hybrid type prosthesis). On second postoperative day, the patient has started to walk with crutches and full weight bearing on the right leg. Two months after the second operation, the patient walks with cane. **CONCLUSION:** Hip replacement of ankylosed hips in extreme adduction is a very demanding operation, but it is the only way to solve problems of such patients.

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Abstract number : 17397

TOTAL HIP ARTHROPLASTY FOR CONGENITAL HIP DISEASE REDUCING BY AN ORIGINAL METHOD

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Osteoarthritis secondary to developmental dysplasia of the hip may lead to some technical difficulties when performing total hip arthroplasty. The proximal femoral morphology is challenging for implantation of a stem in the presence of a narrow intramedullary canal and increased anteversion. We report 2 cases of congenital dislocation of the hip treated by an original method to take down the proximal femur and performing total hip arthroplasty at the level of the true acetabulum. First case: female adult - 36 years old operated in another hospital in left hip, but presented infection and loosening at the immediate follow-up. In our department we treated this complication and one year after we made: release and at And we operated another right hip using the same method. Second case: female - 20 years old who presented a painful unilateral congenital dislocation of the hip. We made the same method of the treatment meaning: - the first step: release to take down the femur; - the second step: total hip arthroplasty in the true acetabulum. RESULTS: Follow-up: 2 years we will study and evaluate the follow-up by the average Merle d'Aubigne-Postel hip score and also will study different parameters of the position of the hip in X-rays. We will show this technique and discuss this method comparably with other methods in literature.

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Abstract number : 17524

A CASE OF REVISION ARTHROPLASTY FOR INFECTED TOTAL KNEE ARTHROPLASTY BY ANTIBIOTIC-LOADED ARTICULATING CEMENT SPACER

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INTRODUCTION: Postoperative infection of total knee arthroplasty (TKA) is a serious complication that is difficult to treat. A patient with late deep infection after primary TKA underwent two-stage revision arthroplasty with temporary articulating cement spacer followed by prosthesis re-implantation. **CASE:** A 88-year-old woman has complained of continuous pain since 16 months after primary TKA and visited our hospital 28 months after the first operation. A radiograph showed loosening of femoral and tibial component and the culture of joint fluid grew coagulase negative Staphylococcus. She was diagnosed late deep infection and underwent two-stage revision arthroplasty with antibiotic-loaded articulating mold type cement spacer followed by re-implantation using constrained condylar knee prosthesis with modular stem extension. At seven months after the revision arthroplasty, the patient was able to walk without cane, and felt no pain. A radiograph showed no evidence of prosthesis loosening and there was no recurrence of infection. **CONCLUSION:** The antibiotic-loaded articulating mold type cement spacer maintains length of lower extremity and allows the rehabilitation such as range of motion, muscle power training of lower extremity and partial weight-bearing gait before re-implantation. Revision arthroplasty by the constrained condylar knee prosthesis with modular stem extension enabled initial rigid fixation and good alignment of implants in this case of infected TKA.

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Abstract number : 17591

SEPTIC ARTHRITIS WITH INFECTED HAEMATOMA POST ARTHROSCOPY. BE WARY OF ANTIPLATELET AGENTS!

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Complications following knee arthroscopy are rare, especially infectious ones. We report a case of a MRSA infected knee joint following portal site haematoma post knee arthroscopy. The patient was on an antiplatelet drug other than aspirin which directly contributed to the haematoma formation and subsequent infection. We recommend that patients should stop all antiplatelet drugs at least 1 week prior to their arthroscopy to prevent this potentially devastating complication from occurring.

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Abstract number : 17602

MID-TERM CLINICAL RESULTS OF FHU CEMENTED TOTAL HIP ARTHROPLASTY FOR RHEUMATOID ARTHRITIS

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INTRODUCTION: This report shows the mid-term clinical results of primary FHU cemented total hip arthroplasty (THA) for rheumatoid arthritis. **MATERIAL AND METHOD:** We performed 48 joints with using of FHU cemented stem prostheses for the patients of rheumatoid arthritis (RA) between 1990 and 2002 (mean ages: 55.9, follow-up average: 9.7 years). We checked the X-ray photos about radiolucent lines, osteolysis and loosening of prostheses and activity of RA. **RESULT:** Just one stem (2.1%) was revised because of the osteolysis with metal-back cup loosening in 14-year post-operation. Two stems (4.2%) were found with broad radiolucent lines for the reason of severe osteoporosis of the femur. There was no complication with fracture or infection. Seven cups (14.4%) consisting with six of 12 metal-back cups and one of 10 (Ganz 7, KA 3) support rings were revised for loosening. The use of metal-back cup and clinical technique for severe protrusion of acetabulum were important reasons for the loosening of RA-THA cups. We have already reported the same prostheses in osteoarthritis patients and the survival ratio was 92.7% in fifteen years (The annual meeting of the Japan hip society in 2007). The mid-term clinical results of the FHU cemented total hip stem prostheses were also as good as RA patients.

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Abstract number : 17640

MAY WE INFLUENCE STRESS RESPONSE TO SURGERY BY ANAESTHESIA AND ANALGESIA?

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BACKGROUND AND GOAL OF STUDY: The aim of this study was to investigate influence a clinical efficacy of different medications for epidural analgesia on immune response after knee replacement surgery. **MATERIALS AND METHODS:** We studied 110 ASA 2-3 patients in a randomised prospective manner. At the end of surgery Group I patients received Solu-Medrol 40mg with Morphine 1mg epidurally, in Group II - Marcaine 25mg and 1mg of Morphine, in Group III - Solu-Medrol 40mg and Fentanyl 0.05mg. In the ward patients received mixture of Solu - Medrol 20mg with Morphine 0.5mg (I), or Marcaine 25mg with Morphine 0.5mg (II) or Solu-Medrol 20mg with 0.05mg of Fentanyl (III) into epidural space in the fixed hours. If analgesia was unsatisfactory, rescue analgesic was Marcaine 0.5% 5ml epidurally. Sensory level, motor blockade, pain, vital signs were assessed for 24 hours. Changes of electrolytes, blood sugar, C-reactive protein level, IL-6, IL-10, cortisol were measured. Also side effects were registered. **RESULTS:** Pain was significantly lower in Group I. In patients of I and III groups in the postoperative period, production of IL-6, CRP and cortisol was significantly less elevated. **CONCLUSIONS:** Solu-Medrol seems to be effective medication for postoperative analgesia after knee replacement surgery like component of multimodal analgesia and also modulator of immune response.

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Abstract number : 17744

COMPARISON OF SHORT-TERM RESULTS OF TRIATHLON AND GENESIS II TOTAL KNEE ARTHROPLASTY

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AIM: To compare the short-term clinical and functional outcome of Triathlon (Stryker Ltd) and Genesis II (Smith & Nephew) total knee arthroplasty (TKA). MATERIALS AND METHODS: Thirty-three patients who underwent Triathlon total knee replacement and 32 patients who had Genesis II TKA, operated by the same surgeon, were followed up for an average period of 8.5 months. The patients were assessed according to the Knee Society Clinical Rating system. RESULTS: In the Triathlon group, 48.5% were males and 51.5% were females, whereas in the Genesis II group, 37.5% were males and 62.5% were females. In both groups, around 46% had it on right side and 54% had it on left side. The mean Knee Society Clinical Rating system preoperative score for Triathlon TKA was 35.1 and the mean postoperative score was 86.2. For Genesis II TKA, the mean preoperative score was 37.9 and the mean postoperative score was 88.6. STATISTICAL ANALYSIS done using Chi Square test. CONCLUSION: No significant differences in short-term results were found between Triathlon and Genesis II total knee arthroplasties.

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Abstract number : 17746

EVALUATION OF IMPLANT STABILITY AFTER TOTAL CEMENTLESS HIP ARTHROPLASTY

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PURPOSE: Post-arthroplastic pains are often produced by implant loosening, but this becomes obvious (using classical X-Rays) too late for a conservative treatment. The authors study a method for early detection of implant loosening. **MATERIAL AND METHOD:** 20 total cementless hip replacements for primary (14 patients) and secondary (2 patients) osteoarthritis performed between 01.06.2004-01.06.2006 are analysed. The same protocol was followed post-operatively and digital X-Rays (A-P and lateral) were performed 3, 6, 12 months after surgery. Then, the X-rays were analysed using a computer programme concerning: the position of the prosthesis, compared to local anatomy (the axis of the acetabulum, the angle between the stem of the prosthesis and the femoral axis), the quality of the bone - using image parameters, in standard conditions for digital exposure, compared to bone densitometry. **RESULTS:** The differences between the axis of the prosthesis and the anatomical ones were under 2% in the studied group, meaning a correctly positioned prosthesis. The results of bone densitometry (DXA) are similar to those offered by the computer analysis, with variations of 4-6% (statistically non-significant). Digital X-rays revealed 0.4-0.8 microns changes of the initial position when pain appeared (4 cases), vanishing when the position was stabilized. **CONCLUSIONS:** Computer analysis of the X-rays we studied confirmed that the initial proper positioning of the prosthesis is essential for the outcome of the patient. Digital X-ray examination is clearly better than the classical one, and a complex programme for image analysis can early detect implant loosening.

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Abstract number : 17751

HAEMOSTASIS AFTER TOTAL HIP REPLACEMENT- ADJACENT METHOD

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PURPOSE: Intra/perioperative bleeding after total hip replacement represents a major therapeutic problem, especially because this type of operations are more and more frequent, while transfusional resources are limited. The authors present a method which improves local haemostasis which reduces postoperative bleeding - Cryoseal, a substance which is prepared and administered intraoperatively, in sterile conditions, before suture and, due to the fibrine, improves local haemostasis. **MATERIAL AND METHOD:** Two groups of patients with total hip replacement: group A, 15 patients, who received Cryoseal, and group B, 20 patients, who did not receive, were analysed concerning: demographics, time of surgery, type of prosthesis, intraoperative bleeding, biochemical analysis before and after surgery, postoperative drainage. **RESULTS:** No significant differences were found between the two groups concerning time of surgery and intraoperative bleeding. Postoperative drainage in group A was 40% higher than in group B, especially during the first 6 hours postoperatively, postoperative values of haemoglobine decreased in group B with 28% compared to the preoperative value and with 18% in group A. No local complications appeared in group A. **CONCLUSIONS:** The results obtained by comparing the two groups demonstrate the efficacy of Cryoseal in achieving haemostasis after total hip arthroplasty and maintaining the balance of the patients.

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Abstract number : 17754

ACETABULAR AUGMENTATION IN REVISION HIP ARTHROPLASTY

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BACKGROUND: Acetabular wedge augmentation is a useful technique and is recommended in situations where cup revision is likely to be excessively difficult. Olerud and Karlström were the first to report treatment with a socket wall addition device (1985). Numerous augmentation designs that improve the stability of the hip are now available in the market. **MATERIALS AND METHODS:** 12 patients suffering dislocations were reoperated with a socket wall addition device (anti-luxation augment), and were followed up after a mean of 4.3 (2-7) years with regard to redislocation, function and radiographic loosening. **RESULTS:** 1 of the patients suffered a redislocation after almost 2 years of use. None of the patients had loose femoral or acetabular components. Acetabular augmentation is a useful technique and is recommended for patients with a shorter life expectancy, for younger patients with low functional demands, and in situations where cup revision is likely to be excessively difficult.

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Abstract number : 17792

OUR EXPERIENCE IN TOTAL HIP ARTHROPLASTY USING LARGE DIAMETER FEMORAL HEADS

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BACKGROUND: It is generally believed that smaller head sizes increase the number of dislocations. The stability achieved by using a larger size diameter femoral head has been recognized since the early 1970's. With the larger head, the distance to travel before subluxation and dislocation is greater, and more range of motion is allowed before the neck impinges on the shell wall and levers the head from the shell. Metal on metal is the ideal material of choice for a joint reconstruction with the largest femoral head. **MATERIALS AND METHODS:** 37 hips in 31 patients had a total hip replacement using large femoral heads (ASR™ De Puy -22, Magnum™ Biomet - 15). The average age was 36.6 years old (range 20 to 56). The average follow-up was 1.6 years. **RESULTS:** None of the patients had dislocation. Large diameter femoral heads provide additional stability without compromising range of motion.

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Abstract number : 17796

CONSTRAINED ACETABULAR LINERS IN TOTAL HIP ARTHROPLASTY

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BACKGROUND: Many surgeons use acetabular components with constrained polyethylene liners to improve stability in patients with a history of hip dislocation. A constrained acetabular component as a treatment for recurrent dislocation is a long-established treatment option, with varied reported redislocation rates. The problems associated with constrained components include decreased range of motion (ROM), increased polyethylene wear and the risk of prosthesis loosening. **MATERIALS AND METHODS:** From 1994 to 2007, 9 constraining acetabular components were implanted into 9 patients as a revision procedure. The constrained acetabular component was used as a last resort, as a mode of salvage, only when it was believed that other modalities would be ineffective. Other patients who had had dislocation following total hip arthroplasty were managed with more conventional methods. The surgical approach for the implantation of the constrained liner was anterolateral modified Hardinge approach. The average follow-up was 5.9 years. **RESULTS:** Dissociation between the constraining liner and metal shell occurred because of the locking mechanism in 1 hip. 1 hip had dislocation of the femoral head from the constraining liner. None of the patients had loose femoral or acetabular components. The use of this type of component should be considered for patients who have recurrent dislocation if other treatment modalities are unlikely to be effective.

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Abstract number : 17802

HINGED IMPLANTS IN PRIMARY KNEE ARTHROPLASTY

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The choice of prosthesis in total knee arthroplasty is a great problem for a surgeon in modern orthopedics. Though there are many and constructive features. Despite the large selection of different types of implants it is rather difficult to select necessary construction in accordance with clinical finding and roentgenological picture. In case of significant lesions of osteoarthritic knee joint, ligamentous instability or large deformities choosing inappropriate prosthesis may occur in deplorable result. In the study the use of hinged knee implants was analysed. 32 patients had a total knee replacement using hinged knee prostheses with or without rotating mechanism as a constructive feature. Most patients (26) had a gross deformity of the knee joint. Only one case of excessive lesion in osteoarthritic knee was included in study. The average age was 59.47 years old. Average follow-up was 4.5 years. None of the patients had bad results, roentgenological signs of loosening or stiffness of the knee. Range of motion was good or excellent in 93.75% of observation. According to the result of study it is possible to make the conclusion that use of hinged knee implants in case of severe impairment of knee joint results in good outcomes and may be recommended in wide clinical practice.

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Abstract number : 17899

PROSTHETIC DISLOCATION INDEX AND PREDICTIVE RISK AFTER TOTAL HIP ARTHROPLASTY: A RETROSPECTIVE STUDY WITH A 6-YEAR FOLLOW-UP

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We studied 341 patients with a cervical femur fracture and 119 patients with osteoarthritis in which a total hip arthroplasty was performed to determine the prosthetic dislocation index and the predictive risk. We defined the term dislocation as having the femoral head component outside the acetabular socket with confirmation on X-rays. The exclusion criteria were: patients with hemi and bipolar prosthesis and any conditions that predispose dislocation such as patients with a pathological fracture, mental disorders or drug abuse. We checked radiographic measurements on anteroposterior pelvic X-rays, how long an abduction pillow was used and when the patient started full weight bearing walking. The measurements used to calculate the predictive risk for dislocation were the acetabular component positioning, femoral offset, intercephalic line, Voss effect, head-neck angle and neck length. We applied the theory of moments of forces described by Pauwels which may influence hip dislocation. A posterolateral approach was used in all cases and all dislocations that we found were posterior. The dislocation index was 6.7%. All X-ray measurements used have a relationship with the resultant hip forces to obtain the predictive risk for total hip arthroplasty dislocation.

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Abstract number : 17915

CLINICAL APPLICATION OF 64 MULTI DETECTOR ROWS CT TO CASE AFTER JOINT REPLACEMENT

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Multi detector-row CT (MDCT) is developed, and it is applied to clinical situation in recent years. The evaluation of an implant in vivo had been evaluated by radiograph and X-rays CT, etc. before. However, because it stays in the diagnosis on the image two dimensions, and reproducibility is scarce, the accurate appraisal is difficult in the radiograph. Moreover, the problem of the appearance of the discontinuity part is caused by the problem of metallic Artifact in past single helical CT. Because MDCT had resolution high as for the direction of the body axis for these, the fracture around the implant, the bone particle, and the evaluation of the bone adhesion were also possible. In addition the angiography is be able to restructured in three dimensions with injecting contrast medium intravenously and it was useful for the diagnosis for the vascular lesion in the tip less invasive. It reports on the case where MDCT was useful for the diagnosis though it is difficult in a past inspection method.

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Abstract number : 17934

EVALUATION OF FEMORAL REVISION ARTHROPLASTY WITH A CONVENTIONAL RADIOGRAPHIC SCORING SYSTEM AND COMPUTERIZED MIGRATION ANALYSIS

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We conducted a retrospective study on 34 patients (34 hips) following cementless stem revision arthroplasty. Aim of the study was to evaluate the femoral component stability with a scoring system utilising conventional radiographs and a digitised migration analysis system. The median age of the patients at the time of surgery was 68 years (95%CI: 64 to 71), and the median follow-up was 5.7 years (95%CI: 3.6 to 6.5). Five stems showed clinical and radiological signs of stem loosening. The conventional scoring system ($p < 0.0001$) and the digitised migration analysis system ($p < 0.0001$) revealed a statistically significant difference in the patients with and without stem loosening. The median time spent in each patient was 4.3 minutes (95%CI: 4 to 4.4) for the conventional radiographic system and 20.6 minutes (95%CI: 18.5 to 22.4) for the digitised method ($p < 0.001$). Both, the conventional scoring system and the digitised method showed to be effective in the evaluation of the implant stability. However, the digitised method presented a more time-consuming approach. The current study supports the notion that a conventional radiographic scoring system seems to be more practicable in the routine surveillance of revision hip arthroplasty.

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Abstract number : 17963

SL-MIA STEM, A NEW MODIFIED DESIGN OF THE ORIGINAL ZWEYMÜLLER SL-PLUS STEM FOR MIS-THR - ONE-YEAR FOLLOW-UP AFTER 470 IMPLANTATIONS

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The goal of performing hip surgery via a minimally invasive technique is to spare unnecessary bone loss and to reduce soft tissue trauma. We hypothesized that this goal would be more easily achievable after modifying the design of the well established Zweymüller SL-Plus hip stem (since 1992), an approved philosophy in non-cemented hip prosthetics since 28 years and over one million implantations worldwide with excellent long-term results. As this implant was originally designed for metadiaphyseal anchorage, modifications were made only in the lateral proximal part of the device to reduce lateral bone resection and to preserve the tendons of the gluteus medius and minimus muscles. Since December 2005 over 470 SL-MIA stems were implanted. The main diagnoses were primary Osteoarthritis in 73% and dysplastic hips in 13%. We documented a lot of personal, pre-, intra- and postoperative datas. We performed X-Ray analysis of the position of the implanted stems, setting of stems and radiolucent lines. Also we evaluated Harris hip score, Trendelenburg sign and leg length. Our studies showed at least the same perfect one year results as the original Zweymüller-stem. The SL-MIA-stem design facilitates operative procedure in MIS, saves bone and protects soft tissue and shows no disadvantages compared to the original implant.

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Abstract number : 17996

PRIMARY TOTAL KNEE ARTHROPLASTY - THE OUTCOME REVIEWED

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This is a retrospective study to evaluate the outcome of primary Total Knee Arthroplasty (TKA) performed in Hospital Tengku Ampuan Afzan Kuantan Pahang Malaysia from January 2001 to 2007. The mean age was 61.4 years (range 29 to 84 years old). The total knee arthroplasty was done for osteoarthritis (OA) and rheumatoid arthritis (RA). All patients received prophylactic antibiotic. Tourniquet was used in all cases. Cemented TKAs were performed in all patients. The Knee Society Scoring System (Insall et al. 1989) was used to assess the knee and functional score preoperatively and postoperatively. The mean knee score improved from 38.8 (range 0 to 60 points) preoperatively to 90.9 (range 50 to 99) postoperatively. The mean functional score improved from 19.1 (range 0 to 50) preoperatively to 62.5 (range 5 to 90) postoperatively. Both scores showed significant improvement postoperatively ($p < 0.005$). This study showed that the Total knee replacement is a reproducible surgery which able the trained surgeon to produced good results similar to other study.

