



# SICOT

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**Editorial by S. Rajasekaran - SICOT Treasurer**

## **Road Safety Through Legal Advocacy - The Indian Experience**

**'The next best thing to creating life is to save one'**

The rising incidence of road traffic accidents is a cause of serious concern worldwide. While this is a global concern, the situation is particularly alarming in India as the country has earned the dubious distinction of having the highest number of road traffic accidents in the whole world. The recent WHO Global Safety Report 2013 states that India has a high fatality rate on roads, losing 100,000 lives to road crashes every year (139,091 in the year 2012), with a fatality rate of 10.83 deaths per 100,000 population (World Road Statistics data, 2011). The numbers have only increased since 2011 and a look at the following numbers will elaborate the gravity of the situation.

1. *There is one recorded road traffic accident death every five minutes. The number may be more as many deaths in the rural areas of the country are not recorded accurately.*
2. *Approximately 700,000 people are seriously injured with major disabilities which require prolonged hospitalisation and surgery. Many of them are permanently disabled and have to alter their lifestyle.*
3. *85% of the victims of these fatalities are men in the age group 20-50 years. The majority of these men are the breadwinners for their families.*
4. *The cost of primary treatment of all road traffic accidents in the country is Rs.7 lakh Crores. This almost amounts to 3% of the country's GDP.*
5. *More than 80% of the road accident victims are uninsured and hence have to pay the treatment cost from their own pocket.*
6. *There is no streamlined process of support to the disabled victims by means of Government social security.*
7. *Government statistics show that in the last couple of decades, the number of road accidents has increased by 4.4 times, accompanied by a 9.8 times increase in fatality and 7.3 times increase in the number of persons injured.*

The root cause of the malady is manifold and the predominant issues include poor quality of road infrastructure, vehicles that are poorly maintained, inadequate training of drivers and poor enforcement of laws with respect to road safety. The mammoth increase in the population and the registered number of vehicles has hardly been matched by the increase in the road network in India. Though there has been more than a 100-fold increase in the number of registered motor vehicles, there has only been a four-fold increase in the road network. There is also the problem of a high number of pedestrians and two wheelers on the Indian roads and the general tendency for poor compliance to road safety rules and laws.

Overall, the situation is so alarming that WHO mentioned '*the dream of India to be a super power is evaporating on its roads*'. Central to the whole problem is the Government's apathy to the whole issue. The issue of road safety falls into the ambit of many departments and unfortunately the principle of 'Everybody's responsibility is nobody's responsibility' prevailed.

Taking cognizance of this grave situation, Dr Rajasekaran, as the President of the Indian Orthopaedic Association, approached the Supreme Court with a Public Interest Litigation against the Office of the Prime Minister and six principle Departments and Ministries concerned with road safety alleging callousness and dereliction of duty on this important safety issue. In particular, it was argued that a huge number of the citizens of the country are being injured and disabled for no fault of their own due to errant drivers and poor enforcement of road rules. This left them completely disabled and robbed them and their family of livelihood and happiness. This was against the 'fundamental right to live and to live to the fullest ability'. A right that was promised to each citizen by Article 21 of the Constitution of the country.

The Public Interest Litigation was admitted for hearing by the Chief Justice of India and was heard by a bench comprising of **Justice P. Sathasivam, Justice Ranjan Gogoi and Justice N.V. Ramana**. After sixteen months of hearings and deliberations, the Honourable Court accepted the Prayers of Dr S. Rajasekaran and have ordered the setting up of a Supreme Court Empowered Committee consisting of a Judge of the Supreme Court, Retired Secretary of the Department of Surface Transport and a Social Activist to look into the road safety issues and form guidelines for all the states to follow. The Government has accepted the recommendations and has agreed to the setting up of the '**Road Safety Authority of India**' which will be an independent, legally empowered and fully functional agency accountable directly and only to the Central Parliament. The Road Safety Authority will look into all issues of road safety from education, enforcement and engineering and report to the Supreme Court every six months on the progress and compliance of the Government on all important issues. Some of the immediate provisions are listed in the Table.

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|---|
| <ol style="list-style-type: none"><li>1. Establishment of 'Road Safety Authority of India'</li><li>2. The body will ensure:<ol style="list-style-type: none"><li>a. Uniformity of road safety rules amongst all states in India.</li><li>b. Compliance of all states for minimum safety standards and strict enforcement of road rules.</li><li>c. Liability of insurance authority in case person is denied treatment due to delay in sanction of insurance money.</li><li>d. All vehicles must have compulsory third-party insurance.</li><li>e. Strict enforcement of traffic violations, since every traffic violation is a potential RTA.</li><li>f. Compulsory annual vehicular inspection.</li><li>g. Road safety education should be incorporated in school curricula and inculcated in every</li></ol></li></ol> |
|---|

citizen.

- h. Prescribe minimum education and qualification standards for drivers.
- i. Licensing should be based on biometrics to prevent multiple licenses issued to one person.
- j. Computerised licensing to track offences and introduce a point-based penalty system for offenders.
- k. Bar coding of vehicles and licenses to link to the penalty system, the annual fitness certificate of the vehicle, and insurance forms for instant information.
- l. Restrictions on the number of new vehicles registered and number of vehicles a family/person can own, methods to ensure road-worthiness of vehicle, periodic license renewal, etc.

It is said that '**The next best thing to creating life is to save one**'. As orthopaedic surgeons, we have confined ourselves too long to just treating road traffic accident victims. However, even with the best of our ability, too many people die and many more are permanently disabled. It is important that we play an active role of advocacy against road traffic accidents. The Indian experience shows that it is indeed possible.



*A wife in grief on seeing her husband run over in front of her eyes. Can we join hands to stop this tragedy?*

## SICOT Events

**XXVI SICOT Triennial World Congress combined with the 46th SBOT Annual Meeting**  
**Rio de Janeiro TWC 2014**  
**19-22 November 2014 \* Rio de Janeiro, Brazil**



### ◦ Registration

**Online congress registration is closed. Please register on site.**

### ◦ Scientific Programme

The **Programme at a glance** is available to download [here](#).

SICOT and SBOT are pleased to announce that **Andrew J. Carr**, Nuffield Professor of Orthopaedic Surgery and Head of the Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences at the University of Oxford, and **John P. Dormans**, Chief of Orthopaedic Surgery at the Children's Hospital of Philadelphia (CHOP), will be delivering plenary lectures at the Rio meeting. [Read more...](#)

With the experience of three successful events we are pleased to announce the **4th SICOT Educational Day** in Rio de Janeiro to be held on 19 November 2014. The theme for this year is 'Shoulder & Elbow'. We have invited expert Faculty from over 10 countries to lecture on the course. [Read more...](#)

The 'XXVI SICOT Triennial World Congress combined with 46th SBOT Annual Meeting' is designated for a maximum of (or 'for up to') 21 hours of European external CME credits. Each medical specialist should claim only those hours of credit that he/she actually spent in the educational activity.

### ◦ Social Programme

Please check on site for available tickets for the Rio Scenarium Night on Friday, 21 November.

### ◦ Accommodation & Tours

Exclusive hotel and tour offers in Rio de Janeiro can be found [here](#).

### ◦ Exhibition & Sponsorship

Don't miss this unique opportunity to promote your products and services to leading international orthopaedic surgeons, traumatologists and specialists in related fields. [Read more...](#)

**22nd SICOT Trainees Meeting**  
**15 December 2014 \* Cairo, Egypt**

The 22nd SICOT Trainees Meeting will include presentations by young surgeons under 40 years of age and plenary lectures by senior surgeons. Three prizes of up to EGP 1,000 each will be awarded to the three best presentations and all presenters will receive certificates of presentation and attendance. Abstract submission ends on 10 November 2014. For more information, please contact [sicot.egypt@gmail.com](mailto:sicot.egypt@gmail.com). [Read more...](#)

## Meetings by SICOT Members

- **Singapore Trauma 2015**

Singapore Trauma 2015 will take place on 18-19 April 2015 at the Tan Tock Seng Hospital in Singapore. The focus of Singapore Trauma 2015 will be 'Trauma through the Ages'. The greatest challenge in orthogeriatric management, which is on the rise globally and in Asia, is to optimise function post-operatively. Maintaining mobility after a fracture through a 'stable construct' is the cornerstone to achieve these functional goals. This conference aims to review the current concepts of 'fixation' and 'arthroplasty' as an ideal construct after trauma in the elderly. It is currently open for registration and free paper submission. [Read more...](#)

## SICOT News

- **Combined 34th Annual Meeting of the Israel Orthopaedic Association & 2nd Conference of the Mediterranean Trauma Society**

Don't miss the combined 34th Annual Meeting of the Israel Orthopaedic Association (IOA) & 2nd Conference of the Mediterranean Trauma Society, which will include a SICOT Symposium, an EFORT Forum, and an AO Symposium. The meeting will take place from 26 November (starting at 09:00) to 28 November 2014 (ending at 13:00), at the David Intercontinental Hotel, Tel Aviv, Israel. Your attendance at the meeting will significantly contribute to its success and it will be a great opportunity to share your advanced experience with us. Further details about registration, accommodation, tours, and so on, can be found at: [www.orthoisrael.com](http://www.orthoisrael.com). There is a special discount for members of SICOT and EFORT.

