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SICOT

e-Newsletter



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Editorial by Marius M. Scarlat - Deputy Editor, International Orthopaedics

Made in China!

Sometimes in your life as a surgeon you have enchantment, you experience novelty, you understand more and eventually you see the "big picture"! That was exactly what happened when I visited **the Orthopaedic Department of the Third Hospital of Hebei Medical University in Shijiazhuang, China**, a few weeks ago.

In China there are many huge hospitals. They usually have no names but numbers! It's a strange sensation for someone coming from Europe to visit the Number 3 hospital! It starts from the airport where the immigration officers have badges with quite visible numbers and continues in every restaurant where the menu is a list of pictures and numbers for each dish! Soup number 37 was delicious! It is however clear and precise because learning Chinese may take some time. You get easily trained in this analogic-digital conversion at the amusement of the hosts who are always friendly and smiling at your westerner adventures in the Far East! For surgeons from Europe or other developed nations, it is quite unusual to see abroad a highly trained unit performing very high-volume bone and joint trauma in superior standards of quality and care, but also with orthopaedic and chronic conditions in a way that provides a clear logistic between the pathology and the aetiological treatment, between the patient and the doctor, between the problem and the result. A very modern, huge, and fully functional facility indeed!

What exactly happened when I arrived in Shijiazhuang is difficult to describe. I was expecting to see quality work and some excellent surgeons. I had received some feedback about this unit because of the high volume of publications originating from Prof Yingze Zhang but the reality exceeded my expectations.

This Department is one of the best trauma units that I have seen. It is a high volume and high-speed teaching Department! It's not only outstanding but also gigantic. More than 1,200 beds are allotted to the Ortho-Trauma Department of the Third Hospital. And when I say TRAUMA it means not only ORTHOPAEDIC TRAUMA but also GENERAL TRAUMA, HAND SURGERY (which is a neighbouring Department), NEUROSURGERY AND SPINE. Virtually all types of orthopaedic and trauma services are provided. Elective surgery is also performed and different joint replacements, revision and reconstruction, limb lengthening, chronic conditions, sports medicine and surgery, and so on. The equipment is modern and fully functional and we understand immediately that the ability to use C-arms, O-arms, neurostimulation and minimally invasive tools is related to the high-volume use of all these facilities.



The research team

What makes Professor Zhang's department in particular so strong is the research unit. There are several services, and each service has qualified specialised surgeons who act also as teachers for students and residents and who lead different units of research. The directions of research are very modern and various, including different techniques of minimally invasive traumatology, fracture classifications and standardization, reconstructive spine surgery, paediatric orthopaedics, infection, sports medicine and surgery.

I was invited to attend two difficult trauma cases performed by the team of Prof Zhang. I met the outstanding Zihyong Hou who is fixing fractures without opening like Lang Lang plays the piano, the Professor Wenyuan Ding who is the Spine Master, Wang Pengcheng who is the Vice-Dean and passionate about clinical research, or the excellent Chei Wen who is a Research Director. I met marvelous colleagues, passionate about treating patients and devoted to research and data collection, providing the best possible results and a great objective publication centre. I met the young researchers who are working on a huge epidemiological study that will include a multitude of fractures from all partner hospitals and will provide the big picture for possible occurrences with orthopaedic trauma.

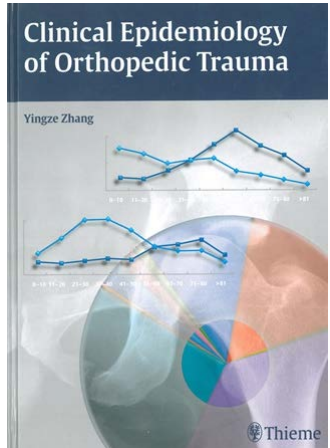
The book originating from Shijiazhuang is already available from Thieme Editions, in English. It is a beautiful collection of cases and possible types of fractures and all the classifications needed to standardize treatment algorithms. However, as the work goes on the epidemiology scientific unit has collected over **420,000** different orthopaedic trauma cases from over 80 centres in China and they are currently working on the Second Edition that will probably become the largest repository of bone trauma occurrences and a major reference in the classification of fractures worldwide.

