



## 26<sup>th</sup> Annual Meeting of the Iranian Orthopaedic Association

22-26 Oct 2018

Tehran - Iran



### Address:

Tehran Province, Tehran, Bolvar-e-Gharbi-ye-Estadiyom-e-Azadi, Olympic Hotel

Phone: 02144739300



## Lecturer

**Monday 22 Oct 2018**

**Lecture**

**Main  
Hall**

**16:15-18:00**

**Hip Fracture**

**17:15-17:25**

**Tips and tricks of DHS insertion**

### **Tips and tricks of DHS Fixation**

**Dr.Farzin Dadashpour**

**Shahid Beheshti University of Medical Sciences**

Dynamic Hip screw was first time designed by Pohland & Kiel in 1952.

This implant from the 1980 to 2000 became the gold standard for pertrochanteric fracture fixation because of many reports of failure in unstable hip fractures other devices especially cephalomedullary nailing was popularized in 2 to 3 recent decades. Despite important role of biomechanical effect of implant design, quality of reduction is the most important factor that determines the patient out come many classifications was produced by autors but few of them that more practical for treatment and outcome are Boyd & Griffin – Evans and Muller AO/OTA classification . AO/OTA classification is the most referenced in recent scientific articles and consist of types of stable and unstable FXS that unstable implies displaced and fix in unreduced position, comminuted with destruction of anteromedial cortex and reverse obliquity pattern. expect of very few cases, operative treatment for hip FXS is standard treatment, and the best time is within in 24 to 48 hours. Parker and Handoll reported that there is consensus regarding the superiority of the dynamic compression nails or plate devices and results were equivalent at functional outcome measures and implant mechanical failure rates and time of hospitalization. But literature has revealed certain fracture patterns which are not amenable to simple screw side plate devices, reverse obliquity fractures and fractures with lateral wall fracture extension.

Though still the most used device around the world, the SHS is associated with two serious complications uncontrolled collapse and migration of the lag screw within the femoral head leading to varus and possible screw cut out. The incidence of this is increased in malreduced FXS or those with iatrogenic FX of the lateral wall and construct collapse.

In intertrochanteric FX the anteromedial cortex is key stone of reduction and stability and every effort must paid to reconstruct this region.

Adequate reduction is the major preventable etiology for lost reduction and construct failure in pertrochanteric FX.

In reverse obliquity FX pattern usage of DHS can result of early failure because of femoral medialization .and device of choice in this pattern of FX is cephalomedullary nailing .in FXS that can't reduce closely , direct observation of FX with more extensile approach such as Watson- Jones san help us to achieve of anatomic fixation . patient position with FX table in supine position and usage of C.Arm is very helpful . the best position of lag screw is center to center position with TAD<25 . provisional fixation of reduction with 1 or 2 K wire advised . and like every other of condition, early ambulation of patient based on anatomic reduction and secure fixation can dramatically reduce the complications.

	Hand	Monday 22 Oct 2018	Lecture
Main Hall	10:30-12:30	What is new in pediatric and adult brachial plexus injury?	
	10:50-10:58	Primary repair in adult brachial plexus injury	

## Adult brachial plexus injuries, primary repair

**SH. Nazerani M.D.**

**Professor of surgery**

**Mehr general hospital**

Brachial plexus injuries are among the most catastrophic disabilities of the man in modern civilizations.

Iran has one of the highest traffic accidents rates in the world and there are thousands

of dead and injured recorded each year. The exact number of brachial plexus injuries is not clear but with motorcycle accidents as the highest recorded injuries, it is not impossible to predict how many brachial plexus injuries we might see in our practice. The low socioeconomic level of the society involved in this type of injuries shifts them to government and university hospitals to seek treatment.

My personal experience with brachial plexus injuries is limited to 51 patients in a 25 year span and only four patients were operated as a primary repair type of treatment. I will discuss my alibi small experience in treating these four patients.

I urge the Iranian hand society and orthopedic society to write a mandate, requesting a center for biracial plexus injuries for these patients.

	Hand	Monday 22 Oct 2018	Lecture
Main Hall	10:30-12:30	What is new in pediatric and adult brachial plexus injury?	
	11:10-11:18	Tendon transfers and muscle transfers in brachial plexus injuries	

## Secondary shoulder reconstruction in B.P.P

**Dr.Masoud Yavari**

**-1Associate professor of hand surgery, Department of plastic surgery, 15 Khordad Educational Hospital, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran**

Persistent shoulder instability and lack of mobility are common and debilitating problems in adult B.P.P

The lack of shoulder mobility significantly hinders use of the upper extremity even if the elbow, wrist, and fingers, are normally

For shoulder reconstruction in adult B.P.P we can use tendon transfer, arthrodesis or F.F.M.T

Some questions should be addressed before surgery include the following:

- 1 Restoration of which function or functions will yield the greatest functional result?
- 2 What muscles are available?

-3 are the available muscles have sufficient strength

External rotation of the shoulder is a critically important function in daily activities. Historically, the trapezius is the most common tendon transfer performed for adult B.P.P and in most of the patient, the upper part of the trapezius is preserved and hypertrophies over time.

Trapezius transfer was described by uoffa in 1891.

I usually used this procedure and %70 of our patients (21 cases) had  $^{\circ}45-60$  shoulder abduction and about %20 had poor result.

We can use the lower part of trapezius for transfer the muscle is lengthened with Achilles or posterior tibialis tendon allograft.

In the absence of available muscle in the ipsilateral side of injury, contralateral trapezius transfer is a unique and possibly and when prolonged with lumbosacral fascia feasible for transfer we have performed this transfer in 8 patients with a very rewarding outcome of restoring shoulder external rotation and the range of external restoration (between  $^{\circ}100-90$ )

Also, we can use latissimus and pectoralis muscle for transfer, but I haven't any experience.

	Pediatric	Monday 22 Oct 2018	Lecture
Main Hall	14:00-15:45	Pelvis & Hip fractures	
	14:10-14:20	Failed fixation of femoral neck Fracture	

## Failed Fixation of Femoral Neck Fracture

Dr. S Ramin Zargarbashi

Tehran University of Medical Sciences

Femoral neck fracture is a very common fracture in pediatric and most of them is related to high energy trauma.

There are lots of complication in this fracture which nonunion and device failure is one of the most SHD & valgus osteotomy are 2 smart technique for solving this problem but exact decision making is completely related to individual case.



Main  
Hall

Ankle

Tuesday 23 Oct 2018

Lecture

14:00-15:45

14:40-14:50

**Surgical techniques for reconstruction of  
malunited ankle fracture**

## **Surgical Techniques for the Reconstruction of Malunited Ankle Fractures**

**Dr.Amir Sabbaghzadeh Irani**

**Shahid Beheshti University of medical science**

Ankle fractures are common and most heal well so there is a certain lack of attention for the potential for adverse consequences and the potential to salvage these complications. There is a clear association between ankle fracture malunion and a poor outcome; whilst reconstruction can often be accomplished it can be very difficult. The key lies in accurate assessment, careful preoperative planning and proficiency in specialized reconstructive techniques. We describe this process using clinical cases to illustrate the management of malunion.

Hegmataneh  
Hall

Trauma

Tuesday 23 Oct 2018

Lecture

14:00-15:45

Infection in Trauma

14:12-14:24

**Necrotizing Fasciitis**

## **Necrotizing fascitis**

**Dr.S.Afshar**

- life-threatening, progressive, rapidly spreading, inflammatory infection located in the deep fascia.
- infection rapidly destroy the skin and soft tissue beneath it
- Also known as: "flesh-eating" bacteria.
- Other names:  $\beta$ -hemolytic streptococcal gangrene, Meleney ulcer, acute dermal gangrene, hospital gangrene, and necrotizing cellulitis.
- 3 types of NF.

Type I : a polymicrobial flora.

Type II : Group A  $\beta$ -Streptococcus bacteria (most common case)

Type III : marine vibrio gram-negative rods.



**Tuesday 23 Oct 2018**

**Lecture**

**Parseh  
Hall**

**8:15-10:00**

**Tumor**

**8:15-8:25**

**Biologic Reconstructions around knee joint after  
tumor resection**

## **Biologic reconstruction around the knee joint after tumor resection**

**Dr. Amin Karimi , Orthopedic oncology surgeon SBMU**

Distal femur and proximal tibia are the main localization of primary malignant bone tumor. New techniques in imaging, recent development in chemotherapy protocols and surgery sharpening led to major improvement in management of malignant bone tumors around the knee, which allowed minimizing amputation ratio. After resection, total knee arthroplasty with tumoral prosthesis has become the gold standard of reconstruction but a greater understanding of bone and allograft healing has afforded opportunities to optimize biologic reconstructions after oncologic resections. Functional and oncologic results of this excision and reconstructive surgery are now clearly established. However, this represents complex and risky interventions which will often lead to secondary surgical revision because of the young age of patients and their functional demands. This can only stress the necessity of addressing patients to specialized, network-organized sarcoma teams.

The orthopedic oncologist must have experience as well as a great deal of insight into the intricacies of each procedure and the wishes and demands of patients not only while they are young but in into their adult life.

In a resource challenged population the cost of prostheses can occasionally be a limiting factor especially in cases of malignant tumors where the prognosis is guarded.

Options for biologic reconstructions after oncologic resections around the knee included:

**Parseh  
Hall**

**Spine**

**Tuesday 23 Oct 2018**

**Lecture**

**16:15-18:00**

**what's new in lumbar spine stenosis**

**16:12-17:24**

**DVT Prophylaxis after Spine surgery**

## **Prevention of postoperative DVT after spinal surgery**

**Naveed Nabizadeh MD**

**Assistant Professor of Spine Surgery, IUMS**

Although the rate of symptomatic DVT after routine elective spinal surgery is fairly low,



however, a significant number of pulmonary emboli circumstances become fatal (%6). Most of prioperative DVT complications are asymptomatic and probably clinically insignificant. Therefore, routine preoperative or postoperative DVT screening with US or venography is not recommended even at the highest risk for VTE including spinal cord injury.

To prevent the formation of DVT following lumbar spine procedures, surgeons often implement one or several different prophylactic measures ranging from mechanical compression stockings or pneumatic sleeves to pharmacologic anticoagulation. Nevertheless, there is still no Level-I evidence establishing the superiority of one particular treatment nor is there a universally accepted protocol defining the indications, timing, or duration of treatment. Generally, IPC plus compression stocking should be used as a primary method of prophylaxis in most elective cases. There is insufficient evidence to support or refute

The use of chemical anticoagulants in routine elective spinal surgery. Assessment of risk factors, contributing in VTE, is needed to properly defined in order to determine the true incidence of DVT in high-risk patients, and whether chemical prophylaxis is indicated. Even though, the prevalence of clinically important bleeding with chemical prophylaxis is relatively low, permanent neurologic deficits arising from compression of the neural elements as a consequence of these drugs have been reported. Consequently, chemical prophylaxis is suggested primarily for the spinal surgery cases with additional thromboembolic risk factors.

Tuesday 23 Oct 2018		Lecture
Parseh Hall	8:15-10:00	Tumor
	8:25-8:35	Biologic reconstructions around shoulder joint after tumor resection

## Biologic reconstruction around shoulder joint after tumor resection

**Dr Sadegh Saberi**

**Orthopedic Tumor Surgeon**

**Tehran University of Medical sciences**

Limb salvage following resection of a tumor around shoulder especially in proximal humerus poses many challenges. Reconstructive options are limited because of the





loss of periarticular soft-tissue stabilizers of the glenohumeral joint in addition to the loss of bone and articular cartilage. In the adult patient functional reconstruction after transarticular proximal humeral resection is most frequently performed using osteoarticular allograft (OA) as biologic reconstruction or endoprosthesis (EP) or a combination of both (APC). The use of allograft is frequently promoted for restoration of bone stock and anatomical reconstruction of soft tissues. Some studies have stated that this anatomical repair resulted in better postoperative function and glenohumeral stability. In contrast, chondrolysis, allograft fracture, infection and non-union have also been introduced as reasons not to consider OA for standalone proximal humeral reconstruction. Use of a cement into the allograft, preferably bridging the allograft and fixed into the healthy autologous humeral bone with compression techniques, should prevent chondrolysis and allograft fracture but are still susceptible to non-union, osteolysis and loosening. Because of high rate of mechanical complication OA is not the choice option for proximal humerus reconstruction however the cost in comparison to Prosthesis set it as attractive option in some countries.

Tuesday 23 Oct 2018		Lecture
Hegmataneh Hall	16:15-18:00	Revision / THA
	16:15-16:25	THA in fused hip

## **Total Hip Arthroplasty in Fused Hip** **Sadeghpour Alireza, Associate professor** **Tabriz University of Medical Sciences**

Hip arthrodesis remains a viable surgical technique in well selected patients, typically the young manual labourer with isolated unilateral hip disease. Despite this, its popularity with patients and surgeons has decreased due to the evolution of hip replacement, and is seldom chosen by young adult patients today. The surgeon is more likely to encounter a patient who requests conversion to total hip replacement (THR). Common indications for the conversion of an arthrodesed hip to a THR include pain arising from the lower back, ipsilateral knee or contralateral hip, a painful nonunion

or malpositioned arthrodesis, planned ipsilateral knee replacement or fractures around the arthrodesis . Occasionally the patient will request conversion because of difficulty with activities of daily living, body image and perceived cosmesis. It is important that the origin of pain is accurately defined, and the functional demands and expectations of the patient explored prior to conversion, in order for the patient to decide whether the anticipated risks and benefits are worthwhile.

The original reason why the arthrodesis was performed should be sought. If the arthrodesis was performed for or following infection, any history of delayed wound healing, wound drainage, sinus formation or antibiotics following previous hip surgery should be actively excluded. In the presence of on-going infection, the authors recommend a two-stage procedure is performed to ensure clearance of infection before any definitive THR.

A clinical examination should be performed to define whether the hip is soundly fused, in what position the hip has been arthrodesed, the amount of leg length discrepancy, (LLD) (which can be difficult to assess, particularly in the case of a malpositioned arthrodesis), and the integrity and function of the abductors.

Satisfactory results can be achieved with a fully informed patient, who should be made aware of the limitations of conversion, and the potential problems and complications that can be encountered Such as persistent pain, LLD, nerve and vessel injury, persistent restriction in ROM, fracture, infection, dislocation and heterotopic ossification. Ten year survivorship of between %74 and %96 has been demonstrated, and in the authors' experience, complete resolution of the presenting complaint is achieved in a third of patients, with partial relief in the remainder. However the results of conversion are inferior to those of primary and revision replacement.

Key words : Arthroplasty , Hip , Arthrodesis , Fusion

**Tuesday 23 Oct 2018**

**Lecture**

**Main  
Hall**

**16:15-18:00**

**Wrist disorders**

**16:50-17:00**

**Outcome of arthroscopic TFCC repair**

**Arthroscopic Treatment of TFCC tear  
Hossein Saremi, MD**

**Associate professor of Hamadan university of Medical sciences**

The TFCC is the most important stabilizer of the DRUJ and ulnar carpus.

Tears of the peripheral zone (foveal) of the triangular fibrocartilage complex (TFCC) often result in pain, decreased grip strength and may lead to distal radioulnar joint

(DRUJ) instability if not surgically repaired.

Palmer and Werner classified the disorders of the TFCC and divided the lesions into traumatic (class I) and degenerative (class II). Each type is also classified as A, B, C or D sub type. Degenerative changes of the TFCC develop with aging and central defects of the TFCC are not considered repairable. However, for the traumatic lesions (class I), surgical repair has been performed.

Atzie has classified peripheral TFCC tears in to 5 types considering clinical, radiological and arthroscopic findings.

A peripheral TFCC lesion could be treated open or arthroscopically using an inside-out, an outside-in, or an all-inside technique.

Results of arthroscopic treatment is good to excellent and in a recent follow-up assessing the long-term results for these patients, the good results could remain 20 years after surgery.

We achieved the same results in mean 2 years follow-up of our patients.

	Hand	Tuesday 23 Oct 2018	Lecture
Main Hall	16:15-18:00	Wrist disorders	
	17:05-17:15	Treatment and outcome of geriatric and osteoporotic distal radius fracture	

## Distal radius fracture in elderly

**H.shariatzadeh. MD**

**Orthopedic hand surgeon.**

**I.U.M.S**

Distal radius fractures are common in elderly patients, and the incidence continues to increase as the population ages. The goal of treatment is to provide a painless extremity with good function. In surgical decision making, special attention should be given to the patient's bone quality and functional activity level. Most of these fractures can be treated nonsurgically, and careful closed reduction should aim for maintenance of anatomic alignment with a focus on protecting fragile soft tissues. Locked plating is typically used for fracture management when surgical

fixation is appropriate. Surgical treatment improves alignment, but improvement in radiographic parameters may not lead to better clinical outcomes. Treatment principles, strategies, and clinical outcomes vary for these injuries, with elderly patients warranting special consideration.

	ICL -Hip	Tuesday 23 Oct 2018	Lecture
Main Hall	7:00-8:00	Unstable THA	
	7:00-7:10	Definition	

## The Unstable Total Hip Replacement

**Reza Mostafavi Tabatabaee, MD**

**Fellowship of Hip & Knee surgery**

Dislocation of a THA is defined by the loss of contact between the femoral head and acetabular component that requires intervention to relocate the joint. Instability after total hip arthroplasty traditionally occurred between %1 and %3. The risk of dislocation after revision surgery is clearly increased greatly ranging from %5 to %20. Numerous factors have been associated with dislocation including patient variables such as age, gender, body weight and height, early postoperative compliance, soft tissue integrity, and neurologic conditions such as poor proprioception, as well as surgical factors such as implant design, surgical approach, failure to restore proper hip mechanics and soft tissue restraints. A thorough understanding of the timing, mechanism of dislocation, and direction of dislocation is necessary in formulating an approach toward treatment. The radiographic evaluation should evaluate hip mechanics including adequacy of leg lengths, component orientation, and restoration of offset in the frontal and sagittal planes.

	ICL -Hip	Tuesday 23 Oct 2018	Lecture
Main Hall	7:00-8:00	Unstable THA	
	7:23-7:36	Treatment	

## Management of hip instability after total hip arthroplasty

**Dr. Afshin Taheriazam, M.D. 1**

1. Orthopedic Hip Surgeon, Department of Orthopedics Surgery, Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran.



Instability due to total hip arthroplasty (THA) is an infelicitously prevalent and serious issue, which needs assessment and preoperative planning before surgical intervention. Prevention through optimal index surgery is of great importance, as the management of an unstable THA is challenging even for an experienced joints surgeon. However, even after well-planned surgery, a significant incidence of recurrent instability still exists. Non-operative management is often successful if the components are well-fixed and correctly positioned in the absence of neurocognitive disorders. If conservative management fails, surgical options include revision of malpositioned components; exchange of modular components such as the femoral head and acetabular liner; bipolar arthroplasty; tripolar arthroplasty; use of a larger femoral head; use of a constrained liner; soft tissue reinforcement and advancement of the greater trochanter.

**Keywords:** Total Hip Arthroplasty (THA), Instability, Total hip arthroplasty, Revision, Bipolar arthroplasty

Main Hall	ICL -Hip	Tuesday 23 Oct 2018	Lecture
	7:00-8:00	Unstable THA	
	7:10-7:23	Step by step approach to unstable THA	

## Instability after Total Hip Arthroplasty

**Dr.Reza Zandi**

**Shahid Beheshti University of Medical Sciences**

This review focuses on the prevention of postoperative instability and describes current operative options that have the potential to significantly reduce the risk of instability and the necessity of post-dislocation management. The latest research findings are presented to improve the readers' grasp of this complex issue. Increasing evidence supports the use of larger femoral heads as the promising preventive material currently available, meticulous posterior capsular repair when a posterior approach is used, hip resurfacing and higher offset. Future research is needed to more precisely determine the risk of instability associated with the use of postoperative patient restrictions and exercises, minimal incision surgery and

computer-assisted navigation. Instability after total hip arthroplasty is troublesome for the patient and challenging for the surgeon. This review provides the surgeon with an opportunity to thoroughly understand the factors that may contribute to instability after total hip arthroplasty, the operative strategies that can be used to prevent and treat postoperative instability and the necessity of developing a plan for optimally preventing and managing dislocation.

Wednesday 24 Oct 2018		Lecture
Hegmataneh Hall	16:15-18:00	Tibial plateau fractures
	17:08-17:15	Surgical approach and treatment in Bicondylar fracture type?

## **Surgical approach and treatment in Bicondylar tibial plateau fracture**

**Dr.Mohammadreza Abbasian**

**Associated Professor of orthopedic surgery SBMU**

Bicondylar tibial plateau fracture has been defined as a fracture in which both tibial condyles are fractured. It categorized as type 5 and 6 according to Schatzker classification. Complications are frequent and treatment must be planned to minimize risks.

There are two frequently used surgical approaches to reduce and internally fix tibial plateau fractures: the anterolateral approach and the posteromedial approach, they are used together for Bicondylar tibial plateau fractures.

In planning to operatively treat a tibial plateau fracture, the fracture pattern and soft tissue circumstances will dictate the approach, the reduction technique and the fixation device selection.

Finally, it is clear that the safest approach is dependent to the fracture characteristics and surgeon preferences.



Wednesday 24 Oct 2018

Lecture

Hegmataneh  
Hall

16:15-18:00

Tibial plateau fractures

16:22-16:29

**Associated collateral ligament injury, Incidence, importance and treatment?**

## **Associated collateral ligament injury, incidence , importance and treatment ?**

**Dr. Mohammad Ayati Firoozabadi**

**(knee surgery Fellowship)**

Tibial plateau fractures account for approximately %1 of all fractures. Tibial plateau fractures may occur together with meniscal and ligamentous injuries. The incidence of associated collateral ligament injury was only %3 each for both MCL and lateral collateral ligament (LCL). Schatzker type II fractures were associated with MCL tears, while Schatzker type IV fractures were most commonly associated with meniscal injuries. Schatzker type IV, V, and VI patterns demonstrated a high incidence of ligament injury. PLC tears have association with medial plateau fractures and MCL tears have association with lateral plateau fractures. The management of a combination of fracture and multi ligament knee injury (MKI) in traumatic knee injury remains controversial but in overall recommended the fracture should be treated first, and ACL and PCL injuries may be treated after fracture healing. If continued radiographic and clinical signs of instability are observed, a recommendation for staged reconstruction of ligamentous injury should be considered after bony union has been achieved.