- **Current Concepts in Joint Replacement® (CCJR)**

Current Concepts in Joint Replacement® (CCJR) is a unique educational format that has contributed to the education of thousands of orthopaedic surgeons around the world over the last three decades. An international faculty consisting of contemporary thought leaders discuss topics related to hip, knee and shoulder arthroplasty. Each meeting is recorded in its entirety and placed on [www.CCJR.com](http://www.CCJR.com) for future reference to assist in providing the highest possible standard of care for orthopaedic patients. The 31st Annual CCJR – Winter meeting will occur in Orlando, Florida, this December with the 16th Annual CCJR – Spring meeting taking place in May in Las Vegas, Nevada.

The SICOT/CCJR Meeting Awards are sponsored by SICOT and CCJR. The best oral and poster presentations in Arthroplasty at the SICOT Congress in Rio de Janeiro will be granted this award, which includes one free registration for the Current Concepts in Joint Replacement (CCJR) Winter Course and one free registration for the Spring Course. Travel expenses up to EUR 500 will be covered by SICOT.

- **OrthoEvidence - your clinical resource for evidence based orthopaedics**

At OrthoEvidence we take pride in being the global online source for timely, high quality, pre-appraised evidence based orthopaedic summaries. Our database of over 2,400 Advanced Clinical Evidence (ACE) Reports bring you the highest quality research from over 60 top orthopaedic journals. Our ACE Reports are the easiest way to consume research articles, which are designed to be 5 times faster than reading the full text. Our iOS app is coming in 2014 to put our content to the palm of your hand.

Open your OrthoEvidence account and get the best evidence delivered to your inbox – simply go to the [SICOT Members' Area](#) to join via SICOT! We look forward to providing you the best evidence that matters.



# SICOT Global Network for Electronic Learning - SIGNAL

## Article of the Month

October 2014

### Custom rotating hinge total knee arthroplasty in patients with poliomyelitis affected limbs

*Jeeshan Rahman, Sammy A. Hanna, Babar Kayani, Jonathan Miles, Robin C. Pollock, John A. Skinner, Timothy W. Briggs & Richard W. Carrington*

**Purpose** Total knee arthroplasty (TKA) in limbs affected by poliomyelitis is a technically challenging procedure. These patients often demonstrate acquired articular and metaphyseal angular deformities, bone loss, narrowness of the intramedullary canals, impaired quadriceps strength, flexion contractures and ligamentous laxity producing painful hyperextension. Thus, using condylar knee designs in these patients will likely result in early failure because of instability and abnormal load distribution. The aim of this study was to assess the outcomes associated with use of the customised (SMILES) rotating-hinge knee system at our institution for TKA in poliomyelitis-affected limbs.

**Methods** We retrospectively reviewed the outcome of 14 TKAs using the (SMILES) prosthesis in 13 patients with limbs affected by poliomyelitis. All patients had painful unstable knees with hyperextension. There were ten females and three males with a mean age of 66 years (range 51–84) at time of surgery. Patients were followed up clinically, radiologically and functionally with the Oxford knee score (OKS). Mean follow-up was 72 months (16–156).

**Results** There were no immediate or early complications. One patient fell and sustained a peri-prosthetic fracture at seven months requiring revision to a longer stem. Radiological evaluation showed satisfactory alignment with no signs of loosening in all cases. Mean OKS improved from 11.6 (4–18) to 31.5 (18–40) postoperatively ( $p < 0.001$ ).

**Conclusion** The rotating hinge (SMILES) prosthesis is effective at relieving pain and improving function in patients with poliomyelitis. The device compensates well for ligamentous insufficiency as well as for any associated bony deformity.

*International Orthopaedics (SICOT)*  
DOI: 10.1007/s00264-014-2572-y

## Case of the Month

October 2014

**Authors:** John Mukhopadhaya, A.A. Hai, & Shalin Maheshwari

### History

38-year-old male patient presents with pain in the left groin and thigh in the past four years. The pain has increased in intensity in the past month and inability to walk in the past four days. On examination, the patient had tenderness over left groin and trochanter. Range of motion at hip was painful and restricted. Patient had normal distal neurovascular status without any other co-morbidities.

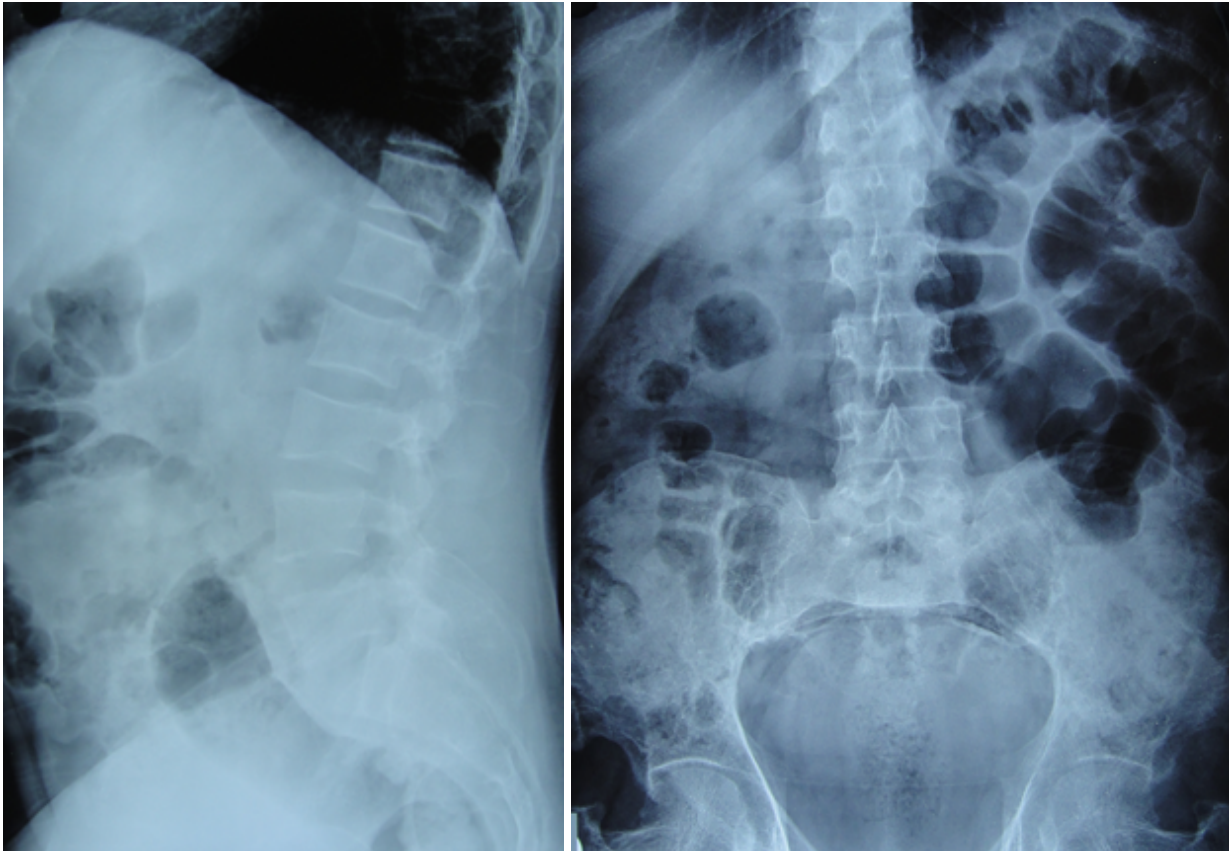


*Fig. 1 – X-ray of pelvis with both hips with femur AP view*



*Fig. 2 – X-ray of skull – lateral view showing multiple lytic areas*





*Fig. 3 – Lumbar spine AP and lateral showed osteoporotic changes*

Investigations revealed severely elevated Serum Calcium (13.2 mg/dl), elevated Se. Alkaline Phosphatase and low Se. Phosphorous, markedly elevated Parathyroid hormone levels, low Vitamin D3 levels and normal renal profile.

What is your provisional diagnosis for this patient?

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## **Diagnosis**

Pathological fracture of the left proximal femur of unknown aetiology.

What would be your next step in the management of this patient?