The hospital is perfectly organized and the patient's circuit is clear. It converges to the nine-floor unit of orthopaedics that integrates the fourteen-floor modern building. The top floor is dedicated to the heart of the system – the operative area that has about forty fully equipped operating theatres and includes **twenty-six rooms** dedicated to orthopaedic trauma and scheduled surgery. We may admit that this is huge, however, when you have the opportunity to take a guided tour of the facility every case becomes particular and the big picture is reduced to the individual suffering of each patient, to the dedication of each medical and surgical team, and to the devotion of the anaesthesiologists who keep monitoring and following each difficult case. As a referral centre the University Hospital receives cases from all over the region which is also huge and one of the most populated areas of China. It receives also difficult and complex polytrauma occurring in this highly industrialized part of the world and due to more and more traffic accidents coming from the surprisingly high motor vehicle density. The traditional bicycles have been replaced by modern SUV's, limousines, sports cars and all kinds of automobiles that speed and agglutinate at the traffic lights. This landscape is new and the increase in motor vehicles goes hand in hand with more crashes and accidents. They are a new priority for the Trauma Department but also for the health authorities in the country.

The Chinese Orthopaedic School is growing very fast and keeps a high pace in its way to excellence. Surgeons travel abroad more and more, they publish more and more and the quality level of the medical conferences in China is continuously increasing. The barrier of the English language is outscored by the efforts in producing quality publications. We experience today in the orthopaedic science a net increase in publications originating in China and the reason is obvious now for me: outstanding Departments like this Unit from Shiazhuang are producing strong and pertinent literature, new orthopaedic devices and tools, scientific research but also educating young doctors, researchers, students. It's a system that works well, better, faster and keeps developing without any major help from abroad because today's Chinese Orthopaedic School is able to educate doctors from college level to postdoctoral level and directly compete with top-quality departments from virtually any school in the world. The travelling fellow doctors who can see different orthopaedic centres in Beijing, Shijiazhuang, Shanghai, Guangzhou or any other major University in the country can compare, from a practical point of view, with colleagues who have travelled to New York, Boston, Cleveland and Detroit.

During my short visit, the Orthopaedic team was celebrated by the Hospital for receiving **the National Scientific and Technological Progress Awards** and it was an intense moment of joy and acknowledgement in which all the friends of orthopaedics were invited. I felt happy to be there and to see a place where the Hospital Manager congratulates the Head of Orthopaedics and encourages development.

This visit was a great moment for me personally and I warmly recommend to every potential visitor to go to Shijiazhuang to understand why Chinese Orthopaedics is growing so smart and so fast!



SICOT Events

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



- **Call for Abstracts**

Abstract submission is open [here](#)! **Deadline: 27 March 2014**

- **Registration**

Congress registration is open [here](#) for all participants not residing in Brazil. Participants residing in Brazil should register [here](#).

- **Diploma Examination**

Registration for the 12th SICOT Diploma Examination is now open. [Read more...](#)

Registration and application deadline: **24 March 2014**

- **Awards**

Click [here](#) to find out more about the awards which are granted to young surgeons to help them attend the Congress.

- **Accommodation & Tours**

Don't miss out on exclusive hotel and tour offers in Rio de Janeiro! Click [here](#) for more information.