**Wednesday 24 Oct 2018**

**Lecture**

**Main  
Hall**

**16:15-18:00**

**Complications of Shoulder and Elbow Surgeries (Case Presentation)**

**17:38-17:50**

**Arthroscopy of the Elbow**

## **Elbow Arthroscopy**

**Saeed Kokly, MD.**

**Fellowship in Shoulder, Elbow & Sport Injuries**

**Assistant professor, Golestan University of Medical Science**

Elbow arthroscopy is a minimally invasive technique used to diagnose and treat a range of conditions affecting the joint. Although elbow arthroscopy was developed more than a decade ago, it remains less commonly used because a very tight space in which the neuro vascular elements pass closely over the joint, constitutes the major risk. Like as other procedures, good patient selection is very important. This procedure is often used to release scar tissue, remove loose bodies or resurface the bone to decrease pain and improve range of motion, debride or cut away the unhealthy portion of the tendon in tennis elbow. In baseball pitchers elbow arthroscopy is used to confirm injury of the ulnar collateral ligament and to treat spurs and cartilage injuries that occur particularly in the posterior aspect of the elbow. As with any invasive procedure the risks associated with elbow arthroscopy are: Bleeding, Infection, Permanent or temporary nerve or blood vessel injury, Stiffness and need for further surgery.

**Wednesday 24 Oct 2018**

**Lecture**

**Main  
Hall**

**10:30-12:30**

**Rotator Cuff Tear (Lecture + Relive Surgery)**

**10:40-10:50**

**Updates in Nonsurgical Treatment Cuff Pathologies**

## **Updates in Nonsurgical Treatment Cuff Pathologies**

**Amir Sobhanieraghi, MD. , Rasoul Akram Hospital, Iran University of Medical Sciences**

Conservative treatment is often offered as an early management approach for patients with rotator cuff tears. The main objectives of non-operative management of a rotator cuff tear are to decrease pain, increase function and improve activities of daily living. While nonsurgical treatment programs and patient education may be a viable initial option and alternative to surgery for many patients, tear size progression and structural deterioration over time may occur, predisposing these patients to symptom recurrence and functional decrease. This highlights the importance of ongoing monitoring and surveillance.





Wednesday 24 Oct 2018		Lecture
Hegmataneh Hall	7:00-8:00	ICL ACJ & Clavicular FX
	7:42-7:54	ACJ injury and disruption

## Acromioclavicular Joint Dislocation, What's new?

**Mohsen Mardani Kivi MD**

**Orthopedic Consultant**

**Shoulder and Knee Surgeon**

**Associate Professor, Orthopaedic Department, Guilan University of Medical Sciences, Rasht, Iran**

Acromioclavicular Joint (AC joint) dislocations represents above %12 of shoulder girdle injuries. The prevalence is higher among young people (between 20 and 39 years old) and the frequency is higher in men than in women, ratio 8,5:1.

In this topic, we reviewed many research papers on the progresses achieved in the AC joint dislocation's treatment.

Finally, we found four main questions which answered in different ways on the previous articles. The questions are: which is the preferred method; non operative or operative treatment? Early fixation or late reconstruction? What is the best fixation technique? and in the horizontal displacement; we have to interfere or not? On this lecture you can find the latest answers on the latest articles. Take a walk with us!

Wednesday 24 Oct 2018		Lecture
Main Hall	ICL-Pediatric	7:00-8:00
	7:00-7:15	Hip Ultrasonography

## Hip Ultrasonography

**Dr. Mehrzad Mehdizadeh**

**Associate professor of Tehran University of Medical Sciences  
Children's Hospital Medical Center**

Developmental dysplasia of the hip (DDH) is one of the most common causes of disability among children. DDH encompasses a wide variety of pathologic conditions, ranging from fine acetabular dysplasia to irreducible hip dislocation. The previous term congenital dysplasia of the hip has been replaced by developmental dysplasia of the hip, because many of the clinical manifestations of DDH may not be detectable at birth, but are recognized at a later age .

The incidence of DDH ranges from 1.5 to 20 per 1,000 births. Multiple risk factors have been described, including breech positioning in utero, being the first-born child, oligohydramnios, family history, female sex, and deformities (postural or structural) of the foot and torticollis. In addition, increased joint laxity in the setting of exposure to maternal estrogens during the perinatal period may play a role in the development of DDH, and the left hip is more frequently affected than the right .

Ultrasonography (US) is the preferred modality for evaluating the hip in infants aged less than 6 months. US enables dynamic evaluation of the hip with stress maneuvering, as well as direct imaging of the cartilaginous portions of the hip that cannot be seen on plain radiographs . Hip US has become the most commonly used diagnostic tool for DDH during early infancy because the early and accurate diagnosis of DDH is the most important factor contributing to appropriate treatment .

The Graf method is perhaps the most widely used US screening technique. If the well-established techniques for examination, interpretation, and measurement are meticulously followed, it is easy to manage newborn hip problems via this method . To perform hip US, the hip joints must be evaluated in the standard coronal plane with a linear array probe .Before evaluation of the hip joint, it is essential to identify the chondroosseous junction. This is because the echo of the chondro-osseous junction is an important landmark used to identify the femoral neck and other anatomical landmarks: the femoral head, iliac bone, lower limb of the ilium, acetabular bony roof, cartilaginous acetabular roof, acetabular labrum, joint capsule, and synovial fold .

Scanning Technique:

The coronal view can be obtained with the hip in either the physiologic neutral position ( $^{\circ}20$ - $^{\circ}15$  flexion) . The ultrasound transducer is then placed in the anatomic coronal plane. Next, the transducer is moved backwards and forwards from the basic position to identify the round structure of the hip joint and the lower limb. If the superior edge of the transducer is rotated posteriorly by  $^{\circ}10$  to  $^{\circ}15$  into an oblique coronal plane, the ilium will appear to be straight . If a sonogram contains a straight iliac wing contour and an apparent acetabular labrum, this indicates that it has a standard plane . However, in dislocated hips, lateral and posterior displacement of the femoral head prevents visualization of the femoral head and the center of the acetabulum in the standard plane. Therefore, if the displaced femoral head is followed, the ultrasound plane is no longer in the standard plane.

As a general rule, the alpha angle determines the type and in some instances, the beta angle is used to determine subtype:

- type I: alpha angle  $>60$  degrees (normal)
  - o type Ia: beta angle  $<55$  degrees
  - o type Ib: beta angle  $>55$  degrees
- type II
  - o type IIa: alpha angle 59-50 degrees (less than 3 months)
  - o type IIb: alpha angle 59-50 degrees (greater than 3 months)
  - o type IIc
- alpha angle 49-43 degrees
- beta angle 77-70 degrees
- type D («about to decenter»)
  - o alpha angle 49-43 degrees
  - o beta angle  $>77$  degrees
- type III: alpha angle  $<43$  degrees
  - o type IIIa and IIIb distinguished on the grounds of structural alteration of the cartilaginous roof
- type IV
  - o alpha angle  $< 43$  degrees

- o dislocated with labrum interposed between the femoral head and acetabulum
- o inverted labrum

## Treatment of DDH

The current gold-standard treatment for DDH in newborns to infants aged 6 months remains the Pavlik harness. The Pavlik harness provides the best results, with a success rate of %95-%85, and thus should be started as early as possible to achieve the best outcome. The purpose of the harness is to maintain the hip in a flexed and abducted position in order to bring the femoral head as close to the acetabular ring as possible. Between 6 months and 2 years of age, closed reduction and casting is attempted under general anesthesia to maintain the femoral head in the proper position without damaging it. Arthrography is a useful tool to evaluate the success of the reduction. The cast is applied to the reduced hip for a period of approximately 12 weeks. If closed reduction cannot be accomplished at this stage, open reduction may be necessary.

Open reduction is usually required above the age of 2 years, mostly by femoral osteotomy to relieve pressure over the femoral head and to reshape the acetabulum. The patient is usually immobilized in a spica cast for 12-6 weeks.

## Wednesday 24 Oct 2018

## Lecture

Main  
Hall

16:15-18:00

Complications of Shoulder and Elbow Surgeries (Case Presentation)

17:10-17:22

**Dislocation of the Acromioclavicular Joint**

## ACJ Dislocation

**Dr.Mehdi Rahimi**

Acromioclavicular joint (ACJ) disruptions account for %12 of all shoulder girdle injuries in general population and %40 in athletes.

The conoid ligament provided the primary restraint to posterior translation, whereas the AC ligaments remained the primary restraint to posterior translation.

Glenohumeral injuries are a much more common epiphenomen during acromioclavicular separation than previously ascertained.

There are many treatment options available for surgical reconstruction of ACJ injuries but the literature dose not recommend any of these treatment options as

the optimal method.

preference has been given for tendon graft rather than screw fixation as an augmentation method for reconstruction procedure because of lack of implant fracture ,loosening and migration of implants.

Triple-bundle (TB) tendon graft ACJ reconstruction with combined anatomic CC and AC ligament replacement was developed.although still controversial,the authors believe that all stabilising structures of ACJ complex should be reconstructed to achieve optimal result.

	ICL-Pediatric	Wednesday 24 Oct 2018	Lecture
Main Hall	7:00-8:00		
	7:45-7:50	Does asymptomatic dysplastic hip need treatment?	

## Does residual childhood DDH or adolescent- onset acetabular dysplasia need surgery? An evidence base study

**Dr.Reza Abdi**

**Associated Professor of Mashhad Medical University**

**Introduction:** Developmental dysplasia of the hip (DDH) is the spectrum of structural abnormalities that involve the growing acetabulum. Persistence of hip dysplasia into adolescence and adulthood may result in osteoarthritis.

**Material and method:** A systematic review was performed for articles on DDH focusing on treatment in Medline, Cochrane, EMBASE. The most commonly used terms are “residual DDH” or “adolescent- onset acetabular”.

**Results:** Hip dysplasia is the leading cause of early onset hip osteoarthritis before the age of 60 years. Patients under 50 years old undergoing total hip replacement for osteoarthritis, 48.4 % were found to have underlying hip dysplasia as the etiology of hip osteoarthritis. The end result of hip dysplasia whether from residual childhood DDH or adolescent- onset acetabular dysplasia is hip instability and increased hip contact stresses that lead to early joint destruction. According to the literatures the periacetabular osteotomy (PAO) is the treatment of choice for symptomatic

acetabular dysplasia in the skeletally mature patient. The short-term results show, 71 % of patients after PAO are able to achieve the same or higher level of physical activity but long-term outcomes show only 60 % survival rate free of end-stage osteoarthritis needing total hip replacement. Risk factors for failure after PAO include age greater than 25 years, minimum joint space less than 2 mm, and poor or fair joint congruency.

conclusion: If screening identifies an asymptomatic adolescent or young adult with acetabular dysplasia, it may be beneficial to counsel the patient regarding activity modifications and to return for treatment when symptoms occur but before the initiation of joint damage.

	Shoulder	Wednesday 24 Oct 2018	Lecture
Main Hall	10:30-12:30	Rotator Cuff Tear (Lecture + Relive Surgery)	
	11:05-11:15	Updates in Treatment of Massive/Irreparable Cuff Tears 2	

## Treatment Strategy for Irreparable Rotator Cuff Tears

**Alireza Rouhani M.D, Arash Taghavi M.D**

**Tabriz University of Medical Science**

Recently, patients with shoulder pain have increased rapidly. Of all shoulder disorders, rotator cuff tears (RCTs) are most prevalent in the middle-aged and older adults, which is the primary reason for shoulder surgery in the population. Some authors have reported that up to %30 of total RCTs can be classified as irreparable due to the massive tear size and severe muscle atrophy. Different treatment methods for this condition described as conservative treatment, arthroscopic debridement, tuberoplasty, partial repair, complete repair, margin convergence, medialization, graft augmentation, Biceps augmentation, tendon transfer, superior capsular reconstruction, biodegradable subacromial spacer insertion, arthroplasty. Treatment of irreparable RCTs is a challenging task for orthopedic surgeons. It is imperative to determine an appropriate treatment strategy based on thorough assessment of various factors, including the patient's systemic medical condition, functional demands, extent and severity of tear, and previous history of shoulder surgery.

Wednesday 24 Oct 2018		Lecture
Main Hall	16:15-18:00	Complications of Shoulder and Elbow Surgeries (Case Presentation)
	16:15-16:30	Cuff Tear (Open Surgery)

## Open Rotator Cuff Repair

**AmirR. Sadeghifar MD**

**Shoulder and elbow surgeon, Kerman medical university**

Surgery to repair a torn rotator cuff most often involves re-attaching the tendon to the head of humerus (upper arm bone). A partial tear, however, may need only a trimming or smoothing procedure called a debridement. A complete tear is repaired by stitching the tendon back to its original site on the humerus.

Rotator cuff surgery is a common treatment for a torn rotator cuff. Most rotator cuff tears are treated without surgery, but there may be situations where surgery is the best treatment. In some cases, surgery is considered immediately after an injury, while in other situations, surgery is only the last step when all other treatments have failed. The surgical procedure to repair a torn rotator cuff is sometimes the easiest and most straightforward aspect of treatment, and the rehab and recovery is the most challenging. People having rotator cuff surgery should understand each step of rehab as a good outcome is highly dependent on the healing and rehabilitation that follows surgery

When Rotator Cuff Surgery is recommended:

You may offer surgery as an option for a torn rotator cuff if your patient,s pain does not improve with nonsurgical methods. Continued pain is the main indication for surgery. If he is very active and use his arms for overhead work or sports, you may also suggest surgery.

Other signs that surgery may be a good option include:

- symptoms have lasted 6 to 12 months
- have a large tear (more than 3 cm) and the quality of the surrounding tendon tissue is good

- have significant weakness and loss of function in shoulder
- tear was caused by a recent, acute injury

The type of repair performed depends on several factors, including surgeon's experience and familiarity with a particular procedure, the size of tear, anatomy, and the quality of the tendon tissue and bone.

The three techniques most commonly used for rotator cuff repair include : open repair, arthroscopic repair, and mini-open repair. In the end, patients rate all three repair methods the same for pain relief, strength improvement, and overall satisfaction.

**Open Repair:** To perform an open rotator cuff repair, the patient is usually placed in a beachchair position, a -3 to -6cm incision is made over the anterior superior aspect of the shoulder, parallel with the lateral border of the acromion, in line with Langer's lines .The subcutaneous fat layer is then divided with electrocautery and the deltoid muscle insertion into the acromion is clearly identified. The deltoid is taken off the anterior aspect of the acromion, generally beginning at the acromioclavicular joint, extending along the anterior border of the acromion, then splitting the deltoid laterally for 3 to 5 cm ,Next, a subacromial decompression and bursal resection is performed. After identification of the leading edge of the tendon, debridement of adhesions is performed to help mobilize the tendon to the greater tuberosity. Next, bone preparation is performed. In many open rotator cuff repairs, a transosseous suture technique is employed; A locking-stitch technique, known as the modified Mason-Allen stitch, is often used for better holding power, especially when the quality of the rotator cuff tissue is compromised. Deltoid reattachment to the acromion is a critical component of open rotator cuff repair.

**Rehabilitation:** postoperative rehabilitation program following rotator cuff repair should vary based on numerous factors, such as type of surgical approach, size of tear, tissue quality, fixation methods, and patient characteristics. The primary goal of the postoperative program is to protect the repair, promote healing, and to gradually restore passive motion and muscular strength to gradually restore function.





**Wednesday 24 Oct 2018**

**Lecture**

Hegmataneh  
Hall

**16:15-18:00**

**Tibial plateau fractures**

**16:38-16:45**

**Void fillers, which one is the best?**

## **Void fillers in tibial plateau fractures**

**Dr. Salman Ghaffari**

**Orthopedic surgeon, Knee surgery fellowship**

**Mazandaran University of Medical Sciences**

The treatment goals in metaphyseal defects are temporary mechanical support of the articular surface, healing or filling of the defect itself and restoration of bone stock to accommodate prosthesis placement. Cancellous defects not filled with a bone substitute shows only limited new bone formation and the majority of the defect remains open. Ideal bone graft material must have several following features: good osteointegration, osteoconduction, osteoinduction, osteogenesis, structural integrity, initial support to the articular surface, resorb at a rate similar to the surrounding metaphyseal bone, preventing secondary subsidence, porous, easy to use, safe, cost-effective, similar strength to that of cortical/ cancellous bone.

There is insufficient evidence about the best method, but autologous bone graft use, probably the gold standard in young patients, is related to troublesome donor site pain. This supports the use of heterologous bone graft or bone cements. The standpoint that a single technique or material should be sufficient to cover all different bone defects, is outdated.

**Trauma**

**Thursday 25 Oct 2018**

**Lecture**

Main  
Hall

**16:15-18:00**

**Traffic Accident**

**17:20-17:32**

**ABC in spine trauma**

## **ABC in Spine Trauma**

**Andalib, Ali.MD. Orthopaedic Spine Surgeon**

**Assistant professor of Medical University of Isfahan**

At present the annual incidence of spinal cord injury within the United Kingdom is about 10 to 15 per million of the population. In recent years there has been an increase

in the proportion of injuries to the cervical spinal cord, and this is now the most common indication for admission to a spinal injuries unit. Only about %5 of spinal cord injuries occur in children, mainly following road trauma or falls from a height greater than their own, but they sustain a complete cord injury more frequently than adults. Although the effect of the initial trauma is irreversible, the spinal cord is at risk from further injury by injudicious early management. The emergency services must avoid such complications in unconscious patients by being aware of the possibility of spinal cord injury from the nature of the accident, and in conscious patients by suspecting the diagnosis from the history and basic examination. If such an injury is suspected the patient must be handled correctly from the outset.

**The unconscious patient:** Although the spine is best immobilised by placing the patient supine, and this position is important for resuscitation and the rapid assessment of life threatening injuries, unconscious patients on their backs are at risk of passive gastric regurgitation and aspiration of vomit. This can be avoided by tracheal intubation, which is the ideal method of securing the airway in an unconscious casualty. If intubation cannot be performed the patient should be “log rolled” carefully into a modified lateral position 80–70° from prone with the head supported in the neutral position by the underlying arm. The indications for tracheal intubation in spinal injury are similar to those for other trauma patients: the presence of an insecure airway or inadequate arterial oxygen saturation (i.e. less than %90) despite the administration of high concentrations of oxygen. With care, intubation is usually safe in patients with injuries to the spinal cord, and may be performed at the scene of the accident or later in the hospital receiving room, depending on the patient’s level of consciousness and the ability of the attending doctor or paramedic. If possible, suction should be avoided in tetraplegic patients as it may stimulate the vagal reflex, aggravate preexisting bradycardia, and occasionally precipitate cardiac arrest (to be discussed later). The risk of unwanted vagal effects can be minimised if atropine and oxygen are administered beforehand.

**The conscious patient:** The diagnosis of spinal cord injury rests on the symptoms and signs of pain in the spine, sensory disturbance, and weakness or flaccid paralysis. In conscious patients with these features resuscitative measures should again be given priority. At the same time a brief history can be obtained, which will help to localize

the level of spinal trauma and identify other injuries that may further compromise the nutrition of the damaged spinal cord by producing hypoxia or hypovolaemic shock.

	<b>Knee</b>	<b>Thursday 25 Oct 2018</b>	<b>Lecture</b>
<b>Main Hall</b>	14:00-15:45	Lateral and posterolateral	
	14:47-14:57	<b>Arthroscopic PCL reconstruction (remnant preserving technique)</b>	

## **Arthroscopic PCL reconstruction (Remnant preserving technique)**

**Kaveh Bashti, MD**

**Fellowship of knee surgery, TUMS**

**Chairman of Fars Provincial Sport Medicine Board**

Posterior cruciate ligament (PCL) is the main ligament and infrastructure of ligaments in knee joint. Injury to PCL is often due to a high energy trauma in which its bony attachments are usually intact. In the past, bony insertions of both side of PCL attachments were cleaned for better visualization.

In the Remnant preserving techniques, PCL attachments on both sides are preserved for better stability and visualization. The concept of preservation of PCL remnant has been proposed by many authors with different techniques. However, their techniques still have some drawbacks: the difficulty in passing graft, poor visualization of tibial attachment and the “killer turn” are major problems. Here we present the trans-septal approach for PCL Reconstruction which potentially has some advantages over other conventional methods for PCL reconstruction.

	<b>Trauma</b>	<b>Thursday 25 Oct 2018</b>	<b>Lecture</b>
<b>Main Hall</b>	16:15-18:00	Traffic Accident	
	16:15-16:27	<b>Traffic accident (Data analysis)</b>	

## **Evaluation of road traffic accident injuries in Iran**

**Dr. Ali Naghilo**

Road traffic accidents (RTAs) is leading cause of death in children less than 5 years old in Iran. Globally, road traffics accidents kill 1.2 million people every year and leave

50-20 million people injured and disabled. Each year, road traffic crashes kill nearly 28,000 people in Iran, and injure or disable 300,000 more. 7 percent of GDP is spent for RTAs in Iran. Every 19 minutes one person dies on Iran's roads, and every two minutes people will hear that one of their family members has survived a crash but with serious injury and perhaps lifelong disability. Road traffic crashes are predictable and can be prevented. Many countries have achieved sharp reductions in the number of crashes and the frequency and severity of traffic-related injuries by addressing key issues. Interventions that have been proven to be effective include those that deal with: speeding, seat belt, helmet, child seats and restraint, alcohol test, Road design and infrastructure and Emergency services. Reducing the average traffic speed by 1 km/h has been shown to lead to a %5-%4 decrease in fatal crashes. %32 of death in RTAs consists of pedestrians. Many countries have done some interventions to decrease these shocking statistics. It is time for Iran to apply some new interventions to improve this situation.