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Abstract number : 18041

METALLIC DEPOSITION ON CERAMIC FEMORAL HEADS PRESENTING DISLOCATION

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Despite the superior wear resistance of ceramics, the zirconium or alumina alloy substrate is relatively soft when compared with cobalt-chrome alloy femoral heads and may deform in contact with acetabular shell titanium materials in the case of dislocation. The purpose of this study is to report and analyse an infrequent and rarely reported complication associated with the use of ceramic femoral heads. We present retrievals belonging to 4 cases with a dislocation and a ceramic modular femoral head in which we observed metallic deposition in the ceramic during an open reduction. Two of these cases had presented 3 or more dislocations. A severe damage to the UHMWPE was observed in these particular cases. We analysed both surfaces including ceramics and polyethylene under optic as well as electronic microscopy. Ceramic is a well-known surface and is related to one of the lowest volumetric wear in total hip arthroplasty. However, an accelerated wear could be expected in cases with recurrent dislocation due to the impregnation of titanium in the ceramic head. Closed reduction of dislocated ceramic heads should be attempted with caution because significant head damage can occur. We strongly recommend an exhaustive examination with potential changing of the modular surface bearings in the case an open reduction is required.

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Abstract number : 18089

SARTORIUS MUSCLE ILIAC BONE GRAFT FOR THE TREATMENT OF AVASCULAR NECROSIS OF THE FEMORAL HEAD

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In the present study, the results of treating AVN of the femoral head with a sartorius muscle iliac bone graft were evaluated with radiography and MR imaging. There were 12 men and 6 women and two patients had bilateral procedures. The mean age at the time of surgery was 34 years (22 to 54), and the mean follow-up was 4 years (2 to 7). Preoperatively, three hips had stage IIA disease, four hips had IIB and 11 hips had stage III disease according to the radiographic criteria of Ficat. Patients underwent the transplant of the sartorius muscle iliac bone flap into the femoral head from laterally after decompression of the femoral head medullary core and removal of the dead bone and the fibrous tissue in the femoral head. At final review, 14 hips were in the same stage, whereas only 4 of the hips had radiographically got worst and one patient had total hip arthroplasty. There were no major postoperative complications, such as deep infection or fracture. DVT occurred in one patient. Injury to the lateral femoral cutaneous nerve was noted at final review in four patients. 14 patients were satisfied, three dissatisfied and one undecided. Return to work occurred at a mean of 120 days (90 to 180) after operation. We concluded that the procedure may arrest or delay the progress of the condition and that it should be used in young patients without severe osteoarthritic changes in the hip.

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Abstract number : 18111

TREATMENT OF DEVELOPMENTAL DYSPLASIA AND DISLOCATION OF THE HIPS WITH CEMENTLESS TOTAL HIP ARTHROPLASTY

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Total hip replacement is a technique and experience demanding procedure on dysplastic or dislocated hips because of the altered mechanics and anatomy of the hip. We reviewed 69 (63 female, 6 male) patients' 103 developmental dysplastic or dislocated hips on which cementless total hip arthroplasty was performed. The mean age was 45.6 years (20-72), and the mean duration of follow-up was 32 months (12-64 months). 18 hips (17%) were Type I, 29 hips (28%) were Type II, 22 hips (21%) were Type III and 34 hips were Type IV according to the Crowe classification. 8 hips had been operated before (pelvic and periacetabular osteotomies). Leg length, Trendelenburg sign, Harris hip scores and roentgenographic analysis were evaluated. The average preoperative hip scores of 35.8 were progressed to 86.2 at the latest follow-up. The results were excellent in 48 (46.6%), good in 33 (32%) and fair in 14 (13.5%) hips. The average leg length discrepancy was found 2.85cm (range 0-5cm) preoperatively, and 2.2cm (range 1-3.4cm) at the latest follow-up. Trendelenburg sign became negative on 80 hips. We observed femoral fissuring on 8 hips, acetabulum medial wall fracture on one hip, neurological deficit on three hips, deep venous thrombosis on two patients and pulmonary embolism on three patients. Five hips with superficial infections were treated with antibiotherapy. There was not any symptomatic septic or aseptic loosening. Cementless total hip arthroplasty is a safe and effective procedure on developmental dysplastic and dislocated hips.

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Abstract number : 18135

ACETABULAR RECONSTRUCTION USING A KERBOULL-TYPE ACETABULAR REINFORCEMENT DEVICE

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Thirty-two revision total hip arthroplasties were performed using bulk or morselized allograft bone supported by the Kerboull-type reinforcement acetabular device in 32 patients. The average age of the patients at the time of hip revision was 67.3 years. Acetabular bone loss according to the American Academy of Orthopaedic Surgeons grading system was Type I for one hip, Type II for four hips, and Type III for 27 hips. The mean follow-up of the series was 3.3 years. 2 of these 32 hips have failed because of radiation necrosis of the pelvis. Slight inclination of the acetabular device was noted in two hips without functional deficits. Good bony incorporation with stable acetabular components was seen in all but the two failed cases. The mean total Japanese Orthopaedic Association (JOA) score was 45 preoperatively and 75 postoperatively. The results of acetabular allograft reconstructions reinforced by the Kerboull-type acetabular device in revision total hip arthroplasty show successful restored function and radiologic results for most patients.

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Session : SICOT - Joint

Abstract number : 18249

TOTAL HIP ARTHROPLASTY AS TREATMENT FOR COXARTHROSIS SECONDARY TO TUBERCULOSIS OSTEOARTHRITIS OF THE HIP - CRITICAL CASES REPORT

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The authors have conducted a retrospective study of a continuous and inhomogeneous series of 1066 total hip prostheses implanted in the Department of Orthopedic Surgery of the Rehabilitation Hospital from Iasi, Romania between the 1st of June 1984 and the 30th of June 2004. Within this series we have identified the total hip arthroplasties performed for coxarthrosis secondary to a tuberculosis coxitis. In our report we present our cases with the preoperative evaluation, preoperative protocol and after treatment. The result was good and excellent in 90% of the cases. The relapse of the tuberculous infection occurred in a single case, which also complicated with a periprosthetic fracture. In our experience total hip arthroplasty was performed in the majority of cases, long after stabilisation of the tuberculous process, and the antituberculous medication prescribed before and after the operation turned out to be sufficient in these cases, which had good and excellent results. In the terms of the same treatment, in the only case for which arthroplasty was performed in an early stage after stabilisation, the relapse of tuberculous process occurred, as well as important periprosthetic osteolysis. We believe the prolonging of the tuberculostatic therapy for 6-8-12 months after surgery to be necessary in arthroplasties following recently stabilised tuberculous osteoarthritis of the hip.

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Session : SICOT - Joint

Abstract number : 18251

SPONTANEOUS ISCHEMIC NECROSIS OF THE KNEE

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Osteonecrosis is one of the most frequent orthopaedic diseases in last years. Although it prefers the hip, nowadays more and more cases with osteonecrosis around the knee have been observed. It commonly affects the medial femoral condyle. The etiology is complex, including the followings: trauma, vascular factors, infection, inflammatory, autoimmune, metabolic or congenital. Spontaneous osteonecrosis has a distinct place. Our paper reveals that there is a gradually increasing frequency of this lesion, reporting 6 cases in the last 6 months, with age between 40-75 years old, especially in women. The prognosis is rather bad, because of the articular destruction, which may induce total knee arthroplasty, the best solution in solving these cases.

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Abstract number : 18294

COMPARISON OF EARLY POSTOPERATIVE RESULTS OF NAVIGATED AND NON-NAVIGATED TOTAL KNEE PROSTHESES

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INTRODUCTION: Computer assisted navigation of total knee prosthesis implantation is becoming standard procedure in some centres. Main advantage of navigation should be better TKR orientation compared to standard procedure. **MATERIALS AND METHODS:** Between April 2006 and June 2007 682 TKRs were implanted in our hospital. Two surgeons began with navigation that has been used in 23 randomised cases. Orientation of the components, intra- and early postoperative factors were analysed. Control group consisted of 22 patients. **RESULTS:** Average operating time was 108 minutes in navigated and 78 minutes in non-navigated group ($p=0.00$). Average flexion two months after the implantation was 101° degree in non-navigated and 102° in navigated group ($p=0.66$). Position of the components was measured in coronal plane. In 14 knees in navigated group and in 10 in non-navigated group tibio-femoral angle was 0° . There were four outliers in non-navigated group. One tibial plateau (4° valgus - non navigated group) and 3 femoral components were also defined as outliers. ($p=0.18$). There were no statistical differences in component orientation. **DISCUSSION:** Incidence of perfectly orientated components in coronal plane was higher in navigated group; however there was no statistical significance between two groups. Intra and postoperative factors did not differ significantly between two groups with exception of the operative time. Since there are no statistical short-term differences in results of TKR between two groups, long-term results have to be obtained to justify the use of the computer navigation as a relatively new surgical tool.

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Abstract number : 18345

CORMET® HIP RESURFACING ARTHROPLASTY; A SORT-TERM STUDY

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INTRODUCTION: Survival rate of conventional THA is 80% at 10 years, but 33% at 16 years. The main advantages of hip resurfacing arthroplasty are that it preserves proximal femoral bone stock and optimises the stress transfer. **OBJECTIVES:** To show that the short-term results of the Cormet® hip resurfacing arthroplasty implanted by a direct lateral transgluteal Hardinge approach are goods relating to a low number of complications. **MATERIALS AND METHODS:** Clinical material: 60 Cormet® HRAs from March 2006 to December 2007. Diagnosis: OA (72.2%), Osteonecrosis (22.2%), Dysplasia (5.6%). Surgical approach: Direct lateral transgluteal Hardinge approach. Radiographic Assessment: Measure of postoperative position of the prosthetic component. **RESULTS:** We had as complications: 1 dead (neumonia), 4 femoral neck fractures, 1 nerve palsy. The acetabular angle was: 47.75° (30-62), the difference: cervico/diaphysarial - femoral component/diaphysis angles: Varus: 1.67° . And there were heterotopic ossifications in 22.2%. **DISCUSSION:** There was less frequency of dislocations than in conventional hip arthroplasty, no significant difference in Abduction limp Disfunction and good exposure of the acetabulum while protects the gluteus medius and respects the posterior muscles. **CONCLUSIONS:** Small sample and short-term study period but sufficient to obtain a preliminary result and compare with another similar in the bibliography. Hip Resurfacing Arthroplasty by a Hardinge approach is a good option with good results and few complications.

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Abstract number : 18358

A CASE OF PERIPROSTHETIC FRACTURE OF ACETABULUM WITH NEGLECTED LOOSENING OF CUP IMPLANT

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Periprosthetic acetabular fracture after total hip arthroplasty is relatively uncommon but may occur in high energy trauma or in patients with bone loss secondary to osteolysis. We have experienced periprosthetic acetabular fracture after minor trauma. The fracture was minimally displaced, so we tried to treat with conservative treatment. After eight-week non-weight-bearing, the fracture was healed but acetabular cup was migrated. Initially we misdiagnosed the stability of acetabular component and acetabular revision was performed with morcellized allograft. At one-year follow-up, injured hip showed good range of motion with stable acetabular component.
KEYWORDS: Total hip arthroplasty, Periprosthetic acetabular fracture, morcellized allograft.

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Abstract number : 18371

A PATIENT WITH METALLOSIS FOLLOWING METAL ON METAL HIP RESURFACING: METAL ION LEVELS, HISTOLOGY AND EXPLANT ANALYSIS

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Metallosis is a rare but serious complication following metal on metal arthroplasty. This report documents the clinical and histological findings, the operative management and explant analysis in a patient with this condition. A 36-year-old female initially underwent a hip resurfacing procedure for osteoarthritis. Following rehabilitation she had a good functional recovery but, at 12 months postoperatively, she developed groin pain, marked on straight leg raise. Investigations were negative for infection and failed to establish obvious cause for pain. Harris Hip Score (HHS) was 35. Whole blood chromium and cobalt levels prior to revision were 5.25µl and 7.82µl respectively. At revision surgery, the acetabular cup was loose and surrounded by a large green-grey coloured joint effusion. Histological analysis showed necrotic tissue, vasculitis and large numbers of black stained particulate matter contained within histiocytes. Symptoms improved after revision to a ceramic-on-ceramic total hip replacement, with a HHS of 86 at 6 months. Radiographic review of the resurfacing implant showed the acetabular cup to be in 50° degrees of inclination and gross anteversion of 32°. Examination with a zygometer revealed a marked increase in surface roughness of the cup compared with the manufacturer's data. This implied the joint had been functioning in boundary lubrication, possibly as a result of abnormal cup alignment and point contact stresses. Metallosis is a poorly understood condition. Metal ion concentrations were not grossly elevated. We suggest patients with undiagnosed persisting pain should be investigated with this condition in mind.

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Abstract number : 18396

ONE-STAGE BILATERAL TOTAL HIP ARTHROPLASTY. FAVOURABLE EARLY RESULTS

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The purpose of this study is to present the initial results of this technique first time performed at our institution. Between May 2004 and May 2006, 78 THA's were performed in 39 patients. Merle D'Aubigne and Postel functional score averaged 5 points preoperatively. Patients were prospectively followed in order to describe the operative time, blood transfusions requirement, length of hospital stay and complications. Clinical and radiological follow-up was an average of 33 months (range 18-59). Postoperatively Merle D'Aubigne and Postel functional score averaged 17.3 points. Operative time was a mean of 165 minutes (range 130-225). Blood transfusions were required in all the cases. (Mean 3.10 units, range 2 to 6 units). Length of hospital stay was an average of 5.15 days (range 2 to 8 days). Hypoxemia due to a fat embolism syndrome was observed in one patient. Ten patients (25.6%) developed urine retention. Three patients developed a symptomatic deep venous thrombosis (7.6%). One hip (1.28%) developed an acute deep periprosthetic infection. Surgical debridement, preserving the prosthesis, and intravenous specific antibiotics for six weeks were performed without any clinical and radiological evidence of infection after 45 months of follow-up. Based on our favourable initial results, similar to those available in the literature, we believe that bilateral one stage THA's is a safe and effective treatment for selected patients.

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Abstract number : 18412

THE TROCHANTERIC SLIDE OSTEOTOMY APPROACH FOR RESURFACING HIP ARTHROPLASTY

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The fracture of the femoral neck is the main cause of early failure of current resurfacing hip arthroplasty (RHA) procedures, with a reported incidence of up to 2%. The aetiology of a fracture is likely to be multifactorial, but avascular necrosis of the femoral head has been implicated. Recent anatomic dissections and clinical experience with the trochanter slide osteotomy demonstrated that it is possible to perform surgical dislocation and intracapsular hip joint procedures including RHA without causing osteonecrosis and neurovascular damage. The aim of this prospective study was to assess safety and efficacy of the greater trochanter slide osteotomy approach for RHA. Fifty consecutive hips (47 patients) with degenerative joint disease were enrolled in the study. Serial clinical and radiological assessments were performed after the index operation. At the 1-year follow-up, the clinical outcome (Harris Hip Score) and patient satisfaction (Oxford Hip Score) were rated excellent or good in all hips. The radiological assessment showed signs of satisfactory implant alignment. Periprosthetic fractures and nonunions of the greater trochanter did not occur. The greater trochanter slide osteotomy approach for RHA is safe and provides optimal exposure of the acetabulum and proximal femur maintaining the soft tissue integrity of the hip joint. Blood supply of the proximal femur is not violated using this approach.

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Abstract number : 18454

THE UNRESOLVED LYTIC LESIONS IN A CHRONIC RENAL FAILURE PATIENT AFTER PARATHYROIDECTOMY

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Nowadays, the life expectancy of patients with chronic renal failure is longer. In turn, the prevalence of osteitis fibrosa cystica, a manifestation of secondary hyperparathyroidism, and β_2 microglobulin amyloidosis, a result of long-term haemodialysis is getting higher. While both conditions share similar radiological features, their plans of management are greatly different. We present a case of a chronic renal failure patient who had been put on haemodialysis for over 20 years. Lytic lesions were found in proximal part of both femurs. They were treated as osteitis fibrosa cystica. However no regression of lesions was noted after parathyroidectomy. He subsequently sustained sequential atraumatic fractures of femurs with bilateral total hip arthroplasties performed. Histology revealed that the patient was in fact suffering from amyloidosis. In chronic renal failure patients, amyloidosis is a highly probable differential, especially if no regression of the lytic lesion is observed after parathyroidectomy.

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Abstract number : 18475

MINIMALLY INVASIVE THR - APPROACHES AND TECHNICAL CONDITIONS

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PURPOSE: The comparison of MIS approaches in THR using in our clinic with respect to technical requirements. MATERIAL AND METHODS: 85 THR using one of the MIS approaches were performed from January 05 to February 2006. We used "one incision" lateral approach, anterolateral approach and finally anterior approach. Technical conditions and requirements are specific due to the used approach. RESULTS: Patient's positioning, surgeon's position etc. are shown. Advantages and disadvantages of separate MIS approaches are presented. CONCLUSION: In general, main differences between standard and MIS THR occur in the first six weeks after procedure.

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Abstract number : 18759

THE NOVEL, ORAL, DIRECT FACTOR XA INHIBITOR RIVAROXABAN HAS NO CLINICALLY RELEVANT INTERACTION WITH ASPIRIN OR NAPROXEN

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INTRODUCTION: Following major orthopaedic surgery, patients often receive aspirin or non-steroidal anti-inflammatory drugs (NSAIDs), such as naproxen, for pain relief. Guidelines recommend that an anticoagulant is also given for prevention of venous thromboembolism (VTE). Rivaroxaban is an oral, direct Factor Xa inhibitor for the prevention of VTE after major orthopaedic surgery. Two studies to determine whether aspirin or naproxen have any effect on the safety, efficacy or pharmacology of rivaroxaban were conducted in healthy subjects. **METHODS:** Both studies were randomised, two-way crossover studies, with aspirin or naproxen run-in periods. Subjects received aspirin (500mg loading dose followed by a single 100mg dose the next day), naproxen (500mg once daily for 2 days), rivaroxaban (single 15mg dose), or a combination (rivaroxaban plus aspirin or naproxen). **RESULTS:** All treatments were well tolerated; there were no drug-related adverse events with rivaroxaban plus naproxen, and only mild, transient drug related adverse events with rivaroxaban plus aspirin. Co-administration of rivaroxaban with either drug did not affect clotting tests. Rivaroxaban alone did not affect bleeding time or platelet aggregation, compared with baseline, whereas aspirin and naproxen alone prolonged bleeding time and inhibited platelet aggregation. Bleeding time was prolonged further in patients receiving rivaroxaban plus aspirin or naproxen combinations compared with those receiving either aspirin or naproxen alone. However, these increases were small and, as bleeding time is highly variable between subjects, were not considered to be clinically relevant. **CONCLUSIONS:** These studies suggest that rivaroxaban has no clinically relevant interaction with either aspirin or naproxen.

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Abstract number : 18929

ANALYSIS OF TWO HIGH RISK COMPLICATIONS IN ARTIFICIAL JOINT REPLACEMENT

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OBJECTIVE: Two high risk complications in artificial joint replacement were investigated in this study, in order to improve medical quality and ensure medical safety. **METHODS:** By means of searching related reference database, the incidence of two high risk complications in artificial hip and knee joint replacement in domestic in past 3 years was collected. Prevention measures were investigated. **RESULT:** A total of 840 cases of artificial hip and knee joint replacement have been reported in 6 key orthopedic periodicals from 2005 to 2007. One hundred cases of deep vein thrombosis (DVT) were found with incidence of 11.9%. In all 6 periodicals, the lowest incidence was 8.06%, the highest one was 20%. Six cases of pulmonary embolism (PE) occurred in 3 periodicals in the same period, which led to successful emergency rescue in 3 cases and death in other 3 cases. In the same period, 10 orthopedic periodicals reported 171 cases (172 joints) of revision of prosthesis infection after artificial hip and knee joint replacement. **DISCUSSION:** Severe osteoarticular injury cases have increased significant in past years. Meanwhile, artificial joint replacement is held widely for the reason of aging problem and improvement of people's living quality. Its success rate has been improved continuously benefited from the upgrade of prosthesis technique and surgical instrument. Relevant complications such as PVT, PE and infection are still risk factors. Relevant prevention measures should be investigated carefully in order to keep medical safety and push forward the development of artificial replacement technique.