- **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...](#)

21st SICOT Trainees Meeting
1-2 June 2014 * London, United Kingdom



- **Registration**

Registration is open [here!](#)

- **Awards**

SICOT Trainee Prizes for Best Oral Presentations will be awarded toward travel expenses to attend the next SICOT Orthopaedic World Congress in Rio de Janeiro, as follows:

1st Prize: £1000

2nd Prize: £600

3rd Prize: £400

SICOT Global Network for Electronic Learning - SIGNEL

Article of the Month

February 2014

Treatment of distal tibial shaft fractures by three different surgical methods: a randomized, prospective study

Yongchuan Li, Xi Jiang, Qinghe Guo, Lei Zhu, Tianwen Ye & Aimin Chen

Purpose A few studies focused on the methods of treatment for displaced distal tibial shaft fractures have been published, all of which compared two different methods. In this randomized, prospective study, we aimed to compare minimally invasive plate osteosynthesis, locking intramedullary nail stabilization and external fixation combined with limited open reduction and absorbable internal fixation for distal tibial shaft fractures by assessing complications and secondary procedures.

Methods From November 2002 to June 2012, 137 skeletally mature patients with displaced distal tibial shaft fractures with or without fibula fracture were randomized to be treated by minimally invasive plate osteosynthesis (group A, n=46), locking intramedullary nail (group B, n=46) or external fixation combined with limited open reduction and absorbable internal fixation (group C, n=45). Age, gender, mechanism of injury, fracture pattern and presence of open fracture were equally distributed among the three groups. Indexes for evaluation included hospital stay, operative time, time to radiographic union, union status, infection and the incidence of reoperation. Mazur ankle score was introduced for functional evaluation. Statistics Analysis System (SAS) 9.2 was used for analysis.

Results A total of 121 patients were included in the final analysis (group A 42, group B 40 and group C 39) and evaluated after a mean of 14.8 months follow-up. There was no significant difference ($P>0.05$) in hospital stay, time to radiographic union and the incidence of union status among the three groups. Although group C was associated with less secondary procedures versus groups A and B, it was related with more pin tract infections (15.4%). Anterior knee pain occurred frequently after locking intramedullary nailing (37.5%) and the irritation symptoms were more frequently encountered in group A (59.5%). There was no difference in ankle function between the three methods after operation ($P>0.05$).

Conclusions We consider that the minimally invasive plate osteosynthesis, locking intramedullary nail stabilization and external fixation combined with limited open reduction and absorbable internal fixation techniques are all efficient methods for treating distal tibia fractures. With its wide indications, external fixation combined with limited open reduction and absorbable internal fixation leads to minimal soft tissue complication, good functional result and no local soft tissue irritation or implant removal.

International Orthopaedics (SICOT)