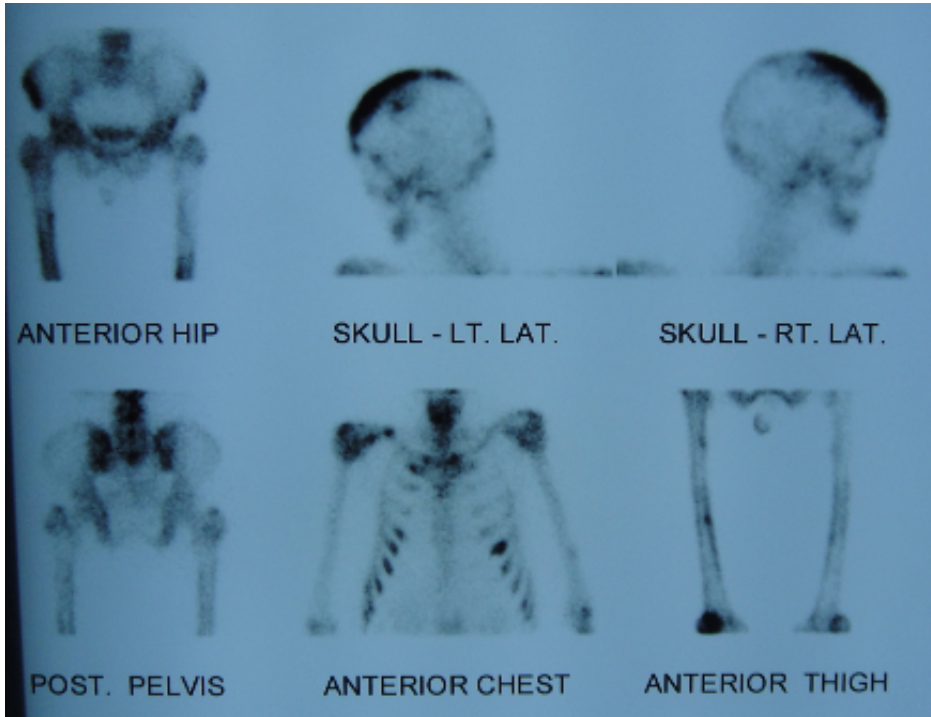
1. Immediate Internal Fixation
2. Further investigate in form of Bone Scan/MRI/CT Scan/Biopsy/Hormonal Profile
3. Observe under Conservative Treatment

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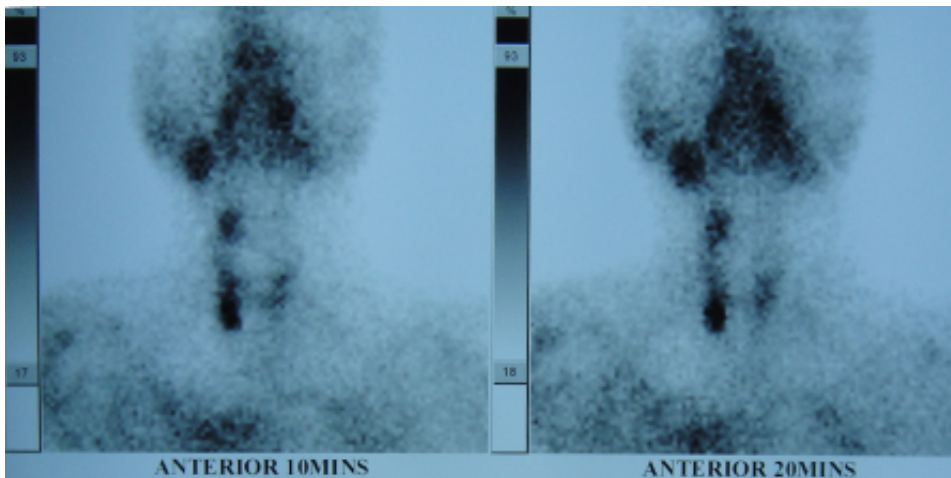
[Click here to read more...](#)

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The patient was investigated in the form of a Bone Scan which revealed multiple hot spots in the skull, ribs, dorsal and lumbar spine, pelvis, and left femur. Bone scan also showed multiple active areas in neck around thyroid gland. Further ultrasound examination revealed hypoechoic, hypervascular cystic areas bilateral parathyroid regions. This was collaborated with markedly elevated Parathyroid Hormone levels and presence of urinary calculi making it a case of Primary Hyperparathyroidism.



*Fig. 4 – Bone Scan image showing global hot spots*

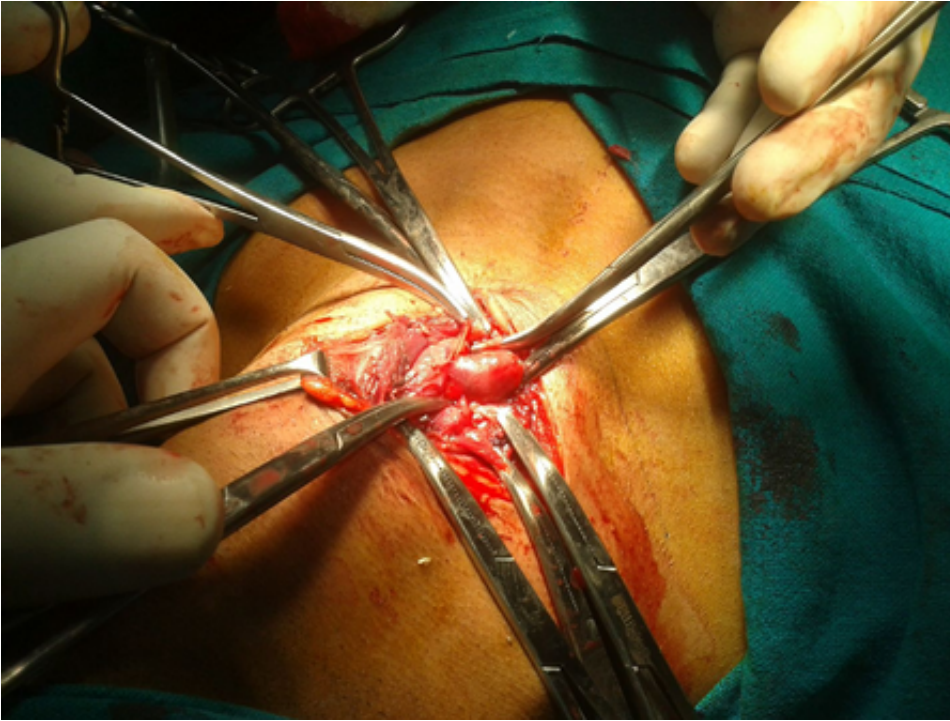


*Fig. 5 – Specific Thyroid Scan showing active areas in parathyroid gland*

How will you manage this further?

1. Proceed with Internal Fixation of the Left Proximal Femur
2. Removal of Parathyroid gland and then proceed with Internal Fixation of the Left Proximal Femur
3. Conservative treatment

Parathyroid glands were explored and removed by a general surgeon and biopsy confirmed it to be Parathyroid adenoma. The patient's Serum Calcium levels normalised rapidly to normal levels within a week's time. Increased pain during this perioperative period showed complete fracture and he was then taken up for fixation of the fracture in ipsilateral neck and subtrochanteric region with supracondylar locking plate by minimally invasive technique. Post-op patient was kept non weight bearing for 6 weeks and blood profile monitored for Calcium, PTH levels. Radiologically, he showed gradual improvement and was allowed complete weight bearing after 8 weeks.



*Fig. 6 – Intra-op image of adenoma*

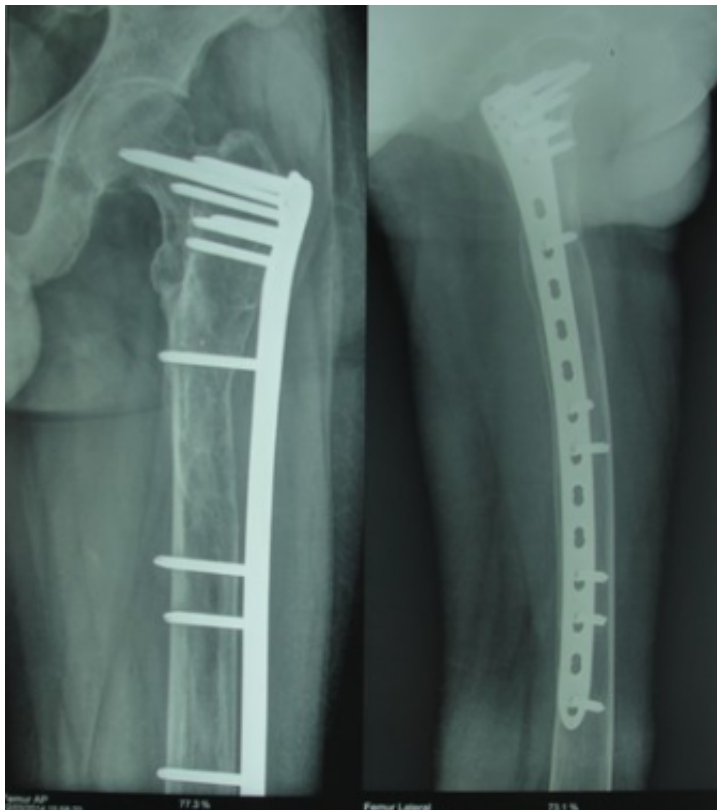


*Fig. 7 – Removed parathyroid adenoma*





*Fig. 8 – Complete fracture during peri-op period*



*Fig. 9 – Follow-up X-ray at 6 months*





*Fig. 10 – Clinical function at 6 months*

## Discussion

Hyperparathyroidism commonly presents with symptoms of hypercalcaemia such as abdominal pain, bone pain, fatigue, depression and nephrolithiasis. It can be classified into three main groups. Primary hyperparathyroidism is due to parathyroid adenoma in 85% of patients, the remainder are due to multiple adenomas and parathyroid cancers. It affects 1 in 2,000 men annually [1]. Secondary hyperparathyroidism is due to chronic vitamin D deficiency as a result of chronic renal failure. Tertiary hyperparathyroidism is a result of autonomous parathyroid stimulation following a period of persistent parathyroid stimulation. Biochemical investigations reveal raised calcium, raised PTH and decrease in phosphate levels in the blood.