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Abstract number : 15749

ORTHOPAEDIC ASPECTS OF EAGLE-BARRETT (PRUNE-BELLY) SYNDROME

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Six patients with Eagle-Barrett (Prune-Belly) Syndrome were observed from January 1994 until August 2000, into a prospective and concurrent investigation in order to describe the orthopaedic findings present in these subjects. Five males and one female were controlled by our centre from their early childhood. We found: rectus abdominis bilateral agenesis (n=2), rectus abdominis unilateral agenesis (n=1), congenital unilateral hip dislocation with acetabular dysplasia (n=2), right thoracolumbar scoliosis (n=2), bilateral pes talus (n=2), bilateral club foot (n=2), unilateral club foot (n=1), unilateral vertical talus (n=1), congenital torticollis (n=1) and complex hand syndactyly (n=1). It is important to mention that the HEMI EAGLE BARRET seen by us has not been described before. We inform on the surgical techniques, such as Ludloff approach for hip dislocation, percutaneous triple treatment for clubfoot and non-operative treatments on torticollis and pes talus. Theoretical brief comments are made on this interesting disease. **KEYWORDS:** Eagle-Barrett - Orthopaedic Findings - Prune-Belly.

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Abstract number : 15722

PAEDIATRIC FOREARM RE-FRACTURES WITH ELASTIC STABLE INTRAMEDULLARY NAILS IN SITU

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INTRODUCTION: Elastic Stable Intramedullary Nailing (ESIN) is the treatment of choice for most unstable, displaced or irreducible diaphyseal forearm fractures in children and adolescents. We present a series of 3 patients where a recurrent forearm fracture occurred with the nails in situ. **METHOD:** From an 11-year, 90 patient series of forearm fractures treated with ESIN, we identified 3 cases with re-fractures of both bones with the elastic nails in situ and undertook a retrospective case-note review. **RESULTS:** Initial injury and procedure: the mean age at initial injury was 10.3 years. Two were males and one female. The right, dominant arm was injured in all 3 cases. 2 underwent closed reduction and 1 an open reduction of the radius and ulna with ESIN. The procedure was performed as described by Lascombes in all cases. All fractures went on to radiological and clinical union. **Recurrent fractures and revision procedure:** the recurrent fractures occurred at a mean of 17 weeks following the initial injury. All were the result of a significant injury. All were managed with closed re-manipulation and exchange nailing. All went on to union without complication. **DISCUSSION:** The results of ESIN in the management of forearm fractures have been extensively reported, but this complication is uncommon and seldom described. Our series shows this is easily managed, without complication.

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Abstract number : 17221

EVALUATION OF SELECTIVE ULTRASOUND SCREENING OF DEVELOPMENTAL DYSPLASIA OF THE HIP

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The use of ultrasound screening is still controversial in diagnosis of developmental dysplasia of the hip (DDH). In Hungary all newborns are screened clinically within the first and also the third week of life, and controlled at four months. Ultrasound screening is performed only for children with clinical signs or at risk. In the five-year timeline (2001-2005) that was evaluated 7339 children presented 9706 times for screening for DDH at the Department of Orthopaedics. Out of these cases, 6991 (95.2%) children were found to be healthy and 348 (4.8%) were diagnosed for DDH. Children with dysplasia presented 896 times for treatment and follow-up. Average patient visit in the DDH group was 2.5, in the healthy group 1.2. Because of clinical signs or risk factors 1569 (21%) children had ultrasound examination, all together 2169 times. 84% of the initial ultrasound examination showed Graf Ia hip. Out of the diagnosed 348 DDH cases 31 patients (Graf IIb-IIIa) were administered with Pavlik harness, and 314 (Graf Ib-IIa) were treated with splinting. Remaining 3 cases were diagnosed late, where no ultrasound examination was performed. Radiographic control of all treated children excluded avascular necrosis in all cases. For this population 12 first operative procedures were needed so far. In our experience clinical screening and selective ultrasound examination is effective in the screening and early detection of developmental dysplasia of the hip. In our practice, we promptly treated all patients with detected morphological changes as a deficiency in hip development.

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Abstract number : 17284

EXTENSIVE LIMB LENGTHENING - A USEFUL SOLUTION IN PROXIMAL FOCAL FEMORAL DEFICIENCY

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Proximal focal femoral deficiency is a rare congenital disorder with incidence of 1 in 50,000 thousand live births, with increased incidence in mothers having maternal diabetes. Deformity may range from minimal shorting of femur to pathological dislocation of hip with epiphysis hypoplasia to complete absence of femur. The disease is associated with other congenital anomalies like talocalcaneal coalition, clubfoot, congenital heart disease, spinal dysplasias etc. The guidelines for treatment indicate amputation in cases where great amount of lengthening is required. With the advent of Illizarov lengthening of greater magnitude can be undertaken. We present a case of a girl who presented to us at the age of 8 years with the congenital shorting of right femur due to proximal focal femoral deficiency. At presentation patient had 13cm of total limb length discrepancy with all of it in femur. There was stable bilateral dislocation of hip with deformed proximal femur. Primary femoral lengthening was done using Illizarov frame. Total time of frame was 5 and 1 months. Although there was bilateral stable dislocation, patient did not develop any further deformity or decrease in function in any of the hips during or after treatment. Total length achieved was 13cm. Patient developed foot drop during lengthening which recovered on conservative treatment and did not require stoppage of distraction. With Illizarov greater amount of lengthening can be contemplated in cases of PFFD and it appears to be a useful solution to this difficult problem.

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Abstract number : 17917

EPIDEMIOLOGY OF TRANSIENT SYNOVITIS OF THE HIP IN CHILDREN (705 CASES REPORT)

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OBJECTIVE: To investigate the clinical and epidemiologic features of transient synovitis of the hip in children occurred in Shenzhen district. **METHODS:** The medical files of 705 cases with transient synovitis of the hip were reviewed and a standard questionnaire was filled with pathogeny, clinic manifestation, therapy and prognosis. **RESULTS:** All cases occur in a sporadic form each month. The peak age of patients with TS was between 3 and 7 years old. The ratio of boys to girls was 2.9 to 1. Among 705 cases, 136 cases (19.3%) were with an upper respiratory tract infection one or two weeks before and 84 cases (11.9%) patients had trauma or severe activities history 1 week before. A varying degree of painful limp and restriction of movement at the hip were found clinically. All cases were cured by skin traction. The incidence of recurrence was 6.95%. **CONCLUSIONS:** Male predominance was seen in TS. It was characteristic of sporadic form in the four seasons and intently relation to an upper respiratory tract infection and trauma or severe activities. Perhaps it was recurrent and the prognosis is good by skin traction. **KEYWORDS:** Children transient synovitis of the hip clinical epidemiology.

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Abstract number : 18119

EPIPHYSEAL DETACHMENT OF THE UPPER END OF THE TIBIA

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In this study, we report 2 cases of epiphyseal detachments of the upper end of the tibia in young adolescent. These are fairly rare injuries that are usually treated by plaster immobilisation. The purpose of this work is to demonstrate the unusual nature of this type of detachment, as well as the possibility of local complications (particularly vascular) and the difficulty to choose an appropriate treatment: conservative or surgical treatment.

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Abstract number : 18526

PAEDIATRIC TARSAL FRACTURES

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This study describes clinical presentation, treatment, and outcome of tarsal fractures in the same institution over 16 years producing a treatment guide based on this data. 70 case notes were retrieved and retrospectively analysed. 7 injuries excluded due to lack of data. There were 69 tarsal injuries in 63 patients. Mean age of 9.3 years (2.5-13.9). 80% male. 72% os calcis fractures, 12% cuboid, 9% navicular, 4% talus and 2% medial cuneiform. Diagnosis method was x-ray. One CT was performed. 8 patients had no trauma history. Others included simple fall, fall from height, crush or road traffic accident. 28% had associated injuries. 3 patients had bilateral tarsal injuries. There were no spinal injuries. 21 patients were admitted. Mean length of stay was 5.7 days (1-19). 38 calcaneal fractures were treated with short leg cast for a mean time of 4.1 weeks (2-6). Mean time to recovery was 5.7 weeks (2-20). Mean time to follow-up 7 weeks (2-40). 8 calcaneal fractures refrained from weight bearing for mean time of 4.6 weeks (3-6). Mean time to recovery was 6.5 weeks (3-10). Mean time to follow-up 7 weeks (3-10). All patients with talar fractures were admitted. One treated with surgical debridement and one with k-wires. Recovery time 10 to 36 weeks. Tarsal fractures are rare. Recovery is normally within 4-6 weeks. Only complex fractures require operative management. Treatment with short leg cast has a better outcome than non weight bearing alone.

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Abstract number : 18537

POLYTRAUMA IN CHILDHOOD AND INFANCY: EPIDEMIOLOGY, TREATMENT AND ECONOMIC ASPECTS

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INTRODUCTION: The motivation to accomplish this paper was the reduced number of articles in the literature that relates polytrauma in childhood and infancy. These, especially the treatment and social and economical aspects of this condition. The purpose of this study is to describe the epidemic profile of the traumatic lesions treated in a trauma center, evaluating the economic aspects related with the inpatient's treatment costs and the period of hospital stay according to the treatment performed. **MATERIAL AND METHODS:** We analysed hospital patients' charts in the period December 2005 - December 2006. We obtained 182 patients, 129 (71%) male and 53 (29%) female; 88 (48%) white and 94 (52%) non-white children. The average age in the accident occasion was 6.7 years (varying from two to 13 years). **RESULTS:** Male patient were predominant with 129 (71%) cases. The most frequent trauma mechanism was fall (36%) and the primary diagnosis was humerus supracondilar fracture (20.9%) and 47 (25.82%) associated lesions. The mean inpatients days of hospital stay was 4.1 days with estimated cost of R\$ 649,50 for each patient. The most expensive and higher period of inpatients' treatment were associated with skull trauma and femur fracture; economic impact increased when associated lesions were accomplished. The mortality rate was 2.74% (5 deaths) and skull trauma was responsible for 80% of the obits and the child abuse represented 40%. **CONCLUSIONS:** Pediatric population has particular aspects that make it peculiar relating epidemics and the traumatic lesion treatment.

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Abstract number : 18554

IS FOLLOW-UP ESSENTIAL FOR PEDIATRIC CLAVICULAR FRACTURES?

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PURPOSE: To assess whether simple management options like cuff and collar sling are effective in paediatric clavicle fractures and to determine whether regular follow-up is required. **METHODS:** A study of 50 consecutive fractures of the clavicle in children less than 10 years of age was conducted at All India Institute of Medical Sciences (AIIMS), New Delhi, India between December 2005 and October 2006. **RESULTS:** There was male predominance with injury to the right side being more common. A 100% union rate was achieved with conservative treatment with no significant complications. However a visible deformity persisted in up to 80% of the children. The compliance with treatment protocol was lesser in the younger age group and better with older children. **CONCLUSION:** Simple methods like cuff and collar sling is sufficient for the management of clavicle fractures in children. Immobilisation for more than 2 weeks is not necessary and regular follow-up is not essential. **KEYWORDS:** Pediatric fractures, clavicle fracture, cuff and collar sling immobilisation, essential follow-up.

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Abstract number : 18769

DHAGA SYNDROME AND CONSTRICTION SIGN - A PREVIOUSLY UNDESCRIBED ENTITY

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INTRODUCTION: In Southeast Asia, people customarily tie sacred thread on the wrist of family members on auspicious occasions. Early removal of this thread is considered ominous. In small children, the parents may altogether forget to remove it. We report three children presented with Dhaga syndrome because of forgotten thread (Dhaga). **MATERIAL AND METHODS:** Three children (age 6 months - 4 years) presented with discharging sinus around wrist of 2 months - 2 years duration, without any neurovascular deficit. None had history of trauma, constitutional symptoms or discharge of coloured granules. ESR was raised. Case-1: Radiographs - Circumferential soft tissue constriction beneath subcutaneous fat layer in wrist with normal bones. Treaded on lines of Tuberculosis (TB), but sinus persisted. Case-2: Radiographs - Longitudinal periosteal reaction on the ulnar side of distal ulna with a characteristic indentation which we have called "the constriction sign". Case-3: Was earlier treated as TB. Radiographs - Indentation on radial side of right distal radial epiphysis (constriction sign). Exploration of sinus led to removal of circumferential thread around wrist in all. Parents recalled forgotten sacred thread. **RESULTS:** Thread removal led to healing of sinuses in all cases. One patient required extensor tendon transfer later. **CONCLUSIONS:** Occurs in infants mainly (chubby wrists-make thread hidden in wrist creases, and rapid growth-makes the thread to penetrate the skin fast and make it lie subcutaneous making it invisible). Tissue penetration and rapid healing of infants, permits thread to penetrate tendons, reach bone producing "constriction sign" on radiographs. This entity can be confused with TB wrist.

Poster

Room: 601

Session : SICOT - Shoulder and Elbow

Abstract number : 15998

TREATMENT OF OPEN HUMERAL FRACTURE - CASE REPORT

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Open, comminuted, highly contaminated fractures are common war or civil injuries caused by high energy missiles or shrapnels. Our case report demonstrated male patient, sixty years old, civil, hunter, suffered from close gunshot highly contaminated wound of left humeral region with several tissue defects of humeral bone, radial nerve part, arm muscles with concomitant arterovenous supply, covering soft tissue and skin. After admission, primary diagnostics, administration of tetanus immune globulin, tetanus toxoid and triple intravenous bactericidal antibiotic therapy we performed initial operative treatment: irrigation, radical debridement, bone stabilization with ex-fix, epineural radial nerve suturing and left wound wide open. After repeated treatment of irrigation and debridement on Day 2, 4, 6 post-trauma, on Day 7 post-trauma there was no signs of infection and we performed second operative treatment: removal of ex-fix, intramedullary unreamed nailing, cortical-cancellous autologic bone grafting, definitive wound coverage using muscles and STSG. Three months post-trauma there was radiographic sign of relative bone callus insufficiency with no clinical sign of infection. We performed third operation for autologic bone grafting. Six months post-trauma definitive status was: movements of shoulder, elbow and wrist are satisfied with almost full radial re-inervation and no signs of infection. The goals in treatment of more extensive, severe type III open wounds are to prevent infection, achieve bone union, avoid malunion, restore limb function, and continuous course of antibiotics until successful wound closure. Treatments of irrigation and debridement have to be repeated at 36- to 48-h intervals until clean, completely viable wound is present.

Poster

Room: 601

Session : SICOT - Shoulder and Elbow

Abstract number : 16192

PUBLICATION RATE FOR STUDIES PRESENTED DURING THE SHOULDER AND ELBOW SESSIONS OF THE AMERICAN ACADEMY OF ORTHOPAEDIC SURGERY

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INTRODUCTION: The aim of this study was to determine the peer-reviewed publication rate for presentations made at the Shoulder and Elbow sessions of the AAOS from 1999 to 2004. METHODS: 556 total abstracts presented between 1999 and 2004 were searched in the computerized database MEDLINE and PubMed in April 2007. Additionally, the published articles were examined by the reviewers to assess publication rate, journal of publication, time to publication, change in contents, change in authors, author conflict of interest and change in conclusions of abstracts. RESULTS/CONCLUSION: 325 posters (58.5%) and 233 papers (41.9 %) were presented. The overall publication rate in peer-reviewed journals was 58% (321 of 556) with an average time to publication of 31 months, similar to other orthopaedic meetings and medical disciplines. The results show that 58% of abstracts presented at the Academy meetings have been authenticated scientifically to be as accurate as papers that survive the rigors of peer review.

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Session : SICOT - Shoulder and Elbow

Abstract number : 17110

SYMPTOMATIC EFFICACY OF VISCOSUPPLEMENTATION IN OA OF SHOULDER - A PROSPECTIVE STUDY OF 100 PATIENTS

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INTRODUCTION: To assess the efficacy of hylan GF-20 in pain treatment of shoulder arthritis. **METHODS:** In this independent study, 100 consecutive patients with osteoarthritis of the shoulder received one injection of hylan GF-20 into the glenohumeral joint. Second injection was administered after 3/6 months for residual pain. Primary end point was improvement in shoulder pain at 3 months on VAS, WOOS scale, Constant scores. Mean follow-up was 9 (3-13) months. **RESULTS:** Mean age was 64 yrs. Ten (10.2%) patients received a second injection at 3 months and 9 (9.1%) patients at 6 months. Pain decreased from 6.7 to 3.2 at 6 weeks ($p<0.001$) and was maintained at 6 (3.9, $p=0.008$) and 12 months (4.7 $p=0.02$). ACR 20 improvement in the global OA assessment scores was achieved in 90% of patients at 3 and 81% at 6 months. Constant Score of 25.5 (10-45) improved to 57.5 (35-87) at three months ($p<0.001$) and 53.5 (32-80) at six months ($p=0.002$). EQ-5D description scores showed significant improvement at 6 weeks ($p<0.001$), 3 months ($p=0.007$) and 6 months ($p=0.006$). General patient satisfaction also showed improvements from baseline. **CONCLUSION:** Treatment of osteoarthritis of shoulder with hylan GF-20 significantly reduces pain and improves patient satisfaction. The treatment appears to be well tolerated by the patients. However longer follow-up is required to establish the safety and efficacy of repeat doses of this treatment.

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Room: 601

Session : SICOT - Shoulder and Elbow

Abstract number : 17280

ABSENCE OF MEDIAL EPICONDYLE AN OMINOUS SIGN IN ELBOW INJURY

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A rare case of an irreducible post-traumatic lateral dislocation of elbow is presented. The mechanism of injury was falling on a flexed elbow with trauma on its medial aspect resulting in pronation of the forearm. An attempted closed reduction failed. At open reduction, the medial epicondyle was found entrapped in the joint which prevented reduction. Isolated lateral dislocation as a closed injury is very rare and there are only a few case reports in literature. All the cases reported till date have a different cause for irreducibility. A medial epicondyle entrapment with a lateral, closed elbow dislocation is unreported. Hence we are emphasizing the fact that absence of the medial epicondyle in an elbow injury is an ominous sign. Also the carry home message would be that a closed lateral dislocation invariably requires an open reduction.

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Session : SICOT - Shoulder and Elbow

Abstract number : 17282

TENNIS ELBOW TREATED BY HEAD RADIUS EXCISION

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Resistant Idiopathic Lateral Epicondylitis presented with unbearable pain at lateral aspect of the elbow having treated by all possible modalities were subjected to excision of head radius under anesthesia. Such 25 cases were recorded and followed up for maximum 5 years without relapse of symptoms. The tension over the common extensors relieved by reducing the length of lateral aspect of the forearm was the basis of this study. Engineering language directs the mechanical advantage will be increased.

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Session : SICOT - Shoulder and Elbow

Abstract number : 17283

MEDIAL DISLOCATION OF ELBOW - A RARE DISEASE WITH FAVOURABLE OUTCOME

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Medial dislocation of elbow is a rare injury of the elbow. It can be isolated injury as a pure dislocation or fracture dislocation with medial epicondyle fracture as the most common associated fracture. Although reports of posterior dislocation, both fresh and old unreduced, and lateral dislocation are present, there is very little present in world literature about medial dislocation with only one case reported. Here we present a report of two cases of medial dislocation of elbow, one pure dislocation and one fracture dislocation. One patient had pure dislocation following road traffic accident. The dislocation was immediately reduced in the emergency and immobilised for two weeks followed by range of motion exercises. Patient had full range of motion at 6 weeks. Second patient presented two months after the injury with an unreduced elbow. Open reduction was performed and no fixation was done. Early range of movement exercises were started on the 10th day in an elbow brace. At 2 1 months, patient regained 80% movement at the elbow and complete range at the end of 4 months. Although literature talks about instability and reconstruction of collateral ligaments in various types of elbow dislocations, we have seen that it is not required in this pattern of dislocation whether it is fresh or neglected injury.