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Case of the Month

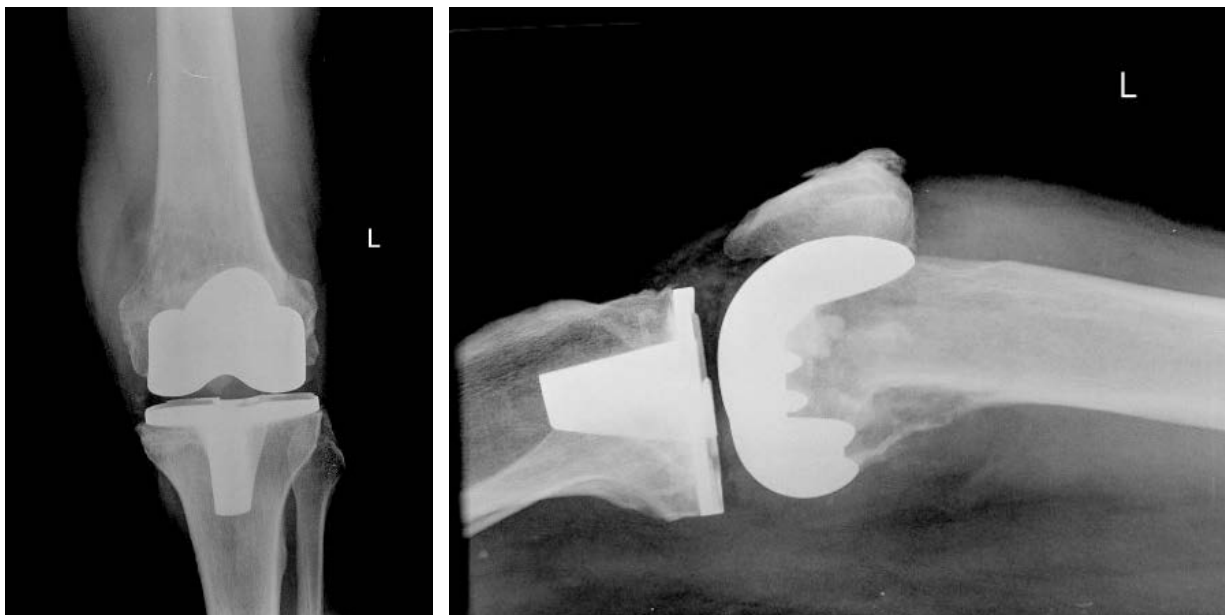
February 2014

An Unusual Presentation of Knee Pain after TKR

Authors: A. Najefi, M. Sukeik, K. Hasan, G. Robbins
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A 51-year-old male presented recently to the emergency department with a 4-week history of progressively worsening non-specific left-sided knee pain. He had a total knee replacement done on the same knee 4 years previously and had no postoperative complications. He denied any recent trauma. On examination he had a mild effusion and held his knee in 50 degrees of flexion. Range of movement was restricted due to painful active and passive knee flexion and extension. There were no signs of instability and the leg was neurovascularly intact. There was no pain or abnormality on examination of the ipsilateral hip or ankle. He was afebrile. His WBC, CRP and ESR were within normal limits.

This is a radiograph of the knee. What is your differential diagnosis?



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

The X-ray reveals an irregular ill-defined permeative appearance of the distal femur medially, with no zone of transition and a knee effusion.

A differential diagnosis is:

1. Infection
2. Primary bone tumour
3. Secondary bone tumour
4. Aseptic loosening of the prosthesis

He subsequently had an MRI which is shown below. What are your thoughts?



What would your next step be?

1. Revision TKR
2. Percutaneous biopsy
3. Open biopsy and washout
4. Antibiotics only

The MRI revealed extensive osteolysis involving the distal femoral diaphyseal medulla and cortex, together with soft tissue involvement.

These findings are in keeping with an aggressive process such as malignancy or infection. He subsequently underwent a percutaneous biopsy which revealed diffuse large B-cell lymphoma (DLBCL). A bone scan revealed no evidence of disease in other bones. A full body CT scan revealed hilar lymphadenopathy with no other evidence of disease, which was also confirmed on a PET scan. Virology was performed and revealed the presence of Epstein Barr virus (EBV) antibody.

Management

The patient was commenced on rituximab, cyclophosphamide, hydroxydaunorubicin, oncovin (vincristine), and prednisolone (R-CHOP) curative chemotherapy. He is due to have 6 three-weekly cycles after which he will have a long-stem revision total knee replacement.

Conclusion

Primary lymphoma of bone is rare, accounting for approximately 7% of malignant bone tumours and less than 1% of all lymphomas¹. Despite the increased use of knee arthroplasty, primary non-Hodgkin lymphoma (NHL) in association with orthopaedic metallic implants is still very rare, with only 11 reported cases in the literature¹. However, the incidence of NHL after arthroplasty is increasing². The median range to presentation in the reported cases was 8 years (range 7 months to 17 years)¹.

The World Health Organization classification recognises a distinct subclass of CD20-positive DLBCL arising in response to chronic inflammation³. These cases have distinctive features, such as a long latency between onset of the inflammatory process and development of lymphoma, and association with EBV infection. This lymphoma typically occurs in body cavities or narrow spaces. It is proposed that chronic inflammation in the confined space causes local immunosuppression and proliferation of immortalized EBV-infected B lymphocytes. The identification of EBV in lymphomas (such as in this case) associated with orthopaedic prostheses has led to the suggestion that periprosthetic lymphomas may be underpinned by a similar process. However, EBV has not been detected in all cases¹.