The use of preoperative localisation studies is controversial. Main methods of imaging are ultrasound, computed tomography and nuclear imaging. Technetium Tc 99 m sestamibi is the radio-pharmacological agent of choice, with a sensitivity reported to be between 72%-100% [2]. A recent study has shown that sestamibi combined with ultrasound increases the accuracy of detection for parathyroid adenomas [3].

A number of studies have confirmed that there is both an increased risk of fracture in patients with primary hyperparathyroidism and a reduced risk of fractures in patients who undergo parathyroidectomy [4]. Intraoperative monitoring of parathyroid hormone levels during parathyroid surgery is very helpful due to the short half-life of parathyroid hormone in the blood stream, it is possible to assess operative success with serum PTH levels intraoperatively. It is also possible to perform recurrent laryngeal monitoring intraoperatively although this is still controversial and neither technique has become standard practice.

## References

1. VanderWalde, L.H., Liu, I.L. and Haigh, P.I. (2009) Effect of bone mineral density and parathyroidectomy on fracture risk in primary hyperparathyroidism. *World Journal of Surgery*, 33, 406-411.
2. Shen, W., Sabanci, U., Morita, E.T., Siperstein, A.E., Duh, Q.Y. and Clark, O.H. (1997) Sestamibi scanning is inadequate for directing unilateral neck exploration for first-time parathyroidectomy. *Archives of Surgery*, 132, 969-976.
3. Patel, C.N., Salahudeen, H.M., Lansdown, M. and Scarsbrook, A.F. (2010) Clinical utility of ultrasound and 99 mTc sestamibi SPECT/CT for preoperative localization of parathyroid adenoma in patients with primary hyperparathyroidism. *Clinical Radiology*, 65, 278-287.
4. Lang, B. (2009) Minimally invasive thyroid and parathyroid surgery.

## **Trauma: Pelvis, Acetabulum & Shoulder**

**Prepared by:** Shalin Maheshwari & Mohamed Sukeik

### **Questions**

1. During head-on motor vehicle collisions occurring at highway speeds, airbag-protected individuals have a decreased rate (as compared to non-airbag protected individuals) of all of the following except:
  - a. Severe closed head injury
  - b. Facial fractures
  - c. Splenic rupture
  - d. Pelvic ring injuries
  - e. Flail chest
2. Which of the following is a recognised predictor of mortality after hip fracture?
  - a. American Society of Anesthesiologist (ASA) classification
  - b. Post-operative weight bearing status
  - c. Fracture comminution
  - d. Fixation device used
  - e. Femoral neck fracture location
3. A 23-year-old male is an unrestrained driver in a motor vehicle accident and sustains an unstable pelvic ring fracture. During fluoroscopic-aided fixation, a lateral sacral view is used for proper placement of which of the following fixation methods?
  - a. Anterior column percutaneous screw placement
  - b. Posterior column percutaneous screw placement
  - c. Posterior iliosacral plating
  - d. Supra-acetabular pin placement
  - e. Percutaneous iliosacral screw placement
4. Which of the following methods accurately describes the measurement of tip-apex-distance as it relates to placement of a lag screw in the femoral head?
  - a. Summation of the distance between the end of the screw and the apex of the femoral head on AP and lateral radiographs
  - b. Distance from the acetabular teardrop to the tip of the screw on an AP radiograph of the hip
  - c. Multiplication of the distance between the end of the screw and the apex of the femoral head on AP and lateral radiographs
  - d. Distance from the center of the lesser trochanter to the tip of the screw on an AP hip radiograph
  - e. Summation of the distance between the tip of the greater trochanter and end of the screw on AP and lateral hip radiographs
5. Postoperative varus alignment of a subtrochanteric femur fracture treated with an intramedullary nail has been shown to be related to which of the following factors?
  - a. Use of a piriformis entry nail through a greater trochanteric entry portal
  - b. Use of a greater trochanteric entry nail through a piriformis entry portal
  - c. Use of a lateral entry nail through a piriformis entry portal
  - d. Use of a femoral distractor device to obtain reduction
  - e. Use of a fracture table to obtain reduction
6. The pelvic spur sign on plain radiography is indicative of the following injuries?
  - a. Transtectal transverse acetabular fracture
  - b. Vertical shear pelvic ring injury
  - c. Displaced H-type sacral fracture
  - d. Both column acetabular fracture
  - e. Anterior-posterior type III pelvic ring injury
7. A 70-year-old woman trips on the grass while playing golf and sustains a displaced comminuted intra-capsular femoral neck fracture. What is the optimal treatment for this patient?
  - a. Open reduction internal fixation
  - b. Bipolar hemiarthroplasty
  - c. Total hip arthroplasty
  - d. Unipolar hemiarthroplasty
  - e. Traction and non-operative treatment
8. The posterior wall of the acetabulum is best visualised on which of the following radiographic views?
  - a. Inlet pelvis
  - b. Outlet pelvis
  - c. Anteroposterior pelvis
  - d. Obturator oblique pelvis
  - e. Iliac oblique pelvis
9. Which of the following associated type acetabular fracture patterns is defined based on the fact that all

articular segments are detached from the intact portion of the ilium, which remains attached to the sacrum through the sacroiliac joint?

- a. Posterior wall/posterior column
  - b. Transverse
  - c. T-Type
  - d. Anterior column/posterior hemitransverse
  - e. Both columns
10. For a patient with an unstable pelvic fracture, the amount of blood transfusions required in the first 24 hours has shown to be most predictive for what variable?
- a. Length of hospital stay
  - b. Association with neurological deficit(s)
  - c. Length of intensive care stay
  - d. Cardiac collapse
  - e. Mortality
11. The humeral head is normally:
- a. Retroverted 30 degrees to the transepicondylar axis of the distal humerus and its articular surface is inclined 150 degrees superiorly relative to the shaft
  - b. Retroverted 30 degrees to the transepicondylar axis of the distal humerus and its articular surface is inclined 130 degrees superiorly relative to the shaft
  - c. Anteverted 30 degrees to the transepicondylar axis of the distal humerus and its articular surface is inclined 150 degrees superiorly relative to the shaft
  - d. Retroverted 45 degrees to the transepicondylar axis of the distal humerus and its articular surface is inclined 130 degrees superiorly relative to the shaft
  - e. Anteverted 30 degrees to the transepicondylar axis of the distal humerus and its articular surface is inclined 130 degrees superiorly relative to the shaft
12. The following structures are related to the rotator interval except:
- a. Coracohumeral ligament
  - b. Supraspinatus
  - c. Subscapularis
  - d. Transverse humeral ligament
  - e. Coracoacromial ligament
13. A Stryker Notch view is utilised to diagnose which of the following?
- a. Hill Sachs lesion
  - b. Bankart lesion
  - c. Acromioclavicular joint injury
  - d. Sternoclavicular joint injury
  - e. Impingement
14. A West Point view is utilised to diagnose which of the following?
- a. Hill Sachs lesion
  - b. Bankart lesion
  - c. Acromioclavicular joint injury
  - d. Sternoclavicular joint injury
  - e. Impingement
15. What is a type II SLAP lesion?
- a. Bucket handle tear of the labrum with intact biceps anchor
  - b. Fraying, intact anchor
  - c. Bucket handle tear into the biceps insertion
  - d. Superior flap tear
  - e. Detachment of the biceps anchor
16. The primary restraint to anterior, posterior and inferior glenohumeral translation for 45-90 degrees of glenohumeral elevation is:
- a. Superior glenohumeral ligament
  - b. Middle glenohumeral ligament
  - c. Transverse humeral ligament
  - d. Inferior glenohumeral ligament
  - e. Coracoacromial ligament
17. The Crank test is used to diagnose which of the following pathologies?
- a. Rotator cuff tear
  - b. Impingement
  - c. SLAP tear
  - d. Instability
  - e. Cervical spine pathology
18. A Putti Platt procedure is an instability correction procedure and includes:
- a. Subscapularis advancement capsular coverage
  - b. Subscapularis transfer to greater tuberosity
  - c. Transfer of biceps laterally and posteriorly

- d. Coracoid transfer to inferior glenoid
  - e. Pants over vest procedure
19. A Boyd-Sisk procedure is an instability correction procedure and includes:
- a. Subscapularis advancement capsular coverage
  - b. Subscapularis transfer to greater tuberosity
  - c. Transfer of biceps laterally and posteriorly
  - d. Coracoid transfer to inferior glenoid
  - e. Pants over vest procedure
20. A Bristow procedure is an instability correction procedure and includes:
- a. Subscapularis advancement capsular coverage
  - b. Subscapularis transfer to greater tuberosity
  - c. Transfer of biceps laterally and posteriorly
  - d. Coracoid transfer to inferior glenoid
  - e. Pants over vest procedure

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## Answers

1. d

**Discussion:** The referenced study by Loo et al studied the interaction between airbags/seatbelts and mechanism of the crash (i.e. front vs. side impact) and the injury patterns in these patients. They found that in frontal crashes, airbags reduced Glasgow Coma Scale severity in brain injury, facial fracture, shock, thoracoabdominal injuries and the need for extrication. Frontal airbags also had a protective effect on lower extremity fractures, but had no significant protective effect on pelvic fractures.