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Session : SICOT - Shoulder and Elbow

Abstract number : 17286

ABSENT PECTORALIS MAJOR WITH NORMAL MUSCLE FUNCTION (POLAND SYNDROME)

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We report a 24-year-old male with Poland syndrome who presented to us with unilateral chest wall hypoplasia. On clinical examination the patient had absent sternal head of pectoralis major with present clavicular head and rest of the chest musculature was also normal. Patient had no other apparent limb anomaly and his limb function was normal. This milder variant of Poland syndrome is important as the diagnosis is often missed and the patient seeks treatment only in the older age. This milder variant has good upper limb function and does not need any treatment. Except for a cosmetic problem, these patients do well and have a normal life expectancy. Poland syndrome is a rare congenital anomaly characterized by unilateral chest wall hypoplasia and ipsilateral hand deformity and can include a spectrum of anomalies from a complete absence of the pectoralis major and minor, amastia, severe rib abnormalities, and absence of the hand, to minor hand abnormalities and isolated pectoralis minor aplasia. The etiology is unknown, but speculation includes hypoplasia of the subclavian artery or its branches between the 6th and 7th week of gestation.

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Session : SICOT - Shoulder and Elbow

Abstract number : 17452

CONTEMPORARY TENDENCIES FOR TREATMENT OF PATIENTS SUFFERING FROM SIMULTANEOUS FRACTURES OF THE SPINE AND CALCANEAL BONES

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It is obvious that hard displaced calcaneal fractures must be reduced via open reduction and internal fixation. However, when calcaneal fractures coexist with spine injures, tactical question is opened. It is a habitual practice to operate on the spine, and to move calcaneal problem in future. We analysed results of treatment of 13 patients suffering from both spine and calcaneal fractures since 1995 to 1999. All patients were operated on their spines; calcaneal fractures were treated with traditional methods (manual reduction, skeletal traction, Ilizarov technic). We issued the worst results of treatment were explained with non-restored calcaneal anatomy. It was offered the more reasonable tactics in 36 patients with concomitant spine and calcaneal fractures. Their spinal and calcaneal injures we restored simultaneously (open reduction and internal fixation with cavity filled with NiTi on calcaneal fractures). Results were evaluated since 2000 to 2005 (Oswestry disability index, AOFAS). This renewed tactics made better outcomes, reduced hospital stage, increased quality of patient's life. ISSUES: The cause ob negative results in patients with concomitant spine-and calcaneal fractures is the failure of calcaneal anatomy restoration. Tactics of treatment of this sort of injures should be active and be aimed at early restoration of both spine and calcaneal anatomy.

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Session : SICOT - Shoulder and Elbow

Abstract number : 17740

A SIMPLE ALGORITHM FOR STEROID INJECTION THERAPY IN SUBACROMIAL IMPINGEMENT OF SHOULDER

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We reviewed 30 patients with clinical signs of subacromial impingement, who later received a combination of steroid and local anaesthetic injection in the subacromial space. Pain score and active range of movements were assessed both before and after serial injection therapy. 24 patients had significant improvement of symptoms and did not require any further intervention. 5 patients required further surgical intervention because of residual or non improvement of symptoms. 1 patient denied any further intervention even though symptoms persisted. By critically reviewing the reasons for failure of injection therapy in such patients, we have formulated an algorithm. This algorithm is simple to follow and has particular emphasis to exclude rotator cuff tears before the start of such injection therapy.

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Session : SICOT - Shoulder and Elbow

Abstract number : 18142

ANALYSIS OF JOINT DISTRACTION LOSS OF THE BRIDGED ELBOW BY DYNAMIC FIXATOR

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OBJECTIVE: The arthrodiastasis has become an established technique for treatment of post-traumatic elbow injury. However, the mechanism of distraction loss within the elbow-fixator-pin construct remains unclear. This study investigates the effect of change in elbow angle on distraction loss during operative manipulation of the bridged elbow. **MATERIALS AND METHODS:** Four humeroulnar joints flexed at 90°, 120°, 150°, and 180° were developed in this study. The contribution of each humeral and ulnar distractor to the concentric distraction at the elbow center was evaluated by the finite-element method. The detailed analysis of the joint distractions was based on the trigonometric functions and elbow anatomy. The distraction loss within the elbow-fixator-pin construct was studied along the specified load-transferring paths on both humeral and ulnar sides. **RESULTS:** Among four elbow models, both concentric and eccentric distractions simultaneously occur at the elbow center. The distraction loss always exists in the joint distraction of the bridged elbow. The 120° elbow model comparatively showed the more effectively concentric distraction with only about half of the initial distraction. For the 180° elbow model, the distraction loss was the highest. **DISCUSSION AND CONCLUSION:** The distraction loss was attributed to two factors: vectorial transformation of distracted length of the distractors and lateral deflection of fixing pins. The vectorial transformation of distracted length involves the spatial relationship of the elbow anatomy, elbow angle, and fixator frame. The deflection of the fixing pin was the function of the stiffness of both pins and periarticular tissues.

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Session : SICOT - Shoulder and Elbow

Abstract number : 18201

TREATMENT OF HUMERUS PROXIMAL FRACTURES WITH AUDREN WIRES: CHARACTERISTICS AND LIMITATIONS

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Since 1998 we have made use of osteosynthesis techniques with Audren wire-screws for 2-3-4 fragment fractures with moderate splitting of proximal humerus and sometimes we use them also for pathological fractures. We have noticed the following advantages: reduction of surgical trauma, quicker mobilisation, good functional outcome, consolidation, reduced costs. The surgical technique is simple. One carries out a small lateral, longitudinal incision in the proximity of the humeral epicondyle. Once at the bone level one reaches the passage between the narrower portion of the humeral blade bone and the distal diaphysaire tract. One prepares the path to the marrow canal taking care not to eat into the humerus posterior cortical. Subsequently and simultaneously with the manual reduction of the fracture under the control of an amplifier, one inserts at least three wire-screws with a power tool but manually tightened at the end of their home drive until one feels a resistance from the subcondral area of the humeral head. In order not to protrude with the wires beyond the cortical bone of the humeral head it is necessary to have a full radiographic view of it at all times. For the post-surgical period the patient is cast into an envelope-like arm-support allowing for passive pendulum movements ever since the first day after the operation. Permanent removal may occur after three-four weeks. Accordingly we believe that treatment with wire-screws may be placed in a wide gamut of instances anywhere between a bloodless treatment and a prosthetic one.

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Session : SICOT - Shoulder and Elbow

Abstract number : 18394

LUXATIO ERECTA: DIAGNOSIS AND COMPLICATIONS

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Luxatio erecta is an uncommon disorder and presents in a unique, unusual manner. Luxatio erecta is often misdiagnosed as an anterior dislocation. The presentation is unmistakable and classic: the arm hyperabducted and locked above the head. Neurovascular injuries are frequent. Reduction is done with the traction and countertraction maneuver. Once it is reduced the arm is then placed and maintained with a sling in adduction to the chest. Orthopedic referral is required because of the high incidence of rotator cuff injury.

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Session : SICOT - Shoulder and Elbow

Abstract number : 18659

DIVERGENT DISLOCATION OF THE ELBOW IN A CHILD

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Divergent dislocation of the elbow joint is a rare injury with only a few cases reported until now. We report one case of posterior divergent dislocation of the elbow in a child. A 7-year-old boy was brought to the emergency department of our hospital with a painful deformity and swelling of the right elbow following an accidental fall from a swing. The elbow was severely tender all around. Range of elbow motion was painful and limited. There was no associated neurovascular injury. Radiological examination of the right elbow showed disruption of the superior radio-ulnar joint along with posterior dislocation of the elbow. There was no fracture in the elbow, forearm, and wrist. On MRI disruption of the interosseous membrane of the proximal forearm was noted. Under general anesthesia, longitudinal traction was applied to reduce the humero-ulnar dislocation. The radial head was then pushed medially to reduce the proximal radio-ulnar disruption. The elbow was gently flexed to 90 degree with the forearm fully supinated. The reduction was checked radiologically and the elbow was immobilised with the posterior splint for two and half weeks. At follow-up 3 months post-injury, the elbow motion was full without pain and instability. On radiograph he had no recurrent dislocation of either the elbow joint or the radial head. **CONCLUSION:** A stable elbow could be obtained with closed reduction and cast fixation. We suppose that physiologic joint laxity may allow for separation of the three articulations with less soft tissue injury in children.

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Session : SICOT - Shoulder and Elbow

Abstract number : 18942

LONG-TERM OUTCOMES OF MULTIPLE DONOR NERVES TRANSFER FOR THE TREATMENT OF BRACHIAL PLEXUS TOTAL ROOTS AVULSION

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OBJECTIVE: To report the methods and long-term outcomes of multiple donor nerves transfer for the treatment of brachial plexus total roots avulsion. **METHODS:** Thirty-eight patients with brachial plexus total roots avulsion were treated by phrenic, accessory, intercostals nerve and contralateral C7 nerve neurotization. The long-term outcomes of shoulder abduction, elbow flexion, wrist and finger flexion and recovery of latissimus dorsi were analysed. **RESULTS:** The follow-up period was averaged 4.91 ± 1.25 year. Shoulder abduction more than 30 degree was achieved in 57.1% (20/35) of the patients. The excellent and good elbow flexion was achieved in 73.7% (28/38) of the patients. Wrist and finger flexion recovered in 44.74% (17/38) patients, and good rate was 26.32% (10/38). Hand protective sensory recovered in 55.3% (21/38) of the patients. Latissimus dorsi recovered in 81.6% (31/38) of the patients, and good rate was 63.2% (24/38). **CONCLUSIONS:** Multiple donor nerves neurotization is a good method for the treatment of brachial plexus total roots avulsion.

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Session : SICOT - Spine

Abstract number : 16138

VERTEBROPLASTY

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Vertebroplastics is a minimally invasive operational method where a broken vertebra is being stabilised by an application of bone cement. The goal of this work is to examine the efficiency and safety of this method in patients who were treated due to the osteoporosis or the tumour process. **SUBJECTS AND METHODS:** The subjects with strong pain due to the fracture of the body of the spine were treated with the application of the bone cement, under local or general anesthesia, with the help of diascopy through unilateral transpedicular approach. We followed the intensity of the pain with the VAS scale before the operational procedure, after 24 hours and three months after the procedure. **RESULTS:** The application was performed on 55 patients (43 women, 12 men). The approximate age of the subjects was 68.43 years (32-82 years). 55 procedures were performed on 85 vertebrae, 32 due to the malignant illness and 23 due to the osteoporosis. The procedure was performed on 28 thoracic and 57 lumbar vertebrae. The VAS was approximately 8.2 before the operation and 2.1 ($p < 0.05$) after 24 hours and it remained unchanged after three months. We had one serious complication, the paraparesis, as a result of leaking of the cement in the spinal canal, which partially recovered after the decompression and the rehabilitation treatment and we had two superficial infections with *S. epidermidis*, which were cured by using the antibiotics. **CONCLUSION:** Vertebroplastics is a safe, efficacious operational method.

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Abstract number : 16524

TOTAL DISC REPLACEMENT; CLINICAL AND RADIOLOGICAL OUTCOME OF OUR FIRST TEN CASES

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BACKGROUND: The treatment of degenerative spinal diseases has undergone revolutionary changes over the last thirty years. Intervertebral disc replacement (spine arthroplasty) has been one of the major developments that helped spinal surgeons achieve the previously unattainable goal of stabilising the segment while maintaining mobility. Having done hundreds of spinal arthrodesis with fairly predictable good results, there was some fear of having poor outcome when we started performing total disc replacements; particularly there is learning curve for any new procedure. Hence, we like to present our first ten cases to spinal surgeons who just want to start performing total disc replacement. **METHODS AND MATERIAL:** A retrospective study of the first 10 patients who underwent total disc replacement. Five had cervical total disc replacement and five had lumbar disc replacement. Preoperative and postoperative clinical evaluation, radiological assessment, complications, revised Oswestry pain questionnaire, EUROQOL EQ-5D questionnaire and pain killers' consumption are measured. **RESULTS:** There has been significant improvement in all outcome measures. There has been significant improvement in the range of movement with 50% reduction in the VAS pain score. This is more pronounced in the cervical spine group. One patient developed L2-L3 nerve root partial dysfunction with grade IV hip flexor weakness and altered sensation in L2-L3 distribution. Patients have a higher quality of life.

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Session : SICOT - Spine

Abstract number : 16543

PLIF IN THE MANAGEMENT OF SPONDYLOLISTHESIS - TWO-YEAR FOLLOW-UP OF 46 PATIENTS

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Spondylolisthesis is managed differently depending on various factors. We analysed 46 patients with spondylolisthesis who underwent PLIF by a single surgeon and a minimum follow-up of 2 years. Twenty six were degenerative and sixteen lytic listhesis. Thirty-two were females and fourteen men. Average operating time was 146 minutes and blood loss was 560ml. Three patients had dural tear necessitating repair. One patient had post-operative wound infection needing debridement. At the 2-year follow-up, all patients had significant improvement in ODI and Quadruple Visual Analogue scale ($p < 0.0001$). Dynamic radiographs revealed no movement at fusion level in all patients except for two with < 2 mm movement. One patient had screw breakage and another had sustained a fall and slipping of the cage needing cage removal and bone grafting.

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Abstract number : 16787

THE OUTCOMES OF REHABILITATION IN PATIENTS WITH CHRONIC LOW BACK PAIN

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INTRODUCTION: As the society ages, a problem of low back pain becomes a wide spread issue. There is no set "gold standard" to follow in treatment of patients suffering from low back pain. **AIM OF THE STUDY:** The aim of the study was to evaluate the clinical outcome of rehabilitation in patients with low back pain. **MATERIALS AND METHODS:** There were 65 patients with chronic lumbar pain included. Mean age of patients was 68 years. In the prospective analysis, Modified Oswestry Low Back Pain Disability Questionnaire was utilised to assess patients' quality of life and Visual Analog Scale (VAS) to evaluate pain intensity. The data were acquired in the first and last days of rehabilitation treatment. **RESULTS:** The outcomes acquired through the analysis of Modified Oswestry Low Back Pain Disability Questionnaire results were positive. However, it did not correlate with the outcomes of VAS. In Visual Analog Scale the mean score in the last day of rehabilitation was 3, which means that despite the introduced treatment, patients still suffered from pain. **CONCLUSIONS:** On basis of study results it can be concluded that patients who underwent rehabilitation therapy evaluated their quality of life high, hence still suffering from pain symptoms. This shows some weaknesses of introduced rehabilitation treatment. It may be due to rehabilitation plans constructions, which are not designed to meet every patients needs. The other explanation of study outcomes may be poor compliance and cooperation between patient and rehabilitant.

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Session : SICOT - Spine

Abstract number : 16893

TLIF AND UNILATERAL TRANSPEDICULAR FIXATION

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GOAL: Spondylodesis is an operational method that cures different pathologic spine conditions and is resistant to conservative forms of treatment. The goal of this paper is to evaluate clinical and radiologic results after the TLIF method, using unilateral transpedicular fixation with polyaxial screws. **METHOD:** 7 men and 6 women (50.46 years, 37-62) were operationally treated with the TLIF method and the implantation of carbon CAGE filled with spongiosis, got by resection of lamina, little ankle and/or processus spinosus extension, posteromedial contralateral spondylodesis and ipsilateral transpedicular fixation. Nine (69.23%) patients were non-smokers. 11 operations were performed on L4-5 level and two operations on L5-S1 level. The approximate duration of the procedure was 135 minutes. The clinical and radiologic report was recorded before the operation and 6 months after the operation. On the VAS scale the recovery of 7.7 (small of the backs) and 7.2 (legs) was recorded on 2.1 and 1.7 ($p < 0.0005$). Six months later, fusion was recorder in 12 patients. **CONCLUSION:** TLIF, with unilateral transpedicular fixation and contralateral back spondylodesis is a successful method in treating mechanical back pain.

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Session : SICOT - Spine

Abstract number : 16958

CONGENITAL CLEFT IN ANTERIOR AND POSTERIOR ARCH OF ATLAS - A RARE COMBINED ANOMALY

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Clefts or aplasia of atlas are rare. Isolated cleft in anterior arch or in the posterior arch of atlas has been previously reported. We present a rare anomaly with cleft in both anterior and posterior arch of atlas. A 36-year-old male presented to A&E with history of pain in the neck following a trivial injury to the neck. On examination, the range of motion of the cervical spine was full and free, no neurological deficit found. No cervical spine tenderness. Plain radiographs raised a suspicion of fracture of C1. Computed tomography (CT) with three dimensional (3D) reconstruction revealed cleft in anterior and posterior arch of atlas vertebra. We found no description of this type of combination in the literature.

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Abstract number : 16998

A CASE OF POTT'S PARAPLEGIA - NATURAL HISTORY OF TUBERCULOUS SPONDYLITIS

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To clarify the natural history of tuberculous spondylitis or Pott's paraplegia, a case treated without anti-tuberculosis drugs is reported here. The patient Shiki Masaoka, who was known as a famous Japanese Haiku poet and died at the age of 34 in 1902, continued writing articles of newspapers until 2 days before his death. At these articles and in his diary, he made a precise description of his physical deterioration. When he was twenty, he began coughing up blood due to lung tuberculosis. At the age of 28 he felt severe low back pain and diagnosed as spinal caries. He underwent drainage operation for gravitation abscess and its wound remained open. After the age of 32, he became bed-ridden, suffering from paraplegia, neuropathic pain and faecal incontinence, which were probably due to the injured spinal cord. Intolerable pains during dressing change and suicide attempt were written by himself in the diary. Approximately 7 fistulae were discharging and he was afflicted by the diarrhoea caused by tuberculous colitis at the terminal stage. One of the last poems is "a quart of phlegm - even gourd water couldn't mop it up" (translator: J. Beichman). Pott's paraplegia laid him at the sickbed for 6 years, but he was clearly conscious and described his physical and mental status in clinical detail, which would show us the natural history of tuberculous spondylitis.

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Abstract number : 17134

NEW SURGICAL WAY OF TREATMENT OF SPONDYLOLYSTHESIS

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On earlier known ways were treated 32 patients suffering from spondylolysthesis of the thoracolumbar department of a backbone, of them 10 patients were treated using a technique developed by Chaclin V.D.; 14 patients using a technique by Civyan Y.L.; 8 on a technique by Osna A.I.; on a new technique 51 patients were treated, on which the patent No.796 Kyrgyz Republic in 2005 is received. Features of the method developed by us, spondylodesis: the approach to a disk on posterior-lateral of a surface; 1/3 parts fibrose of a ring are dissected only; the stacking autografts combined, thus is increased the area of contact autograft with joined vertebrae, component not less than 60%. The results of operative treatment were traced by us in terms from 3 months till 5 years at 54 patients from 83 were treated (65.1%). On the basis of study anamnesis morbi at two researched groups we received the following results of operative treatment spondylolysthesis: in the basic group: the good results are revealed at 87.9% of patients, satisfactory at 12.1%, unsatisfactory results are not marked. In control group accordingly good were marked at 52.4% of patients, satisfactory at 33.3% of patients and 14.3% of patients were marked as unsatisfactory.