**Main  
Hall**

**Knee**

**Thursday 25 Oct 2018**

**Lecture**

**14:00-15:45**

**Lateral and posterolateral**

**14:57-15:07**

**Popliteo-meniscus ligament and hyper mobile lateral meniscus**

**Popliteo-meniscus ligament and hypermobile lateral Meniscus**

**Dr.M.Soleymanha**

Hypermobility lateral meniscus is a relatively uncommon condition. It is explained by an excessive mobility of the posterior horn of the lateral meniscus. Patients typically present with lateral knee pain and/or locking sensation mostly with kneeling or squatting in the absence of a discrete meniscal tear and discoid morphology.

It is thought that disruption of the popliteomeniscal fascicles leads to hypermobility of the lateral meniscus. In these patients, the posterior portion of the lateral meniscus shows forward abnormal translation with knee flexion and backward translation with knee extension. We refer to this phenomenon as paradoxical motion.

It has been assumed that the disruption of the fascicles between the popliteus

tendon and the lateral meniscus would result in Hypermobility lateral meniscus. Surgical treatment of hypermobile lateral meniscus should only be offered to those symptomatic patients who failed to improve with conservative treatment. Surgical options include meniscal fixation using inside-out or all-inside suturing devices, arthroscopic thermal shrinkage, or partial meniscectomy

	Knee	Friday 26th Oct 2018	Lecture
Main Hall	8:10-10:00	TKA	
	8:10-8:20	Correct Alignment in TKA	

## Correct alignment in Total Knee Replacement

**Sarzaeem Mohammadmahdi, MD , Imam Hossein Hospital**

Correct alignment of the TKA implant is critical to restoring function and maximizing longevity. TKA Malalignment is associated with early loosening, accelerated poly wear, and increased pain.

However, there are two schools of thought regarding the target of TKA implantation:

1) Mechanical Axis Alignment and 2) Kinematic Axis Alignment (also referred to as Anatomic Alignment).

### 1. MECHANICAL ALIGNMENT

The goal of TKA alignment is to restore the normal mechanical axis. This is not achieved however by attempting bone cuts that recreate the exact joint line between tibia and femur, which would be °3 tibial varus and °3 femoral valgus in the native knee. Instead, both the distal femur and the tibia are cut to be perpendicular (°0) to the mechanical axis.

### 2. KINEMATIC ALIGNMENT

Some surgeons think that mechanical axis is important, but restoring anatomic alignment around the knee is more important. They believe that all of the non-anatomic cuts made to the femur and tibia have a cumulatively detrimental impact on postop TKA function. Therefore, they cut the femur in °9 valgus and the tibia in °3 varus to re-establish the normal joint line.



Main  
Hall

**Knee**

**Friday 26th Oct 2018**

**Lecture**

8:10-10:00

TKA

8:40-8:50

**Wound Complications in TKA**

## **Wound complication in TKA**

**M.J.Zehtab M.D. T.U.M.S Sina Hospital**

Wound problems are a dreaded complication following TKA and ideally are avoided. Preventative measures include proper choice of the skin incision, gentle handling of the soft tissues, meticulous hemostasis, and wound closure without excessive tension. Should persistent wound drainage or soft-tissue necrosis occur, early intervention is imperative as delay risks deep infection and failure of the TKA. Cases associated with full-thickness soft-tissue necrosis often require transfer of well-vascularized tissue such as a medial gastrocnemius myocutaneous flap reconstruction.

Main  
Hall

**Ankle**

**Friday 26th Oct 2018**

**Lecture**

10:30-12:30

11:18-11:28

**Lesser toe deformities**

## **Forefoot Disorders : Lesser Toe deformities**

**Alireza Mousavian, Foot and Ankle, Mashhad University, Iran**

- Forefoot deformities :
- HAMMERTOES
- Mallet Toes
- CLAW TOES
- CROSS-OVER TOES
- MP SYNOVITIS
- METATARSALGIA

For proper management of forefoot deformities, we need to understand the situation including normal anatomy and pathophysiology.

Lateral view of the lesser toe demonstrates that both tendons of intrinsic muscles pass plantar to the axis of motion of MP joint, thereby flexing it. They pass dorsal

to the axis of motion of PIP and DIP joints, thereby extending them. The lumbricals insert into the extensor hood (not bone) and are strong extensors of the IP joints. there are few surgical options for hammer toe correction:

- PIP arthrotomy
- resect proximal phalanx head
- interpose extensor hood flap into PIP joint or
- fuse PIP joint or proximal phalanx shortening
- spear with a K-wire in extension

Mallet Toe correction:

- Fixed deformity
- Tip of toe hits ground - symptoms
- Non-op tx: pad under toe
- Surgical
- Flexible: percutaneous FDL tendon release
- Fixed: bony decompression DIP joint
- FDL tenotomy
- Fix with K-wire

Cross-over Toe Deformity:

- Release capsule
- reef lateral collateral
- flexor tendon transfer
- Lots of variation to re-create stability
- Sometimes we need to do weil osteotomy at the same time of lesser toe deformity correction to limit such a dorsiflexion moment

Cock-up Fifth Toe:

- Ruiz-Mora Procedure
- plantar elliptical incision
- remove base proximal phalanx
- close transverse incision to pull toe down
- problem: toe instability
- Claw Toe Procedure
- Extensor Tendon Transfer

Finally toe amputation is a good procedure in certain situation, its indications include but not limited to:

- Ulcer
- Infection • Failure of previous 2nd toe reconstruction



**Thursday 25 Oct 2018**

**Lecture**

**Main  
Hall**

**18:00-16:15 Trauma Traffic Accident**

**16:53-17:05 Modification in ATLS**

## **Modifications in advanced trauma life support**

**Dr. Ali Nemat**

Annually, numerous traumatic events occur worldwide for a variety of reasons such as traffic accidents, war and explosion, etc. The trauma patients cause major problems and challenging situations for the physicians. At, 1976, an aircraft crash resulted in great evolution in our approaches to trauma patients. Previously, these patients were managed as general patients which was time consuming and threatened the patients' life. Advanced trauma life support (ATLS) represents a concise method to manage the patients with multiple trauma which is well-known as «ABCDE». The physician should quickly evaluate the condition and resuscitate and stabilize the patient. However, in spite of advances in our knowledge and experience in managing trauma patients, studies have revealed that the current approaches did not significantly reduced the rate of morbidity and mortality in multiply trauma patients. Accordingly, it seems necessary to review the current techniques and approaches and further, the training methods and modify them based on the recent evidences.

**ICL-Shoulder**

**Thursday 25 Oct 2018**

**Lecture**

**Hegma**

**7:00-8:00 Shoulder Arthroscopy: Set up, Techniques, and Complications**

**7:12-7:24 Techniques of Cuff Repair**

## **Techniques of Cuff Repair**

**Dr.Hamid Reza Aslani, Dr.Farshad Biglari**

**Shahid Beheshti University of Medical Sciences**

### **1.Arthroscopic Debridement with or without Acromioplasty**

Arthroscopic debridement is generally performed in PTRCTs that involve < %50 of the tendon thickness (Grades I and II) and may be combined with or without a concomitant acromioplasty. While numerous reports have reported favorable results<sup>9-1</sup>, it does appear that arthroscopic debridement alone or in combination with subacromial decompression does not prevent progression of a PTRCT to a full thickness tear. In a report by Kartus et al. at a mean of -101month followup, %35 of PTRCTs progressed to full thickness tears as evidenced by ultrasound. There was a



significantly higher failure rate in bursal surface tears (%29) versus articular surface tears (5(%3. This led the authors to conclude that formal repair may be considered in patients with bursal surface tears involving <%50 of the tendon thickness. Reynolds et al. reported that %76 of professional pitchers were able to return to throwing following arthroscopic debridement. However, only %55 were able to return to the same or higher level of play.

2. Repair - Conversion repair: Conversion repair involves completing a PTRCT to a full thickness rotator cuff tear followed by repair. This technique has major advantages of completely removing any devitalized tissue and allowing the utilization of standard rotator cuff repair techniques. This technique has resulted in encouraging outcomes with significant improvement in range of movement, strength, pain relief, and overall function<sup>12-10</sup>. Furthermore, anatomic outcomes utilizing imaging modalities have been favorable. Conversion repair has had successful clinical and anatomic outcomes and has the surgical advantage of using routine rotator cuff repair techniques<sup>15-10</sup>. However, the theoretical concerns of detaching the residual intact rotator cuff from the greater tuberosity have led surgeons to develop other repair techniques (e.g., in situ repair). - In Situ Repair: In situ repair techniques have the theoretical advantage of preservation of the existing anatomy by maintaining the intact lateral insertion of the cuff while reestablishing the medial delaminated portion. Although a number of in situ repair techniques have been described, the transtendon repair technique is the most commonly reported technique and is generally performed on articular surface tears. The transtendon technique has demonstrated excellent clinical results with a >%90 satisfaction rate (range 19-16.(%98–%91 Transtendon repair has generally shown good results in athletes, but with a wide range (%33 to %89) of athletes returning to their same level of sport or higher. Patients with poorer results and the inability to return to sport were generally associated with concomitant pathologies such as shoulder instability, SLAP lesions, and bicep tendinopathies. However, it should be noted that, even in patients with excellent outcomes by shoulder specific rating scales, some symptoms might persist. While this residual pain can be multifactorial in nature, some authors have attributed these symptoms to the effect of over-tensioning or inappropriate tensioning of the remaining fibers of the rotator cuff to the greater tuberosity (i.e., bursal surface versus articular surface tension mismatch) This has led to the development of a completely all-inside intra-articular technique, which only reduces the retracted articular fibers to the bone bed and may provide a more anatomic repair. Although there appears to be a theoretical and biomechanical advantage of transtendon repair over conversion repair, comparative studies have not been able to detect a significant clinical advantage.



Main  
Hall

Shoulder

Wednesday 24 Oct 2018

Lecture

10:30-12:30 Rotator Cuff Tear

10:30-10:40 Updates in Partial Thickness Rotator Cuff Tears

## Updates in Partial Thickness Rotator Cuff Tears

Dr.Hamid Reza Aslani, Dr.Farshad Biglari

**Shahid Beheshti University of Medical Sciences**

The etiology and pathogenesis of PTRCTs is likely multifactorial with both intrinsic and extrinsic factors contributing to an individual's rotator cuff lesion. Intrinsic factors, including age-related microscopic changes<sup>5-1</sup>. Extrinsic factors, including subacromial impingement, glenohumeral instability, and internal impingement, can further contribute to anatomic pathology<sup>8-6</sup>. Finally, traumatic events, either singular in nature or repetitive (e.g., overhead athlete), can eventually contribute to tensile overload and fiber failure of the rotator cuff. While still unclear, the presumption is that because of increased tendon strain due to the presence of a tear, PTRCTs generally increase in size over time<sup>4</sup>.

A number of more current studies have suggested that PTRCTs may not progress as rapidly as previously presumed<sup>12-10</sup>. Furthermore, they showed a significant correlation between the risk of tear progression and percentage of the tendon thickness involved at presentation. In patients with tears involving  $\geq 50\%$  of the tendon thickness,  $55\%$  had tear progression; whereas, in patients with tears involving  $< 50\%$  of the tendon thickness, only  $14\%$  had tear progression. Also PTRCTs are secondary to age-related degenerative change within an altered biomechanical environment, progression of the tear can occur<sup>10</sup>. The majority of imaging studies have demonstrated that healing of PTRCTs is, in fact, rare<sup>9,11,13</sup>. This is further supported by histologic studies by Fukuda et al.<sup>14,15</sup> who demonstrated that PTRCTs did not have the ability to heal themselves over time. Furthermore, it appears that nonanatomic procedures that do not specifically address the PTRCT do not prevent tear progression. In one study by Hyvonen et al.<sup>93</sup> 16 patients were followed for a mean of 9 years following subacromial decompression for impingement syndrome. However, subacromial decompression did not appear to prevent the progression of rotator cuff tearing. Based on cadaveric and imaging studies, the prevalence of PTRCTs ranges from  $13\%$  to  $32\%$ , in part, related to its strong correlation to patient age<sup>20-17</sup>. However, the true prevalence of PTRCTs may in fact be underreported. Investigation of 249 cadaveric supraspinatus tendons revealed that  $13\%$  had PTRCTs, of which  $55\%$  were intratendinous<sup>22,23</sup>. In one MRI study of asymptomatic individuals [28], the overall prevalence of PTRCTs was  $20\%$ .<sup>20</sup> There is a linear increase in the prevalence of rotator cuff tears after the 5th decade of life.<sup>21</sup> Similarly, the prevalence of PTRCTs is surprisingly high in overhead athletes....

## Papers

**Monday 22<sup>nd</sup> Oct 2018**

**Papers**

**Main  
Hall**

1269. Dr.AR.Kachooei et al.

**11:50-11:58**

**The Effect of Distal Pole Scaphoid Resection  
on Wrist Biomechanics**

**The Effect of Distal Pole Scaphoid Resection on Wrist Biomechanics:**

**Stephen Hioe, Christopher Jones, Megan Jimenez, Amir R. Kachooei, Mohammad  
Ebrahimzadeh, Michael Rivlin**

**Orthopedic Research Center , Mashhad University of Medical Sciences,**

### **Backgrounds**

Distal pole scaphoid resection arthroplasty (DPSR) provides pain relief and maintains motion in the face of chronic scaphoid non-union with limited degenerative arthritis. This study assesses the biomechanical implications of increasing levels of distal pole scaphoid resection.

### **Methods**

Dorsally based exposure was used in each of six fresh frozen cadaveric upper extremities statically affixed to a wooden ballast. Scaphoid resection levels at %50 ,%25, and %75 of the longitudinal length of the scaphoid were made under fluoroscopic imaging. Physiologic axial load through the carpus in grip and pinch were simulated with weights affixed to the wrist and finger flexor and extensor tendons. Simulated grip, pinch, radial and ulnar deviation were performed for the intact scaphoid and for each resection level. The following radiographic parameters were assessed: radiolunate and capitolute angles, carpal height ratio, 1st metacarpal subsidence ratio, and percentage of ulnar carpal translation. These measurements were statistically analyzed by using repeated measures ANOVA at  $P < 0.05$ .

## Results

Increasing levels of scaphoid resection is associated with a linear increase in radio- and capitulunate angles and a decrease in the distance between the radial styloid and trapezium with simulated radial deviation. Of these, only the radiolunate measurements attained statistical significance. We found no significant differences in 1st metacarpal subsidence or carpal height ratios with scaphoid resection levels up to %75. We also found increasing percentages of ulnar carpal translation in simulated grip, pinch, and radial deviation with more proximal resection level. Simulated ulnar deviation showed sequentially decreasing percentages of ulnar carpal translation. Though we observed the prior noted changes in ulnar carpal translation, these measurements did not attain statistical significance.

## Conclusions

More proximal resection levels showed increasing levels of bony impingement with wrist radial deviation as well as increasing radio and capitulunate angles. While our study demonstrates changes in ulnar carpal translation with increasing scaphoid sectioning levels, these values did not reach statistical significance. However, we observed that ulnar carpal translation with simulated wrist radial deviation worsened radiographic radial styloid impingement. In cases involving more proximal levels of distal pole scaphoid resection, a concomitant radial styloidectomy may be considered to avoid radial styloid impingement.

**Monday 22<sup>nd</sup> Oct 2018**

**Papers**

**Main  
Hall**

**12:02-12:10**

**A simple technique for treatment of the hand fractures and dislocations with low price**

1318. Dr.RSH.Kamrani et al.

**A simple technique for treatment of the hand fractures and dislocations with low price**

**Dr.Reza Shayriar Kamrani**

**Tehran University of Medical Sciences**

Fracture dislocation is one of the most common and challenging problems in hand surgery. Pin fixation is the most common fixation device in the hand but some times we need to use external fixators in hand fractures and diseases. Commercial hand external fixators are expensive and sometimes they are not available. Since it has been presented some alternative solutions for this technique to overcome these problems, like Suzuki technique, Pin stabilizing with syringe or orthopaedic cement and so on. We introduce a new alternative for this treatment which is simple, available and with low price. Pi frame can be used as static or dynamic external fixator. From June 2016 to February 2018 twenty four patients with hand and finger problems and trauma underwent external fixation stabilizing with Pi frame, including 8 phalangeal fracture, 6 PIP fracture dislocations, 7 metacarpal fracture and 3 congenital diseases. 18 cases as static and 6 cases as dynamic fixator. We had one patient with delayed union, 6 patients with different degrees of limitation of joint motion. We had not seen any cases with pin tract infection, hyper sensibility to the frame pin loosening or complaint of the appearances of the device. Pi mini external fixator is an available, simple with low price device with almost satisfactory results in difficult hand problems.

**Monday 22<sup>nd</sup> Oct 2018**

v

Main  
Hall

**12:14-12:24**

**Electrodiagnostic Grade and Carpal Tunnel  
Release Outcomes: A Prospective Analysis**

1272. Dr.M.Garivani et al.

**Carpal tunnel releasecarpal tunnel syndromeelectrodiagnostic studyendoscopic**

**Michael Rivlin, MD, Amir R. Kachooei Mark L. Wang, Asif M. Ilyas, MD**

**Orthopedic Research Center, Mashhad University of Medical Sciences, Ghaem Hospital**

## Backhrounds

The value of electrodiagnostic (EDX) study grades as a prognostic indicator of clinical results after carpal tunnel release (CTR) remains controversial. In this study, we tested

the primary null hypothesis that symptom relief after CTR would not differ based on EDX grade. Secondly, we evaluated the degree of symptomatic and functional postoperative improvement relative to preoperative EDX grad

## Methods

We prospectively evaluated 199 consecutive patients with 256 hands after CTR confirmed with EDX. Data were collected before surgery and patients were observed at 2 weeks and 3 months after surgery. There were 20 hands with mild, 126 with moderate, and 110 with severe involvement in the preoperative EDX. Demographic, EDX grade (mild, moderate, or severe); surgical parameters; Quick-Disabilities of the Arm, Shoulder, and Hand questionnaire; symptom severity scale, functional status scale, pain catastrophizing scale, and visual analog scale data were collected and analyzed.

## Results

There was significant improvement in Quick-Disabilities of the Arm, Shoulder, and Hand, symptom severity scale, and functional status scale scores from the preoperative to -2week and -3month postoperative visits in all categories of EDX grade. There was no significant difference in the extent of recovery by the -2week and -3month visits relative to EDX grade. Catastrophic thinking did not have a significant effect on any of the 3 groups. Pain decreased dramatically at 2 weeks after surgery but there was no additional significant difference in visual analog scale scores between the -2week and -3month postoperative visits. Postoperative pain improvement occurred regardless of EDX grade. There were no major complications or reoperations in any group.

## Conclusions

Carpal tunnel release demonstrated consistently significant improvement in outcomes regardless of EDX grade at initial and final follow-up. The extent of postoperative improvement after CTR overall was also not statistically different between groups with differing EDX severity. Older patients with severe CTS achieved more modest gains.

**Monday 22<sup>nd</sup> Oct 2018**

**Papers**

Hegmataneh  
Hall

8:10-10:00

Paper Session

8:10-8:16

**Single-Bundle VS Double-Bundle (Anatomical) Reconstruction of the Thumb Ulnar Collateral Ligament: Biomechanical Study**

**1274. Dr.MJ.Shariati et al.**

**Single-Bundle vs Double-Bundle (Anatomical) Reconstruction of the Thumb Ulnar Collateral Ligament: Biomechanical Study**

**Megan L. Jimenez, Stephen D. Hioe, Amir R. Kachooei , Jonathan W. Shearin, Christopher M. Jones, , and Michael Rivlin**

**Orthopedic Research Center, Mashhad University of Medical Sciences, Ghaem Hospital**

## Backgrounds

The goal of this study is to compare the biomechanical properties of anatomic (double-bundle) versus single-bundle reconstruction of the thumb metacarpophalangeal (MCP) joint ulnar collateral ligament (UCL) in a cadaveric model

## Methods

Twelve fresh frozen cadaver hands were randomly assigned to single- or double-bundle reconstruction groups using a palmaris longus autograft and tenodesis screws. Two blinded examiners performed mechanical testing and measurements using fluoroscopic imaging. We evaluated MCP joint congruence and angle in the coronal plane at °30, °0, and °60 of flexion with valgus loads of 1.36 and 2.72 kg. Maximum MCP flexion and extension with a 0.45 kg load was also measured.

## Results

There was no significant difference between single- versus double-bundle reconstruction in ulnar congruence or MCP angle. With varying amounts of flexion, there was no significant difference in MCP valgus angle between the 2 techniques, suggesting comparable joint congruity and coronal MCP angle along the arc of thumb MCP motion

## Conclusions

Single- and double-bundle UCL reconstructions of the thumb MCP joint have comparable biomechanical properties in regard to joint congruity under valgus load.

**1275. Dr.A.Razi et al.**

**Side-to-Side Versus Pulvertaft Extensor Tenorrhaphy-A Biomechanical Study**

**Michael Rivlin, MD, Kyle R. Eberlin, MD, Amir Reza Kachoei, MD, Ali Hosseini, PhD,jj**

**Nikola Zivaljevic, MD, Guoan Li, PhD, Chaitanya Mudgal, MD**

**Orthopedic Research Center, Mashhad University of Medical Sciences, Ghaem Hospital**

## Backgrounds

We hypothesized that a side-to-side (STS) tendon repair has biomechanical characteristics that match those of a Pulvertaft (PT) weave.

## Methods

Thirty extensor tendons were harvested (4 extensor digitorum communis and 1 extensor indicis proprius from 6 cadaver arms). Three hand surgery fellows with similar backgrounds of training under the same conditions and precise standardized technique performed the repairs (5 PT and 5 STS per surgeon). After the repairs, the tendons were passed through a graft-sizing guide to determine bulk and results were expressed as a repaired versus native diameter ratio. The specimens were then tested for ultimate strength and fatigue properties. Failure type and mechanical properties were recorded and compared with those of the native tendon.