**Reference:** Loo GT, Siegel JH, Dischinger PC, Rixen D, Burgess AR, Addis MD, O'Quinn T, McCammon L, Schmidhauser CB, Marsh P, Hodge PA, Bents F. Airbag protection versus compartment intrusion effect determines the pattern of injuries in multiple trauma motor vehicle crashes. *J Trauma*. 1996 Dec;41(6):935-51.

2. a

**Discussion:** The ASA classification was initially developed in 1963 and has been shown to be predictive of post-surgical mortality in hip fracture patients. Basic categories are as follows: 1 = normal, healthy; 2 = mild systemic disease; 3 = severe systemic disease, not incapacitating; 4 = severe incapacitating systemic condition, constant threat to life; 5 = moribund patient; 6 = brain dead, organs being donated. Richmond et al looked at 836 patients treated for a hip fracture and found that this injury is not associated with significant excess mortality amongst patients older than age 85. However, in younger patients, those with ASA classifications of 3 or 4 have significant excess mortality following hip fracture that persists up to 2 years after injury.

**Reference:** Richmond J, Aharonoff GB, Zuckerman JD, Koval KJ. Mortality risk after hip fracture. *J Orthop Trauma*. 2003 Jan;17(1):53-6.

3. e

**Discussion:** The lateral sacral view is used to place percutaneous iliosacral screws. Sacral alar morphology has been shown to be variable from patient to patient. Therefore, intraoperative fluoroscopy is recommended. During placement of the screws, the L5 nerve root is at risk. Routt et al (1997) examined the sacral slope and sacral alar anatomy in cadavers and a series of patients. They determined that the pelvic outlet and lateral sacral plain films provide the best plain radiographic view of the sacral ala. They recommended routine usage of these views intraoperatively to guide screw placement.

**Reference:** Routt ML Jr, Simonian PT, Mills WJ. Iliosacral screw fixation: early complications of the percutaneous technique. *J Orthop Trauma*. 1997 Nov;11(8):584-9.

4. a

**Discussion:** TAD is a useful intraoperative indicator of deep and central placement of the lag screw in the femoral head, regardless of whether a nail or a plate is chosen to fix a fracture. A TAD of <25mm has been shown to minimize the risk of fixation cut-out in stable and unstable intertrochanteric hip fractures. Baumgaertner et al examined factors leading to the failure of sliding hip screws (SHS) in the treatment of 198 intertrochanteric fractures. They determined that the tip-apex distance (TAD) is a reproducible, standard measurement to predict SHS failure. The average TAD for successful fractures was 24mm while the average TAD for failures was 38mm. No screw with a TAD <25mm failed.

**Reference:** Baumgaertner MR, Curtin SL, Lindskog DM, Keggi JM. The value of the tip-apex distance in predicting failure of fixation of peritrochanteric fractures of the hip. *J Bone Joint Surg Am*. 1995 Jul;77(7):1058-64.

5. a

**Discussion:** Usage of a piriformis (straight) nail through a greater trochanteric entry portal will bring the fracture into varus, as the greater trochanteric entry site's axis is lateral to the femoral shaft, and advancement of the nail causes the two axes to become colinear, leading to varus. The referenced study by Ostrum notes that usage of a greater trochanteric starting point is safe in obese patients; he recommends usage of a larger incision and maximum leg adduction. The referenced study by Winquist et al is a classic review of femoral nailing, and emphasizes the importance of starting point selection and fracture reduction to maximize clinical outcomes (99.1% union rate in their series of 520 patients).

**Reference:** Winquist RA, Hansen ST Jr, Clawson DK. Closed intramedullary nailing of femoral fractures. A report of five hundred and twenty cases. *J Bone Joint Surg Am*. 1984 Apr;66(4):529-39.

6. d

**Discussion:** The pelvic spur sign is indicative of a both column acetabular fracture. It is best seen on an AP or obturator oblique X-ray. The spur is the intact portion of the ilium, still attached to the axial skeleton and seen posterosuperior to the displaced acetabulum (typically medially displaced).

**Reference:** Letournel E, Judet R: Fractures of the Acetabulum, ed 2. Berlin, Heidelberg, Germany, Springer-Verlag, 1981.

7. c

**Discussion:** Keating et al randomized 207 patients to be either treated with ORIF, bipolar hemiarthroplasty, or total hip arthroplasty. There was no mortality difference among the three groups, however the rate of secondary surgery was highest in the ORIF group (39% compared with 5% in the group treated with bipolar hemiarthroplasty and 9% in the group treated with total hip replacement). Furthermore, the fixation group had the worst hip-rating-questionnaire and EuroQoL scores at four and twelve months.

**Reference:** Keating JF, Grant A, Masson M, Scott NW, Forbes JF. Randomized comparison of reduction and fixation, bipolar hemiarthroplasty, and total hip arthroplasty. Treatment of displaced intracapsular hip fractures in healthy older patients. J Bone Joint Surg Am. 2006 Feb;88(2):249-60.

8. d

**Discussion:** The posterior wall is best visualized on the obturator oblique pelvic view. The obturator oblique and iliac oblique views make up the Judet views that are used to evaluate acetabular fractures, along with a standard AP pelvis radiograph. The obturator oblique pelvic view is best to view the anterior column and posterior wall in detail. The iliac oblique shows the profile of involved iliac wing, the posterior column, and the anterior wall. Letournel reviewed his classification and treatment protocols, based on his 22 years of experience at that time. He noted that perfect anatomical reduction of the acetabulum led to the best outcomes.

**Reference:** Letournel E. Acetabulum fractures: classification and management. Clin Orthop Relat Res. 1980 Sep;(151):81-106.

9. e

**Discussion:** There are 5 simple and 5 associated fracture types according to the classification system created by Judet and Letournel. The key feature which distinguishes both column fractures from other associated types is that all articular segments are detached from the intact portion of the ilium, which remains attached to the sacrum through the SI joint. Although the transverse plus posterior wall, T-shaped, and anterior plus posterior hemi-transverse fractures all show involvement of the anterior and posterior columns, they are not 'both columns' because a portion of the articular surface remains in its normal position, attached to intact ilium.

**Reference:** Browner BD, Jupiter JB, Levine AM (eds): Skeletal Trauma. Philadelphia, PA, WB Saunders, 1992  
Kellam and Tile, Fractures of the Pelvis and Acetabulum

10. e

**Discussion:** Unstable pelvic fractures can be devastating injuries often resulting in significant morbidity and even death. According to the referenced study by Smith et al, fracture pattern and angiography/embolization were not predictive of mortality in patients with unstable pelvic injuries. The three factors they found to be predictive were: increased blood transfusions in the first 24 hours, age >60 years, and increased ISS or RTS scores. Deaths were most commonly from exsanguination (<24 hours) or multi-organ failure (>24 hours).

**Reference:** Kellam JK, Mayo KA: Pelvic ring disruptions, in Browner BD, Jupiter JB, Levine AM, et al (eds) Skeletal trauma: Basic Science, Management, and Reconstruction, ed 2. Philadelphia, PA, WB Saunders, 2003, pp1052-1108

11. b

**Reference:** Review of Orthopaedics, Miller

12. e

**Discussion:** The interval includes the capsule and CHL that bridge the gap between supraspinatus and subscapularis. It is bounded medially by the lateral coracoids base, superiorly by the anterior edge of the supraspinatus and inferiorly by the superior border of the subscapularis. The transverse humeral ligament forms its apex laterally.

**Reference:** Review of Orthopaedics, Miller

13. a

**Reference:** Review of Orthopaedics, Miller

14. b

**Reference:** Review of Orthopaedics, Miller

15. e

**Discussion:** Type I - Labral and biceps fraying, intact anchor; Type II - Labral fraying with detachment of the biceps tendon anchor; Type III - Bucket handle tear of labrum with intact biceps tendon anchor; Type IV - Bucket handle tear with detached biceps tendon anchor; Type V - SLAP + anterior labral tear (Bankart); Type VI - Superior flap tear; Type VII: SLAP + capsular injury

**Reference:** Review of Orthopaedics, Miller

16. d

**Reference:** Review of Orthopaedics, Miller



17. c

**Discussion:** The crank test includes full abduction, humeral loading and rotation and is used to diagnose SLAP tears.

**Reference:** Review of Orthopaedics, Miller

18. a

**Reference:** Review of Orthopaedics, Miller

19. c

**Reference:** Review of Orthopaedics, Miller

20. d

**Reference:** Review of Orthopaedics, Miller



### Report on the 'SICOT meets SICOT' Fellowship Programme in Madrid (Spain) and Székesfehérvár (Hungary)

**Maysara Bayoumy**

*SICOT Associate Member - Assiut, Egypt*

I am really proud and honoured to have been awarded the 2014 'SICOT meets SICOT' Fellowship at Infanta Leonor Hospital, Madrid, Spain, and Centre for Musculoskeletal Disorders and Trauma, St. George Hospital, Székesfehérvár, Hungary.