Patients with inflammatory conditions have twice the risk of developing lymphoma. This seems to be further increased if they have a metal-on-metal joint replacement⁴. Corrosion of metallic prostheses within the synovial space results in the release of metallic ions, with statistically significant increased concentrations of cobalt and chromium demonstrated in the synovial fluid and blood of patients after knee arthroplasty⁵. Metal particles in joints are antigenic and are associated with chronic inflammation of the synovium, even in the absence of infection and hence the increased risk of developing such tumours.

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Fellowship News



A two-year post-SICOT Fellowship Evaluation Report

Mohammed B. Abdelwahab

SICOT Associate Member - Khartoum, Sudan

Two years have passed since I did my Assiut/SICOT fellowship. I am now at a point where I can take a glimpse at my competencies before I joined it and then after, and what has gone well since I travelled back home.

To start with, I chose arthroscopy and sports medicine as a highly skilled branch of orthopaedics which is nearly non-existent in Sudan despite the huge number of patients who are in a real need of the service.

I trained at the Department of Arthroscopy and Sports Medicine at the Assiut University Hospital (Egypt) for 6 months. We had busy operating lists with fascinating diversities which allowed me to benefit so much.

When I went back home I started practising knee arthroscopy, stepping upwards from simple scopes for doing meniscectomies, then invited new techniques of ACL reconstruction until I started training my junior staff and colleagues. A giant jump in my learning curve took place when I won the SICOT/AAOS scholarship and chose the knee course which was "Knee injuries getting patients back to the game". It was the most unforgettable experience I have ever gone through. The combination of these two different experiences left a remarkable fingerprint on my career.

Let us turn the sail a bit towards Sudan. What are the real impacts of these rewarding experiences which have been offered to me through SICOT?

1. Made the service at hand and reasonably affordable if you compare it to the treatment cost when done outside Sudan (400\$ vs. 3,000\$ for simple knee scopes and 1,500\$ vs. 6,000\$ for ACL reconstruction). I established a separate OR for arthroscopy in my institute, which is a governmental hospital, for the first time since it was established. Now we do scopes for free for patients who are under the umbrella of service coverage.
2. Opening up the door for a new type of orthopaedic service gave it a special flavour to be adopted as a new area for publications since we do not have our own local data. This research activity is heralded by the registrars under training. The researches that have been born until now are:
 - a. "Incidence of medial pathological plica in Sudanese patients as a common cause of medial joint pain". It had been submitted as a thesis to fulfil a MD degree.
 - b. "Early results of ACL reconstruction using BTB graft, our local experience, pits and falls". It had been presented as an oral talk at a Sudanese annual conference.
 - c. "Incidence of meniscal injuries in Sudanese patients after sport trauma". It is like an audit for provision of data for the national registry.

All this research work has been carried out during the last year. We are looking forward to more training and fellowships as such in the fields of shoulder, elbow, wrist, hip and ankle to enrich the field of training and research in my country.

Now I am encouraged to go back again to the Assiut education centre joining new training activities. I attended a shoulder course and got a short-term fellowship for 1-2 months at my own expense because it is really worth it.

One word before I conclude: I would like to raise my hat to the SICOT family and give a special deep thanks first to Prof Galal Z. Said and Dr Hatem G. Said and then to my teacher in Sudan, Dr S. Shaheen, for giving me a chance to be part of this wonderful family. I should also acknowledge their support, advice and guidance.

Below are some photos that reflect what has been achieved:



My newly opened OR



Input in educational activities



Playing a role in training

Training Around the World



Orthopaedic Training in Kenya

Mbute Namunguba

SICOT Associate Member - Nairobi, Kenya



The journey to become an orthopaedic surgeon in Kenya begins in a similar way as all other places. After the undergraduate training, one has to do a mandatory period of internship. This period lasts for a minimum of 52 weeks. In this period, the young doctor is expected to rotate in the four major specialties, i.e. surgery, internal medicine, paediatrics, and obstetrics and gynaecology.