## Results

The average peak force to failure was  $20 \pm 93$  N for the STS and  $32 \pm 62$  N for PT group. Relative strength ratio (repair strength compared with native tendon strength) was  $\%21 \pm \%37$  for the STS and  $\%11 \pm \%22$  for the PT group. In the STS group, all failures occurred as a result of tissue failure; however, in the PT, suture failures occurred in 3 tendons before tissue failure. The mean bulk ratio of the repaired site versus native proximal tendon was  $\%14 \pm 37$  and  $\%22 \pm \%40$  more for the STS and PT groups, respectively. These values for native distal tendon were  $\%9.9 \pm \%28$  and  $24 \pm \%26$ ,



respectively for STS and PT repair. Furthermore, the bulk of the repaired site for the STS and PT groups was  $0.50 \pm 4.2$  and  $1.2 \pm 4.7$  mm, respectively.

## Conclusions

Side-to-side repair technique showed superior biomechanical properties while demonstrating comparable repair bulk of the tendon coaptation compared with the Pulvertaft weave.

**Monday 22<sup>nd</sup> Oct 2018**

**Papers**

Hegmataneh

**Hall**

**8:26-8:32**

**Results of transfer of distal third of Trapezius muscle to improve function of patients with brachial plexus injury**

**1319. Dr.K.Rahbari et al.**

**Results of lower trapezius transfer for restoration of shoulder external rotation in patients with brachial plexus injury**

**Dr.Keyvan Rahbari, Dr.Reza Shahryar Kamrani**

**Shiraz University of Medical Sciences**

**Tehran University of Medical Sciences**

Brachial plexus injury is a rare condition but result in serious disability. Today with microsurgical technique improvement and also popularization of nerve transfer, great improvement was achieved in functional recovery of these patients. In spite of this truth, results of these treatment method is not complete and perfect. One of the problem in these patients at the end of recovery period is weakness of shoulder external rotation which has been occurred in one third of patients. Although transfer of lower third of trapezius is well known and conventional method especially in patients with poliomyelitis, today this procedure was introduced in patients with brachial plexus injury and also rotator cuff injury.

In this study we reviewed results of this procedure in treatment of our patients.

Since May 2015 till January 11, 2018 patients with brachial plexus injury who had muscle power greater than 5/2 in shoulder abduction and elbow flexion but due to weakness of shoulder external rotation could not use their extremity underwent

lower trapezius transfer with technique of Elhassan\_Valenti.

8 man and 3 woman with age between 43-18 and traumatic upper brachial plexus injury were operated .2 of 11 patients had spontaneous recovery of shoulder abduction and elbow flexion and 9 of 11 patients had shoulder abduction and elbow flexion improvement after previous nerve transfer.In all patient spinal accessory nerve were intact.

In 7 patients who underwent lower trapezius transfer ,shoulder external rotation was improved after single operation and in 1 case external rotation was improved after second revision surgery.In 3 patients external rotation didn't had any improvement. external rotation were between 120\_40 with mean degree of 88 and mean Quick DASH score decreased from 64 to 28 within 6 months follow up.

Transfer of lower trapezius result in functional recovery in patient with brachial plexus injury so preservation of spinal accessory nerve is very important in primary surgery

**Monday 22<sup>nd</sup> Oct 2018**

**Papers**

Hegmataneh  
**Hall**

**8:34-8:40**

**Evaluation of outcomes in patients following  
arthroscopically assisted surgery of scaphoid nonunion**

**1322. Dr.H.Saremi et al.**

**Evaluation of outcomes in patients following arthroscopically assisted surgery of  
scaphoid nonunion**

**Dr.Hossein Saremi, Dr.Abbas Bidabadi**

**Hamedan University of Medical Sciences**

## **Backgrounds**

The scaphoid is one of the most important bone of the human wrist, and the most common fracture of the wrist is related to it. Scaphoid surfaces are articulate. Due to the wide articular communications and high mobility of scaphoid, any disorder has a significant effect on the overall function of the wrist. On the other hand, delicate perfusion and less soft tissue attachments make it susceptible to nonunion and necrosis. Because this fracture is more common in young men, its morbidity

affect active population of the community. The prevalence of scaphoid nonunion is %12. Symptoms include chronic pain, limited motion, swelling and weakness of the wrist, and may eventually lead to complications such as deformity, instability, and degenerative changes. The most commonly used treatment is open surgery, which has consequences such as damage to soft tissue and small blood vessels, ligaments, volar capsule, and delayed onset of remission. While with arthroscopic surgery in addition to less soft tissue and vessels damage, Direct vision is possible to restore alignment of articular surfaces meticulously and detect accompanying damage. In this study, we recorded the radiographic and functional results and the complications of arthroscopic treatment of scaphoid nonunion in an organized manner.

### Methods

This study was carried out on patients with isolated and non-complicated nonunion and follow-up for one year in terms of unionization (based on imaging methods) and function with the parameters of the range of active motion based on the angle between the forearm and the third metacarp (by hand goniometer), grip strength (by dynamometer), and the standard disability questionnaires such as Hand, Arm and Shoulder (DASH) score and Patient-Related Wrist Assessment (PRWE) score and Modified Mayo Wrist Score. Complications associated with the surgical procedure were also carefully recorded

### Results

In this study, 15 patients were examined, of which 12 had fractures in dominant hand, and 3 were in non-dominant hands. 10 patients had scaphoid wrist fracture while 5 patients in the proximal pole. According to simple radiographic findings, the fracture of all patients was satisfactory united after 3 months. None of the patients had direct complications associated with surgical procedures such as ery sitesurg infection or sensory impairment. In terms of function, the mean range of motion and the strength of wrist were compared in two parameters including grip and pinch. According to the patients answers to the DASH questionnaire, their satisfaction with treatment was evaluated and in %47 of patients, the results were excellent, %40 good and %13 were weak. Overall, the average score of patients was 13.54 and was

equivalent to good function. According to the PRWE questionnaire, the satisfaction was answered by patients with a mean score of 16.11. According to the MAYO scoring system, the performance of the wrist was evaluated and %27 of the patients had excellent outcome, %27 had good, %40 had satisfactory, and %6 had poor result.

## Conclusions

According to the obtained data, the arthroscopic treatment of scaphoid nonunion seems to be an effective method with low complications and favorable results

Hegmataneh  
Hall

**Monday 22<sup>nd</sup> Oct 2018**

**Papers**

**8:42-8:48**

**Changes in spinopelvic alignment after total hip arthroplasty in patients with hip osteoarthritis and low back pain**

**1277. Dr.A.Yeganeh et al**

**Changes in spinopelvic alignment after total hip arthroplasty in patients with hip osteoarthritis and low back pain**

**Dr.Ali Yeganeh, Dr.Mehdi Moghtadaee, Dr.Ebrahim Ameri, Dr.Seyed Mani Mahdavi, Dr.Arian Jamili Baradaran, Mr.Farshad Safdari**  
**Iran University of Medical Sciences**

## Backhrounds

It has remained controversial whether total hip arthroplasty (THA) can affect the sagittal spinopelvic alignment. In current study, the changes in sagittal spinopelvic parameters was investigated in patients with end-stage hip osteoarthritis and low back pain (LBP) following THA.

## Methods

There were 27 patients underwent THA enrolled in current study. Before and after the operation, lateral standing spinopelvic x-rays (from cervical spine to pelvis) were taken. The measured variables included: pelvic incidence (PI), sacral slope (SS), pelvic tilt (PT), lumbar lordosis (LL), lumbar scoliosis, sagittal balance and range of hip sagittal motion. In addition, Ostwestry disability index (ODI) was completed before

and after surgery. Patients were followed at least for 6 months.

## Results

None of the radiographic spinopelvic parameters changed significantly after the operation. Range of motion increased significantly ( $12.7 \pm 84.6$  degrees Vs  $16.3 \pm 118.1$  degrees,  $p < 0.001$ ). Furthermore, ODI did not changed significantly after the operation ( $6.6 \pm 27.5$  Vs  $4.7 \pm 24.3$ ,  $p = 0.382$ ).

## Conclusions

THA did not affect the sagittal spinopelvic parameters measured in standing static x-rays. Since ODI was the same before and after the operation, the authors suggest to address LBP before THA in patients in whom LBP comorbid the hip osteoarthritis.

**Monday 22<sup>nd</sup> Oct 2018**

**Papers**

Hegmataneh

**Hall**

**8:50-8:56**

**Does diabetes aggravate carpal tunnel release outcome among patients suffering from carpal tunnel syndrome**

**1334. Dr.G.Gayem Hasankhani et al.**

**Does diabetes aggravate carpal tunnel release outcome among patients suffering from carpal tunnel syndrome**

**Dr.Golnar Ghayem Hasankhani, Dr. Ali Moradi, Dr.Ramin Sadeghi, Dr.Mohammad Hossein Ebrahimzadeh, Dr.Ehsan Vahedi, Dr. Ata Sadr  
Mashhad University of Medical Sciences**

## Backgrounds

Carpal tunnel syndrome (CTS) is one the most common upper extremity conditions, mostly affects women. Management of patients suffering from both CTS and diabetes is challenging as diabetes affects diagnosis as well as treatment. Since the result of surgical treatment in coexistence of CTS and diabetes in contrast to idiopathic CTS is unclear, the aim of this study was to compare the results of CTS treatment in diabetic patients with non-diabetic patients.

**Methods:** Our meta- analysis had been done based on the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) statement. First, databases searches were done followed by primary identification, removing duplication, and

abstract screening which were performed by two different researchers. After that analysis was performed using CMA® (comprehensive meta- analysis) software (version 2.0).

**Results:** In our systematic research, two relevant studies were found using Quick DASH. There was no statistically significant difference between two studies regarding postoperative Quick DASH scores (P- value= 0.112). Analyzing the studies which used BCTS revealed that both the functional status and symptom severity status scores were statistically different between studies (FSS p-value= < 0.001, SSS p-value= < 0.001). Also, all the nerve conduction parameters were statistically significant, except for MCV among diabetic and nondiabetic patients after carpal release (P value= 0.091).

**Conclusions:** Our study revealed that diabetes negatively affects the final results of carpal tunnel release operation such as severity of symptoms, function, and nerve conduction study results. Since various external factors contribute in diabetics' carpal tunnel release surgery, their treatment should include both the external (ischemia, hyperglycemia, and growth factor deficiency) and internal (anatomical) factors.

**Monday 22<sup>nd</sup> Oct 2018**

**Papers**

Hegmataneh

**Hall**

**8:58-9:04**

**Focal Fibrocartilaginous Dysplasia in Distal Radius**

**1346. Dr.F.Najd Mazhar et al.**

**Focal Fibrocartilaginous Dysplasia in Distal Radius**

**Dr.Farid Najd Mazhar, Dr.Hooman Shariatzadeh, Dr.Ali Dianat, Dr.Davod Jafari**

**Bone and Joint reconstruction research center, Shafa Orthopedic Hospital, Iran**

**University of Medical Sciences, Tehran, Iran**

**Backgrounds:**Focal fibrocartilaginous dysplasia (FFCD) is a benign lesion and has been reported as a cause of tibia vara in proximal tibia and distal of the femur. It is rare in upper extremity and few cases have been reported in the ulna and radius.

## **Methods**

The aim of the study was to review and report the clinical course, radiographic presentation and treatment results of three cases of FFCD in the distal radius.

## **Results**

We reviewed the medical records, imaging files, intraoperative anatomical findings

and treatment complications of three cases of FFCD in distal radius. All patients underwent tethering fibrotic band resection with lengthening of extensor tendons in one case and distal radius corrective osteotomy in another one

## Conclusions

All three patients were male with a mean age of  $36 - 11) 21.3$  months. The mean follow-up period was 28 months. Clinical and radiographic examinations in patients who underwent tethering band resection without osteotomy showed considerable remodeling.

Nonunion, multiple surgeries and deformity were the complications in patient who received osteotomy as a part of treatment. The natural history of distal radius FFCD is not clear. Until receiving enough evidences regarding the natural history of this rare lesion, we can recommend the least invasive treatment for the lesion, which is the resection of the fibrous band

**Monday 22<sup>nd</sup> Oct 2018**

**Papers**

Hegmataneh

**Hall**

**9:06-9:12**

**Mid-term results of scapholunate suture anchor fixation for treatment of scapholunate dissociation**

**1347. Dr.E.Vahedi et al.**

**Mid-term results of scapholunate suture anchor fixation for treatment of scapholunate dissociation**

**Dr.Reza Shayriar Kamrani, Dr.Ehsan Vahedi, Dr.Behnam Panjavi**

**Tehran University of Medical Sciences**

**Mashhad University of Medical Sciences**

**Backgrounds:** Scapholunate dissociation (SLD) is the most common and significant ligamentous injury of the wrist. The aim of treatment is restoration of carpal alignment. In current study, mid-term results of suture anchor fixation for restoration of normal scapholunate (SL) alignment have been evaluated.

## Methods

Nine male patients (average age: 34.8 years) with symptomatic dynamic or reducible static SLD underwent scapholunate suture anchor fixation (SLAF) from 2011 to 2016

with average follow-up of 36 months. After dorsal wrist exposure, a 2.8mm suture anchor was inserted in dorsoproximal lateral articular surface of the lunate bone. The two ends of the sutures were traversed from two divergent canals that were made in opposing articular surface of scaphoid. The sutures were tied over the tuberosity after restoration of normal SL alignment. Two K-wires supported SL and scaphocapitate (SC) alignment for 8 weeks. Radiographic parameters, wrist range of motion and grip strength were measured. Quick-DASH and Modified Mayo Wrist Score (MMWS) were used as outcome measures.

**Results:** The grip strength and passive motion reached %75 and %88 of other side, respectively. The SL gap was measured as 5.4mm, 2.6mm and 3.4mm in pre-op, after pin removal and follow-up stress x-rays as well as 51.8 ,81.7 and 65.1 degrees for the SL angle. Average Quick-DASH score corrected from 60 to 25. according to MMWS one, one, five and two patients gained excellent, good, satisfactory and poor results, respectively.

**Conclusions:** SLAF is a simple technique with minimal soft tissue manipulation which able to correct and maintain carpal alignment with favorable mid-term results, especially in dynamic SLD

**Monday 22<sup>nd</sup> Oct 2018**

**Papers**

Hegmataneh  
Hall

**9:14-9:20**

**Incidence of neuropathy associated with massive rotator cuff tear and the effect of tendon repair on improvement of the neuropathy**

**1324. Dr.Moazamipur et al.**

**Incidence of neuropathy associated with massive rotator cuff tear and the effect of tendon repair on improvement of the neuropathy**

**Dr.Ali Moazamipur, Dr.Farivar Lahiji**

**Shahid Beheshti University of Medical Sciences**

## Backgrounds

Previous studies suggest an existing association between massive rotator cuff tear (RCT) and peripheral neuropathy. However, the findings are often inconsistent. In the present prospective study we assessed the prevalence of peripheral neuropathy in



patients with massive RCT. In addition, we evaluated the effect of surgical repair of this rupture on the treatment outcomes of neuropathies

**Methods:** In this study, 58 patients were evaluated with a massive RCT. All patients underwent arthroscopic repair using suture anchor groups. Before surgery, electromyography (EMG)/nerve conduction velocity(NCV) were performed to check for neuropathy. In addition, before and after the surgery, Quick Disabilities of the Arm, Shoulder and Hand (DASH) score was calculated for all patients and the pain intensity was measured using visual analogue scale (VAS). Patients were followed up for 6 months. In the final visit, EMG/NCV was reperformed for those patients with neuropathy

**Results:** A total of 8 patients with neuropathy were observed (%13.5), of which 5 cases were presented with suprascapular neuropathy, 2 cases of upper trunk neuropathy and 1 case of neuropathy. In the final visit examinations, all cases except one suprascapular neuropathy and an upper trunk neuropathy were recovered.

In the final visit, the average Quick DASH score was significantly reduced from 72.6 to 19.7 ( $p < 0.001$ ). Similarly, the severity of pain significantly decreased from 5.3 to 1/1 ( $p < 0.001$ ). In the final visit, the most important complaint of the patients was a limitation of motion in 11 patients (%19). Three patients also complained of pain, two of whom were those whose neuropathy had not improved

**Conclusions:** Precise screening for neurological damage is recommended in all patients with extensive RCT. Moreover, electromyographic studies can be of benefit in suspected cases of neuropathy before repair of rotator cuff

**Monday 22<sup>nd</sup> Oct 2018**

**Papers**

Hegmataneh

**Hall**

**9:22-9:28**

**Visualization during endoscopic vs. open cubital tunnel decompression: A cadaveric study**

**1276. Dr.AR.Kachoei et al.**

**Visualization during endoscopic vs. open cubital tunnel decompression: A cadaveric study**

**Dr.Amir Reza Kachooei, Dr. Mohammad Hossein Ebrahimzadeh**  
**Orthopedic Research Center, Mashhad University of Medical Sciences, Ghaem Hospital**

**Backgrounds:** To determine the minimum incision size needed utilizing an open cubital tunnel technique to obtain equivalent and adequate visualization comparable to endoscopic technique.

**Methods:** On ten fresh-frozen cadavers with a -2cm incision, visualization was assessed by percutaneous needle localization using the endoscopic system. The most proximal and distal extent of field of view was marked. Next, an open cubital tunnel release was performed on each cadaver specimen. The incision size was increased incrementally and the most proximal and distal extents of visualization were recorded for each incision size. The mean visualization distance and standard deviation for each incisional length was calculated.

**Results:** The mean proximal field of view with the endoscopic technique was 8.1 cm. The mean distal field of view was 8.3 cm. Using the open technique a -2cm incision allowed 5.9 cm visualization proximally and 5.2 cm distally, which was significantly less than the endoscopic view. A -4cm open incision provided similar visualization as the endoscopic technique. A -6cm open incision was required to obtain statistically significant improvements in visualization compared to endoscopic.

**Conclusions:** A -4cm open incision was required to obtain equivalent visualization to the endoscopic technique for cubital tunnel release. Incision of 6cm is required to visualize 10cm proximal and distal to the medial epicondyle.

Hegmataneh  
Hall

**Monday 22<sup>nd</sup> Oct 2018**

**Papers**

**code 1342**

**9:30-9:36**

**Effect of tranexamic acid on bleeding after femoral fracture surgery**

**Effect of tranexamic acid on bleeding after femoral fracture surgery**

**Dr.R.Jokar, Dr.S.AA.Seyedi fard**

**Babol University of Medical Sciences**

## Abstract

Effect of tranexamic acid on bleeding after femoral fracture surgery

**Introduction:** Orthopedic surgeries are associated with bleeding and require blood transfusions. Tranexamic acid is a drug for reducing these complications during surgery. The aim of this study was to evaluate the effect of tranexamic acid on bleeding during femoral fractures surgery.

**Methods:** In this clinical trial study, 90 patients with hip fracture under open surgery after written consent were examined. Demographic variables such as age and sex and clinical variables such as hemoglobin and hemorrhage before and after surgery and rate of thromboembolism were recorded in patients. Data were analyzed by SPSS software version 23 and analyzed by statistical tests. The significance level was less than 0.05.

**Results:** In terms of hemoglobin changes in subjects who did not have blood transfusions; in the control group, hemoglobin before and after surgery decreased  $1.68 \pm 0.43$  mg / dl and in the case group it was  $0.31 \pm 0.91$ . This difference was statistically significant between the two groups in the case and control groups ( $P < 95\%$ ,  $0.001$  CI:  $0.6- ; 0.96-$ ). Hemoglobin before and after operation in subjects without blood transfusion during operation was  $0.91 \pm 12.02$  and  $0.89 \pm 10.8$  mg / dL ( $P < 0.001$ ) and in patients with transfusions during surgery it was  $0.99 \pm 11.37$  and  $0.63 \pm 9.83$  mg / dL ( $P < 0.001$ ). The rate of bleeding during the operation in the control and case group was  $121.74 \pm 513.78$  and  $68.08 \pm 325.11$  ml ( $P < 0.001$ ) and the rate of bleeding in 6 hours after the operation in the control group and the case  $9.60 \pm 36.22$  and  $22.89 \pm 8.95$  ml ( $P < 0.001$ ) respectively. The mean of bleeding during 6 hours after surgery was evaluated between two groups of case and control in different age groups and between the two sexes. As can be seen, the difference between the case and control groups was significant in terms of age and gender. The rate of thromboembolism was not significant between two groups.

**Conclusion:** Based on this study, tranexamic acid has beneficial effects in reducing bleeding and intraoperative blood transfusion in patients undergoing femoral fractures surgery and has no effect on thromboembolism.

**Keywords:** Tranexamic acid, femoral fracture, hemoglobin, blood transfusion, bleeding, thromboembolism.

Monday 22<sup>nd</sup> Oct 2018

Papers

Hegmataneh  
Hall

9:38-9:44

Dual mobility cups for recurrent THA dislocation

**1287. Dr.Taheriazam et al.****Dual mobility cups for recurrent THA dislocation****Dr.Afshin Taheri azam, Mr.Farshad Safdari****Orthopedic Hip Surgeon, Department of Orthopedics Surgery, Tehran Medical****Sciences Branch, Islamic Azad University, Tehran, Iran****Bone, Joint and Related Tissues Research Center, Shahid Beheshti University of  
medical sciences****Backgrounds**

Instability following total hip arthroplasty (THA) is a serious disabling complication. Even revision THA due to the recurrent dislocation can be associated with persistent instability. Dual mobility implants (tripolar prosthesis) are used to reduce the risk of recurrent hip dislocation. However, there is little knowledge about the mid-term and long-term outcomes of using these implants. In current study, we evaluated the midterm results of treating recurrent THA dislocation using tripolar prostheses

**Methods**

Between 2005 and 2011 consecutive patients were revised due to recurrent hip dislocation. The patients aged  $10.6 \pm 62.4$  years at the time of surgery. All of the patients had at least 2 episodes of dislocation. Preoperative Harris hip score (HHS) was  $11.5 \pm 46.1$ . Patients were followed for  $4.1 \pm 6.2$  years.