#### **Regarding the Spain trip**

Madrid is the capital of Spain and it is a beautiful, clean and big city with its glorious old palaces that exist even today and its amazing advanced infrastructure, and public transportation which cover every place in Madrid making tours very easy and comfortable.

I reached Madrid on 15 January 2014 and my fellowship started on 16 January 2014. At Infanta Leonor Hospital I met Dr Oliver Marin, Director of the fellowship programme at the Orthopaedic and Traumatology Department, who is a very skilled and enterprising hip surgeon. He introduced me to my new colleagues, department, and operating theatre. I started my programme on the first day by assisting Dr Marin in mini-open anterolateral approach for decompression of cam impingement. Knowing that my interest was in wrist arthroscopy, the Head of the Department, Dr Ricardo Larrainzar, came to the operating theatre on the same day to kindly inform me that I was going to the Complutense University to do the wrist arthroscopy cadaveric course. This course was held for three days and was arranged by one of the brilliantly skilled hand surgeons at the hospital, Dr Fernando Corella. It was a very beneficial course for me.



From the fourth day onwards, I started assisting in various surgeries. The schedule normally started at 08:15 with a morning meeting of the department which included discussions on the cases of the previous day and cases to be operated. The operating theatre started at 08:30 and ended at 16:00. I learned a great deal during the time I spent at the outpatient clinic. I assisted in primary hip and knee arthroplasty, knee, ankle and shoulder arthroscopy, many cases of wrist arthroscopy, hand, foot surgery and trauma cases in between. In the afternoon I assisted Dr Corella in various cases of hand surgery and wrist arthroscopy which was really very interesting and beneficial for me. Dr Marin and every fellow at the department were very keen and prompt in responding to my queries. The knowledge gained from this fellowship is enormous and will go a long way in shaping and refining my capabilities and skills.

I would sincerely like to thank Dr Marin and Dr Corella for their kind support throughout this fellowship. Dr Corella is a very kind, intelligent, and hard-working person with many academic credentials to his cap including Professorship at such a young age. His guidance has been of great help to me. I attended with him various surgeries of advanced wrist arthroscopy for example arthroscopic dorsal and volar scapholunate ligamentoplasty, arthroscopic foveal reattachment of TFCC, arthroscopically assisted reduction and internal fixation of scaphoid fracture, arthroscopically assisted open reduction and internal fixation of distal radius fracture, and arthroscopic excision of distal pole scaphoid with limited wrist arthrodesis.

#### **Regarding the Hungary trip**

I reached Hungary at midnight of 14 March 2014 after I had finished the two-month fellowship in Spain. Dr Laszlo Bucsi kindly sent a driver to take me from the airport to the hostel of the Centre for Musculoskeletal Disorders and Trauma in Székesfehérvár, which is about 60 km from Budapest. In the morning of the second day, which was a weekend, Dr Bucsi met me at the hostel and guided me about my travel plans. Dr Bucsi is the Head of the Centre for Musculoskeletal Disorders and Trauma and a very skilled and enterprising surgeon in hip and knee arthroplasty. He introduced me to my new colleagues, department, wards and operation theatre. Dr Bucsi informed me about almost everything that I would need there and arranged everything from hospital dress to food for me. The in-campus hostel room was very comfortable and spacious with all the amenities that had been arranged for me by my host and the food served was very good as well.



From the second day onwards, I started assisting in various surgeries. The schedule started at 07:45 with a morning meeting of the department which included discussions on the cases of the previous day and cases to be operated. The operating theatre was open from 08:15 to 16:00, and on Monday it extended to 19:30. I assisted in many cases of primary and revision hip and knee arthroplasty which added a lot to my experience. I also assisted Dr Geza, who is a very skilled arthroscopic surgeon, in many cases of knee, shoulder and ankle arthroscopy and assisted in many cases of BTB and hamstring ACL reconstruction. I would like to thank Dr Geza for helping me attend the National Hungarian Shoulder Arthroscopy Congress during my fellowship period. I would like sincerely to thank the entire team of the orthopaedic department, especially Drs Bucsi, Dobos, Geza and Kovacs for their kind support and hospitality.

## Articles by SICOT Members



### ESWT in Orthopaedic Surgery

**Kandiah Raveendran**

*SICOT First Vice President - Ipoh, Malaysia*

Extracorporeal Shock Wave Therapy (ESWT) was first used for the disintegration of renal and ureteric calculi. In 1988, the use of these acoustic waves was tried for the treatment of non-union in Germany. In the nineties, shockwave therapy was successfully used in the treatment of patients with tennis elbow and plantar fasciitis.

Today ESWT can be used to treat a wide variety of musculoskeletal conditions involving soft tissue and bone. The conditions most frequently treated with shockwave therapy are recalcitrant plantar fasciitis, rotator cuff tendinitis, tennis elbow, patellar tendinitis and Achilles tendinopathy. The success rate is about 80 percent.

The other big group is bony diseases including delayed and non-union and avascular necrosis of the femur. Currently, basic research and clinical studies are ongoing on the treatment of chronic skin ulcers, Peyronie's disease, erectile dysfunction, neurological disorders and ischaemic heart disease.

After many years of basic research on cellular mechanisms, we now have a better understanding of how ESWT promotes tissue healing. The mechanical pressure induces neovascularization and stimulates healing probably through 'stem' cells.

The ISMST (International Society for Medical Shockwave Treatment) has formulated recommendations for the use of shockwave therapy ([www.ismst.com](http://www.ismst.com)).

Many orthopaedic surgeons have not heard of shockwave or believe it to be akin to alternative medicine. It is not part of the curriculum. The FDA has approved the use of ESWT for the treatment of plantar fasciitis in 2000 and the treatment of tennis elbow in 2002. There are many peer-reviewed scientific papers on the basic sciences and clinical use of ESWT and there are regular certification courses.

SICOT, acknowledging the advent of this relatively new technology, has included shockwave sessions during the SICOT Triennial World Congress in Rio de Janeiro from 19 to 22 November 2014 so that orthopaedic surgeons and trainees from all over the world can avail themselves of this simple and effective therapy. The next ISMST Annual Congress will be held in Mendoza, Argentina, from 15 to 18 April 2015.



## AfricaSpine, a new star is born

**Thami Benzakour**

*SICOT Active Member - Casablanca, Morocco*

Since last year, many contacts have occurred among several African spine surgeons. The aim was to create a specialised association for sharing knowledge and experience in spine pathologies which can leave patients on the African continent seriously handicapped.

This appeared to be an urgent necessity due to the numerous spine issues, diseases, deformities and infections. In addition, another motivation was the frequent spine traumas mainly resulting from the high rate of road traffic injuries and the lack of important spine centres.

Last June, in Agadir, upon invitation of the Moroccan Spine Society (SMCR), a founding Assembly gathering 12 African countries created 'AfricaSpine', the Africa Spine Surgery Society. Thami Benzakour was elected Chairman for two years.



Other SICOT members in its Board are Fred Otsyeno (Vice President) and M'hamed Chliyah (Secretary General).



*AfricaSpine Board*

The first AfricaSpine meeting was held from 13 to 14 June 2014 with very interesting topics on spine deformities, infections, trauma, tumours and degenerative lesions.

On the agenda for 2015 we have the 2nd AfricaSpine meeting in Tunisia (12-13 June).

In cooperation with AfricaSpine, MaghrebSpine, and the Moroccan Spine Society, an important event will be organised by the SRS (Scoliosis Research Society) which is the Worldwide Advanced Scoliosis Course in Marrakech, Morocco, on 4-5 December 2015.

African and other spine surgeons are all most welcome to join and support us.



## WOC Surgical Training Proposals

**Michael Laurence**

*SICOT Emeritus Member - London, United Kingdom*

**Fred Otsyeno**

*SICOT National Representative of Kenya - Nairobi, Kenya*

**WOC's** concern and involvement in surgical education and training is exercised at several levels, depending upon the local circumstances, local medical manpower and equipment. We suggest four categories:

1. In the absence of all facilities, instruction might be given (with collaboration) to any to whom the patient, with an injury or musculoskeletal disease, has turned. This might, for example, be the Clinical Officers (in Malawi), nurses in the rural community, but more probably than any, the **Traditional Healers**. Where local politics allow, teaching and training to a level above 'First Aid' is offered, with emphasis on that which is safe and unlikely to make things worse! This will include splintage, mindful of the preservation of both the circulation and nerve function to distal parts of a limb. The standard of teaching would be equivalent to that appropriate to medical students.