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Session : SICOT - Spine

Abstract number : 17288

TRAUMATIC THORACOLUMBAR SPONDYLOPTOSIS

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We report a case of traumatic thoracolumbar junctional spondyloptosis caused by falling from height in a healthy adult. There was severe bilateral chest injury also. Although there was complete cord transaction it was mandatory to reduce the injury because of the severe kyphosis and impending skin rupture it produced. The dislocation was reduced by posterior technique with pedicle screw fixation. The traumatic spondyloptosis at the thoracolumbar junction and the posterior reduction and fixation is a reliable surgical procedure. The thoracic cage and sagittal orientation of the facet joints at the level of the thoracic spine create a relatively protected spine region. As a result of the solid stability provided by these anatomical factors, substantial force is required to produce significant injury. Traumatic impact causes either a flexion rotation stress or a shearing force that fractures the facets and ruptures ligaments, resulting in spinal disarticulation. The thoracic spondyloptosis is a severe form of spondylolisthesis and caused by striking great injury force. Spondyloptosis at this level is not reported in literature. More often spondyloptosis can be in association with neurofibromatosis or as a severe form of spondylolisthesis. In both the situations it is more often seen in the cervical or lumbosacral region.

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Abstract number : 17290
TUBERCULAR LUMBOSACRAL SPONDYLOPTOSIS

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We present a case of Tubercular Spondyloptosis at L5 S1. There is no such case reported in English literature hence presenting a challenge on how to manage it. A 45-year-old male patient presented with discharging sinus at L5 in the midline for one year. Patient had severe backache with inability to stand. There was no neurological involvement including the bowel and bladder. The patient was put on bed rest and investigated. The X-ray, CT Scan and MRI gave a diagnosis of L5 S1 Spondyloptosis with an infective etiology. Histopathology and PCR confirmed the diagnosis of tubercular etiology. Patient was managed on bed rest and four drug anti tubercular chemotherapy. The discharging sinus healed in 6 weeks and the pain decreased appreciably. The patient was ambulated at 3 months using a modified lumbosacral brace. There was no increase in pain or aggravation of instability either clinically or radiologically at six-month follow-up. The aim of presenting this case is to bring out one of the rare presentation of caries spine. This case was associated without neurological deficit. Since tubercular involvement is slow and destruction and stabilising tissue response keep going on hand in hand. So although appearing very severe radiologically they may not be very unstable. Following the middle path regimen of bed rest and anti tubercular chemotherapy has helped treat this patient. Long-term follow-up of this patient would give us an answer if surgical stabilization is required in such cases or not.

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Abstract number : 17394

REVISION OF FAILED PEDICLE SCREWS USING POLYMETHYLMETHACRYLATE BONE CEMENT VERSUS EXPANSIVE PEDICLE SCREWS

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According to our best knowledge, there is no report in the literature comparing these two techniques in terms of pull-out strengths in calf lumbar vertebrae. Monoaxial 6.0mm pedicle screws were inserted into the pedicles and performed axial pull-out tests by mechanical testing machine at a constant rate of 10mm/mn. After pull-out tests were performed the failed pedicles were repaired with 6.0mm monoaxial pedicle screw combined with cement (PMMA) augmentation in group 1 (N=7) and pedicles in group 2 (N=7) were repaired with 7.0mm expansive pedicle screws. Revision pull-out tests were repeated and maximum revision pull-out strengths were assessed and compared. Statistically no significant difference was revealed between the pull-out test strengths of group 1 and group 2 (2162.86N± 271.55N; 2579.29N±202.53N respectively); and revision pull-out strengths of groups 1 and group 2 (2794.29N±370.11N; 3327.14N±242.18N respectively). However when we compared the pull-out and revision pull-out strengths in each group we found statistically significant difference in group 2 and in group 1. But group 2 showed significantly increased pull-out strengths compared to group 1. In conclusion, expansive pedicle screws may be alternative tools in the treatment of failed pedicles without risk of pedicle fracture, cement leakage and with an advantage of easier revision.

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Abstract number : 17480

SUCCESSFUL TREATMENT OF POTT'S PARAPLEGIA WITH VANCOMYCIN ADMINISTRATION AND FOCAL CURETTAGE: A CASE REPORT

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A 70-year-old woman complicated with diabetes; she had a low grade fever, back pain and severe lower-extremity motor deficits (Frankel Grade A). Initial MRI/CT showed intradiscal abscesses with spinal cord compression on the 8/9 thoracic vertebrae level. Edema and deformity of both vertebral bodies were observed. C-reactive protein (CRP) serum level of more than 6mg/l. Tuberculin skin testing was negative. On the first time, we diagnosed non-tuberculous pyogenic discitis and started treatment with intravenous antimicrobials. CRP level returned to normal after several days, but re-increased to 14mg/l CRP level. Thus we planned to administrate vancomycin (VM) diagnosed as MRSA discitis for microbial substitution. Fifteen day after VM therapy, the CRP level was decreased to 0.98mg/l, and general condition was better. But surgery was considered for the patient of neurological deficits and spinal instability 4 months after clinical onset. We performed resection of the involved portion and revision by autograft. After the surgery, we got positive bacteriological findings (*Mycobacterium tuberculosis*) and positive histologic findings such as giant cell epithelioid granuloma with caseous necrosis. The patient was prescribed a multiple drug regimen based on isoniazide (INH), ethambutol (EB), rifampicin (RFP) and pyrazinamide (PZA) for a period of 6 months. The patient was cured with a follow-up of 6 months after the surgery and could walk with device (Frankel Grade D). We wish to discuss two major points, as follows: the first "VM can help spinal tuberculosis?" and the second "Why the patient could get function?".

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Abstract number : 17731

LUMBAR SPINAL STENOSIS - SURGICAL TREATMENT

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INTRODUCTION: Surgical treatment of lumbar spinal stenosis is one of the most frequent procedures in spinal surgery. Clinical exam, Rx, CT and MRI are considered to be the gold standard in the diagnosis and evaluation of lumbar spinal canal stenosis. MATERIALS AND METHODS: 31 patients with symptoms of neurogenic claudication and MRI proven lumbar spinal stenosis were enrolled into the study. Age of patients was 56 years, 23 men and 8 women were involved. The diagnostic approach included clinical exam, radiological investigation, CT, MRI with myelography. Because of these investigations we established that all patients suffered from unstable lumbar degenerative spinal stenosis associated with spondilolisis and spondilolisthesis in one (23 cases), two (6 cases) or three levels (2 cases). The surgical treatment had a left retroperitoneal approach with anterior excision of the interbody disc, rebuilding of the disc height, reduction of spondilolisthesis and associated interbody somatodesis with a bone autograft from the iliac crest. Posterior fixation with transpedicular instrumentation assures good fusion. RESULTS: Were good in 27 cases and satisfactory in 4 cases, with no relapses or complications. CONCLUSIONS: Rebuilding of the disc height, reduction of the vertebral body, somatodesis with bone autograft from iliac crest made radicular decompression possible. In most cases laminectomy with decompression was not necessary. Posterior transpedicular fixation assures bone fusion and the beginning of early rehabilitation.

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Abstract number : 17556

THE PATTERN OF DEGENERATIVE LUMBAR CANAL STENOSIS IN THE SOUTH OF IRAK

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320 patients with degenerative canal stenosis were admitted in the University Department of Orthopaedic Surgery in the last 26 years. Age ranged between 47-80 years. 195 were females and 125 were males. Spondylolistheis was noticed in 15 cases only. The dominant site was L4-L5, then L3-L4, then L5-S1 and the least was L2-L3 back pain, radicular pain, and claudication were the main presenting symptoms. Minor or major neurological deficit were recorded in 123 patients 38.4%. Diagnosis was achieved by plain X-ray, MRI, CAT scan, and nerve conduction studies. Myelography was used in some cases, all had central and lateral recess stenosis associated disc herniation was noticed in 82 patients 25.6%.Hypertension was recorded in 212 (66.25%) patients, diabetes was discovered in 118 (36.87%) patients. The differentiation between disc bulge and disc herniation is vital. All had central and lateral recess decompression. Routine histological examination of ligamentum flavam was done and the results will be discussed. Finally the functional outcome of surgical decompression will be discussed too.

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Abstract number : 17765

MAJOR ACETABULAR RECONSTRUCTION WITH REINFORCEMENT RING AND CAGES

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Severe bone loss secondary to acetabular component migration and osteolysis often results in major bone loss. There are a lot of implants available but the results of reconstructions are different. It is difficult to analyse them because we do not have a single classification system of acetabular defects. In Europe reconstruction of the bone stock with allograft protected with reinforcement ring and cement cup is still a viable option. Between 1999 and 2007 we performed in our department 60 revision hip surgeries. According to Paprosky classification, we had 9 cases of type III. 6 cases were reconstructed with femoral head allograft protected with Kerboull ring and cemented cup and in 3 cases we have used Burch-Schneider cage. In the recovery period we started early mobilization, no weight bearing for three months, and then progressive weight bearing with a cane for 3 months. The mean follow-up of the series was 4 years. Consolidation of the graft was observed at 6 months but remodeling continued for the next 2 years. The survival rate at 4 years was 100%. We believe that Kerboull acetabular reinforcement ring is still a good solution in major bone loss. It is strong enough to protect the bone graft during the consolidation. Due to its anatomic design it allows us to lower the rotation centre near the anatomic position and help us to restore the bone stock. When bone loss is severe (more than 50%) the only viable solution is reconstruction with structural allograft reinforced by Burch-Schneider cage.

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Abstract number : 18019

THE POST-TRAUMATIC CEREBROSPINAL FLUID HYPOVOLEMIA (INTRACRANIAL HYPOTENSION) TREATED WITH SACRAL EPIDURAL INJECTION OF PHYSIOLOGICAL SALINE

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OBJECTIVES: Sacral epidural injection of physiological saline is performed to post-traumatic CSF hypovolemia according to principle of avoiding epidural blood patch (EBP) as much as possible and we report the effectiveness of this procedure. **METHODS:** Six (1%) (all female, mean 56 y.o.) of 605 traumatic cervical spine syndrome cases were diagnosed post-traumatic CSF hypovolemia between 2002 and 2007 according to the criteria of modified ICHD-II, avoiding dural puncture and EBP. Therapeutic methods: 1. Bed rest and hydration. 2. Failing that, sacral saline injection was performed. 3. Failing that, EBP was performed. Evaluated items (before and after 6 months): 1. Changes in visual analogue scale (VAS) of headache (VAS: 0=none~10=worst pain imaginable). 2. Changes in accompanying symptoms such as tinnitus and numbness. **RESULTS:** All cases failed in rest and hydration. VAS of headache decreased from 7.8 to 0.1 and accompanying symptoms were relieved in four cases with epidural saline injection. In one case failed in this, EBP was effective. **CONCLUSIONS:** 1) 1% of 502 traumatic cervical spine syndrome cases were diagnosed as CSF hypovolemia. Although the proportion was low, the existence was showed. 2) It was concerned that sacral epidural saline injection was useful in not only diagnosing but also treating and able to be carried out antecedent to EBP. However, elucidation of mechanism of post-traumatic onset was required.

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Abstract number : 18325

DIASTEMATOMYELIA. PRESENTATION OF FOUR CASES AND REVIEW OF LITERATURE

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Four cases of cord Diastematomyelia are illustrated together with their intraoperative findings and clinical outcome. Review of the relevant literature is also presented.

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Abstract number : 18882

TRANSFORAMINAL LUMBAR INTERBODY FUSION WITH SINGLE CAGE FOR THE TREATMENT OF DEGENERATIVE LUMBER DISEASE

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OBJECTIVE: To describe TLIF with single cage, and to compare clinical effects of PLIF, modified PLIF and TLIF with single cage. **METHOD:** 50 cases with PLIF were reviewed and followed up for 6 to 36 months (18 months on average). 44 cases with modified PLIF were reviewed and followed up for 6 to 36 months (16 months on average). 96 cases treated with TLIF with single cage were reviewed, and followed up for 6 to 36 months (14 months on average). Pedicle screw systems and cages were used. Pedicle screw systems included Mossmiami, XIA, Socon and TSRH. Cages including I/F, AVS PL, PRO Space and Capstone were used in PLIF and modified PLIF. The Leopard cage was used in TLIF with single cage. **RESULT:** There were significant differences between the PLIF group and the latter two groups in the operation time, blood loss and postoperative drainage, but no significant differences occurred between the modified PLIF group and TLIF with single cage group. There were no significant differences among the three groups in the perioperative and long-term complications. The improvement of ODI index and VAS pain scale among the three groups had no significant differences. **CONCLUSION:** PLIF is an effective treatment for lumbar degenerative disease. Modified PLIF can reduce operation costs and decompress the spinal canal completely, but its long-term effects need further followed-up. TLIF with single cage can reduce intraspinal operations, shorten operation time, decrease blood loss, and provide the contralateral graft bed; this is an ideal posterior lumbar interbody fusion technology.

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Abstract number : 18902

TREATMENT OF MASSIVE COPLL WITH ANTERIOR EXTIRPATED DECOMPRESSION

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OBJECTIVE: To report surgical outcome of anterior extirpated decompression for treating cervical OPLL with average occupying ratio exceeding 50%. **MATERIALS AND METHODS:** From 2002 to 2006, 26 patients of cervical OPLL with occupying ratio of the spinal cord exceeding 50% underwent anterior decompression and fusions. The ossified ligament was removed completely as possible. One level corpectomy combined with one level discectomy were performed in 10 patients, 2 level corpectomy in 3 patients and one level corpectomy were performed in 23 patients. The decompressed segments were reconstructed with a tricortical iliac crest strut or a Titanium cage, and an anterior plate system was used to prevent graft extrusion in all patients. All patients were monitored with ECP for the spinal cord function during decompression. The JOA scores before and after operation were recorded. **RESULTS:** The JOA score before surgery was 8.7 ± 2.8 , and 14.2 ± 2.5 after surgeries. The average improvement ratio was $61\% \pm 24\%$. There were 3 patients companied by diabetes presented with temporarily neurological deterioration. There were two cases of cerebrospinal fluid leaks that cured within 2w after surgery. There was 1 case accompanied by diabetes that underwent a second emergency reexploration because of hematoma in the spinal canal that caused a dyspnea. **CONCLUSIONS:** The anterior approach for treating COPLL with occupying ratio exceeding 50% is an extirpated decompression comparing with posterior approach and has a higher rate of neurofunction recovery and lower complication of neurology deterioration. **KEYWORDS:** OPLL; anterior approach; posterior approach; occupying ration.

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Abstract number : 18891

TECHNICAL FACTORS RELATED TO THE INCIDENCE OF ADJACENT SUPERIOR SEGMENT FACET JOINT VIOLATION AFTER TRANSPEDICULAR INSTRUMENTATION IN THE LUMBAR SPINE

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OBJECTIVE: To investigate the incidence of superior segment facet joint violation after pedicle screw instrumentation in the lumbar spine and to evaluate technical factors related to the incidence. METHODS: A prospective study including 96 patients who underwent lumbar and lumbosacral fusion was conducted between March 2006 and December 2007. All patients had pedicle screw-rod instrumentation with either CD Horizon or TSRH implants. Pedicle screws were instrumented according to the method advocated by Roy-Camille (Group 1, 20 cases) or Weinstein (Group 2, 76 cases). CT scans were conducted to determine violation of the adjacent superior segment facet joint. RESULTS: Superior segment facet joint violation occurred in all of the 20 patients (100%) and all of the top-level screws (100%) in Group 1. Observer 1 noted the incidence of facet joint violation to be present in 23.8% of the screws and 32.9% of the patients in Group 2, whereas observer 2 noted this to be the case in 25.2% and 35.5%, respectively. The incidence of facet joint violation in patients with CD Horizon screws was far lower than patients with TSRH screws ($P < 0.01$). The facet joint violation at L5 was significantly higher than any other levels ($P < 0.01$). CONCLUSION: Compared with Roy-Camille's method, Weinstein's method for placing pedicle screws can reduce the incidence of superior level facet joint violation. Top-loading screws used in top-level can also decrease the incidence.

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Abstract number : 18895

RADIOGRAPHIC MEASUREMENT PARAMETERS OF UNSTABLE THORACOLUMBAR BURST FRACTURES: ANTERIOR-ONLY APPROACH VERSUS POSTERIOR-ONLY FIXATION

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OBJECTIVE: To retrospectively analyse the anterior and posterior surgical approach in the treatment of unstable burst thoracolumbar fracture, and to compare radiographic measurement parameters of the both surgical techniques. **METHODS:** Forty-one patients with unstable thoracolumbar fracture underwent either anterior neurodecompression and fixation (n=19) or posterior reposition and internal fixation by pedicle screw (n=22). All were followed up for 24 months to 48 months (mean 38). The Cobb angle, to assess sagittal alignment depending on lateral radiographs; and the percent canal occlusion, to assess canal dimensions depending on transaxial CT. **RESULTS:** The Cobb angle of the anterior-only group averaged 27.3 degrees on admission, the postoperative Cobb angle is 3.1 degrees, and the one is 4.6 degrees at follow-up examination, whereas the posterior group averaged 26.1 degrees, 3.0 degrees, 12.5 degrees, respectively. The percent canal occlusion of the anterior-only group averaged 41.2% on admission, the postoperative percent is 3.1%, and the one is 4.7% at follow-up examination, whereas the posterior group averaged 38.6%, 24.9%, 30.3%, respectively. Statistics showing there were no significant differences between the two groups in either the Cobb angle or the percent canal occlusion on admission ($p>0.05$); however, there were significant differences between the two groups at follow-up ($p<0.05$). **CONCLUSION:** The anterior surgical approach can consistently yield improved maintenance of kyphotic correction and the canal decompression compared to the posterior surgical approach.

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Abstract number : 18896

C1-C2 PEDICLE SCREW FIXATION AND BONE GRAFT FUSION FOR TREATMENT OF ATLANTOAXIAL INSTABILITY

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OBJECTIVE: To evaluate the clinical effect of C1-C2 pedicle screw internal fixation and bone graft fusion for treatment of Atlantoaxial instability. **METHODS:** Ten patients, comprising 6 patients with type II old fracture of odontoid process, 3 with traumatic congenital free odontoid process and 1 with notochord chordoma of C1-C2 level. Ten patients with atlantoaxial instability were treated with C1-C2 pedicle screw fixation, then self-iliium was placed onto the surface of the posterior arches of both atlas and axis. **RESULTS:** All patients who were followed up from 5 to 22 months obtained atlantoaxial arthrodesis. The clinical symptoms of all patients were obviously improved. There were no neural or vascular injury found and no case of implant failure. **CONCLUSION:** C1-C2 pedicle screw fixation was an effective surgery technique for treatment of atlantoaxial instability, and can make atlantoaxial joint stable immediately.

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Abstract number : 18897

APPLICATION OF PERCUTANEUS TRANSPEDICULAR SCREW FIXATION IN THE TREATMENT OF THORACOLUMBAR FRACTURES

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OBJECTIVE: To evaluate percutaneous transpedicular screw fixation in the treatment of thoracolumbar fractures. **METHODS:** Thirty patients with single segmental fractures of thoracolumbar vertebrae were treated with percutaneous transpedicular screw fixation. There were 8 cases of T12 fractures, 15 cases of L1 fractures, 5 cases of L2 and 2 cases of L3. All the 30 patients had no neurological deficits which accompanied narrowed spinal canals (Wolter sagittal index 1 to 2). All patients were treated with pedicle screw system homemade. After retraction reduction, 4 incisions of 1.5cm were made at the vertebral pedicles above and below the fracture segment under fluoroscopy. After pedicular screws were placed in the pedicles aided by MED, the fixation rod was inserted percutaneously through the muscle tunnel and connected to the upper and lower screws. Another contemporary 30 cases that were treated with traditional posterior open reduction and internal screw fixation were used as contrast. **RESULTS:** All the 30 patients in the percutaneous group were followed up for an average time of 28 months (range 18 to 38 months). The mean operative time was 45.00 minutes, blood loss was 86.00ml, hospital stay was 12.50 days, and back-to-work time was 12 weeks after operation. The percutaneous group was superior to the contrast group in operation time, hospital stay, blood loss and postoperative recovery. **CONCLUSIONS:** Percutaneous transpedicular screw system can fix thoracolumbar fractures firmly. The operation procedure is easy and minimally invasive. The patients can recover soon with less suffering.