**Results**

At the last visit, HHS improved significantly ( $12.6 \pm 83.5$ ,  $p < 0.001$ ). Redislocation occurred in one patient who required a more revision surgery (4.1%). No patient developed infection and or symptomatic deep venous thrombosis. Also, we found no patient with implant loosening or periprosthetic fracture.

**Conclusions**

Tripolar hip prostheses are useful and effective for treatment of patients with recurrent hip instability after THA. However, more large long-lasting prospective studies are required.



Wednesday 24 Oct 2018

Papers

Hegmataneh

Hall

15:36-15:42

**The predictors of core decompression success in patient with AVN**

**2352. Dr.M.Karimi et al.**

**The predictors of core decompression success in patient with AVN**

**Dr.SM Javad Mortazavi, Dr.Mohammad Hasan Kaseb, Dr.Mehdi karimi, Dr.Hojat Asgari  
Tehran University of Medical Sciences**

## Backgrounds

Avascular necrosis of hip typically presents in young patients. Core decompression (CD) in precollapse stage provides pain relief and preservation of femoral head. The results of CD vary considerably despite early diagnosis. Clinicians concur that primary treatment should focus on preservation of the natural surface of the joint.

## Methods

To identify the predictive risk factors of the failure of CD of the femoral head AVN (ONFH), we retrospectively reviewed 135 patients (208 hips; 72 males [128 hips], 58 females [80 hips] who underwent CD (average age: 34.78years [71-21]) between April 2010 and December 2017. The mean follow-up period was 57 months. All hips were in precollapse stage (Ficat I, II).

## Results

Of 208 hips, 77 patients were bilateral, 24 hips had SLE-associated, 18 hips had Renal failure-associated, 10 hips had Lymphoma-associated ONFH, 4 hips had IBD-associated ONFH, 13 hips had Transplantation-associated, 13 hips had Trauma-associated, 44 hips had used weight gain drugs-associated, 7 hips had used weight loss drugs-associated, 115 hips had used corticosteroid-associated, 1 hips had used Radiotherapy-associated 9 hips had used chemotherapy-associated, 77 hips had used smoke-associated, 41 hips had used alcohol-associated and 20 hips had used opium-associated ONFH. We investigated age; sex; body mass index (BMI); etiologic factors; preoperative Imaging classification and staging; Arco score, Ficat score, Kerboul score, Number of focal of femoral head

AVN and various clinical data. Univariate and multivariate logistic regression analysis was performed to analyse the data. Of 208 hips, %42.03) 88) were failed. In univariate logistic regression analysis, the Kerboul and Ficat, Arco classification, number of focal AVN femoral head involved, alcohol, smoking, opium, corticosteroid demonstrated statistically significant association. This means that the factors mentioned above were significantly higher in patients whose CD surgery was unsuccessful. However, to predict the success rate of treatment multivariate logistic regression analysis is needed. In multivariate logistic regression analysis, the Kerboul and Ficat classification, alcohol, number of focal AVN femoral head involved were significantly correlated with failure of CD. The largest failure of CD predictive factor was the Ficat II, Kerboul stage3, multifocal of femoral AVN, alcohol user. The preoperative Imaging classification (Kerboul, Ficat), alcohol user, Multifocal femoral head AVN can predict failure of CD and suggest which patients with ONFH are appropriate for CD treatment

## Conclusions

Our new predictor factor for CD improves the reliability of hip preserving surgery, and further research is warranted.

**Monday 22<sup>nd</sup> Oct 2018**

**Papers**

Hegmataneh  
Hall

**9:54-10:00**

**Investigating the Function and stability of intra-osseous the Distal Radius Ulnar Joint prosthesis on cadavers**

**1326. Dr.Ali.Moradi**

**Investigating the Function and stability of intra-osseous the Distal Radius Ulnar Joint prosthesis on cadavers**

**Dr.Ali Moradi, Dr.Ali Ajvadi**

**Mashhad University of Medical Sciences**

## Backgrounds

One of the common injuries in the distal radius-ulnar joint is arthritis in this area. Many prostheses have been made for the radioulnar joint, but none have an acceptable performance, since two parts of prostheses are not placed in the bone. We have

designed a prosthesis that is replace with a distal segment of the bone. This prosthesis is drive from the Kapandji method, which is a common surgical method. In this study, we are going to test the prosthesis on the corpus

## Methods

In this study, we investigated the stability and biomechanics of artificial intra-osseous Distal Radius Ulnar Joint prosthesis on 4 corpses. The range of wrist movements was recorded in six directions before and after the operation. Artificial wrist stability tests were performed as side tensile tests in three modes (Supination, neutral and pronation), axial loading, and rotational loading in supination and pronation for artificial joint stability. Ultimately, anteroposterior and lateral radiographs were performed.

## Results

All 4 prostheses were placed without problems. The range of motion of the wrist did not changed before and after placement. The results of lateral traction tests were applied in three modes (supernatant and permeation) of the axial stretching, and lateral traction in supination and pronation demonstrated complete joint stability in all four patients. The amount of torque in supination in three patients was 8 ,4 and 7.2 N/m, respectively, and 7 ,4, and 8, respectively in pronation. We had prosthesis failure only in one case. The amount of displacement of the removed segment in the pronation and supination has been at most 2 mm.

## Conclusions

Intra-osseous Distal Radius Ulnar Joint artificial prosthesis presented proper function on cadaver study.

**Tuesday 23 Oct 2018**

**Papers**

**Main  
Hall**

**12:00-12:08      Posterolateral interbody Fusion with Laminoplasty in the treatment of lumbar isthmic spondylolisthesis. A prospective clinical study**

**Dr.E.Sadat**

**Posterolateral interbody Fusion with Laminoplasty in the treatment of lumbar isthmic spondylolisthesis. A prospective clinical study**

## Introduction

The technique for the surgical treatment of isthmic spondylolisthesis (ISL) is still controversial. Different opinions have been expressed by various authors on the timing, type of surgery, type of the graft used as well as on whether reduction should be applied or not value of reduction. In light of these data describe our technique in the treatment of ISL and its outcomes.

## Methods

Between January 2013 and December 2016, we examined 40 consecutive patients that had been operated in our clinic due to ISL. The patients have been assessed clinically and radiologically. The same posterior surgical technique was used in all patients (interbody fusion using bone substitute, reduction of the olisthesis and reinsertion of the lamina).

## Surgical technique

In prone position, after exposure of the spine posteriorly and transpedicular screw fixation of the affected segment, the lamina of the affected level was removed en-bloc through the Facet joint and site of lysis on both sides. Decompression of the nerve roots on both sides followed by discectomy and the endplates were prepared for bone substitute and cage. Partial reduction of the olisthesis could be achieved through the discectomy and additional reduction through the application of lordotic rods. Finally after preparation of the lamina and removal of the cartilage on the joint surfaces the lamina was placed and fixed through small screws 2.7mm through the facet joint on both sides.

**Results** The mean age 24 females and 16 males was 53.2 years (78-18). The main complaint at the time of presentation was low back pain (mean VAS 10/5.9) in 36 patients with mean duration of 11.9 months. Leg pain was also in 17 cases; L5 radicular pain in 14 of them. Two patients had foot weakness due to foraminal disc herniation. Olisthesis grade I was in 22 patients, grade II in 14 and grade III in 4 cases. The technique was performed in 30 patients for L5/S1, in 8 patients for 5/4, in 2 patients for L-4S1. Fusion of adjacent degenerative level was in 7 cases. Mean operative time was 182 min. and blood loss of 630 ml. Complete reposition could be obtained in 33 patients.



Two patients had dural tears intraoperatively, one patient had foot weakness postop., improved completely with the first postop. week and 2 had superficial wound infection; one needed wound revision. Solid fusion found in 37 patients at the last FU; 2 patients developed symptomatic screw loosening of L5, who had to be re-operated. VAS reduced to 10/3 before the discharge and to 1,2 at the last FU (mean of 20.5 months).

## Conclusion

Removal of the lamina facilitate decompression of the nerve roots and enables the reduction of Olisthesis. The use of bone substitute prevents the donor site complications. The laminoplasty preserve the osseous structures of the posterior column and therefore prevents scar formation by inhibition blood collection in the paravertebral muscle. It also facilitates performing the revision surgeries.

**Tuesday 23 Oct 2018**

**Papers**

**Main  
Hall**

**12:10-12:18**

**Extrafocal Percutaneous transpedicular fixation for the treatment of pyogenic spondylitis**

**Dr.E.Sadat**

**Extrafocal Percutaneous transpedicular fixation for the treatment of pyogenic spondylitis**

## Introduction

Pyogenic spondylodiscitis (PS) is a challenging disease with poor prognosis that requires immediate diagnosis and treatment. It can be treated nonsurgically with antibiotics and immobilization with an external orthosis for several weeks to months. If surgical intervention is required, a combined anterior and posterior approach is usually performed. We report here on our experience with the use of minimally invasive percutaneous transpedicular fixation (PTPF) for the treatment in patients with PS.

## Methods

We reviewed data of 12 patients, between June 2013 and June 2017, treated for

PS, without extensive bone destruction or significant neurological deficit, with PTPF. Demographic, operative, and perioperative data were collected and analysed.

**Results:** Six females and six males with mean age of 75.9 years (90-57). Renal insufficiency was found in 9 patients and DM in 5. Four cases were class II ASA-Score und 8 were class II and IV. Three patients suffered from a lumbar, three from thoracolumbar, six from thoracic and four patients has multifocal PS (%33). More than three segments were fixed in six patients. The average operative time was 88 minutes. The average blood loss was 160 ml. Intraop. biopsy for microbiological and histopathological examination in 10 patients; organism could be isolated in 7 cases (%70). There were no intraop. complications, one patient died two days postop. due to caradiac infarction. Three patients had been reoperated for shortening of the fixation after fusion of the infected segments; occured in 9 patients within 6 months. Preop. VAS of 10/6 reduced to 2 at the last FU. Seven cases had ASIA-D, six improved postop. to ASIA-E with neurological improvement rate of %86. Preop. CRP and WBC were 83.2 and 10.7 reduced to 32.5 and 8.8 at the last FU respectively.

**Conclusion :** Long-term immobilization is critical, especially in elderly patients because of severe comorbidities. We present a minimally invasive surgical procedure to avoid immobilization and to overcome the disadvantages of ventrodorsal procedure in patients without significant neurological deficit or extensive bone destruction. The internal immobilization and antibiotic therapy without touching the infected tissue is sufficient to completely resolve the spondylodiscitis. Short and midterm outcomes are promising. A larger series and continuing follow-up examinations are necessary in order to clarify and define benefits and limitations of the presented technique.

**Tuesday 23 Oct 2018**

**Papers**

**Main  
Hall**

**12:20-12:28**

**Curve pattern of lumbosacral list in patients with lumbar disc herniation**

**1296. Dr.B.Givehchain**

**Curve pattern of lumbosacral list in patients with lumbar disc herniation**

**Dr.Behrouz Givehchian, Dr.Farshad Nikoue, Dr.Saeed Sabbaghan, Dr.Maryam**

**Ameri, Dr.Mona Ziae, Mr.Farshad Safdari**

**Iran University of Medical Sciences**



## Bone, Joint and Related Tissues Research Center , Shahid Beheshti University of Medical Sciences

### Backgrounds

There are many unanswered questions about the characteristics and mechanism of lumbosacral scoliotic list (LSL). In current study, the pattern of LSL, the level of maximal bending (take-off) and the relationship between location of disc herniation (DH) on magnetic resonance imaging (MRI) and LSL direction on x-rays were investigated.

**Methods:** 37 patients with extruded lumbar DH and LSL enrolled in current study. The following variables were measured on standing antero-posterior and lateral lumbar x-rays: LSL (from L1 to L5), the take-off level and the coronal shift (the distance between the plump line from T12 spinous process to the central sacral vertical line). The direction of LSL was recorded as the bending side of the patient opposite to the convexity of the curve. The location of DH was determined as right, left or central on MRI.

### Results

LSL averaged  $6.9 \pm 9.9$ . In right and left hernias, the list occurred significantly to the opposite side of the herniation direction ( $p=0.04$ ). There was no significant relationship between level of herniation and level of take-off ( $p=0.391$ ), however, in %67.6 of patients with L-4L5 and L-5S1 hernias, take-off was found at a level above. The take-off was found at L-3L4 or L-4L5 levels in all the patients.

### Conclusions

LSL occurs usually in opposite side of the herniation location. Furthermore, due to the biomechanical properties, take-off is found in L-3L4 or L-4L5 levels in most of the patients with LSL. It seems that LSL pattern is not affected by the level of herniation.

Tuesday 23 Oct 2018

Papers

Hegmataneh

Hall

8:00-8:06

The Relation of femoral notch index and ACL Tear

1234. Dr.T.Fathi et al.

The Relation of femoral notch index and ACL Tear

Dr.Teimour Fathi, Dr.K.Eftekhari

Kermanshah University of Medical Sciences

### Backgrounds

Objective: ACL is one of the most commonly encountered elements in knee trauma. The purpose of this study was to compare the Necch Intercondylar width index in

patients with and without knee ligament rupture following knee trauma.

**Methods** This is a case-control study. Knee trauma patients referred to hospitals were categorized in two groups with and without knee cruciate ligament rupture as case group (n=47) and control (n=47). Width Nachch Intercondylar is calculated based on the knee MRI results and is compared in two groups. Data were analyzed using SPSS 22 software.

**Results** mean of medial and lateral posterior tibial slope of knee trauma patients with cruciate ligament rupture was significantly higher than patients with knee trauma without cruciate ligament rupture ( $0.74 \pm 5.78$ , and  $1.13 \pm 6.31$ ,  $P < 0.05$ ). The mean of Intercondylar Notch width index in patients with knee trauma with cruciate ligament rupture was significantly lower than patients with knee trauma without cruciate ligament rupture ( $0.02 \pm 0.25$ , and  $0.02 \pm 0.24$ ,  $P < 0.05$ ). The mean of intercondylar notch angle in knee trauma patients with cruciate ligament rupture was significantly lower than patients with knee trauma without cruciate ligament rupture ( $8.47 \pm 54.29$ , and  $11.99 \pm 50.93$ ,  $P < 0.05$ ). In multivariate logistic regression analysis, notch width of intercondylar and posterior tibial slope were statistically significant ( $P < 0.05$ ).

**Conclusions** Intercondylar nach width index and intercondylar notch angle and medial and lateral posterior tibial slope are associated with cruciate ligament rupture in patients with knee trauma.

Hegmataneh  
Hall

Tuesday 23 Oct 2018

Papers

8:06-8:12

**Comparison of Clinical Outcomes Between Different Femoral Tunnel Positions after Anterior Cruciate Ligament Reconstruction Surgery**

**1240. Dr.Keshavarz et al.**

**Comparison of Clinical Outcomes between Different Femoral Tunnel Positions after Anterior Cruciate Ligament Reconstruction Surgery**

**Dr.Amirhossein Keshavarz, Dr.Aliakbar Esmaeilijah, Dr.Mohammadreza Abbasian, Mr.Farshad Safdari**

**Bone, Joint and Related Tissues Research Center Shahid Beheshti University of Medical Sciences**

**Backgrounds** It has been shown that the proper placement of ACL graft during the ACL reconstruction surgery significantly improves the clinical outcomes. This study investigated whether a change in the femoral tunnel position in both axial and coronal



planes can significantly alter the postoperative functional and clinical outcomes of the patients

**Methods** This comparative, retrospective, single-center study was performed on 44 patients undergone single-bundle anterior cruciate ligament reconstruction (ACLR). Radiographic assessments were done to evaluate the tunnel position in coronal and axial planes. Patients were classified into 4 groups based on radiographic data. The time interval between surgery and last visit averaged  $2.2 \pm 23.6$  months (30-18 mos.). Lysholm knee score and Cincinnati score were completed for all of the patients. Furthermore, the Lachman, anterior drawer and pivot-shift tests were performed.

**Results** Of the 44 patients included in the study, 9 patients (20.4%) were classified as the low-anterior group, 38.6% (17) were classified as the low-posterior group and 40.9% (18) were classified as the high-posterior group. None of the patients were included in high-anterior group. A greater mean Lysholm score ( $3 \pm 96$ ) in low-posterior group was the only significant difference between the three groups ( $P < 0.001$ )

**Conclusions** Findings of the current study demonstrated that low-posterior placement of the ACL graft through the intercondylar notch, based on both antero-posterior (AP) and tunnel-view x-rays, is associated with better clinical outcomes in short-term compared to the routine tunnel placements

**Tuesday 23 Oct 2018**

**Papers**

Hegmataneh

**Hall**

**8:15-8:21**

**Probability of ACL tear in the contralateral knee and sibling**

**1249. Dr.M.Mardani et al.**

**Probability of ACL tear in the contralateral knee and sibling**

**Dr.Mohsen Mardani-Kivi, Dr. Mahmood Karimi-Mobarakeh**

**Guilan Road Trauma Research Center, Guilan University of Medical Sciences**

**Kerman University of Medical Sciences**

**Backgrounds** Recent studies have shown that several genetic factors can cause an

individual's susceptibility to anterior cruciate ligament (ACL) rupture. The aim of the present study was to evaluate certain underlying factors in increasing the risk of ACL rupture.

**Methods** Eight hundred thirty-six patients with ACL rupture, who had undergone ACL reconstructive surgery from 2010 to 2013 in an academic center and at least 5 years have passed since their surgery, were enrolled. Our variables included gender, age, height, weight, exercise level, time interval between ACL rupture in the first knee and contralateral ACL rupture, the dominant leg, the side of involved knee and the history of ACL rupture in the patient's sibling. Data were analyzed using SPSS version 21.

**Results** Mean follow-up of patients was 6.9 years. Eighty-three patients (%9.9) had contralateral ACL rupture and 155 patients (%18.54) had history of ACL rupture in their siblings. Based on our results, contralateral ACL rupture was three times higher in women compared to men and in patients with history of ACL rupture in sibling compared to who without this history. In addition, the risk of contralateral ACL rupture was higher in age lower than 30 years, BMI 25-20 kg/m<sup>2</sup> and who with regular sport activity. However, the dominant or defeated damaged knee had no effect on the incidence of contralateral ACL rupture. Our results indicated that %83.13 of contralateral ACL rupture occurred during the first two years after the primary operation.

**Conclusions** The risk of contralateral ACL rupture and ACL rupture in sibling in the 6.9 years' follow-up is %9.9 and %18.54, respectively. Also, the risk of contralateral ACL rupture is 3 times higher in women than in men.



Tuesday 23 Oct 2018

Papers

Hegmataneh

Hall

8:21-8:27

**Revision single stage anterior cruciate ligament reconstruction using 3anterolateral tibial tunnel**

**1331. Dr.Keyhani et al.**

**Revision single stage anterior cruciate ligament reconstruction using 3anterolateral tibial tunnel**

**Dr.Sohrab Keyhani, René Verdonk, Dr.Behzad Hanafizadeh, Dr.Mohammadreza Minator Sajjadi, Dr.Mehran Soleymanha**  
**Shahid Beheshti University of Medical Sciences**

## Backhrounds

Purpose Revision Anterior Cruciate Ligament Reconstruction (ACL-R) is a technically demanding enterprise. Management of widened or previously malposition tunnels is a challenging issue and often requires innovative approaches. The purpose of this study was to evaluate the function and clinical results of revision single stage ACL surgery using the anterolateral tibia tunnel.

## Methods

Methods 93 revision ACL reconstruction knees from 2012 to 2015 were involved in this study. We focused on 25 knees with malposition or dilatation of the tibial tunnel. All these patients underwent revision single stage ACL reconstruction using the anterolateral tibial tunnel, with a minimum of 2 years follow-up. The clinical results were evaluated by means of the Lysholm score, IKDC score and Tegner activity level scale, and the knee stability was assessed by the Lachman test, pivot shift test, and anterior drawer test. MRI of the index knee before the surgery and two years after revision surgery was assessed

## Results

Patients were followed-up for a minimum of 2 years (range 51 - 24 months). The mean preoperative IKDC subjective score improved from  $6.92 \pm 60.45$  preoperatively to 72.29

4.71 ± at last follow-up ( $P < 0.001$ ). The mean Tegner activity level scale improved from 1.89 ± 5.09 to 1.25 ± 7.69 ( $P < 0.01$ ), and the mean Lysholm score improved from ± 63.4 8.23 to 6.41 ± 80.86 ( $P < 0.015$ ) preoperatively and at last follow-up respectively.

## Conclusions

Creation of the lateral tibial tunnel is an applicable solution in ACL revision surgery when the surgeon is not able to perform an optimal medial tibial tunnel because of the partially misplaced tunnel or altered bone stock encountered in the medial side. One should expect acceptable tunnel length, intact and fresh bony surrounding, perfect graft fixation and comparable stability in ACL revision surgeries using the anterolateral tibial tunnel in comparison to the standard anteromedial tibial tunnel

Hegmataneh

Hall

**Tuesday 23 Oct 2018**

**Papers**

**8:30-8:36**

**Cartilage Matrix Derived Scaffolds for Cartilage Tissue Engineering Applications**

**1262. Dr.A.Moradi et al.**

**Cartilage Matrix Derived Scaffolds for Cartilage Tissue Engineering Applications**

**Dr.Ali Moradi, Dr.MohammadHossein Ebrahimzadeh, Dr.Taktom Ghasemi,  
Dr.Nafise Elahpour. Mashhad University of Medical Sciences**

## Backgrounds

Routine surgical methods for articular chondral defects have failed to regenerate Hyaline cartilage. Tissue engineered scaffolds particularly those derived from cartilage extracellular matrix are potential substitutes for filling the chondral voids. In this study, cartilage extracellular matrix derived scaffolds from two different methods were accessed.

## Methods

Bovine articular cartilage samples were subjected to one of the following processing methos

1. Vigorous washing with various detergents like SDS and Triton-X for decellularization



## 2. Homogenization, decellularization, molding, and lyophilization

Characterization was performed through scanning electron microscopy, porosimetry, and mechanical tests.