Post-basic orthopaedic training programme, with a well worked-out curriculum, can be offered to clinical officers (as happens in ENT and ophthalmology) to include physiotherapists, occupational therapists, plaster technicians and specialist orthopaedic nurses.

2. The second category is the young qualified doctors, who might be attracted to the possibility of pursuing a career in orthopaedics. For these the fundamentals of tissue repair, fracture reduction with splintage or traction, physical examination and musculoskeletal pathology are the building blocks of such a career. It must be born in mind that those who serve sub-Saharan Africa (and like places) have to be able to deal with numerically huge clinics. Therefore the technique of physical examination has to be streamlined to the essentials, often needing shortcuts. The most valuable and informative moment is when the patient walks towards the doctor's desk and his mode of gait is clearly to be seen. This comes with experience; but **can also be taught**.

The expansion of the undergraduate medical school curriculum means that less speciality orthopaedics is taught. Concise material addressing essential needs to be developed for different localities, with symposia on the conditions commonly to be faced in each country, always related to available facilities.

3. The third level calls for 'hands-on' training for standard orthopaedic surgical procedures and their complications (avoidance and salvage). This will be set against the background of the biomechanics of structural skeletal replacement. This is the area in which bitter experience is gained and hard lessons learned. But its provision depends upon establishing **safe sterile surgical techniques**.

There is also a place for highly specialised surgery (difficult by virtue of anatomical complexity, rather than hardware) to be tackled in host hospitals, particularly if groups of similar pathology can be collected together, and teams of visiting specialist surgeons can be organised. Opportunities for this training are quickly running out. Emphasis should be placed on the local set-up. **Distant scholarships are rarely either available or relevant**.

4. The last and most important is special training for those selected as being proficient in the fundamentals to be sent to specialist centres where particular techniques are regularly in use on types of patient comparable with those seen in the trainee's home country. But it is equally important that attendance at these courses should be confined to those who would be able to make use of such special training in his or her home country. Otherwise, the training is a preparation for emigration. Plans must be appropriate to realistic prospects.

Each of these categories requires special tutors. Details of all courses must be made with and through those in charge of the home hospital's existing programme.

The first three categories call for visiting teachers to the place of limited resources, so that every part is relevant to the community and contributes to the local service. The fourth category calls for national organisation, at no great distance from the home hospital; for example the training centres in India, Egypt, and others designated and approved for the purpose. The ultimate aim is the development of Orthopaedics in the areas of the world with limited resources, to produce competent practical surgeons, not collectors of 'the curious'!

If these categories are accepted as the basis upon which training is to be organised, it should also be the basis upon which higher qualifications are to be judged. This comment has relevance to the curriculum and format of the various postgraduate examinations (the SICOT Diploma, COSECSA Fellowship, etc.).

With regard to the expense of setting up the above projects, the first three categories will call for financial support towards the cost of travelling to the relevant area. Local accommodation is not expensive and often free, at the invitation of a host institution. It has been suggested that in return for unpaid tuition, 50% of travelling expenses would be sufficient reward. Volunteer visits depend absolutely upon personal invitation, and therefore on local appreciation of the value of these visits. Once visits are formally arranged it is proposed that the College of Surgery (of each visitor) might be encouraged to 'sponsor', even perhaps to be involved in, the organisation. Careful audits of each programme will be kept for approval by those who support these plans.

The quality of the visitors may be an unknown to the host hospital at their first visit. It will therefore be the responsibility of the parent organisation to ensure that a volunteer knows exactly what is required and what is expected, and that two or more 'referee peers' are prepared to vouch for the visitor's expertise.

## History of Orthopaedics

### Brief History of Ilizarov

#### **Alexander Gubin**

*SICOT Active Member - Kurgan, Russia*

#### **Shalin Maheshwari**

*SICOT Associate Member - Mumbai, India*

It is impossible to briefly describe the history of Prof Gavriil A. Ilizarov (1921-1992), world-renowned orthopaedic and trauma surgeon and inventor of his own new method and device of external fixation, and his contribution to Orthopaedics.

Ilizarov was born in the town of Bialowieza, Poland, to a Mountain Jewish family from the Dagestan region of the Russian Empire. Soon after his birth, the family moved to Qusar (Azerbaijan), where he grew up. He graduated from Derbent Medical Rabfac (an educational establishment set up to prepare workers and peasants for higher education) and then from Crimea Medical School. He has done great work in traumatology and orthopaedics and has received many national and international awards. He was a member of the Academy of Medical Sciences of USSR, Society of the Inventors and Innovators of USSR, and Editor of the Journal 'Orthopaedics, Traumatology and Prosthetics' (USSR). 52 dissertations by candidates of medical science degrees and 7 doctoral theses were prepared and presented under his supervision. 208 inventions (USSR author certificates) including 18 inventions patented in 10 countries were approved.

Brief chronicle of events of Ilizarov history are given below:

1944 – G.A. Ilizarov started his career as a general surgeon in a small village hospital of the Kurgan region.

1952 – G.A. Ilizarov obtained an author's certificate for 'the Method of bone healing in fractures and the apparatus for implementation of this method'. Also, the first article about Ilizarov and the limb lengthening for 12.5 cm was published in the newspaper 'Red Kurgan'.

1953 – The USSR Ministry of Health permitted the application of the Ilizarov apparatus.

1965 – G.A. Ilizarov was appointed the head of the laboratory of the Sverdlovsk Scientific Research Institution of Traumatology and Orthopaedics.

1968 – G.A. Ilizarov's dissertation on 'Compression Osteosynthesis using the Author's Apparatus (experimental and clinical study)' was presented.

1968 – The Olympic high jump champion, Valery Brumel, came for treatment to the Ilizarov Centre in Kurgan.

1969 – The USSR Ministry of Health and the Committee on Inventions of Medical Apparatus of the Ministry decided to rename the apparatus which he had invented as the Ilizarov apparatus.

1971 – The branch of the Leningrad Scientific Research Institution of Traumatology and Orthopaedics was reorganised into the Kurgan Scientific Research Institution of Experimental and Clinical Orthopaedics and Traumatology (KSRIECOT).

1972 – The first issue of the collection of scientific works of the KSRIECOT 'Transosseous compressive and distraction osteosynthesis in traumatology and orthopaedics' was published.

1976 – Russian Congress on the Ilizarov method 'Theoretical and Practical Aspects of Transosseous Compression and Distraction Osteosynthesis'.

1978 – G.A. Ilizarov was awarded 'The Order of the Smile' & the Lenin Prize.

1980 – The well-known Italian explorer Karlo Mauri came for treatment to the Kurgan Research Institute of experimental and clinical orthopaedics and traumatology. His treatment made G.A. Ilizarov famous outside of Russia and drew the attention of international patients and surgeons.

1982 – First trip to Europe (Italy) and presentation of lectures at international congresses. The Association for the Study and Application of the Method of Ilizarov (ASAMI) was established in Italy. G.A. Ilizarov became the Director of International Courses run by the Italian ASAMI. Instead of the accepted time of 10-15 minutes for presentation, G.A. Ilizarov was given 2 hours for each of his 4 lectures at the Lecco International Congress.

1982 – The Centre was awarded a 'Badge of Honour' by the Order for its success in the development of health care medical science, and the Centre's staff was conferred the honorary title 'The Staff of High Culture'.

1983 – The new building of the KSRIECOT, in the shape of a snowflake, was built. The eleven new departments and 360 beds were opened. 66 young specialists and 400 new paramedical personnel were hired.

1985-1992 – Foundation of ASAMI in Spain, France, Brazil, Portugal, Cape Verde, Angola, Mozambique, Croatia, Belgium, Mexico, United Kingdom, Macedonia, United States, Canada, Afghanistan, Germany, and India. Ilizarov International Courses for trainees from Czechoslovakia, Mongolia, Jordan, Canada, Syria, and the United States were undertaken regularly.

1988 – Ilizarov International Training Courses started on a regular basis. Drs D. Paley, M. Catagni, J. Prevot, S. Green and thousands of other international participants have completed these courses.

1988 – Discovery of the general biological regularity on stimulating tension stress effect on the regeneration and growth of tissues and adequacy of the blood supply and weight-bearing.

24 July 1992 – Memorial Day of the academician Gavriil Abramovich Ilizarov.

1993 – The Russian State Scientific Centre for 'Restorative Traumatology and Orthopaedics' was renamed the Russian Ilizarov Scientific Centre for 'Restorative Traumatology and Orthopaedics'.

1994-2009 – Foundation of ASAMI in Bulgaria, Japan, Norway, Bosnia-Herzegovina, Egypt, Israel, Austria, Turkey, Philippines, Malaysia, Indonesia, Singapore, Thailand, and many others.

1995 – The first issue of the scientific theoretical practical journal 'The Genius of Orthopaedics', in memory of academician G.A. Ilizarov, was published.

Nowadays, the Ilizarov method is applied in more than 40 countries worldwide.