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Abstract number : 18903

SOMATOSENSORY EVOKED POTENTIAL FROM S1 ROOT STIMULATION

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OBJECTIVE: To verify the reproducibility and stability of cortical response of S1 root SEP in 11 subjects. To detect the latency and amplitude of the earliest positive deflection of S1 root SEP from 9 healthy subjects and to compare the cortex waveforms of routine tibial nerve SEP and S1 root SEP in 2 patients with unilateral sciatic nerve injury. **METHODS:** In the 9 healthy subjects, S1 nerve root was stimulated by a needle electrode via the first dorsal sacral foramen. The cortical response was recorded at Cz' and Fpz. In the 2 patients with unilateral sciatic injury, tibial nerve SEP and S1 root SEP were performed bilaterally. **RESULTS:** In S1 root SEP tests, robust and reproducible cerebral evoked potentials were recorded bilaterally from 8 out of the 9 healthy subjects. In 1 healthy subject, P20 was absent from one side. The earliest positive cortical response was P20 with peak latencies ranged from 15.82ms to 23.43ms (mean 19.41ms) and peak to peak amplitudes ranged from 0.17 μ v to 3.34 μ v (mean 1.12 μ v). In the 2 patients, P40 of tibial nerve SEP was absent, but P20 of S1 root SEP was intact from the involved side. **CONCLUSION:** Reproducible cerebral SEP could be recorded following needle stimulation of S1 root at the S1 foramen. This new methods may have some value for intraoperative spinal cord monitoring and detecting lesions of spinal cord in patients with severe peripheral neuropathy or amputated lower limbs.

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Abstract number : 18936

EFFECTS OF HIGH DOSE METHYLPREDNISOLONE ON GUANINENUCLEOTIDE-BINDING PROTEIN (G PROTEIN) AND γ -AMINOBUTYRIC ACID TRANSAMINASE (GABAT) MRNA EXPRESSION AFTER SPINAL CORD INJURY

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OBJECTIVE: To investigate the effect of high dose methylprednisolone (MP) on guanine nucleotide-binding protein (G protein) and γ -Aminobutyric acid transaminase (GABAT) mRNA expression after spinal cord injury. **METHODS:** Thirty SD rats were divided equally into sham surgical group, Allen's weight drop injury group and injury with high dose MP group. 24 hours after the operation, the spinal cord injured and 0.5cm neighbouring areas were harvested for examination of G protein and GABAT mRNA expression by retrograde polymerase chain reaction technique (RT-PCR). **RESULTS:** 24 hours after the operation, the relative abundance of G protein mRNA and GABAT mRNA expression of sham surgical group were respectively 0.9998 ± 0.1763 and 0.8871 ± 0.0162 , which decreased significantly after spinal cord injury to 0.5945 ± 0.2976 ($P < 0.05$) and 0.2083 ± 0.1521 ($P < 0.01$), but increased significantly after treatment with high dose MP to 1.5329 ± 0.1548 ($P < 0.01$) and 1.0646 ± 0.3057 ($P < 0.01$) respectively. However, for the comparison of the outcomes between injury with high dose MP group and sham surgical group, the relative abundance of G protein mRNA expression increased significantly ($P < 0.01$), but that of GABAT mRNA expression just increased to normal level ($P > 0.05$). **CONCLUSIONS:** MP can greatly upregulate and reverse the expression of G protein and upregulate the expression of GABAT to normal level, thus protecting the neighbouring injured areas after spinal cord injury.

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Abstract number : 18938

EFFECT OF HIGH DOSE METHYLPREDNISOLONE ON PLASMA MEMBRANE CA²⁺-ATPASE ISOFORM 2 MRNA AND NEUROENDOCRINE PROTEIN 7B2 PROTEIN MRNA EXPRESSION AFTER SPINAL CORD INJURY

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OBJECTIVE: To investigate the effect of high dose methylprednisolone (MP) on plasma membrane Ca²⁺-ATPase isoform 2 mRNA and neuroendocrine protein 7B2 protein mRNA expression after spinal cord injury mRNA expression after spinal cord injury. **METHODS:** Thirty SD rats were divided equally into operation but none injury group, Allen's weight drop injury group and injury with high dose MP group. Twenty-four hours after the operation, the spinal lesion and neighbour areas were moved for examination of plasma membrane Ca²⁺-ATPase isoform 2 mRNA and neuroendocrine protein 7B2 protein mRNA expression by Retrograde Polymerase Chain Reaction technique (RT-PCR). **RESULTS:** The plasma membrane Ca²⁺-ATPase isoform 2 mRNA expressions were 0.3232±0.0032, 0.1518±0.069 (p<0.01), 0.5721±0.1325 (p<0.01) in three group. It is decreased significantly after spinal cord injury and increased after treatment with MP. The neuroendocrine protein 7B2 protein mRNA expression were 1.2289±0.1189, 0.5843±0.2951 (p<0.05), 1.2890±0.2268 (p<0.01) in three group. It is decreased significantly after spinal cord injury and increased after treatment with MP. **CONCLUSIONS:** MP can greatly increase the expression of plasma membrane Ca²⁺-ATPase isoform 2 and epidermal neuroendocrine protein 7B2 protein and protect the neighbour areas after spinal cord injury.

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Abstract number : 18940

EXPERIMENTAL STUDY OF NERVE BYPASS AUTOGRAFT

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OBJECTIVE: To study the use of a nerve "bypass" graft as a possible alternative to neurolysis or segmental resection with interposition grafting in the treatment of Neuroma-in-continuity. **METHODS:** A sciatic nerve crush injury model was established in the Sprague-Dawley rat by compression with a straight hemostat. Epineurial windows were created proximal and distal to the injury. An 8-mm segment of radial nerve was harvested and anastomosed to the sciatic nerve at the epineurial window sites proximal and distal to the compressed segment (bypass group). A sciatic nerve crush injury without bypass served as a control. Electrophysiological testing was performed over an 8-week period. Sciatic nerves were then harvested and studied under transmission electron microscopy. Myelinated axon counts were obtained. **RESULTS:** Nerve conduction velocity in the bypass group was significantly faster than conduction velocity in the control group at 8 weeks ($63.57 \pm 5.83 \text{m/s}$ vs. $54.88 \pm 4.79 \text{m/s}$; $p < 0.01$). Myelinated axon counts in distal segments were found more in the experimental sciatic nerve than in the control sciatic nerve. Significant axonal growth was noted in the bypass nerve segment itself. **CONCLUSIONS:** Nerve bypass may serve to augment peripheral axonal growth while avoiding further loss of the native nerve.

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Abstract number : 18950

EFFECT OF HIGH DOSE METHYLPREDNISOLONE ON LECITHIN-CHOLESTEROLACYLTRANSFERASE MRNA EXPRESSION AFTER SPINAL CORD INJURY

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OBJECTIVE: To investigate effect of high dose methylprednisolone (MP) on lecithincholesterolacyltransferase mRNA expression after spinal cord injury. **METHODS:** Thirty SD rats were divided equally into operation but none injury group, Allen's weight drop injury group and injury with high dose MP group. Twenty-four hours after the operation, the spinal lesion and neighbour areas were moved for examination of lecithin-cholesterolacyltransferase mRNA expression by Retrograde Polymerase Chain Reaction technique (RT-PCR). **RESULTS:** The lecithin-cholesterolacyltransferase mRNA expressions were 0.6743 ± 0.0043 , 0.0589 ± 0.0281 ($p<0.01$), 0.7036 ± 0.2225 ($p<0.01$) in three group. It increased significantly after spinal cord injury and treatment with MP. **CONCLUSIONS:** MP can greatly increase the expression of lecithin-cholesterolacyltransferase and protect the neighbour areas after spinal cord injury.

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Session : SICOT - Spine

Abstract number : 18952

EFFECT OF HIGH DOSE METHYLPREDNISOLONE ON GLYCYL PROLINE DIPEPTIDYL AMINOPEPTIDASE MRNA EXPRESSION AFTER SPINAL CORD INJURY

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OBJECTIVE: To investigate effect of high dose methylprednisolone (MP) on Glycyl Proline Dipeptidyl Aminopeptidase mRNA expression after spinal cord injury mRNA expression after spinal cord injury. **METHODS:** Thirty SD rats were divided equally into operation but none injury group, Allen's weight drop injury group and injury with high dose MP group. Twenty-four hours after the operation, the spinal lesion and neighbour areas were moved for examination of Glycyl Proline Dipeptidyl Aminopeptidase mRNA expression by Retrograde Polymerase Chain Reaction technique (RT-PCR). **RESULTS:** The Glycyl Proline Dipeptidyl Aminopeptidase mRNA expressions were 1.5809 ± 0.1554 , 0.6605 ± 0.3366 ($p < 0.01$), 1.8502 ± 0.1314 ($p < 0.01$) in three group. It increased significantly after spinal cord injury and treatment with MP. **CONCLUSIONS:** MP can greatly increase the expression of Glycyl Proline Dipeptidyl Aminopeptidase and protect the neighbour areas after spinal cord injury.

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Room: 601
Session : SICOT - Sports

Abstract number : 16298

BONE MARROW EDEMA OF THE KNEE: TREATMENT WITH ILOPROST

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Bone marrow edema is a common cause of pain of the locomotor apparatus. We reviewed 50 patients (28 males, 22 females) with bone marrow edema of the knee. The patients mean age was 56.2±12.8 years. 8 cases were estimated to have an idiopathic BME, 10 post-traumatic and the other 32 to be secondary to an activated osteoarthritis or to mechanic stress. Therapy consisted of a series of five infusions of iloprost given over 6 hours on 5 consecutive days each. Iloprost is a vasoactive prostacyclin analogue. Pain at rest as well as under stress was assessed with a semi quantitative scale before and 4 months after therapy. MRI investigations were done before and repeated 4 months after therapy. At the clinical follow-up 4 months after therapy, pain level at rest had diminished 84% (p<0.0001). 70% of patients referred about a reduction, 30% about no change. Pain under stress decreased 57%, (p<0.0001). 76% of patients showed lower pain under activity, 24% no change from baseline. There was no increase of pain level in any patient. In MRI in 85% a significant reduction of the BME size or complete restitution could be observed, 15% showed no change. The authors conclude that parenteral application of iloprost might be a viable method in the treatment of BME of different origins.

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Session : SICOT - Sports

Abstract number : 16809

ARTHROSCOPIC ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

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INTRODUCTION: Treatment of anterior cruciate ligament injuries is a major clinical problem. It concerns young, active and sport practicing people. The arthroscopic anterior cruciate ligament reconstruction is a currently used surgical procedure. **MATERIALS:** The study included patients treated between January 2002 and September 2003 in the Orthopedics and Rehabilitation Clinic of Bródnowski Hospital in Warsaw. The age of our patients ranged from 17 to 51 years. 60 anterior cruciate ligament reconstructions were performed and 43 of the patients, who underwent arthroscopic anterior cruciate ligament reconstruction with use of patellar ligament or semitendinosus and gracilis muscles tendons autografts, were evaluated. **METHODS:** The patients were divided into two groups. Group I consisted of 23 patients who underwent arthroscopic anterior cruciate ligament reconstruction using patellar tendon autograft. Group II consisted of 20 patients who underwent arthroscopic anterior cruciate ligament reconstruction using semitendinosus and gracilis tendons autograft. Lysholm, IKDC, KOOS scales were used to evaluate the function of the operated knees. **RESULTS:** Analysis of results acquired in all evaluation scales showed, despite the fact that patellar tendon autograft reconstruction is a "gold standard", postoperative results of patients who underwent reconstruction with semitendinosus and gracilis tendons autografts are encouraging. **KEYWORDS:** Anterior cruciate ligament, ACL, reconstruction.

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Abstract number : 16892

RESULTS OF ARTHROSCOPICAL ABRASIVE CHONDROPLASTY IN PATIENTS WITH GONARTHROSIS

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We analysed 31 patients with primary and secondary gonarthrosis who were subjected to arthroscopical abrasive mechanical chondroplasty (AAMC) with/without microfracturing in Minsk Clinical Hospital # 6 between 2005 and 2007. Age of patients was between 10 and 69 years (average age of patients: 30.25+18.35 years). The average monitoring period: 7.9 months. Patients' classification: by stage of gonarthrosis: 2nd stage - 9.7%; 3rd stage - 25.8%; 4th stage - 64.5% (by Kellgren). By sex: 61.3% - women; 38.7% - men. By cause of gonarthrosis: 70.1% - post-traumatic type; 22.5% - Kenig's disease; 6.4% - idiopathic type. According to the operation type, patients were divided into 2 groups: The 1st group: 19 (61.3%) patients subjected to AAMC by R.P. Ficat methodic. The 2nd group: 12 (38.7%) patients subjected to AAMC with microfracturing. Analysis indicated that in the first group after AAMC operation 47.4% (9) of patients stated perfectly, 26.3% (5) of patients - stated well, 15.8% (3) of patients stated satisfactorily, 10.5% (2) of patients stated nonsatisfactorily. In the second group after AAMC operation 50% (6) of patients stated perfectly, 33.3% (4) of patients - stated well, 16.7% (2) of patients stated satisfactorily. **CONCLUSION:** in the first and second groups 73.7% and 83.3% of operations consequently turned out to be perfectly or well done. Thus AAMC in combination with/without microfracturing is quite efficient palliative type of operation among patients with gonarthrosis.

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Session : SICOT - Sports

Abstract number : 17058

CHONDROPROTECTION BY MEANS OF TRIBOLOGICAL ADAPTATION OF JOINT PHARMACOTHERAPY

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The study of the state of synovia at sinovitis of the knee joint using physical methods of electret-thermal and tribological analyses in electromagnetic field has visualised changes in the structure and functions of the synovial lubricating layer. Lubricity of the preparations of various pharmacological groups has been studied under the effect of electromagnetic field. Different reactions of the drugs similar to pathologically altered synovia have been established in the form of increased or reduced friction coefficient in contrast to its initial value. This fact has made it possible to optimize pharmacotherapy of joints by the criterion of minimal friction and reduction of the friction coefficient of a drug in conditions of magnetotherapy. Proceeding from above stated, tribological criteria have been determined for selection of the drugs for the local therapy aimed at minimizing disturbance of the liquid layer lubricity in the joints. They include the individual choice of the drug with the initial friction coefficient equal or lower than that of the patient's synovia. In the case the initial friction coefficient of the drug is larger than the patient's one, it turns expedient to estimate variations of the friction coefficient of the drug under the effect of electromagnetic field. If the friction coefficient of the drug reduces down to that of the synovia or even lower, its injection should be combined with magnetotherapy of the joint. If low lubricity or its impairment is detected in the electromagnetic field, it is worthwhile using viscosupplementary therapy of joints.

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Abstract number : 17803

NON-TRAUMATIC BILATERAL RUPTURE OF THE QUADRICEPS TENDON

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We report the case of a 70-year-old patient who suffered from a spontaneous non-traumatic bilateral rupture of the Quadriceps tendon. After leaving a car he was not able to extend his knees anymore. Initially he showed haematoma and effusions in both knee joints. He suffered also under Diabetes, a post-thrombotic syndrome which was treated by MARCUMAR, adiposity and Parkinson's disease. The rupture was verified by MRI. We proceeded with a bilateral surgical intervention, which was delayed because of massive soft tissue swelling and a high INR. The initial therapy was carried out according to PRICES ("protection", "rest", "ice", "compression", "elevation", "support"). After soft tissue consolidation, a trans-bone re-fixation combined with a re-fixation of the tendon sheath was performed. Splints were attached to both legs, which were carried by the patient for six weeks. The flexion of the knee was started under the guidance of a physiotherapist after six weeks. Three months after surgery a fully recovered function of both knee joints could be achieved. DISCUSSION: A non traumatic bilateral rupture of the Quadriceps tendon is a very rare Injury. This injury is determined by pre-existing degenerative alterations of the tendon. Certain illnesses like diabetes, hyperparathyreodism, adiposity, renal failure promote this injury. (1, 2) The rupture should be treated by surgery, if feasible as soon as possible. 1. Josza, L., Kannus, P. (1988) Human tendons-anatomy, physiology and pathology. Human kinetics, London 2. Ochmann, S., Langer, P., Petersen, W. et al.: Quadrizepssehnenruptur. Unfallchirurg 108 (2005), 436-444.

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Room: 601
Session : SICOT - Sports

Abstract number : 17841

AUTOLOGUE TRANSPLANTATION OF LCA OF THE KNEE

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INTRODUCTION: Autologue transplantation of LCA is one of the methods of choice in the treatment of injuries of ligamentum crutiatum anterior. **MATERIAL AND METHODS:** Since 2001, when for the first time we perform this method, till today we have done 18 autologue transplantations of LCA. Average ages of the patients were from 21-34 years; all were male, active sportists. Bone tendon bone as a method was used in 7 of them, and 11 were done with method of semitendinosus gracilis. In the both methods we used screws bioresorptives. About DVT prevention we used LMWH, Enoxaparin in the doses of 40 mg s.c 7-14 days. **RESULTS:** There were no complications. Rehabilitation lasts 3-6 months. **CONCLUSION:** For all active sportists who want to continue with the sport activities, but have injuries of LCA of the knee, this method gave an excellent results in the solving of this problem.

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Abstract number : 18377

OPERATIVE TREATMENT OF ACHILLES TENDON INJURIES AT ACTIVE ATHLETES

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Injuries come as the result of decreased elasticity of tendon tissue and repetitive traumas through the training process and competitions. We treated operatively 16 active athletes in the period from 1993-1997. Indication for the operative treatment were acute rupture of Achilles tendon (in 11 athletes), non recognised rupture of tendon (in 2) and calcaneal pain (in 3 athletes), all between 25-35 years of age. Injuries were diagnosed with clinical examination, ultrasound, CT, MRI. Postoperatively we used plaster immobilisation for 2 weeks, walk with crutches without weight bearing and afterwards another 4 weeks with plaster and full weight bearing. After removal of plaster, we started physical therapy for another 4 weeks. We estimated success of treatment through the following criteria: Return to the normal daily activities, undisturbed gait, return to sport activities and competitive sport. We considered the excellent result when patient returned to competitive sport, very good when patient returned to recreational sport, good when patient could perform normal daily activities and bad when we had to re-intervene because of re-rupture of tendon or postoperative complication. Through our analysis we estimated excellent result at 9 patients, very good at 4 and good at 2 patients. Thanks to the new operative techniques we can recommend this kind of treatment for patients with high demands.

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Abstract number : 18384

NONOPERATIVE TREATEMENT OF ACHILLES TENDON INJURES AT ATHLETS AND RECREATIONAL ATHLETS

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Achilles tendon injuries are frequent at athletes at the end of their career and at recreational athletes in fourth and especially fifth decade of their lives. At this age injuries come as the result of disharmony between the wish of increased sports activity and possibility of the body to respond to that task. We treated nonoperatively 25 patients in the period 1990-1995, all male, age from 35-49 years average 42 years. 21 of 25 were recreational athletes and 4 were active in lower ranks of competition. We started treatment with above knee plaster immobilisation with knee flexion 60 deg. and foot equines for 4 weeks and afterwards below knee plaster with the foot equines with weight bearing for another 4 weeks. After removal of the plaster we started physical therapy. We estimated results of treatment with the following criteria: Return to daily activities, walk without pain and restriction, return to the recreational sports. All treated patients returned to their normal daily activities without restrictions, 11 of them returned to the recreational sport and 4 to competitive sport. All patients with Achilles tendon rupture, treated nonoperatively were treated successfully. They returned to their regular daily activities and almost 60% of them to recreational sport. This kind of treatment could be recommended as a treatment of choice for the patients without high demands for extreme physical activity. With this kind of treatment we accomplish the desired treatment result and at the same time eliminate all potential risks of the operative treatment.