## Results

Detergent-decellularized scaffolds showed dense porous with very small pore sizes; however their compressive strength was about 0.55 MP. Contrarily, homogenized scaffolds had big interconnected pores, but lower mechanical properties (0.43 MP).

## Conclusions

Engineered cartilage matrix derived scaffolds can be potential choices for treatment of articular chondral lesions.

**Tuesday 23 Oct 2018**

**Papers**

Hegmataneh

**Hall**

**8:36-8:42**

**Rhenium188- radiosynovectomy for chronic hemophilic synovitis: evaluation of its efficacy in hemophilic patients and establishment of radiosynovectomy at Joint Care Clinic**

**1265. Dr.A.Heidari et al.**

**Rhenium188- radiosynovectomy for chronic hemophilic synovitis: evaluation of its efficacy in hemophilic patients and establishment of radiosynovectomy at Joint Care Clinic**

**Dr.Amir Reza Kachooei, Dr. Alireza Mousavian, Dr. Zahra Badiei,**

**Dr.Mohammad Zandinezhad, Dr.Mohammadhossein Ebrahimzadeh, Dr.Ali**

**Divband, Dr.Arash Heidari, Dr.Farshid Bagheri**

**Mashhad University of Medical Sciences, Ghaem Hospital**

## Backgrounds

Radiosynovectomy (RSO) is widely used in management of chronic synovitis in haemophilia. Commercially available radiopharmaceuticals are costly, and therefore new agents may be of interest. Radiocolloids labelled with less costly and more accessible radionuclides like rhenium188- are of interest to developing countries. The aim of this study was to evaluate the efficacy of radiosynovectomy by rhenium188- in

patients with chronic synovitis due to hemophilia.

### Methods

All patients were enrolled after taking the history and recording the number of intra-articular bleedings, the required amount of factor, and other information of the disease. The questionnaires and checklists related to the patients' function and the amount of pain were completed. After the above, the rhenium188- was injected into the joint and its distribution analyzed by using a gamma monitor. Six months after the injection synovial thickness was measured by MRI. Also, at a time interval of 6 and 12 months after the injection, simple radiography was repeated. Patients' performance and pain questionnaires (FISH, VAS), the range of motion, number of bleeding episodes and required amount of factor were recorded at intervals of 6, 3, 1 and 12 months after injection.

### Results

In this clinical trial, 20 patients with hemophilia were studied during a one-year period. All of them were male and the mean age was  $13.88 \pm 22.99$  years. The Trend of changes in the mean number of patients' bleeding episodes per month ( $P = 0.015$ ), the amount of factor requirement ( $P < 0.001$ ), the mean score of VAS at resting ( $P = 0.014$ ) and activity time ( $P < 0.001$ ), FISH score ( $P < 0.001$ ), Gilbert score ( $P < 0.001$ ) and synovial thickness ( $P < 0.001$ ) were significant. The trend of changes in the average score of Peterson ( $P = 0.623$ ) and Denver ( $P = 0.331$ ) among the patients were also evaluated using repeated measurement analysis, which was not significant.

### Conclusions

The results of this study indicate a high clinical impact, safety and low invasion of rhenium 188 in radiosynovectomy of hemophilic patients. Considering the availability and relatively low cost of rhenium 188 in our country, this can be a good treatment option for hemophilic patients.



Tuesday 23 Oct 2018

Papers

Hegmataneh

Hall

8:45-8:51

**The effects of axial alignment of components on the outcomes of total knee arthroplasty using CT scanning**  
1294. Dr.A.Mavian et al.

**The effects of axial alignment of components on the outcomes of total knee arthroplasty using CT scanning**

**Dr.Aliakbar Esmailijah, Dr.Ali Mavian, Dr.Babak Shekarchi, Mr.Farshad Safdari**  
**Bone, Joint and Related Tissues Research Center, Shahid Beheshti University of medical sciences**

## Backgrounds

There are limited studies regarding the axial alignment of the prosthetic knee components and its effects on the outcomes of the surgery. Furthermore, appropriate method for determining the axial alignment of the components remains controversial. In current study, the effects of axial alignment of the prosthetic knee components on radiographic, functional and subjective outcomes after total knee arthroplasty (TKA) were investigated.

**Methods** In current descriptive analytical study, 102 TKA patients investigated at least 1 year after the operation. Full length radiography of lower extremity was performed. Correct coronal alignment (HKA angle= $^{\circ}$ 180) was present in 89 patients and others were excluded. CT scanning of the prosthetic knee with 0.6 mm thickness was performed. On CT scans, the axial alignment of the components and total prosthetic joint were evaluated. Correct axial alignment of the prosthetic joint was defined as correct axial alignment of the both components in addition to parallel axial axes of the components. To measure the angle between two axes, the related CT slices were incorporated. The patient satisfaction was measured using visual analogue scale (VAS). Further, Knee injury and Osteoarthritis Outcome Score (KOOS) was completed to evaluate the functional outcomes. In all measurements, deviation up to 3 degrees was acceptable. The measurements were performed using MicroDicom software and a specialized software for the CT scan system by two radiologists and two orthopedic surgeons.

## Results

7 patients were excluded because of the internally rotated components. The correct axial alignment of the femoral and tibial components were found in %81.7) 67) and %71.6) 58) of the patients, respectively. The correct axial alignment of the both components were found in 48 patients (%58.5). In 35 out of these 45 patients, the axial axes of the components were parallel. In addition, parallel axes were found in 10 patients in whom at least the axial alignment of one of the components was incorrect. Mismatch between axial axes ranged from 0 to 18 degrees. The correct axial alignment of the prosthetic joint did not significantly increase KOOS ( $8.6 \pm 84.7$  versus  $7.2 \pm 81.4$ ,  $p=0.061$ ). Parallel axial axes, also, did not affect the KOOS ( $9.3 \pm 83.6$  versus  $8 \pm 81.7$ ,  $p=0.318$ ). While mismatch  $> 10^\circ$  significantly decreased KOOS and satisfaction ( $p<0.05$ ).

## Conclusions

The current study showed that mismatch  $> 10^\circ$  between axial axes of the components is associated with poor functional outcomes and decreased satisfaction. The authors advise that Akagi's line is an appropriate reference line to determine the axial alignment of the tibial component, since the tibial component was placed inappropriately related to this line in patients with  $> 10^\circ$  mismatch.

**Tuesday 23 Oct 2018**

**Papers**

Hegmataneh

**Hall**

**8:51-8:57**

**Total Knee Replacement in the Varus Knees: What Measurement really matters? Introducing a new classification system**

**1309. Dr.A.Ramezanpoor et al.**

**Total Knee Replacement in the Varus Knees: What Measurement really matters?  
Introducing a new classification system**

**Dr.SMJ.Mortazavi, Dr. Ahamd Ramezanpoor, Dr.Ali Okati  
Tehran University of Medical Sciences**

**Backgrounds** TKA is one of the surgeries that has a high level of satisfaction in patients and can greatly improve the patients' function and life style. One of the most important

factors in increasing the outcome of patients is appropriate preoperative planning. Varus deformity is one of the challenges in many patients before TKA, and in various studies, different surgical techniques have been proposed. Our purpose in this study is to present a new classification and surgical technique patients with Varus deformity Candidate for total knee replacement.

**Methods** In this study, 81 patients (including 81 knees) were studied. %68 of patients were female and the rest were male. After the initial pre-op planning, Patients were operated based on the medial defect and lateral laxity (opening the lateral of knee more than 5 mm and/or lateral trust) and finally classified. Then cut-off size of the lateral tibia was determined based on new classification

**Results** In the present study, Varus varies in the range of 9 to 42 degrees. According to the new classification system, 13 % of patients were in type 1 (without defect -without laxity) , 18 % in type 2 ( without defect - with laxity) ,27 % in type 3( with defect - without laxity) , 42 % in type 4 ( with defect - with laxity) . 13 % of patients needed medial release. all patients were placed under the TKA with PS system. The size of the liner in %78 of patients was 10 mm, 8 ,%17 mm and other were larger sizes

**Conclusions** According to the analysis, in patients with same JCA and same lateral trust, those without bony defect will need more medial soft tissue release. So, we suggested in those patients, lateral tibial cut should be minimally

**Tuesday 23 Oct 2018**

**Papers**

Hegmataneh

**Hall**

**9:00-9:06**

**Amputation as a devastating complication of total knee arthroplasty: systematic review**

**1314. Dr.AR.Mosavian et al.**

**Amputation as a devastating complication of total knee arthroplasty: systematic review**

**Dr.Alireza Mosavian, Dr.Shirin Ghaisi, Dr.MohammadHossein Ebrahimzadeh,**

**Dr.Omid Shahpari, Dr.Amirreza Kachooei, Dr.Nafiseh Elahpoor**

**Mashhad University of Medical Sciences**

**Backgrounds** Total knee replacement is a growing attractive alternative for any non infected end stage knee disease. Yet there are some certain devastating complications to be discussed with patient preoperatively. Limb amputation is one of these potential end stage results. Our objective was to find all reported amputation cases related to total knee replacement.

**Methods** We made a through literature review between 2017-2005 aimed to find any paper which reported knee amputation in their short or long term follow ups. 9398 article were extracted from EBASE, SCOPUS, PubMed, Web of Science, MEDLINE, Ovid SP, CINAHL (EBSCO), Web of Science™, and Cochrane. Included studies were level 3 or 4 on evidences including registries, follow up studies , case series and case reports. Key words were all relevant expressions of (total knee replacement) and (complication or amputation or results or outcome). With title screening 536 articles were screened. 99 item were duplicated. Two researchers reviewed 437 full texts. 60 papers had been reported our intended outcome (Amputation). 15 were excluded because they were case reports.

**Results** 70621 cases resulting from 45 studies were reported total of 41 amputations as end result (%0.05). Infection, fracture and bone losses, vascular complication and compartment syndrome consisted all reported causes of amputation with infection as %96 of all cases. Amputation was as %3.9 in infected total knee arthroplasties.

**Conclusions** amputation is a real end result for knee replacements either in primary or revision knee arthroplasties which needs to be discussed with patients for their decision making.

**Tuesday 23 Oct 2018**

**Papers**

Hegmataneh  
Hall

**9:06-9:12**

**The impact of depression, personality and mental health on early outcomes of Total Knee Arthroplasty**

**1325. Dr.M.Moghtadei et al.**

**The impact of depression, personality and mental health on early outcomes of Total Knee Arthroplasty**

**Dr.Mehdi Moghtadaei, Ali Yeganeh, Nima Hosseinzadeh, Amir Khazanchin, Mehdi Moaiedfar, Atefeh Ghanbari Jolfae.**  
**Iran University of Medical Sciences**

## **Backgrounds**

Increasing more attention to mental health and psychological determinants, may be useful in identifying patients at risk for poor postoperative outcomes of Total Knee Arthroplasty (TKA). The aim of this study was to investigate the influence of depression, personality and physical and mental health in early outcomes of patients undergoing TKA.

## **Methods**

54 patients undergoing unilateral TKA were assessed preoperatively with Oxford Happiness Inventory (OHI), Eysenck Personality Inventory (EPI), -12Item Short Form Health Survey (SF12-) and Knee Injury and Osteoarthritis Outcome Score (KOOS) for evaluating depression, personality traits, physical and mental health and function, respectively. Six months after surgery, Health-Related Quality of Life (HRQL) and function were assessed using SF12- and KOOS.

**Results** HRQL and function of all personality traits increased significantly after TKA, without significant difference between them. Extroversion and neuroticism did not have significant correlation with subjective well-being, HRQL and function before and after surgery. Subjective well-being and baseline physical and mental health scores were correlated strongly and directly with postoperative Physical Component Summary (PCS), Mental Component Summary (MCS), KOOS scores and their improvement. Among many factors that significantly affect early outcomes of TKA, the only independent predictor of physical, mental and functional outcome was depression.

**Conclusions** Outcomes of surgery were not significantly different between diverse personality traits. Patients with less depressive symptoms and higher baseline mental and physical scores had significant greater improvement in HRQL after surgery. The only independent factor affecting the physical, mental and functional outcome was depression.

**Tuesday 23 Oct 2018**

**Papers**

Hegmataneh

**Hall**

**9:15-9:21**

**The Effects Of Low Level Laser And Light Therapy On  
Range Of Motion In Patients With Total Knee Arthroplasty**

**1261. Dr.H.Bahrami et al.**

**The Effects Of Low Level Laser And Light Therapy On Range Of Motion In Patients  
With Total Knee Arthroplasty**

**S.M. Javad Mortazavi, MD , Homa Bahrami, DPT  
Tehran University of Medical Sciences**

## **Backgrounds**

The aim of this study was evaluation the effect of low level laser and light therapy on range of motion in patients with total knee arthroplasty.

## **Methods**

Material and methods: In this study we evaluated 45 cases of total knee arthroplasty in hospital for three months. The patients were under went in three approaches intervention (LASER, LIGHT and CONTROL group) in order to improve range of motion and reduce rehabilitation period in all groups. forty-five randomized patients were enrolled in this study; they were undergoing primary total knee arthroplasty.

## **Results**

Results: ROM in LASER and LIGHT groups were changed significantly ( $p$  value<00001/0) There was significant difference ROM between control group and intervention groups, It should be noted ROM in the LASER group changed more than LIGHT group. Knee ROM after knee arthroplasty in laser group improved significantly ( $p$ <0.0001).

## **Conclusions**

Discussion and Conclusion:

The result of the present trial research showed using LL-Laser therapy and Light therapy can reduce the rehabilitation period and improve range of motion in patients with total knee arthroplasty.





**Tuesday 23 Oct 2018**

**Papers**

Hegmataneh

**Hall**

**9:21-9:27**

**Root avulsion and para-root tear of the posterolateral meniscus: repair versus untreated**

**1332. Dr.S.Keyhani et al.**

**Root avulsion and para-root tear of the posterolateral meniscus: repair versus untreated**

**Dr.Sohrab Keyhani, Dr.Mohsen Mardani Kivi, Dr.Arash Sherafat Vaziri  
Shahid Beheshti University of Medical Sciences**

## **Backhgrounds**

This study aimed to assess the outcomes of repairing posterolateral meniscal (PLM) root avulsion and para-root tear in association with anterior cruciate ligament (ACL) reconstruction and compare with those whose PLM tear was left untreated.

## **Methods**

Patients with PLM root avulsion or para-root tear accompanying ACL tear were evaluated for eligibility. Group A was composed of patients whose ACL tears were reconstructed without any lateral meniscal repair (33 patients) from 2009-2006. From 2012-2009, patients had ACL reconstruction and additional PLM repair (group B: 40 patients). Both groups were evaluated for knee stability (Lachman test), return to previous level of sports activity, subjective International Knee Documentation Committee form (S-IKDC) and Lysholm knee scores (LKS).

## **Results**

Functional results (IKDS and LKS) at 12 and -24month follow-up were similar between the two groups (all  $P>0.05$ ). Eight patients (24%) in group A, and two patients (5%) in group B were unable to achieve the previous sports activity level ( $P=0.036$ ). Return to previous sports activity level was significantly better in group B. Short-term (34.5 mo) and mid-term (73.5 mo) functional results of group A patients were compared, and it was demonstrated that IKDC ( $4\pm 84.5$ ) and LKS ( $3\pm 87.7$ ) scores were decreased

significantly ( $P < 0.0001$ ).

## Conclusions

Functional outcomes of repairing PLM root avulsion and pararoot tear with those whose PLM tear was left untreated are similar in short-term follow-up; however, as the time passes, the sports activity level and mid-term subjective outcomes may worsen in patients whose PLM tear was left untreated.

**Tuesday 23 Oct 2018**

**Papers**

Hegmataneh  
Hall

**9:30-9:36**

**The Long Term Follow up on p32 Colloid Radiosynovectomy for Haemophilic Synovitis**

**1337. Dr.MM.Ebrahimi nasab et al.**

**The Long Term Follow up on p32 Colloid Radiosynovectomy for Haemophilic Synovitis**

**Dr.SMJ.Mortazavi, Dr.Mohammad Mehdi Ebrahimi nasab,**

**Dr.MohammadHassan Kaseb,**

**Tehran University of Medical Sciences**

## Backgrounds

Repeated intra articular bleeding with subsequent development of chronic synovitis and cartilage changes. Radiosynovectomy is a familiar therapeutic choice in management of chronic synovitis in haemophilia The aim of this study was Long Term Follow up on p32 Colloid Radiosynovectomy for Haemophilic Synovitis.

## Methods

This a observation study on 46) 43) patients who under went p32 Colloid Radiosynovectomy for Haemophilic Synovitis. The Lost to follow was happen for 3 patients. In this article 55) 52) joints were assay . P32 snoviorthesis protocol was 1 mCi for Knee and 0.5 mCi for other joints

## Results

The Mean age was 43-19) 30.2) and the mean of Follow up duration was 14.9 y(Longest FU ever reported in the literature) , the Distribution joint s were included 44 knee, 7 ankle, 1 elbow(Type: 46 A ,4 B , 2 VWB.The mean of Range of motion and

Flexion Contracture was 4.74 , 119.21 , at time of synoviorthesis and Range of motion and Flexion Contracture was 10.13 , 114.74 at 15y follow up , so Range of motion and Flexion Contracture had shown a significant difference during both times. In latest follow-up (14.9y) %67 of patients reported at least a %50 decrease in bleeding frequency after treatment. WFH Pain score decrease in long term follow up from 2.6 to 1.03 (P value: 0.002) after synoviorthesis. For seven joints, TKA surgery was performed (%16). Three reinjections 11m/10yrs/15yrs after initial procedure were reported. due to FC, for two joints, distal femoral trapezoid extension osteotomy was performed.

## Conclusions

Radioactive synoviorthesis highly effective , decreases both the frequency and the severity of hemarthrosis , P32 synoviorthesis has a long lasting effect on Reduction of bleeding and Pain . in our study %64 of patient reported pain less or minimal pain, Radiographic worsening continue to progress and ROM Decrease significantly after a long period of synoviorthesis. P32 synoviorthesis at earlier age (stage) is associated with better outcome. The mean age of patients at time of synoviorthesis was significantly different in the two groups that had joint replacement compared with other patients

**Tuesday 23 Oct 2018**

**Papers**

Hegmataneh

**Hall**

**9:36-9:42      Survey Of Platelet-Riched Plasma Injection With And Without Calcium Gluconate in Treatment Of Patients With knee Osteoarthritis Referred to hospital during 96-1395:A clinical randomized Trial**

**2353. Dr.M.Karimi mobarakeh et al.**

**Survey Of Platelet-Riched Plasma Injection With And Without Calcium Gluconate in Treatment Of Patients With knee Osteoarthritis Referred to hospital during 96-1395:A clinical randomized Trial**

**Dr.Mahmod Karimi Mobarakeh, Dr.Hamid Karimifard, Dr.Mohammad Sheibani  
Kerman University of Medical Sciences**

## Backgrounds

Since many studies have not done so far on the effect of calcium salts in the process of activating PRP on the clinical outcome of patients before intra-articular injection, this study aimed to evaluate the effect of PRP with and without calcium gluconate on the clinical outcome. The intra-articular injection of this substance has been designed in patients with knee steviaarthritis.

**Methods** After selecting eligible patients, patients randomly (Randomization Allocation) by the researcher were divided into two groups of plasma-enriched plasma-treated patients with calcium gluconate as activator and controlled plasma-enriched platelets without. The use of calcium gluconate was divided and treatment was started. It should be noted that all therapeutic measures in this study were performed by a person who had the necessary skills.

**Results** The results of the study are shown in Table 2. Generally, during the study, the pain level in patients after receiving both treatments significantly decreased during the six-month period, while the pain in the case group significantly decreased significantly. (P Value <0.05).

## Conclusions

From the results of this study, it can be concluded that simultaneous injection of PRP and calcium gluconate can further improve the results of injection.

**Tuesday 23 Oct 2018**

**Papers**

Hegmataneh  
Hall

**9:48-9:54**

**A new technique for BTB tendon fixation in anterior cruciate ligament reconstruction. A bio mechanical study**

**2357. Dr.F.Mirzatolooei et al.**

**A new technique for BTB tendon fixation in anterior cruciate ligament reconstruction. A bio mechanical study**

**Dr.Fardin Mirzatolooei, Dr.Ali Tabrizi, Dr.Faez Bagheri, Dr.Maryam Sadat Mokaram Gargari  
Uremia University of Medical Sciences**

## Backgrounds

Many grafts are used for ACL reconstruction with different methods of fixation. We

have presented a new technique for BTB (bone-tendon-bone) graft preparation and compared its biomechanical properties with the classic one to see if the suspensory method of fixation is applicable for BTB grafts.

## Methods

Eight fresh frozen human BTB grafts were prepared. Grafts were randomly divided into two separate groups. Each containing 4 grafts. In the first group grafts were prepared with standard BTB graft method and in the second group grafts were prepared with new enfolded method. All the grafts were assembled in a universal testing machine for testing the mechanical properties of the grafts. Maximum tensile strength, failure load and failure mode were derived from machine and the values were compared in each group.

## Results

Mean failure load for classic group was 1660.25 and for enfolded group it was 1579.25 ( $P = 0.25$ ). Mean stiffness for classic group was 285.25 N/meter and for enfolded group it was 268.75 N/ per meter ( $P = 0.1$ ). In classic group, all failures happened at the bone-ligament junction. In the enfolded group, failures also occurred through the tendino-osseous junction except for one case

## Conclusions

Enfolded BTB graft preparation had the same biomechanical indexes of classic method. Therefore this graft preparation method can be used for ACL ligament reconstruction surgery with used of suspensory fixation by Endobutton.