The Russian Ilizarov Scientific Centre currently deals with a great range of diseases and injuries of the musculoskeletal system, starting from fractures of any location or complexity and finishing with bone tumours. The Centre comprises an outpatient clinic where 250 patients can be consulted and diagnosed daily, an 800-bed hospital, and an experimental department. Annually, over 9,000 people receive treatment and rehabilitation at the Centre.

The treatment techniques used for managing orthopaedic diseases and injuries include the internationally recognised Ilizarov transosseous osteosynthesis method and other well-known techniques for limb lengthening, management of non-unions and pseudarthrosis, sequelae of poliomyelitis, bone defects, congenital and acquired pathology of the hand and foot. The Centre has an advanced department of neurosurgery where specialists successfully apply a great variety of reconstructive surgeries.

The first department in Russia for managing bone infection, osteomyelitis, is also based in the Kurgan Centre. In 2013 the infection departments were acknowledged as the National Centre for Purulent Osteology.

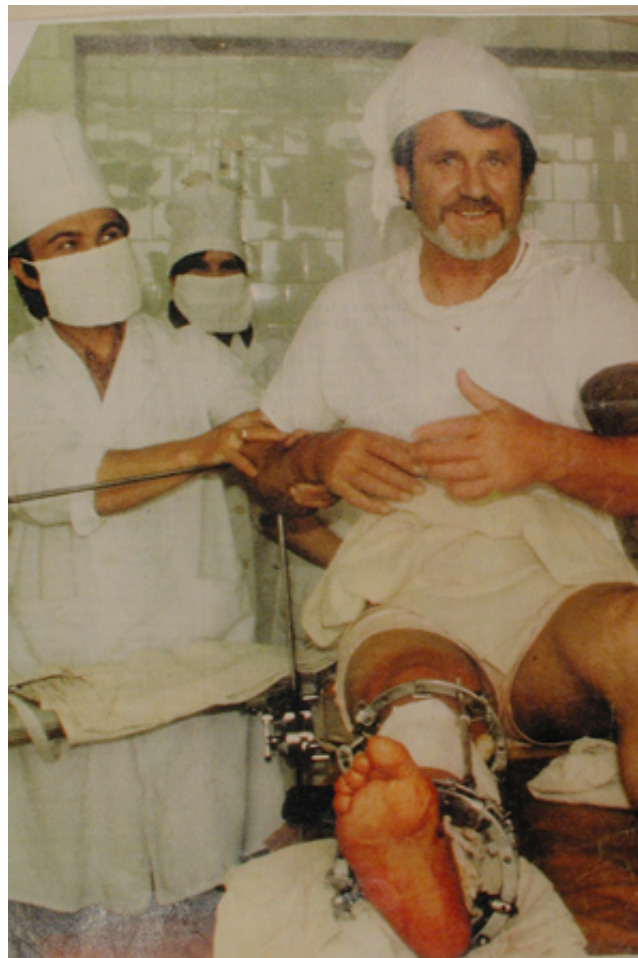
The Centre has a teaching department arranging training courses on the Ilizarov method for Russian and foreign specialists. Its highly qualified staff includes 10 professors, 34 doctors of science and 193 candidates of science. The quality of medical services rendered by the Kurgan Ilizarov Centre has been recognised as one of the best in Russia. The Centre is a winner of the Russian Federation Government Quality Award. It continues to do good work in orthopaedics and pays tribute to the legend who established it.



*Prof Gavril A. Ilizarov*



*Ilizarov Workshop in Kurgan*



*With Karlo Mauri*





*With Kempf Vidal at SOFCOT*



*Operating room at Kurgan*





*Laboratory at Kurgan*

## The Unified Classification System (UCS): improving our understanding of periprosthetic fractures

**Citation:** Bone Joint J 2014;96-B:713–16.

**Abstract:** Periprosthetic fractures are an increasingly common complication following joint replacement. The principles which underpin their evaluation and treatment are common across the musculoskeletal system. The Unified Classification System proposes a rational approach to treatment, regardless of the bone that is broken or the joint involved.

**Authors:** C.P. Duncan, F.S. Haddad (Department of Orthopaedics, University of British Columbia, Canada)

### Comment by Ahmed H. Abdel-Azeem

With more prostheses implanted every day, periprosthetic fractures are becoming a huge burden on orthopaedics and traumatology. For every anatomical area, different periprosthetic fracture classification systems are present. Some of them are really helpful and others are only available in books. For a classification system to be helpful it must combine several things like the simplicity of terminology, management relevance and prognostic value. For example, one of the most commonly used fracture classification systems (for normal fracture patterns) is the comprehensive AO classification, which is very easy using letters and numbers as well as being of great clinical relevance regardless of the anatomical region.

Recognising the fact that, regardless of the anatomical area, the principles of management of periprosthetic fractures are the same, the authors presented what they named the 'Unified Classification System' (UCS) as a simple system that combines simple terminology as well as a simple outline to an algorithmic approach for management.

They used the well-known and successful Vancouver classification for the fractures following total hip replacement, modifying it and adding specific items to fit all common and uncommon fracture patterns, regardless of the implants used or the anatomical site. Using simple ordered alphabetic letters and a simple mnemonic for easy recall, they identified six types according to the fracture site in relation to the implant(s) present:

- Type A, **A**pophyseal (i.e. protuberance of bone, to which one or more soft-tissue structures are attached).
- Type B, **B**ed supporting or adjacent to the implant.
- Type C, **C**lear of the implant (i.e. same bone but distal to the stem).
- Type D, **D**ividing one bone which supports two joint replacements (i.e. fracture of a bone supporting two replacements).
- Type E, **E**ach of two bones supporting one joint replacement (i.e. fractures of two bones supporting one replacement).
- Type F, **F**acing or articulating with an implant (i.e. fracture of an articular surface involving a joint surface but not replaced or resurfaced).

Then each type is divided in a very simple way to delineate the principle of treatment:

- Type A: depends on its importance and degree of displacement:
  - Soft tissue attachments are unimportant → observation (even if displaced).
  - Soft tissue attachments are important → early intervention should be considered (especially if displaced).
- Type B: depends on stability of the implant and bone stock and is subdivided:
  - B1: well-fixed implant → management depends on the already documented outcomes of operative or non-operative treatment of that particular type of fracture.
  - B2: loose implant → revision with a longer stem is a common approach.
  - B3: loose implant + poor bone stock → complex reconstruction should be considered with extensive pre-operative planning.
- Type C: the implant can be ignored and employ the basic principles of management of normal fractures (as if the implant was not present).
- Type D: 'block out analysis' for each of the two joints.
- Type E: 'block out analysis' for each of the two bones and the adjacent component.  
*The term 'block out analysis' means concentrating your attention on the fracture and the specific replaced joint (type D) or component (type E) separately.*
- Type F: depends on the displacement:
  - Undisplaced or minimally displaced: conservative and late intervention if symptom appears or persists.
  - Displaced: early intervention should be considered.

Table summarising the UCS:

### Unified Classification System (UCS) for periprosthetic fractures

A	<b>A</b> pophyseal	depends on the soft tissue attachment's importance and the degree of displacement: <ul style="list-style-type: none"> <li>◦ unimportant → observation</li> <li>◦ important → early intervention</li> </ul>
B	<b>B</b> ed of implant	depends on stability of the implant and bone stock and is subdivided into: <ul style="list-style-type: none"> <li>◦ B1 (well-fixed implant) management depends on the already</li> </ul>

		documented outcomes of operative or non-operative treatment of that particular type of fracture <ul style="list-style-type: none"> <li>o B2 (loose implant) revision with a longer stem</li> <li>o B3 (loose implant + poor bone stock) complex reconstruction should be considered with extensive pre-operative planning</li> </ul>
C	<b>C</b> lear of implant	the implant can be ignored and employ the basic principles of fracture
D	<b>D</b> ividing one bone supporting two replacements	'block out analysis' for each of the two joints
E	<b>E</b> ach of two bones supporting one joint replacement	'block out analysis' for each of the two bones and the adjacent component
F	<b>F</b> acing an implant	depends on the degree of displacement: <ul style="list-style-type: none"> <li>o undisplaced → conservative</li> <li>o displaced → early intervention</li> </ul>

As an orthopaedic surgeon searching for a simple, unified and informative classification system, I find the UCS fitting this criteria. I hope that it will improve our understanding and help in a better quality research and easier comparison between different techniques of management of these increasingly common fractures.

## Worldwide News

- **Increasing International Sarcoma Awareness**

*by Will Harrison & C.R. Chandrasekar*

Sarcomas are malignant tumours of the connective tissue which forms the bulk of the human body. However, sarcomas are rare constituting about 1% of all cancers. Sarcomas can occur anywhere in the body and it can also occur in any age group. Sarcomas form 14% of childhood malignancies - this is more significant for countries with a young population and lower life expectancy. [Read more...](#)

## Industry News

- Aesculap

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SICOT aisbl, Rue de la Loi 26-b.13, 1040 Brussels, Belgium

Tel.: [+32 2 648 68 23](tel:+3226486823) | Fax: +32 2 649 86 01

E-mail: [edsecr@sicot.org](mailto:edsecr@sicot.org) | Website: [www.sicot.org](http://www.sicot.org)

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