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Session : SICOT - Sports

Abstract number : 18575

GLENOID LABRAL TEAR CAUSING CHECKED SWING IN A PROFESSIONAL BASEBALL PLAYER. A RARE ETIOLOGY OF SHOULDER PAIN

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A checked swing is a type of batting motion seen in baseball. A checked swing occurs when a batter swings for the ball, but stops the swing shortly before the ball reaches home plate. Professional baseball players, particularly pitchers, who throw with high frequency and velocity at the extremes of motion, are prone to injury and dysfunction of the shoulder. This is one hypothesis regarding the etiologic process of a labral tear in the non-throwing side. A 27-year-old professional baseball player presented with a 10-year history of shoulder pain at the time of a checked swing. The patient had severe pain that stopped the swing. At the time of examination, the patient was able to reproduce the symptoms with a simulated swing and a load-and-shift test. Plain radiographic examination, ultrasonography, arthrography of the GHJ, and MRI were performed. To predict the outcome of surgery, local anesthetic was injected into the GHJ before the patient underwent arthroscopic debridement. After surgery, he underwent rehabilitation for strengthening the rotator cuff muscles and scapular stabilizers. He is now an MLB (major league baseball) player. While we do not have specific evidence demonstrating this as a mechanism of labral tear, in the absence of a clear episode of trauma, fatigue from overuse is a plausible mechanism. Arthroscopic debridement of a glenoid labral tear does not yield consistent long-term results. Aggressive, supervised physical therapy in highly motivated individuals may be the most important factor influencing outcome in patients having arthroscopic labral debridement.

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Session : SICOT - Sports

Abstract number : 18893

CLINICAL ANALYSIS OF 128 CASES OF ADULT GLUTEUS MAXIMUS CONTRACTURE TREATED WITH MINIMALLY INVASIVE AND WITHOUT SCAR

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OBJECTIVE: To explore the necessity and treatment method of adult gluteus maximus contracture (AGMC). **METHODS:** In the present study, we retrospectively analysed the clinical data (complication, curative effect and so on) of 128 Cases of adult gluteus maximus contracture. **RESULTS:** 1. All patients suffer from complication in preoperative, such as articular genu abrasions, greater trochanter bursitis and limited run; but in postoperative, greater trochanter bursitis and limited run were removed, articular genu abras was better. 2. The 128 Cases of adult gluteus maximus contracture were treated with minimally invasive and without scar by dissection cutter; the curative effect scores of A1, A2, B1, B2 types in one week were 10; the scores of B3, C1 types in one week and three week were 9 and 10, respectively; the score of C2 type in one week, three week and six week were 8, 9 and 10, respectively; and there were no differences in different ages. **CONCLUSION:** 1. It is necessary to treat the adult gluteus maximus contracture in time. 2. The curative effect of adult gluteus maximus contracture is concerned with pathogenetic condition, operation and rehabilitation training but has nothing to do with age.

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Session : SICOT - Trauma

Abstract number : 15294
MIPPO TECHNIQUE FOR TIBIAL FRACTURES - AN INDIAN EXPERIENCE
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PURPOSE: To report the results of tibia fractures treated by Minimally Invasive Percutaneous Plate Osteosynthesis. **MATERIALS AND METHODS:** Cases treated between 2006 and 2007 at medical college, Trivandrum, India. Inclusion criteria - Type 1 and Type 2 compound fractures of proximal and middle tibia; closed fractures of distal third tibia using Robinson classification. **CONCLUSION:** MIPPO technique is a biological fixation technique which has a short learning curve and can be performed without fluroscopy.

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Session : SICOT - Trauma

Abstract number : 15337

PERIPROSTHETIC FRACTURES

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Periprosthetic fractures are a challenging task for orthopaedic surgeons. Periprosthetic fractures following hemiarthroplasty using Austin Moore Prosthesis in our institution during 2004-2007 were analysed. All fractures were classified according to Vancouver classification. Operative procedures included revision with long stem prosthesis, cerclage wiring and plating. The results were good.

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Session : SICOT - Trauma

Abstract number : 16097
ILIZAROV IN NEGLECTED FRACTURE PATELLA - A CASE REPORT

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INTRODUCTION: Ilizarov has been proved to yield satisfactory results in difficult situations. We are reporting a difficult fracture patella in adult treated by this method. **MATERIAL:** A 27-year-old male sustained transverse fracture patella which was fixed with Tension Band Wiring. He indulged in heavy manual work including bicycling after 15 days of operation that led to loosening of implants and failure of reduction. He reported 2 months after the failure. **METHOD:** Implants were removed and Opposite Olive wires mounted in Traction units were applied in two half rings. Full weight bearing was possible immediately after operation. Assembly removed at 8 weeks when X-Ray showed solid healing. **RESULTS:** Fracture united in 2 months time. Initially, there was a restriction of ROM which improved as time passed so that at 4-year follow-up he could squat completely. X-ray showed remodelling of the articular surfaces which were uneven at the beginning. **DISCUSSION AND CONCLUSION:** Ilizarov proved to be beneficial for treating neglected patella fracture in terms of function and anatomical point of view.

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Abstract number : 16491

PROSPECTIVE STUDY OF SCHATZKER'S TYPE VI FRACTURES TREATED WITH MEDIAL BUTRESS PLATING AND LATERAL TO MEDIAL SCREWS

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We did a prospective study of 18 patients with Schatzker's type VI fractures treated with open reduction and internal fixation with a medial buttress plate and inter-fragmentary screws. All the patients were followed-up for 1-year duration and results assessed using Rasmussen's criteria for functional grading (Pain, Walking capacity, Extension, Range of motion, Stability). The mean age of the patient was 31.4 years (23-42 years) with 13 males and 5 females. All of the fractures were caused by high velocity road traffic accidents. Average injury surgery interval was 5.5 days. Average operative time was 62 minutes. Average time for union was 13.3 weeks and average period for full weight-bearing was 13.3 weeks. Average hospital stay was 12 days. All the fractures went in to union. Incidence of complication was low. Range of motion was good at the end of 1 year. 100% of the cases had satisfactory functional results. The functional score were comparable to or better than the results published in the literature with fewer complication rates. We conclude that the technique of Medial buttress plating and lateral to medial screws is an excellent and safe technique for the treatment of Schatzker's type VI fractures of upper end tibia.

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Session : SICOT - Trauma

Abstract number : 16751

REMOVAL OF MULTI SEGMENTAL BROKEN NAIL BY CLOSE TECHNIQUE USING A TEN NAIL

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Extraction of broken interlocking nail with minimal possible surgical trauma to the patient is a challenge to the surgeon's skill. We hereby describe a case of segmental breakage of nail with a close technique for its removal. This case has shown breakage at all possible sites for nail breakage i.e. at distal locking screw, at fracture site and at proximal locking screw site thus making it a bi-segmental nail breakage. Various techniques have been described in the literature for broken nail extraction but none exists for bi-segmental nail breakage. Under image intensifier titanium elastic nail was used to extract all the broken pieces. In this retrograde technique entry portal was made percutaneously. This technique can also be used in a normal nail breakage. **KEYWORDS:** Broken nail; segmental breakage; closed extraction.

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Session : SICOT - Trauma

Abstract number : 16802

MINIMAL OSTEOSYNTHESIS AND PERCUTANEOUS FIXATION IN TREATMENT OF TIBIAL CONDYLE FRACTURES - LONG-TERM FOLLOW-UP

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In the present paper results after Minimal Osteosynthesis -(MiOs) in treatment of Tibial Condyle fractures (TiCoF) were evaluated. MATERIAL AND METHODS: 178 patients with TiCoF attended Orthopaedic and Traumatology Clinic-Clinical Center Skopje from 1993 to 2008. We selected 102 cases with Schatckler fractures (tip 1-3) for MiOs. Radiographic and CT measurements of fractures were done pre-operatively. Operative procedure includes Arthroscopic assisted reconstruction, intraoperative monitoring and percutaneous fixation of fragments with AO-cannulated screws. RESULTS: The end results were evaluated with FEKROM - Functional Evaluation of Knee Range of Movement, which is modification of knee-rating scale of Sanders et al (1991) and Rasmussen functional criterion. X-ray and CT imaging post-operative was done and evaluated. Final results after MiOs are: excellent 51%, good 35%, fair 10%, poor 4%. CONCLUSION: According to our experience in treatment of TiPIF, we conclude that MiOs is a treatment of choice and provide satisfactory healing with minimal complications for the majority of these injuries.

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Abstract number : 16882

BILATERAL SUBCAPITAL FEMUR FRACTURE AT YOUNG WOMAN AFTER HER DELIVERY- CASE REPORT

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Femur fractures usually occur unilaterally, but when they happen on both legs the problem is further exacerbated. In this case, we showed a 28-year-old woman's bilateral subcapital femur neck fracture who gave birth to a child only two days before her injury. Immediately after the delivery, the patient rose from her bed with the nurse's aid and fell on her right hip. Injury's evolution, however, may have begun a month earlier. Allegedly, she fell on her left hip some weeks before the delivery and could not walk or rest upon the injured leg even with the help of our staff. In surgery, on the traction table, we reduced the right hip fracture and the percutaneous osteosynthesis with the three compression screws was done. On her left hip, for which we suspected to have been injured a month before, the satisfactory reduction was not achieved so we did an open and manual reduction and fixation. In the aftermath, her overall situation and lab reports (hormonal ones as well) were normal throughout the treatment. We immediately had her start active and passive movement exercises as a part of her physical rehabilitation. She could rest upon her right leg within seven months, and upon the left leg within eight months. X-Rays testified the accurate position of fragments and implants throughout the rehabilitation period. Three years later, the patient was completely rehabilitated and the X-Rays showed the vitality of both femur heads and the complete healing of the femur necks.

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Session : SICOT - Trauma

Abstract number : 16886

COMPLICATIONS OF INTER AND SUBTROCHANTERIC FRACTURES TREATED WITH PFN, PFNA AND TGN

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INTRODUCTION: Intramedullary nails in treatment of trochanteric fractures have been in use for more than a decade. The incidence of intra and postoperative femur fractures range from 0.5% to 3% and does not depend on the type of the nail. The rates of cut-out have been reported up to 10%. The implant is liable to break in case of delayed fracture or nonunion. **MATERIALS AND METHODS:** We treated 203 patients with trochanteric fractures with intramedullary nails from 2003 to 2007. We used AO/ASIF classification: 31A1 - 40, 31A2 - 127, 31A3 - 36. The intra-operative fracture of the shaft was observed in 3 patients, but we did not change the implant in 2 cases because the length of standard nail was enough. In 1 case we changed standard PFN to its long version. **RESULTS:** The long-term results were observed in 90 patients. Nine complications were registered: cut-out of sliding screw - 3, migration of spiral blade - 1, periimplant shaft fracture - 2, Z-effect - 1, superficial wound infection - 4. **DISCUSSION:** To prevent intra-operative fractures we do not recommend applying excessive force during insertion of the nail, being accurate in drilling holes for distal locking and reaming the canal. The lag screw should be placed directly in the middle of the neck, as close to the apex of the femoral head as possible, on both A/P and lateral projections. **CONCLUSION:** Most of these complications are avoidable if the surgeon is familiar with the procedure and do not depend on the type of nail.

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Session : SICOT - Trauma

Abstract number : 17279
BILATERAL FRACTURE NECK OF FEMUR IN BILATERAL FUSED HIPS

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Bilateral fracture neck of femur although reported in literature is a very rare injury. All reports in English literature have suggested that there is always an underlying bone softening condition. The case we are presenting here presents a biomechanical cause for the fractures. We present a case of bilateral traumatic fracture neck of femur in a patient with bilateral fused hips due to Ankylosing Spondylitis. The patient was managed by bilateral uncemented total hip replacement. A hypothesis is presented proposing the cause of the fractures contributed by the altered biomechanics in the patient. Also we present the change in biomechanics after the hip arthroplasty in this patient. Bilateral fused hips and fused spine place extra problems in planning and various aspects of surgery. This case is presented to introduce awareness regarding problems of bilateral fused hips and bilateral hip replacement appears to be a viable solution.

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Session : SICOT - Trauma

Abstract number : 17415

PATHOLOGICAL PROXIMAL FEMORAL FRACTURES COMPLICATING ANEURYSMAL BONE CYST: MANAGEMENT AND ALTERNATIVES OF FIXATION IN 8 PATIENTS

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PATIENTS AND METHODS: This prospective study included 8 patients presented with pathological proximal femoral fractures that proved to be aneurysmal bone cyst. There were 6 females and 2 males. Age ranged from 18-28 years. Two female patients were pregnant. Surgical treatment consisted of curettage and graft of the lesion and internal fixation of the fracture. Four internal fixation devices were used for fixation. DHS was used in three patients, 130°-angled blade plate in two patients, condylar blade-plate in two patients and in one patient with severe bone loss a barrel plate (150°) was used with fibular graft inserted inside the barrel and impacted into the femoral head. Follow-up ranged from 6-42 months. **RESULTS:** All fractures united. No recurrence of the tumour was seen till the latest follow-up. Failure of fixation occurred in one patient after fracture collapse and migration of the DHS screw. Overall results were excellent in six patients and good in two patients (using modified HSS score). **CONCLUSION:** Management of pathological proximal femoral fractures complicating aneurysmal bone cyst can be difficult owing to the presence of severe bone loss and difficulty of fixation and also considering young age of the patients with the necessity of preservation of femoral head. We recommend the use of blade-plate fixation if possible with the use of DHS in some cases with precautions. If there is small femoral head or bad bone quality, the use of fibular graft with barrel plate can be a good alternative.

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Abstract number : 17499

RELATIONSHIP OF TIBIAL NONUNION WITH FIBULAR NONUNION IN THE TIBIO-FIBULAR SHAFT FRACTURE

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PURPOSE: The purpose of this study is to know the relationship of tibial nonunion with fibular nonunion in the tibio-fibular shaft fracture. **MATERIAL AND METHOD:** From March 1998 to February 2004, 98 tibio-fibular shaft fractures which did not involve adjacent joints and were followed up at least 1 year were selected. The characteristics of patients and tibia shaft fracture were analysed statistically to know the above relationship. **RESULT:** The patient's factor and tibia shaft fracture factor were not significant statistically. In patients with the fibular union, there was 1 case (1/68) of tibia nonunion, but in patients with the fibular nonunion, there were 6 cases (6/30) of tibia nonunion. So fibular nonunion was significantly statistically associated with tibia nonunion ($p=0.003$). **CONCLUSION:** Fibular nonunion was presumed to have a higher risk of tibia nonunion.

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Abstract number : 17654

EFFICACY OF RECONSTRUCTION NAIL IN THE TREATMENT OF BIFOCAL FEMORAL FRACTURES

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Bifocal femoral fracture include fracture of femoral diaphysis and either neck fracture or intertrochanteric fracture. We have studied the role of reconstruction nail in 22 patients with bifocal femoral fractures during the period 2002-2006. There were 10 femoral neck fractures, 12 femoral intertrochanteric fractures. After emergency management in casualty all the patients were stabilized with reconstruction nail. Follow-up was done with radiological assessment and clinical examination. Grading of the patient was done using Friedman and Wyman criterion. Out of the 22 cases of fractures shaft femur 21 cases showed union. All 10 cases of femoral neck fracture and 12 cases of intertrochanteric fracture were united. One case of non-union fracture shaft femur was subsequently treated with DCP over the nail. We had good result in 18 cases, fair in 3 cases and poor in 1 case as per Friedman Wyman criteria which were comparable with other series. We concluded that reconstruction nail is a good modality of treatment in these complicated fractures. It provides biological fixation with less soft tissue trauma. TYPE OF STUDY: prospective and retrospective. KEYWORDS: Bifocal femoral fractures, reconstruction nail, Friedman and Wyman criterion.

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Abstract number : 17748

THERAPEUTICAL BENEFIT OF SEQUENTIAL EVALUATION OF TRAUMA SCORE IN POLYTRAUMA PATIENTS

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PURPOSE: The diagnosis of polytrauma consists of initial scoring of different organ injuries, leading to a certain treatment. Still, this initial protocol is often changed due to unexpected episodes in the outcome of the patient. Even if the patient is carefully monitored, the trauma scores do not reflect this thing. This research studies the way that one sequential evaluation system can improve the situation of the patient. **MATERIAL and METHOD:** 15 polytrauma patients, treated in our hospital between 01.01.2005-01.01.2007, are analysed from the point of view of: initial trauma scores, initial multidisciplinary treatment, separate outcome of the scores (for organs and systems), which were graphically represented, using a mathematical model, in reference to a basic line, correlated with the patients' outcome. **RESULTS:** When the graphical appearance of the trauma scores had no major disturbances and no major variations (not more than 40% from average value of the score), the outcome of the patients was good when properly treated. When the variation was above this value, systemic (sometimes fatal complications) appeared. **CONCLUSIONS:** Graphical analysis of the trauma scores compared with the standard curve of curing represents a useful instrument in monitoring polytrauma patients, in order to establish the best therapeutical moments which improve the outcome of the patients.

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Abstract number : 18216

PERCUTANEOUS RETROGRADE SUPERIOR PUBIC RAMUS SCREW FOR UNSTABLE ANTERIOR PELVIC RING FRACTURE

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OBJECTIVE: To assess the efficacy of percutaneous superior pubic ramus screw fixation of unstable anterior pelvic ring fractures. **METHODS:** Five patients with unstable anterior pelvic ring fractures with posterior disruption admitted between April 1, 2007, and October 31, 2007, were included in this study. The study population was composed of 3 male and 2 female patients ranging age from 26 to 79 years (mean 62). We classified pelvic ring fractures according to the system of AO. There were one type B2-3, two type B3-2, one type C1-1, and one had anterior column and anterior wall fracture. Before operation, we determined the inserting point of the screws by helical CT. These screws were inserted from near the pubic symphysis to above the roof of acetabulum through medullar superior pubic ramus based on intraoperative fluoroscopic imaging. Rehabilitation protocols under the supervision included weight crutch ambulation, beginning on the first postoperative day. Gradual progression to full weight bearing as tolerated. **RESULTS:** All screws were placed percutaneously without displacement. Four cases required percutaneous iliosacral screw fixation for posterior disruption of the pelvic ring. They returned to full weight bearing without anterior pelvic symptom during 31-56 (mean 42) days postoperatively. There were no nonunions or infections. Screw breakage did not occur in this series. Functional results are ongoing. **DISCUSSION:** Anterior pelvic ring fractures with posterior disruptions demand rigid fixation for early rehabilitation. Percutaneous retrograde superior pubic ramus screw methods are able to rigid fixation as well as plating methods.

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Abstract number : 18339

MINIMALLY INVASIVE PLATE OSTEOSYNTHESIS (MIPO) USING LESS INVASIVE STABILISATION SYSTEM (LISS) IN DISTAL FEMORAL FRACTURES

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AIMS: The purpose of this study is to evaluate the outcome of 12 complex distal femoral fractures treated with a LISS plate in a percutaneous fashion. **MATERIAL AND METHODS:** 12 fractures (2 type A2, 4 type A3, 4 type C2, 2 type C3/AO) were treated and followed prospectively for minimum 12 months. There were two cases of periprosthetic fractures. For extraarticular fractures the LISS was inserted through a minimally antero-lateral incision beneath the vastus lateralis (by means of an aiming device) after indirect, closed fracture reduction of the metaphysis and shaft area. For articular fractures we performed first a lateral parapatellar arthrotomy and reconstruction of the articular block. An approximating device was used to afford small correction in varus/valgus deformities. The LISS plate was stabilised by monocortical screws (inserted percutaneously) which lock into the holes and prevent tilting. **RESULTS:** All fractures healed within a mean time of 10 weeks (range 8-16 weeks). There were no infections or implant failures. The outcome (using the Neer scale) was excellent in 9 cases and satisfactory in 3 cases. The follow-up shows 2 valgus deformities exceeding 5 degrees, 1 length discrepancy over 1.5cm and 1 malrotation of 15 degrees. **CONCLUSIONS:** This demanding technique requires previous experience with indirect reduction skills. Care should be taken to insure a proper closed reduction before stabilisation by LISS. This internal fixator provides an unique answer especially in multiplane complex fractures with short distal segment, osteoporotic and periprosthetic fractures.