**Tuesday 23 Oct 2018**

**Papers**

Hegmataneh

**Hall**

**9:54-10:00**

**Quantitative three-dimensional computed tomography analysis of posterior cruciate ligament avulsion**

**1300. Dr.E.Vahedi et al.**

**Quantitative three-dimensional computed tomography analysis of posterior cruciate ligament avulsion**

**Dr.Ehsan Vahedi, Dr.MohammadHossein Ebrahmizadeh, Dr.Ali Moradi, Dr.Elahe Amel Zende del, Dr.Ali Birjandi Nejad, Dr.Farshid Bagheri, Dr.Maryam Emadzadeh,**

**Dr.Mohsen Samghani**  
**Mashhad University of Medical Sciences**

## Backgrounds

Tibia avulsion fracture of posterior cruciate ligament is a particular type of damage to this ligament. Advanced imaging modalities such as CT scans and MRIs can provide valuable information to define the extent of these types of injuries. The aim of this study was to investigate morphological and mapping features of a tibia avulsion fracture of posterior cruciate ligament of tibia by 3D CT scan.

## Methods

We did a cross-sectional study inhospitals. All adult patients with PCL avulsion from 2011 to 2016 that CT scan was done for them were included in this study. Data were collected from PACS of Emdadi Hospital in Mashhad. After excluding patients with exit criteria the data was exported into Mimics researcher 20 for measuring the fragmentation characteristics.

## Results

The present research showed higher prevalence of PCL avulsion fractures of tibia in men. The mean age of patients with PCL avulsion fractures of tibia was significantly higher ( $P = 0.038$ ) in women (mean=14.02±33.42) than men (mean=7.18±26.27). The means of the volume of fractured piece ( $P=0.012$ ), anterior posterior diameter of the piece ( $P=0.049$ ), mediolateral diameter of piece ( $P=0.036$ ), anterior posterior diameter of tibia ( $P<0.001$ ), mediolateral diameter of Tibia ( $P<0.001$ ) and volume of the tibia ( $P<0.001$ ) were significantly higher in men than women. There was a significant correlation between the number of parts of fractured bone with anterior posterior diameter of the piece ( $P=0.018$ ) and anteroposterior ratio ( $P=0.024$ ). There was a significant correlation between the volume of fractured pieces with anterior posterior diameter of the piece ( $P<0.001$ ), mediolateral diameter of the piece ( $P<0.001$ ), anterior-posterior diameter of the tibia ( $P<0.001$ ), tibia mediolateral diameter ( $P=0.003$ ), volume of the tibia ( $P<0.001$ ), anteroposterior ratio ( $P<0.001$ ) and mediolateral ratio ( $P<0.001$ ). There was no significant correlation between the numbers of screws used in treatment of patients with PCL avulsion fracture with other variables.

## Conclusions

This study increased the information of morphological characteristics and mapping of avulsion fragment which could help us to improve the current treatments and find new surgical fixation such as using plate in PCL avulsion.

**Wednesday 24 Oct 2018**

**Papers**

**Main  
Hall**

**15:15-15:28**

**Proximal Humerus Tumor Resection and Reconstruction  
Using Osteoarticular Allograft**

**1246. Dr.M.Mirkazemi et al.**

**Proximal Humerus Tumor Resection and Reconstruction Using Osteoarticular Allograft**  
**Dr.Masoud Mirkazemi, Dr. Sam Hajjaliloo Sami, Dr.Daroush Mahdi Barzi, Dr.Naser Asgari**  
**Bone and Joint Reconstruction Research Center, Shafa Orthopedic Hospital, Iran**  
**University of Medical Sciences, Tehran, IR Iran.**  
**Department of Orthopedic Surgery, School of Medicine, Shahed University, Tehran, Iran.**

## Backgrounds

Proximal humerus is one of the most common sites of tumor, and a principal therapeutic approach in patients with tumor in the extremities is limb salvage and osteoarticular allograft reconstruction. This study was designed for evaluation of tumor resection and reconstruction of proximal humerus using osteoarticular allograft

## Methods

18 patients with proximal humerus bone tumors were included in this study. In all cases, tumor site was resected and then reconstructed using osteoarticular allograft. The outcomes including allograft survival, complication, and the functional rating system of the Musculoskeletal Tumor Society (MSTS) were evaluated

## Results

In patients with a mean age of  $14.56 \pm 27.26$  years after 3.6 years of follow-up, %11 reported infections, %16 recurrence, %11 allograft fracture, and %22 nonunion. There was no significant difference between MSTS scores and tumor types ( $p = 0.584$ ). A

patient with Ewing's sarcoma died during three years of follow-up

## Conclusions

The purpose of orthopedic surgery is to restore function while resection is performed for malignancy. Given that proximal humerus allograft has an optimal effect in terms of short-term complications, patients may need to undergo revision surgery in the long run. Therefore, studies with a larger sample size and prolonged follow-up are recommended

**Wednesday 24 Oct 2018**

**Papers**

**Main  
Hall**

**15:30-15:38**

**The Effect of Neoadjuvant Radiotherapy on the  
Treatment of Soft Tissue Sarcoma**

**1338. Dr.AA.Arefpoor et al.**

**The Effect of Neoadjuvant Radiotherapy on the Treatment of Soft Tissue Sarcoma**

**Dr.Khodamorad Jamsidi, Dr.Mohamad Gharehdaghi, Dr.Masoud Mirkazemi,**

**Dr.AmirMohamad Arefpoor, Dr.Hamideh Mahoodi Alemi**

**Bone and Joint Reconstruction Research Center, Shafa Orthopedic Hospital, Iran**

**University of Medical Sciences, Tehran, IR Iran.**

**Orthopedic Research Center, Mashhad University of Medical Sciences, Mashhad, Iran**

**Firrozgar Hospital, Iran University of Medical Sciences, Tehran, IR Iran.**

## Backgrounds

In the last decade, limb-salvage surgery in combination with radiotherapy has increased the local control rate to more than %90 for soft tissue sarcoma. Given the controversy surrounding adjuvant and neo-adjuvant radiotherapy, this study seeks to compare the effectiveness of these two methods.

## Methods

In this study, 20 patients with STS undergoing neo adjuvant radiotherapy surgery were examined and 20 patients received radiotherapy after surgery. Shrinkage of tumor and 5 years Survival and recurrence rate were assessed using Kaplan Mayer were analysis.



## Results

The mean age of patients was  $15.3 \pm 57.8$  of whom %45.9 were female. The average size of tumor was 9.3 cm before neo adjuvant radiotherapy that it was decreased and patients undergoing wide resection. The overall five-year survival rate in RT group was %74.8 before surgery and %69.3 after the surgery. The results of univariant analysis showed that preoperative RT had a tendency to improve overall survival.

## Conclusions

This paper suggested that neo-adjuvant radiotherapy could be recommended for the treatment of soft tissue sarcomas, but further studies are needed to demonstrate its effectiveness

**Wednesday 24 Oct 2018**

**Papers**

**Main  
Hall**

**14:00-14:06**

**In vitro and in vivo investigation of PLA/PCL scaffold coated with metformin-loaded gelatin nanocarriers in regeneration of critical-sized bone defects**

**1252. Dr.M.Shahrezaee et al.**

**In vitro and in vivo investigation of PLA/PCL scaffold coated with metformin-loaded gelatin nanocarriers in regeneration of critical-sized bone defects**

**Dr.Mostafa Shahrezaee, Dr. Seyed Amir Kamali, Dr.Ahmad Oryan, Dr.Sara Keshtkari,**

**Dr.Babak Shekarchi**

**AJA University of Medical Science**

**Shahid Beheshti of Medical Sciences**

## Backgrounds

Large bone defects constitute a major challenge in bone tissue engineering and usually fail to heal due to the incomplete differentiation of recruited mesenchymal stem cells (MSCs) into osteogenic precursor cells. As previously proposed, metformin (MET) induces differentiation of MSCs into osteoblastic lineages in vitro, however the potential effects of this drug on the regeneration of critical sized-defects were not

established yet. The current study is aimed to fabricate a novel scaffold to examine the effect of metformin on bone regeneration via a controlled local delivery system.

### **Methods**

We fabricated a Poly (lactic acid) and Polycaprolactone (PLA/PCL) scaffold to deliver MET-loaded gelatin nanocarriers (MET/GNs) to critical size calvarial bone defects in a rat model. The fabricated scaffolds were characterized by biomechanical analysis, scanning electron microscopy, porosity, contact angle, degradation rate, and blood compatibility test. Moreover, the effect of fabricated scaffolds on cell viability and their osteogenic differentiation was evaluated under in vitro condition. In animal study, the defects were randomly filled with autograft, scaffolds and a group was left empty without any treatment.

### **Results**

qRT-PCR analyses showed the expression level of osteogenic and angiogenic markers considerably increased in MET/GNs-PLA/PCL. The in vivo results showed that sustained release of metformin improved bone ingrowth, angiogenesis and defect reconstruction at 8 weeks post-implantation as evaluated by histological, immunohistochemical, CT scan and biomechanical analysis.

### **Conclusions**

These data strongly indicate that local delivery of metformin can help improve the bone healing process. The results of the present study provide the first-time in vivo evidence regarding induction of osteogenic differentiation of MSCs by sustained local delivery of metformin.



14:06-14:12

## Role of Bone Morphogenic Protein2- in femoral head osteonecrosis: a systematic review

1259. Dr.A.Parsa et al.

**Role of Bone Morphogenic Protein2- in femoral head osteonecrosis: a systematic review**

**Dr.Ali Parsa, Dr.Hamed Vahedi, Karan Goswami, Dr.Arash Aalirezaie**

**Massachusetts General Hospital at Harvard Medical School, Boston, USA**

**Hamed Vahedi**

**USA Rubin Institute for Advanced Orthopedics**

**Royal London Hospital, London, UK**

**Rothman Orthopedic at Thomas Jefferson University,**

### Backgrounds

Despite widespread research on non-traumatic femoral head osteonecrosis (FHON), there is no consensus about preventative treatment options. Insufficient blood supply and increased intraosseous pressure are the initiating events in the majority of cases. BMPs are growth factors that belong to the transforming growth factor  $\beta$  (TGF $\beta$ ) superfamily. Two specific formulations of BMPs have already been approved by the FDA: 1. BMP2- (Infused, Medtronic) for the treatment of tibial open fractures and spinal fusion; 2. BMP7- (OP1-, Stryker) in the setting of long bone nonunions. To our knowledge there is no published work reviewing the utility of BMP2- in the setting of FHON.

### Methods

online databases (EMBASE, Cochrane, MEDLINE and PubMed) for literature relating to the use of BMP2- in the treatment of FHON on 2nd June 2017.

### Results

A total of 169 animal subjects with induced FHON were treated with BMP2- in all the included in vivo studies. In combination, 96 human hips were treated with BMP2- and mean follow-up was at least five years.

### Conclusions

The present review of animal and clinical studies concludes that preliminary evidence

supports the utilization of BMP2-, and this has an acceptable impact on the midterm outcomes of FHON.

**Wednesday 24 Oct 2018**

**Papers**

Hegmataneh

**Hall**

**14:14-14:20**

**The agreement between pelvic radiography alone and radiography with CT scan in determination of treatment of fractures of the pelvic ring**

**1285. Dr.Ahmadzadeh et al.**

**The agreement between pelvic radiography alone and radiography with CT scan in determination of treatment of fractures of the pelvic ring**

**Dr.Afshin Ahmadzadeh Heshmati, Dr.Mansour Ghazaleh, Dr.Moghademeh Mirzaee,**

**Dr.Shahab Ilka,**

**Kerman University of Medical Sciences**

## Backgrounds

CT scan is one of the routine modalities in diagnosis of the pelvic fractures. An unanswered question is if CT scan can alter treatment plane of these fractures?

## Methods

At first, radiographs of 100 patients with fracture of the pelvic ring were evaluated by one surgeon and type of the fracture according to Young and Burgess classification and treatment plane (surgical or non-surgical) were identified. Then 3 months later the same radiographs with CT scans were evaluated by the same surgeon and type and plane of treatment were determined again and Results were analyzed with SPSS 22.

## Results

Fractures of the pubic rami were the most common injury in radiography and CT scan. The least common injury in radiography was fracture of the ilium but in radiography and CT scan was diastasis of symphysis pubis. CT scan was more accurate than radiography in diagnosis of the sacral fractures and crescent fractures of the ilium ( $p=0.000$ ) but there was no significant difference in classification of fractures. Non-surgical treatment

was suggested for 63 patients and surgical for 37 patients according to radiography and with adding of the CT scan, non-surgical treatment was suggesting for 69 and surgical for 31 patients and this difference was not significant again.

## Conclusions

Although CT scan gives more accuracy in diagnosis of the fracture lines, it cannot alter plane of the treatment

**Wednesday 24 Oct 2018**

**Papers**

Hegmataneh

**Hall**

**14:20-14:26**

**Epidemiology of Generalized ligamentous laxity in 40-17 years population**

**1321. Dr.H.Saremi et al.**

**Epidemiology of Generalized ligamentous laxity in 40-17 years population**

**Dr.Hossein Saremi, Dr.Fahranaz Shahbazi**

**Hamedan University of Medical Sciences**

## Backgrounds

Ligamentous laxity is defined as the excessive movement of the joints in comparison with the range of its main and defined movement, with a high percentage in healthy people in the absence of other diseases, which is referred to as the joint articular joint of the benign generalized ligamentous laxity, It can be a predisposing factor for musculoskeletal injuries

## Methods

In this descriptive-analytic study, by simple sampling method, among the young population aged 40-17 years old , 378 people were selected, taking into account the roughly equal sex ratio of different ethnicities, the ligamentous laxity with clinical examination by Beighton criteria (scale 4 and above) were evaluated. The collected data were analyzed by SPSS software version 16 at %95 confidence level

## Results

The prevalence of generalized ligamentous laxity in the present study was %22.8. The

most common ligament laxity was on the fingers. More than %90 of patients with general ligament laxity had no knowledge of their problem and their importance in choosing a field of sports; %14 had a history of sports injury and %36.5 had skeletal or articular disease. The overall prevalence of general ligamentous laxity was significantly higher in women than in men, and the percentage of articular and skeletal diseases in patients with generalized ligament laxity was significantly higher than that of non-affected individuals.

**Conclusions** The prevalence of generalized ligamentous laxity in the population aged 17 to 40 years in Hamadan province, especially in women, is relatively high regardless of ethnicity. Most of the patients were unaware of their problem and its importance in choosing a sports field, and the history of articular and skeletal diseases was significantly higher in hyperlax individuals

## Wednesday 24 Oct 2018

## Papers

Hegmataneh  
Hall

14:24-14:30

**Prevalence of congenital foot abnormalities in neonates:  
A descriptive study on 2025 newborns**

**237. Dr.M.Shayestehazar et al.**

**The Study of Pathologic Reactions to orthopedic hardware (Neil and Plaque)**

- \*Massoud Shayesteh azar, MD; \*Mohammad Hossein Kariminasab, MD,
- \*Seyed Mokhtar Esmail nejad ganji, MD; \*Salman Ghafari, MD; \*Mehran Razavi pour, MD; \*\*Abolfazl Kazemi, MD; \*\*\*Emad Moayed Abedi, MD
- \* Associate Professor of Orthopedic Surgery, Orthopedic Research Center, Mazandaran University of Medical Science, Sari, Iran.
- \*\* Clinical Research Development Center, Shahdi Beheshti Hospital, Babol University of Medical Sciences, Babol, Iran..
- \*\*\* Assistant Professor of Orthopedic Surgery, Orthopedic Research Center, Mazandaran University of Medical Science, Sari, Iran.
- \*\*\*\*Resident of Orthopedic Surgery, Orthopedic Research Center, Mazandaran University of Medical Science, Sari, Iran.
- \*\*\*\*\*Student of General Medicine, Orthopedic Research Center, Mazandaran University of Medical Science, Sari, Iran.

**Background:** So far, various studies have been done on the local and systemic effects of orthopedic hardware. The aim of this study was to investigate comprehensive pathologic reactions to orthopedic hardware (Nail and Plaque) in patients.

**Method:** In a descriptive study, the pathologic reactions of 15 patients (12 males and 3 females) with an average age of 37.41 that all of them were under the orthopedic hardware placement surgery in Imam Khomeini Hospital and Bu-Ali Sina Hospital in Sari, had been studied through a questionnaire, observation and laboratory.

**Results:** There was no skin reaction after the insertion of hardware in any of the patients. Only in %6.66 of the patients observed infection after insertion of hardware and do not boil, and bloating was also seen in 1 patients. Furthermore, no systematic complications were observed in any of the patients. The majority of patients had moderate tissue inflammation at the hardware site. There was no evidence of malignancy in any of the patient's pathology samples.

**Conclusion:** According to the results of this study, it seems that apart from moderate tissue inflammation, Moderate tissue inflammation in the use of nail and plaque orthopedic hardware is a common complication of using nails and orthopedic plaques in Imam Khomeini and Bouali Hospitals of Sari.

**Keywords:** Orthopedic fixation devices, Orthopedic equipment, Bone nails, Bone plates, Pathology.

**Wednesday 24 Oct 2018**

**Papers**

Hegmataneh  
Hall

**14:32-14:38**

**Comparison of Therapeutic Results of Plateau Tibia fracture by Hybrid Method with Double-Plate Classic Methods**

**240. Dr.M.Shayestehazar**

**Comparison of Therapeutic Results of Plateau Tibia fracture by Hybrid Method with Double-Plate Classic Methods**

**Dr.Masoud Shayestehazar, Dr.Vahid Mojrian, Dr.MohammadHossein Kariminasab,  
Dr.Seyed Mehran Razavipoor, Dr.Salman Ghafari, Dr.Mohammad Khosh akhlagh,  
Dr.Shadi Shayesteh azar**

**Mazandaran University of Medical Sciences**

## Backgrounds

The Tibia Plateau fracture is the most prevalent in the 3rd to 5th decades of life, seen in older men and in older women, especially the 6th and 7th decades of life. Falling down is the most common cause of this fracture in the elderly and the most common form of fracture is Split depression. In high energy traumas, Split and Rim Avulsion fractures are common. The axial force releases more energy than Angular, and Valgus's pure force causes fractures, and the pure axial force causes the local depression. The combination of these two forces results in the fracture of the split depression. The Tibia Plato is exposed to Valgus force because it is in the normal state of 5 to 7 degrees Valgus. These forces in the healthy bone cause Split fracture and in the osteoporotic bone, it causes the fracture of the depression.<sup>1,2</sup> Non-surgical treatment is used in the case of a non-deformed fracture or an elderly person or severe medical illness. In the lateral plato, in the case of a small fracture of the joint surface less than 10 mm thickness, localized results are obtained with a non-surgical technique used for non-surgical treatment of the cast brace to unload the damaged side of the joint. Most surgeons prefer early onset movements with a hinged brace that allows for detailed movements. The duration of the intolerance of weight (NWB) is based on the fracture pattern from 4 to 8 weeks.<sup>2,3</sup> Surgical treatment is indicated in cases of transient and unstable fractures, which is not likely to be near normal. Surgical treatment is considered for individuals including almost all cases of Shaft Dissociation, all condylar medial fractures (with the exception of low displacement) and lateral fractures with valgus alignment without Open Reduction Internal Fixation (ORIF).

## Methods

Method of study implementation all patients with split fractures of Plato Tibia who were referred to the hospitals between 1393 and 1395 were evaluated. Patients with a history of diabetes, immunocompromised, simultaneous fractures of other bones, history of fracture, or previous surgery in the platoitibia region, multiple trauma patients, or patients with concurrent trauma were excluded from the study. The sample size required for study with %80 strength and %95 confidence interval ( $\alpha = 0.05$ ), and according to previous studies, 6 was determined by the statistical formula of 40 patients (each group of 20 patients) and Accordingly, 40 patients were enrolled in the study.



## Results

In this study, 56 patients were evaluated for inclusion in the study. Of these, 12 patients did not have the required criteria and 4 patients did not want to participate in the study. Finally, 40 patients were enrolled in the study. The patients were randomly divided into two groups of 20 (Hybrid and Double groups). 40 patients remained in the study until the end of the study, with 20 patients in the double group and 20 in the hybrid group. 14 patients (70%) in Double group and 13 patients (65%) in hybrid group were male. There was no statistically significant difference between the sex of the two groups ( $P = 0.736$ ).

## Conclusions

Patients were followed up for  $18.63 \pm 30.68$  months (10 to 60 months, 26.5 Median =). In the study of the complications of patients, no case was observed with Mal-Union, and in all patients the union was properly formed. Also, skin necrosis was not seen in any condition. Deep site infection was seen in 5 patients (25%) in the double group, with no disease from the hybrid group. The prevalence of deep site infection was significantly higher in patients with double, so that the risk of this complication in patients undergoing surgery was 2.33 times higher than those treated by hybrid method (RR 95% CI: 3.42-1.59,  $P = 0.024$ ). The infection of the Pin Tract Infection was observed in only 8 patients (40%) of the hybrid group during follow-up. Depression was seen in 3 patients, one patient in the hybrid group and 2 in the double group. Contraditionally, in this study, we considered depressing more than 3 mm as Cut off of Depression. Considering this criterion, depression in 5 patients in the double group (25%) and 9 patients in the hybrid group were seen (45%), There was no significant difference between the two groups ( $P = 0.16$ ). In the quantitative study, the mean of depression in the hybrid group was  $0.95 \pm 3.84$  mm (range 3 to 5 mm, 3 = median) and in the double group was  $1.04 \pm 3.44$  mm (between 2 and 5 mm, 3 = Median) There were no statistically significant differences between the two groups ( $P = 0.23$ ). In total, the complications were observed in 9 patients (45%) in the double group and 13 cases (65%) in the hybrid group. The incidence of complications was not significantly different between the two groups ( $P = 0.17$ ).



Wednesday 24 Oct 2018

Papers

Hegmataneh  
Hall

14:40-14:46

**Initial results of Vertical Talus treatment by  
reverse ponseti method**

**1256. Dr.Habibzadeh et al.**

**Initial results of Vertical Talus treatment by reverse ponseti method**

**Dr.Seyed Reza Habibzadeh Shojae, Dr. Mohammad Hallaj Moghadam, Dr.lida Jarahi,  
Dr.Ali Parsa,**

**Mashhad University of Medical Sciences**

## **Backgrounds**

The most common method of historical treatment for vertical talus is the extensive soft tissue release. A minimal-invasive method based on Dobb (Reverse Ponseti) serial casting has been introduced 15 years and has yielded significant results. The aim of this study was to investigate the results of midterm treatment of vertical-talus, treated with minimal-invasive method, and extensive soft tissue release group.