Successful completion of this phase earns one the right to be registered as a general practitioner by the Kenya Medical and Dentists Practitioners Board (KMDPB). It is after this stage that one can think of specialising. A basic requirement by the orthopaedic training institutions is that the doctor must have worked as a general practitioner for at least one year before applying for residency.

There are two different routes that are recognised by the government which lead to one being conferred the specialist status.

The first one is a university-based training programme that lasts for a minimum of five years. Currently, there are only two universities that have been approved to offer specialist training in orthopaedics. These are the University of Nairobi and Moi University. These two programmes are similar but each hold independent exams. Gaining entry into these programmes is extremely competitive as the number of positions is much lower than the number of applicants. Entry exams and an oral interview lead to a selection of the desired candidates.

The programme is divided into two parts, the first part is deemed to be the most demanding, mostly because one is required to be proficient in all the basic sciences and basic surgery. Those who pass this stage progress to part 2 which is largely clinical. In the clinical years, the doctor is expected to rotate in the orthopaedic subspecialties as well as write a thesis. This is then followed by an exit exam. Those who pass get a Masters degree in orthopaedic surgery (Mmed Orth).

The second option is hospital-based under the College of Surgeons of East Central and Southern Africa (COSECSA). In this programme, tertiary level hospitals with a designated number of orthopaedic surgeons are accredited to offer training positions to those interested in orthopaedics. There are currently four hospitals that have been accredited. These are Kenyatta National Hospital, Moi Teaching and Referral Hospital, AIC Kijabe Hospital, and Tenwek Mission Hospital.

This training also lasts for a minimum of five years and is divided into two. The first two years are spent rotating between the different surgical specialties and basic sciences. This is followed by an exam. Those who pass become members of the College. After this they are free to apply for higher surgical fellowship training in any of the approved institutions where they are expected to rotate in all the orthopaedic subspecialties. After three years, a common exam is sat by candidates in all member countries.

Passing this exam, one can be called a fellow of the college and gets an FCS(ecsa) Orth.

For the graduating surgeons, the Kenyan Medical Board has also made an added requirement. The doctor has to work under the supervision of a much senior board registered orthopaedic surgeon for a period of at least two years.

Successful completion of the process leads to a registration as a specialist orthopaedic surgeon in Kenya.

It is unfortunate that there are no training positions for any of the subspecialties in Kenya yet. For subspecialty training, surgeons have to travel overseas.

Scientific Debate

Humeral shaft fracture fixation. Has the pendulum swung back?

Syah Bahari

KPJ Seremban Specialist Hospital and KPJ Healthcare University College, Malaysia

When discussing the best choice for operative fixation for humeral shaft fracture, one needs to know that historically most humeral shaft fractures are treated by conservative means with satisfactory outcome. The indications for operative fixation for humeral shaft fracture are polytrauma, floating elbow, segmental fracture, pathological fracture, open fracture, non-union, malunion, progressive vascular impairment and inability to maintain reduction with conservative treatment [1].

With this in mind, comparing open reduction and plate fixation and closed reduction and intramedullary nail fixation, the arguments will be on biology and principle of fracture healing, biomechanics, complications and current evidences at the moment.

For a humeral shaft fracture, relative stability at the fracture site is acceptable for fracture union. This can be achieved with the use of an intramedullary nail. With a remote entry point away from the fracture site, the biology of the fracture site will be preserved thus providing an optimum environment for fracture healing [2]. This is clearly not the case with an open reduction and internal fixation technique where extensive soft tissue stripping will likely devascularise the bone and affect fracture healing.

Biomechanically, intramedullary nail is a load-sharing device [3]. Comparative to the plate, the newer interlocking intramedullary nail can also provide compression at the fracture site in simple fracture and is arguably better in bridging of the fracture site in comminuted fracture.