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Abstract number : 18591

UNREAMED LOCKED NAIL VERSUS ENDER NAILS IN THE TREATMENT OF OPEN FRACTURES OF THE TIBIA

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Open fractures of the tibia are difficult to treat due to the high risk of infection. The choice of the best implant for fixation is controversial in type I and II open fractures. MATERIAL AND METHODS: Forty-two patients with 43 open fractures of the tibial shaft type I and II (Gustilo) were treated in our department. Of these, 31 were type I fractures and 12 were type II. Our patients were 37 males and 5 females; their mean age was 42.7 years (range 20 to 68). Twenty patients were injured in road traffic accidents and 22 in other traumatic incidents. In 27 cases the skeletal stabilisation was achieved by Ender nailing under general or regional anesthesia (Ender group) and in 16 cases an unreamed tibia nail was used (UTN group). RESULTS: All fractures united; the mean time to union was 14.4 weeks in the Ender group and 16.7 weeks in the UTN group. Malunions occurred more frequently in the Ender group (4 cases) versus UTN group (2 cases). Infection occurred in 1 case in Ender group and in 3 cases in UTN group. CONCLUSIONS: Our study suggests that Ender nailing has several advantages over the fixation with a locked tibia nail in the management of open tibial shaft fractures. Based on the results we consider that Ender nailing technique is very useful in the treatment of these types of lesions.

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Abstract number : 18898

TREATMENT OF TIBIAL PLATEAU FRACTURES WITH HIGH STRENGTH INJECTABLE CALCIUM SULFATE

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OBJECT: To discuss the clinical efficacy of high strength injectable calcium sulfate (MIIGX3) in the treatment of tibial plateau fractures. **METHOD:** Between October 2005 and October 2007, thirty-one patients with tibial plateau fractures were treated with MIIGX3. According to Schatzker classification, 21 were Schatzker II, 6 Schatzker III, 2 Schatzker IV, 2 Schatzker V, 2 Schatzker VI. MIIGX3 was used in 25 patients, and 5 patients were treated with MIIGX3 HiVisc. Postoperative roentgenologic study was used to evaluate the reduction of proximal tibial articular surface, bone regrowth and absorption process of bone substitute. The postoperative knee function recovery assessment was achieved with Rasmussen's score system. **RESULT:** Twenty-eight patients were followed-up successfully. The average length was 14.6 months. Complete fracture healing was found in all patients, and there was no nonunion and infection six months after surgery. Twenty-eight patients' mean functional score was 25.8. Twenty-four patients' mean functional score reached 26.9 one year after the operation. An articular subsidence of 2mm was found in two patients one year after operation without knee function impairment. Four weeks after surgery, partially absorption of MIIGX3 or MIIGX3HiVisc were displayed on radiographs, and six months postoperatively, radiographs showed that the areas previously filled with MIIGX3 or MIIGX3HiVisc had same bone density as normal cancellous bone. **CONCLUSION:** The use of MIIGX3 or MIIGX3HiVisc in the treatment of tibial plateau fractures provides adequate immediate stability and strength for fracture reduction and improves the safety of early stage motion in functional rehabilitation.

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Abstract number : 18899

LOCKING INTERNAL FIXATOR (LIF) WITH MINIMALLY INVASIVE PLATE OSTEOSYNTHESIS (MIPO) FOR THE PROXIMAL AND DISTAL TIBIA FRACTURES: A RESULT IN 98 PATIENTS

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The Locking Internal Fixator (LIF), which includes the Locking Compression Plate (LCP) and the Less Invasive Stable System (LISS), is useful in most of the proximal and distal tibia fractures. We did a retrospective study for a total of 98 patients with either 98 proximal or distal tibia fractures from Jan. 2003 to Jan. 2007, who had received the operation in with LIF by the MIPO (minimally invasive plate osteosynthesis) technique. The data set consists of 43 proximal tibia fractures (type AO41C3) and 55 distal tibia fractures (type AO43C3). The subjects have no complications in other systems or fractures. The mean of healing time is 8.4 months (range 5-14 months). Only two cases of delayed union occur on 10 months postoperatively. No infections were reported after the definitive surgery including the open fractures cases (even in the cases of open fractures). All patients reached a full range of motion by 6 to 9 months postoperatively and returned to the normal functions in knee and ankle joints. Using LIF in MIPO technique is a reliable approach towards the proximal and distal tibia fractures that are not suitable for intramedullary nailing.

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Abstract number : 15580

PATHOLOGIC FEMORAL SHAFT FRACTURES TREATED BY SELFDYNAMIC INTERNAL FIXATOR

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Pathologic femoral shaft fractures can seriously aggravate an already severe condition of patients. A minimally invasive surgery can be of vital importance for such patients. 21 patients with pathological femoral shaft fractures caused by bone metastases were surgical treated. All patients were operated with selfdynamic internal fixator according to Mitkovic. There were no postoperative mechanical failures. There was a significant relief of pain in all patients. All patients were activated and could walk with crutches. A general condition in all patients who had a pathological femoral shaft fractures caused by metastatic bone disease could be rather severe. The selfdynamic internal fixator according to Mitkovic allows quick and minimally invasive application. Operated patients were given a proper medical care and could get up and walk with significant relief of pain.

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Abstract number : 15882

HAEMANGIOMA: TWO CASE REPORTS

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AIM: To report haemangioma in two patients. MATERIALS AND METHODS: Single centre prospective study. CASE REPORT: 1st case - An eight-year-old girl presented with pain and diffuse swelling over left forearm for the past six months. On examination she had diffuse enlargement of left forearm with soft cystic swelling and hypertrophy of ulna. Radiograph showed enlarged ulna with calcification. Doppler study confirmed haemangioma. She was treated with excision and histopathology report came as intramuscular cavernous haemangioma. 2nd case - A 15-year-old boy presented with painful softy cystic swelling of right lower thigh for the past 8 months. X-rays were normal. CT scan and angiography confirmed haemangioma. He was treated by excision. CONCLUSION: Patients presenting with painful, soft cystic swellings should be investigated and haemangioma should be kept in mind.

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Abstract number : 15975

UNUSUAL LOCATION OF EOSINOPHILIC GRANULOMA

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Eosinophilic granuloma is a benign neoplastic proliferation of Langerhans cells. It is a relatively rare disorder, accounting for less than 1% of all osseous lesions. CASE STUDY: The subject is a 4-year-old man that begins with pain and swelling in the left leg. Radiographically it present as lytic, well demarcated lesion with thick periosteal in fibula diaphysis, suggesting a diagnosis of osteomyelitis or Ewing Sarcoma. The biopsy contains loose aggregates of histiocytic appearing cell, in a mixed inflammatory background with prominent eosinophilia that led to the diagnosis eosinophilic granuloma. DISCUSSION: Eosinophilic granuloma frequently involved skull, femur, pelvis and mandible, but fibula is a rare location. It may present with deceptive clinical and imaging finding, of which clinicians should be aware.

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Abstract number : 16121

LIPOBLASTOMA IN AN INFANT'S FOOT: A CASE REPORT AND REVIEW OF THE LITERATURE

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INTRODUCTION: Lipoblastoma is a rare benign neoplastic proliferation embryonic adipose tissue that is most commonly found in the first three years of life, in areas of abundant adipose tissue. CASE REPORT: The subject is a 2-year-old girl that presents a 6x4cm mass in right foot. The biopsy contains lobulated appearance and an admixture of mature adipocytes and lipoblast in various stages of development. Connective septa separate the lobules. DISCUSSION: Lipoblastoma is fully benign and malignant transformation or metastasis does not occur. The plantar aspect of the foot is an extremely rare site due to scarcity of fatty tissue. Histological diagnosis sometimes used to be difficult because of the close resemblance of the lesion with myxoid liposarcoma.

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Abstract number : 16142

MULTIPLE VILLONODULAR SYNOVITIS IN BOTH WRISTS - A CASE REPORT

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Villonodular synovitis (synovial xanthoma, villous synovitis) is an idiopathic villous overgrowth and pigmentation of the synovial membrane of a single joint, usually the knee and ankle. Hereby, we report a case of villonodular synovitis occurring at an unusual site like the wrist. A 48-year-old male presented with multinodular swelling and pain over both wrists since one year. The swelling was tender with positive cross fluctuation. Routine blood investigations were normal. Excision biopsy confirmed the diagnosis of villonodular synovitis. We present this case for its rarity.

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Abstract number : 16514

LONG-TERM FOLLOW-UP OF AN ANEURYSMAL BONE CYST LOCATED IN THE THIRD METACARPAL BONE

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Aneurysmal bone cyst (ABC) is a benign lytic lesion. It is known as an expansile lesion that is rare in the metacarpal bones. In this study we are reporting a case with ABC of the third metacarpal. A 10-year-old male patient presented with pain and swelling on the third metacarpal of his right hand. Physical examination revealed local tenderness. The x-rays demonstrated a large lytic lesion invading the whole body of the third metacarpal and thus destructing the cortex of the bone. Embolization was planned and perilesional vessels were embolized. On the third month after embolization slight sclerosis on the borders of the lesion was visible. One year after embolization the lesion was smaller in diameter. The follow-up was made by x-rays taken on a yearly basis and a progressive decrease in size was seen. On the twelfth year the metacarp was almost in its original size and the patient was clinically free of any symptoms. On the 13th year of the follow-up he presented with a relapse of the lesion and curettage of the lesion and grafting was made. It has been one year since the second operation and the patient is completely well and no signs of another relapse can be seen on the x-rays. Metacarpal localisation is a rare entity for ABC. Both embolization and curettage of the lesion are good options for the treatment of ABC. But the most important part of a successful treatment is a long and careful follow-up as recurrence is possible.

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Abstract number : 16578

SURGICAL TREATMENT OF PATHOLOGIC FRACTURES OF LONG BONES IN PATIENTS WITH METASTATIC TUMOURS

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BACKGROUND: Bone metastases are the result of dissemination of tumour cells and surgical treatment of metastatic fractures is generally palliative. The study presents results in treatment of metastatic fractures of patients who underwent surgery between 2000 and 2007 in our hospital. **PATIENTS AND METHODS:** The present study compares results between two groups of patients. Tumour group consisted of 87 patients with pathological fractures of long bones and non-tumour group consisted of 86 patients. We noted: age, gender, localisation of the fracture, surgical procedure, hospital stay, postoperative pain, reached level of physical activity and rehabilitation. All patients underwent follow-up examinations, along with radiographs of affected limb. **RESULT:** We used resection and internal fixation with bone cement application for pathological fracture of the humeral and femoral shaft as well as intramedullary nailing. Proximal femoral fractures were treated with hip arthroplasty or dynamic hip screw. There were 2 amputations: one case of pathological fracture of tibia and one case of humeral fracture. After rehabilitation, only 9.8% of patients experienced prolonged pain and 69.2% of them were in tumour group. There were no significant differences in physical activity. **CONCLUSION:** The surgery of bone metastases is palliative with intention to control pain, to prevent or to treat pathological fractures and to preserve residual function. In some cases fracture healing was inappropriate because of a local recurrence, irrespective of adjunctive treatment to the surgery. However, we could not provide further investigation of such cases because of the short patient's life expectancy.

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Abstract number : 17287

SOLITARY FIBROUS DYSPLASIA OF RIB - A RARE CAUSE OF CHEST PAIN

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A 25-year-old male presented with left sided chest pain. He was an active person involved in moderately heavy work in his occupation. It was in region of 3rd to 7th rib in left mid axillary line. The pain was dull aching type and did not have any aggravating or relieving factors, it was also present on rest. There was no history of any injury, fever, constitutional symptoms, dyspnea, cough, palpitations. Examination of CVS and chest did not reveal any abnormality. Routine blood investigations and base line ECG were normal. The patient had consulted number of physicians and had undergone a battery of tests. His ECG, TMT&holter monitoring were normal. It had become a diagnostic dilemma and he was labelled of having functional pain. On clinical examination all respiratory and cardiovascular parameters including auscultations were normal; there was tenderness on deep palpation over 4th rib in left mid axillary line. Patients x-ray chest showed an expansile lesion of left 4th rib. CT scan showed an osteolytic, expansile lesion of 8x3cm size of left 4th rib in mid axillary line. FNAC showed only blood suggestive of lesion to be aneurysmal bone cyst. En bloc excision was done, on transaction of lesion there was no blood but soft solid tissue. Histopathology was suggestive of fibrous dysplasia. Postoperatively skeletal survey of this patient did not show any other lesion. Fibrous dysplasia can be a cause of solitary rib lesion and it can also be a rare cause of pain chest.

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Abstract number : 17359

PATHOLOGIC FRACTURE AS THE FIRST MANIFESTATION OF DISSEMINATED HEPATOCARCINOMA

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A 41-year-old man was referred to our hospital with a two-month history of a painful growth in his left thigh, which had increased in size during the week before admission. His medical history showed more than 20 years of alcohol and smoke abuse. The physical examination showed a growth in the thigh and painful left hip movement. The neurovascular examination was normal. The laboratory tests only showed anaemia. Radiography revealed a pathological subtrochanteric femoral fracture. MRI study revealed the pathologic fracture and a huge soft-tissue mass. Scintigraphy showed multiple skeletal metastasis including ribs, spine, pelvis and left femur. CT abdomen scan reported a mass in the right lobe of the liver similar to hepatocarcinoma. At this stage, we decided to make a tru-cut biopsy of the femur and then fix it with a proximal femoral nail without reaming; the microscopic examination showed cells from hepatocarcinoma, thus confirming the diagnosis of skeletal metastasis from hepatocarcinoma in a patient with no previous liver disease. After three months of medical treatment he finally died.

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Abstract number : 17374

GIANT NEUROFIBROMA REMEMBERING SOFT TISSUE SARCOMA

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Neurofibromatosis is a congenital affection characterised by pigmented spots on the skin, cutaneous fibromata, multiple neurofibromata of the cranial and peripheral nerves, and, in some cases, skeletal changes, endocrine syndromes and heterogeneous tumour formation of the nervous system. Soft-tissue neoplasms are not infrequently encountered as one of the clinical manifestations of congenital neurofibromatosis and differential diagnosis with others malignant pathologies is essential for a correct treatment. We present an atypical case of a 24-year-old woman with invalidant multiple soft tissue tumours in lower limbs showed the difficulties for the diagnosis and treatment and a review of the literature.

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Abstract number : 17977

LONG-TERM SURVIVAL IN PATIENTS WITH SARCOMA OF THE EXTREMITIES

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BACKGROUND: Adequate treatment of sarcoma of the extremities has consisted of either chemotherapy or radical surgical resection of the tumour. Introducing modern protocols with neo-adjuvant chemotherapy improves survival rates in patients. Aim of this study is to evaluate long-term survival in patients with sarcoma of the extremities. **PATIENTS AND METHODS:** In this study 29 patients with 5 to 27 years survival period, treated with chemotherapy and limb-salvage surgery of the extremities are included. In this group 10 patients (or 34.5%) were with osteosarcoma, 9 patients (or 32.2%) were with Ewing sarcoma, 3 patients (or 16.6%) were with rhabdomyosarcoma, 2 (or 6.9%) were with fibrosarcoma, 1 (or 3.4%) with synoviosarcoma and another one was with reticulosarcoma. Only 23 of the patients were introduced to modern neo-adjuvant chemotherapy. Radical surgical excision of the tumour was the primary goal in the treatment. **RESULTS:** Follow-up was from 5 months to 27 years (mean 14). Of all 29 long-term survivors, 16 patients (or 55.2%) survived more than 15 years. Of all 29 patients 6 (or 20.7%) were amputated. The rest 23 patients (or 79.3%) had limb-salvage surgery. Patients with sarcoma localised on the tibia, fibula or on the foot had significantly higher survival rates and better functional outcome. **DISCUSSION AND CONCLUSIONS:** Comparing results after surgical treatment (considering diverse surgical techniques applied, inability to randomise treatment, and subjective nature of outcome measures) is significant in favour of limb-salvage surgery applied with the modern protocols of chemotherapy.

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Abstract number : 18074

A CASE OF SCHWANNOMA ARISING FROM SCIATIC NERVE

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INTRODUCTION AND AIM: Schwannoma arising from sciatic nerve is a rarity. It may be often difficult to diagnose it preoperatively and can easily be confused with nerve root deficits or sciatic neuralgia. Here, we report a case of sciatic nerve schwannoma as a painful mass in the posterior mid-thigh. **CASE:** A fifty-five-year-old woman had a 3-month history of constant, severe, burning type of pain affecting her left thigh and posterior part of the leg. Neurologic and sensory examination was normal. There was no difficulty relating with walking. A mass of 3x3x2cm was seen in magnetic resonance imaging. Excision of the tumour, under the magnification, with preservation of the involved nerve was performed. Histopathological examination yielded typical aspects of schwannoma. The patient was uneventful in postoperative three years; patient had normal physical and neurologic examination and normal magnetic resonance imaging findings. **CONCLUSION:** Since schwannomas arising from sciatic nerve are seen rarely, the diagnosis can be done after histopathologic examination. The excision should be performed under magnification to make sure that sciatic nerve itself is saved from injury.

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Abstract number : 18087

ELASTOFIBROMA DORSI: A RADIOLOGIC STUDY OF SIX CASES

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Elastofibroma dorsi is a benign and slow growing fibro-proliferative lesion of unknown pathogenesis. It is a rarely diagnosed lesion which poses to the clinicians a diagnosis and therapeutic problems because it can be confused with malignant tumour. It has a characteristic location (juxtascapulary-situated) and a specific imaging appearance allowing accurate prospective diagnosis. Computed tomography and magnetic resonance imaging are particularly effective, they visualize the characteristic layered pattern of fatty tissue (low density by computed tomography, high signal on T1 images and intermediate signal on T2 images by magnetic resonance imaging). To a lesser extent, plain radiographs and ultrasonography identify a number of suggestive features (location and layered structure). We try in this study of six cases of elastofibroma dorsi to specify different radiological characteristics which can help for a sure diagnosis.

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Abstract number : 18570

ANEURYSMAL BONE CYST

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The aneurysmal bone cyst is a benign tumour, often primitive. Its radiological aspects are characteristic but nonspecific. In this work we report 9 cases of aneurysmal bone cyst. The average age of our patients was 22 years with a sex ratio of 4 men and 5 women. A notion of trauma was found in two cases. In another case it was the secondary of a malignant injury from the same area. The clinical exam was dominated by a painful swelling and a move difficulty. A radiological study and a scan were realised in all cases. The injuries were strictly localized in the upper extremities of the bones. The standard radiography showed a blurred opacity, with destroyed cortical. The scan showed water levels in the picture with a rising after injection of contrast product. All our patients underwent a surgical treatment after histological confirmation.

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Abstract number : 18682

OSTEOID OSTEOMA IN DISTAL PHALANX OF A 9-YEAR-OLD GIRL

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INTRODUCTION: Osteoid osteoma arising from phalangeal bones of the foot is a rarity. They enlarge and cause intense pain. The pain responds to the nonsteroidal antiinflammatories. Here, we present a case of subperiosteal osteoid osteoma arising from distal phalanx of hallux in a 9-year-old girl. **CASE:** A 9-year-old girl came to our outpatient clinic with a history of pain and enlargement of her hallux for 2 years. The patient gave no history of trauma and was otherwise healthy. She had not sought any treatment before. The X-ray showed a well-defined calcified mass eroding the cortex of the distal phalanx. The lesion had a sclerotic region located distally and dorsally. There was seen sclerotic rim around the lesion. She gave the history that the pain subsided with nonsteroidal antiinflammatory drugs. In computerized tomography, a mass containing punctate calcifications located in the middle and distal part of the distal phalanx. There were seen soft tissue elements in the lesion. Mild cortical irregularity was seen. The mass was excised and the pathology gave the diagnosis as subperiosteal osteoid osteoma. She was symptom-free at last follow-up examination 24 months after the operation. **CONCLUSION:** A detailed history with a high index of suspicion can lead to prompt diagnosis. Soft tissue swelling is a reliable finding. Adequate surgical excision of the nidus is curative giving rise to remission of symptoms without any recurrence.