When there is evidence of radial nerve injury, current evidence suggests that this is likely due to a neuropraxia and this is not an absolute indication for surgical intervention [4] unless there is evidence that the nerve is not recovering. However, for humeral shaft fracture without nerve injury, the risk of iatrogenic radial nerve injury is higher with either anterior or posterior approach when compared to intramedullary nailing technique [5]. Infection rate is also noted to be higher with an open approach and plating [5]. Furthermore, there is report on injury to the brachial artery with the open anterior approach that may complicate the open reduction technique [6].

However, based on the current evidence in the literature, it is very difficult to argue which one is the best choice for operative treatment for humeral shaft fracture fixation. Current meta-analyses [5,7,8] on this issue were unable to draw definite consensus regarding which is the best choice for operative fixation of humeral shaft fracture. Dai et al found in their study that nailing technique has a lower risk of postoperative wound infection rate and lower risk of iatrogenic nerve injury [5]. Ouyang et al noted that the only advantage of plating over nailing technique was the associated shoulder symptom in nailing technique [7]. However, if one looks at the outcome of both techniques in terms of non-union, delayed union, postoperative infection and iatrogenic nerve injury, there is no significant difference in the outcome based on these parameters [8]. Certainly, a large multi-centre randomized control trial is needed to solve this conundrum.

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Surgical management of humeral shaft fractures: Plating is the way forward

Solayar GN, Shannon FJ

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Humeral shaft fractures account for 3% of all fractures and 20% of all humeral fractures [1]. The question regarding which fixation type would give the best results remains unanswered. It mostly boils down to the surgeon's own preference. In this article, we convey our argument on why one should perform open fixation via

plating rather than intramedullary nailing.

An advantage offered by conventional plating versus intramedullary nailing is the reduced incidence of shoulder symptoms [2]. The literature suggests increased shoulder stiffness, rotator cuff insufficiencies and chronic shoulder pain associated with nailing. These symptoms are mostly secondary to the antegrade introduction of the nail (via the proximal humerus). In a similar fashion, retrograde humeral nailing has been associated with elbow stiffness, pain, ulna nerve problems and metal prominence. Humeral plating via open reduction avoids these preventable complications and is therefore, in our opinion, a superior option [3].

Next, neurological injury. The risk of radial nerve palsy following humeral shaft fractures is up to 18% with a higher risk noted especially following fractures in the distal third [4]. Though the majority represents neuropraxias, there is still a risk of permanent damage and poor long-term outcomes. Some surgeons prefer visualising, protecting and clearly documenting the nerve's appearance when dealing with humeral shaft fractures. It appears that nailing is associated with a higher risk of radial nerve injury though the jury is still out with regards to its significance compared with conventional plating [5,6]. An open incision would identify a ruptured/transected nerve well, which might be amenable to early repair again improving chances of nerve recovery. There is evidence of immediate open exploration of the radial nerve following open fractures with radial nerve palsy though expectant treatment (exploration following 16-18 weeks) is advisable following closed fractures treated conservatively [7].

We would also like to point out the significant benefits of plating in terms of basic biomechanics. It offers surgeons the choice between achieving absolute stability through inter-fragmentary compression which leads to direct bone healing and relative stability through bridge plating which allows for indirect bone healing. Intramedullary nailing is not intended for providing compression across simple/oblique fractures which would allow for direct bone healing, but rather allows for relative stability and indirect bone healing. The option of a locking plate construct further expands its appeal as the benefits of this in osteoporotic bone is clear [8].

With respect to both plating and intramedullary nailing, we must address the literature on their respective union rates. The literature seems to show similar union rates for both options and thus, the debate continues [5]. A meta-analysis did show a lower re-operation rate following conventional plating compared to intramedullary nailing [2]. There are many factors that contribute to this discrepancy, among them, the ability to address soft tissue interposition, insults to the soft tissue envelope and achieving good fracture reduction.

In summary, we advocate open reduction and internal fixation with conventional plating. The advantages with regards to shoulder symptoms, improved biomechanics and the ability for direct fracture reduction are clearly attractive options. Large, high quality randomised controlled trials in the future would improve the literature with regards to union rates and complications between plating versus nailing.

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