## **Methods**

Twelve patient with Vertical Talus including 20 feet were prospectively followed on average of 2 years . Minimal iinvasive method was investigated in 6 patients with 10 feet and extensive soft tissue release in 6 patients with 10 feet. Patient demographics, Oxford questionnaire,ankle range of motion and radiological measurements were analyzed.

## **Results**

In the last follow-up, the mean range of motion in the Minimal iinvasive group was comparable to the degree in the extensive soft tissue release group. The score of the Oxford questionnaire was not significantly different in the minimal-invasive group with the extensive soft tissue release goup. The same proportion of lateral talar axis-first metatarsal base angle in the minimal-invasive group compared with the extensive soft tissue release surgery group

## **Conclusions**

The less invasive method of Vertical Talus treatment had a same outcome in terms of movement and Oxford score in the middle term compared to the high-risk group. More



extensive and longer-term studies needed to examine long-term outcomes in adolescence. In general, minimal invasive method similar to The ponseti method in Club foot can be associated with a better result

**Wednesday 24 Oct 2018**

**Papers**

Hegmataneh

**Hall**

**14:46-14:52**

**lipid profile changes in patients with plantar fasciitis:  
a case-control study**

**1258. Dr.S.H.S.Hosseainain et al.**

**lipid profile changes in patients with plantar fasciitis: a case-control study**

**Dr.Seyed Hadi Seyed Hosseinian, Dr.Alireza Mousavian, Dr.Amirreza Kachooei,**

**Dr.MohammadHossein Ebrahimzadeh, Dr.Nilofar Alavi, Dr.Farshid Bagheri**

**Mashhad University of Medical Sciences**

## Backgrounds

plantar fasciitis is the most common treatable foot disorder, which responsible for the %15 of the foot abnormalities. As the obesity is usually considered as a contributing factor for the plantar fasciitis, lipid profile changes may be a risk factor for plantar fasciitis. The aim of this study was to determine lipid profile changes in patients with plantar fasciitis in compare with control group.

## Methods

we recruited 78 plantar fasciitis patients and 117 healthy controls into this cross-sectional study. All patients were aged between 18 to 60 years old. The inclusion criteria were as follows: history of characteristic heel pain and less than 3 month of pain duration. Patients were asked to complete the written informed consent. Demographic data, height, weight and BMI from all participants were recorded. Then the laboratory findings evaluated, which were included: cholesterol, LDL, HDL, Triglyceride (TG) and FBS. Finally, the Manchester Oxford Foot and Ankle (MOXF) questionnaire completed for all patients.

## Results

TG, cholesterol and LDL level were significantly higher in patients compare to healthy

controls. However, HDL and FBS were not significantly different between the two groups. The relation between gender and lipid profile were also investigated and we found no significant relation between these two variables. Our data showed that there is a significant correlation between duration of the disease and TG level ( $p=0.0001$ ,  $r=0.72$ ).

## Conclusions

Results of this study showed that the LDL, TG and cholesterol level was significantly higher in plantar fasciitis patients compare to control group.

Hegmataneh

Hall

**Wednesday 24 Oct 2018**

**Papers**

**14:54-15:00**

**Reliability of early postoperative x-rays in ankle fractures**

**1297. Dr.MR.Abbasian et al.**

**Reliability of early postoperative x-rays in ankle fractures**

**Dr.MohammadReza Abbasian, Dr.Farivari Lahiji, Dr.Adel Ebrahim poor, Dr.Farsad Biglari,  
Mr.Farshad Safdari**

**Bone, Joint and Related Tissues Research Center ,Shahid Beheshti University of Medical  
Sciences**

## Backgrounds

Evaluating the accuracy of reduction of ankle fractures using postoperative x-rays remained controversial. Some authors demonstrated the advantages of postoperative CT scanning in these injuries. In current study, we investigated the efficacy of postoperative x-rays compared to CT scanning to evaluate the reduction accuracy and stability.

## Methods

There were 44 patients with ankle fractures underwent open reduction internal fixation (ORIF). After the operation, if the reduction was appropriate and stable on x-rays, CT scanning was performed to evaluate the accuracy of fracture reduction. Abnormal CT findings included malreduction, device malpositioning, missed fracture, intraarticular fragment.

## Results

Abnormal CT findings were present in 25 patients (%56.8). In 19 patients, CT confirmed

the appropriate and stable reduction without device malpositioning. The most common CT findings were malreduction in 23 patients and device malpositioning in 18 patients. There was no abnormal CT finding in lateral malleolar fractures while two third of syndesmosis injuries were inappropriate on CT images.

## Conclusions

Based on the considerable percentage of patients with abnormal CT findings (malreduction, device malpositioning, missed fracture, intraarticular fragment) after ankle ORIF, it is necessary to evaluate the accuracy of ankle fracture reduction on postoperative CT images.

**Wednesday 24 Oct 2018**

**Papers**

Hegmataneh

**Hall**

**15:00-15:06**

**Comparison of partially threaded and fully threaded 4mm cancellous screws in fixation of medial malleolar fractures. A randomized clinical trial**

**1343. Dr.F.Bagheri et al.**

**Comparison of partially threaded and fully threaded 4mm cancellous screws in fixation of medial malleolar fractures. A randomized clinical trial**

**Dr.Farshid Bagheri, Dr.Seyed Hadi Seyed Hosseini, Dr.Mohammad Hossein Ebrahimzadeh, Sogol Golshan, Dr.Ali Moradi, Dr.Mohammad Hossein Taraz Jamshidi  
Mashhad University of Medical Sciences**

## Backhrounds

Displaced medial malleolar fractures typically require open reduction and internal fixation. Purchase of two partially threaded screws may be poor in the sparse cancellous bone of distal tibial metaphysis especially in osteoporotic bones. An increased number of threads in fully threaded screws can improve purchase of screws and enhance the pullout strength thereby leading to better outcomes.

## Methods

In a randomized clinical trial study 44 patients with displaced closed medial malleolar fracture randomly divided into two groups. In the first group two fully threaded 4 millimeter

cancellous screws were used for fracture stabilization (FT group) and the second group was operated by use of two partially threaded 4 millimeter cancellous screws (PT group). Clinical results and complications were compared in two groups at one year follow up.

## Results

19 patients in the FT group and 21 in the PT group were present at final follow up. Non-union was not developed in either group however two cases (%9) of delayed union occurred in the PT group. The rate of postoperative infection and symptomatic hardware were not statistically different. ( $p=0.6, 0.33$ ) Functional assessment using AOFAS, MOXFQ and VAS scores showed no significant difference between the two groups. ( $p=0.12, 0.84, 0.11$ )

## Conclusions

Both fully and partially threaded 4mm cancellous screws can be considered as acceptable fixation devices for the fixation of medial malleolar fractures with good and comparable clinical results.

**Wednesday 24 Oct 2018**

**Papers**

Hegmataneh  
Hall

**15:08-15:14**

**Surgical Treatment of Chronic Patellar Tendon Rupture:  
A Case Series Study**

**2351. Dr.S.Ghaffari et al.**

**Surgical Treatment of Chronic Patellar Tendon Rupture: A Case Series Study**

**Dr.Salman Ghaffari, Mahmoud Jabalameli, Abolfazl Bagherifard, Hoseinali**

**Hadi, Mohammad moheb Mohsen, Amin Yusefzadeh**

**Iran University of Medical Sciences**

**Backgrounds** Patellar tendon can tolerate a force up to 17.5 times body weight. It is the second strongest tendon in the body after the Achilles tendon. Within the patellar tendon is the largest sesamoid bone in the body, the patella. The patellar tendon inserts to the tibial tuberosity (3-1). Rupture is less common in the patellar tendon than in the quadriceps tendon. Eccentric contraction of the quadriceps muscle with partial flexion of the knee and foot on the ground is the most common mechanism that causes rupture of the patellar tendon. Degenerative changes may be presented due to repetitive micro-trauma before

rupture. Trauma, total knee arthroplasty, anterior cruciate ligament reconstruction with bone-patellar tendon-bone graft, intramedullary nailing of tibia and corticosteroid therapy, and systemic or local injection may cause patellar tendon rupture (5,4).

**Methods** This retrospective study included adult patients with chronic patellar tendon rupture, either at mid-substance or due to avulsion from patella or tibial tuberosity, whowere treated surgically by the senior author. A search of the hospital records from 2006 to 2013 was done to identify these patients. Late or chronic cases were considered as those that had been done three or more months after injury (8,7). Preoperative subjective international knee documentation committee (IKDC) (9) and modified Cincinnati knee scores (10) were collected from hospital documents. Records of complications such as infection, knee stiffness, rerupture, hospitalization for manipulation or surgical release and device failure or removal were evaluated. All patients came back for a final visit to take lateral knee radiography and complete subjective IKDC and Modified Cincinnati score forms. Conditions of patella Alta or Baja were determined according to the Insall-Salvati index (11).

**Results** From 2006 to 2013, ten patients with chronic patellar tendon rupture were operated by the senior author at the hospital of a referral center in the capital city. Two patients had bilateral injuries; one was male and the other was female. The mean time from injury to surgery was 23 months (range 132 - 3). Seven cases of injury had been due to traffic accidents and three cases due to a fall. Both patients with bilateral injury had sustained injuries in a highenergy traffic accident. The mean age of the patients was 34.4 years (range 58 - 18). Six ruptures were in the right knee and six in the left. The mean follow-up time was 6.2 years (range 9 - 3). Augmentationwasmadewith both semitendinosus (ST) and gracilis (G) autografts in six of the knees and the only semitendinosus autograft was used in two knees, one knee treated with Achilles tendon allograft and one with tibialis anterior (TA) tendon allograft. In two of the knees with good remaining tendon tissue without quadriceps, the muscle retraction direct repair was made without tendon graft augmentation. In nine knees, reinforce-ment was made with a cerclage wire and in three knees with fiberwire between the patella and tibial tubercle.

**Conclusions** All chronic patellar tendon ruptures had enough tissue for direct repair.

In all but exceptional cases, tendon graft should be added to the procedure, preferably autogenously semitendinosus and gracilis; alternatively, an allograft could be applied. All patellar tendon repairs must be reinforced by cerclage wire between the patella and tibial tuberosity. Intraoperative lateral knee radiography is strongly recommended to determine patellar position. A period of four weeks of knee immobilization is recommended with a long leg or cylinder cast. Cast immobilization does not compromise a range of motion of the knee joint. After cast removal, a hinged knee brace should be fitted that permits resumption of ROM 15 - 10 degrees/week. Routine removal of the cerclage wire is not recommended. Broken wire only needs to be removed in symptomatic cases. All patients must be informed preoperatively about

**Wednesday 24 Oct 2018**

**Papers**

Hegmataneh

**Hall**

**15:14-15:20**

**Endo – Exo Prosthesis for Lower Limb Amputated People**

**Dr.A.Abbaspour**

**Endo – Exo Prosthesis for Lower Limb Amputated People**

**Dr.Aziz Abbaspour, M.B.B.S. , M.D ,Ph.D,**

**Orthopedic surgeon, international Ghaem hospital, Rasht ,Iran**

People with lower limb amputation have many problems with socket prosthesis including dermatitis, infected sores, difficulty with socket fit, fatigue due to high energy consumption, impaired quality of life and other complications. The aim of the Endo-Exo Prosthesis is to prevent problems at the interface between the sleeve of the socket-prosthesis and the soft tissue coat of the limb stump. In 2018, I implanted endo module prosthesis into the left femur of a 32years old male by a cobalt- chrome alloy device covered with spongiosa metal. It creates a deep porous surface and favorable modulus for bone formation. Closure of the soft tissue over the stump just to give the spongiosa of the femoral bone enough time to integrate. After six weeks, through the intermediate module, Exo-prosthesis is attached. The result of Endo- Exo prosthesis represents a significant improvement such as the absence of skin irritations, pressure-related injuries, improved mobility as a result of less restriction of movement, an improvement in sense of position and tactile sensation following care with



the Endo-Exo prosthesis. This in turn leads to an improved gait pattern and life.

**Wednesday 24 Oct 2018**

**Papers**

Hegmataneh

**Hall**

**15:22-15:28**

**VTE Prophylaxis in patients undergoing THA: Aspirin is enough**

**1301.Dr.SMJ.Mortazavi et al.**

**VTE Prophylaxis in patients undergoing THA: Aspirin is enough**

**Dr.SMJ.Mortazavi, Dr.Seyed Hossein Shafiei, Dr.Alireza AminJavaheri**

**Tehran University of Medical Sciences**

**Backgrounds** Both ACCP and AAOS guidelines approved aspirin as a safe and efficient chemoprophylaxis for VTE in patients undergoing THA. We conceive this study to see the efficiency and safety of aspirin in our THA patients.

**Methods** In a Prospective series of consecutive 2145 THA patients between January 2011 to January 2017 we used Aspirin as the only prophylaxis regimen against VTE. Patients with major risk factors for VTE were excluded. There was no mechanical prophylaxis at our patients except early ambulation of patients with weight bearing as tolerated on same day of surgery or the day after surgery. Hemoglobin (Hb) concentration preoperatively and postoperative day(POD) 1 and 3 were calculated as an indicator of blood loss. All operations except 256 were done through direct anterior approach. Routinely we use no suction drain in our patients

**Results** There are 5 cases (%0.002) of clinically symptomatic VTE. Two patients were died with probable diagnosis of PE one of them receiving low molecular weight heparin for VTE prophylaxis. No hematoma formation requiring surgical drainage observed in our patients. One patient with gastrointestinal bleeding requires admission. There were 18 patients with wound drainage on POD 1 to 3 requiring dressing change. Mean Hb concentration reduction were 2g/L (4-1g/L) and no patient required blood transfusion

**Conclusions** Considering enormous potential of aspirin in reduction of symptomatic VTE as recommended by AAOS and ACCP guidelines and in light of very low cost of aspirin we recommend routine use of aspirin as 1st line chemoprophylaxis against VTE in patients undergoing THA. We still recommend more potent anticoagulants for patients with high probability of VTE

Wednesday 24 Oct 2018

Papers

Hegmataneh  
Hall

15:28-15:34

**Total Hip Arthroplasty (THA) in patients with haemophilia: Direct Anterior (DA) Approach is an asset**

**1305. Dr.S.A.M.Kazemi et al.**

**Total Hip Arthroplasty (THA) in patients with haemophilia: Direct Anterior (DA) Approach is an asset**

**Dr.SMJ.Mortazavi, Dr.Seyed Hossein Shafei, Dr.Seyed Amir Mahlisha Kazemi Shishvan  
Tehran University of Medical Sciences**

**Backgrounds** THA in patients with haemophilia is associated with higher incidence of complications including blood loss. We conceive this study to see if using DA approach for THA in a patient with hemophilia could affect complications especially blood loss

**Methods** In our prospective institutional database, we identified 13 patients who underwent THA through DA approach between January 2011 to January 12, 2016. Out of 13 patients, 12 had severe hemophilia A (<1% Factor VIII) and one had severe hemophilia B (<1% factor IX). One patient (two hips) had high titre on inhibitor. Cementless prostheses (cup and stem) were inserted via DA approach in all patients

**Results** There are 13 male patients and 15 hips (two simultaneous bilateral patients) who were followed-up for 36 months (range, 12 to 74). The average blood loss was 550cc (-300 to 850cc). Mean operation time was 65min (45-90min). There are no serious complications such as hematoma, deep vein thrombosis (DVT) or infection. Only one patient needed blood transfusion. The mean Harris Hip Score improved from 43 (range, 33-53) to 83 (range, 75-97) ( $p < 0.05$ )

**Conclusions** DA approach is a viable option for patient with bleeding tendency in terms of reducing blood loss and subsequent complications. It needs to be done by surgeons who have already passed their learning curve for this approach

Monday 22 Oct 2018

Papers

Hegmataneh

Hall

9:46-9:52

**Tranexamic Acid (TXA) and lowering perioperative blood loss in total hip arthroplasty (THA)**

1307. Dr.S.H.Shafie et al

**Tranexamic Acid (TXA) and lowering perioperative blood loss in total hip arthroplasty (THA)****Dr.SMJ.Mortazavi, Dr.Seyed Hossein Shafie, Dr.Ehsan Ghadimi****Tehran University of Medical Sciences**

**Backgrounds** There can be considerable blood loss during THA requiring blood transfusion. Considering transfusion cost and possible serious risks and complications, we design this cohort to evaluate does TXA could reduce blood loss and subsequently blood transfusion

**Methods** In a prospective cohort study 45 patient in TXA group got a single injection of 15mg/kg TXA on operating table before surgical incision and, there were 45 patients in control group. Total blood loss was calculated from haemoglobin(Hb) balance preoperatively and postoperation day(POD) 1 and 3, intraoperative blood loss was estimated volumetrically and visually from bloody guazes. Both groups received Aspirin as anticoagulation medication. All operation performed through minimally invasive direct anterior approach

**Results** With the threshold of Hb under 8 g/L for transfusion there were no blood transfusion in TXA group compare to 8 patients (%17) in control group (P value .006). Mean Intraoperative blood loss in TXA group was 500cc(750-300cc) compare to 800cc(1100-500cc) blood loss in control group(P value .001), there was 2g/L reduction in Hb concentration(-1 4g/l) in TXA group compared to 4g/L(6-2g/L) reduction in Hb in control group(P value .001). No thromboembolic complications occurred in both groups

**Conclusions** in light of the great potential of TXA in lowering blood loss and need for transfusion in THA and considering its cost we recommend for routine use of TXA in THA patients

## Posters

Cod: 1265

**Rhenium188- radiosynovectomy for chronic hemophilic synovitis: evaluation of its efficacy in hemophilic patients and establishment of radiosynovectomy at Joint Care Clinic.**

**Dr.Amir Reza Kachooei, Dr.Alireza Mousavian, Dr.Zahra Badiei  
Mashhad University of Medical Sciences**

### Backgrounds

Radiosynovectomy (RSO) is widely used in management of chronic synovitis in haemophilia. Commercially available radiopharmaceuticals are costly, and therefore new agents may be of interest. Radiocolloids labelled with less costly and more accessible radionuclides like rhenium188- are of interest to developing countries. The aim of this study was to evaluate the efficacy of radiosynovectomy by rhenium188- in patients with chronic synovitis due to hemophilia.

### Methods

All patients were enrolled after taking the history and recording the number of intra-articular bleedings, the required amount of factor, and other information of the disease. The questionnaires and checklists related to the patients' function and the amount of pain were completed. After the above, the rhenium188- was injected into the joint and its distribution analyzed by using a gamma monitor. Six months after the injection synovial thickness was measured by MRI. Also, at a time interval of 6 and 12 months after the injection, simple radiography was repeated. Patients' performance and pain questionnaires (FISH, VAS), the range of motion, number of bleeding episodes and required amount of factor were recorded at intervals of 6, 3, 1 and 12 months after injection.

### Results

In this clinical trial, 20 patients with hemophilia were studied during a one-year period. All of them were male and the mean age was  $13.88 \pm 22.99$  years. The Trend of changes in the mean number of patients' bleeding episodes per month ( $P = 0.015$ ), the amount of factor requirement ( $P < 0.001$ ), the mean score of VAS at resting ( $P = 0.014$ ) and activity time ( $P < 0.001$ ), FISH score ( $P < 0.001$ ), Gilbert score ( $P < 0.001$ ) and synovial thickness ( $P < 0.001$ ) were significant. The trend of changes in the average score of Peterson ( $P = 0.623$ ) and Denver ( $P = 0.331$ ) among the patients were also evaluated using repeated measurement analysis, which was not significant.

## Conclusions

The results of this study indicate a high clinical impact, safety and low invasion of rhenium 188 in radiosynovectomy of hemophilic patients. Considering the availability and relatively low cost of rhenium 188 in our country, this can be a good treatment option for hemophilic patients.

**Cod: 1309**

## **Total Knee Replacement in the Varus Knees: What Measurement really matters?**

### **Introducing a new classification system**

**Dr.SMJ Mortazavi, Dr.A.Ramezanpoor, Dr.A.Okati,  
Tehran University of Medical Sciences**

## Backgrounds

TKA is one of the surgeries that has a high level of satisfaction in patients and can greatly improve the patients' function and life style. One of the most important factors in increasing the outcome of patients is appropriate preoperative planning. Varus deformity is one of the challenges in many patients before TKA, and in various studies, different surgical techniques have been proposed. Our purpose in this study is to present a new classification and surgical technique patients with Varus deformity Candidate for total knee replacement.

## Methods

In this study, 81 patients (including 81 knees) were studied. %68 of patients were female and the rest were male. After the initial pre-op planning, Patients were operated based

on the medial defect and lateral laxity (opening the lateral of knee more than 5 mm and/or lateral trust) and finally classified. Then cut-off size of the lateral tibia was determined based on new classification

## Results

In the present study, Varus varies in the range of 9 to 42 degrees. According to the new classification system, 13 % of patients were in type 1 (without defect -without laxity) , 18 % in type 2 ( without defect - with laxity) , 27 % in type 3( with defect - without laxity) , 42 % in type 4 ( with defect - with laxity) . 13 % of patients needed medial release. all patients were placed under the TKA with PS system. The size of the liner in %78 of patients was 10 mm, 8 ,%17 mm and other were larger sizes

## Conclusions

According to the analysis, in patients with same JCA and same lateral trust, those without bony defect will need more medial soft tissue release. So, we suggested in those patients, lateral tibial cut should be minimally

**Cod: 1266**

**Dorsal Lunate Facet Fracture Reduction Using A Bone Reduction Forceps**  
**Dr.Amir Reza Kachooei, Dr.Jonathan Lans, Dr.Osefinal Alvarez , Dr.Sezai Ozkan,**  
**Dr.Mohammad Ebrahimzadeh, Dr.Jesse Jupiter**  
**Mashhad University of Medical Sciences**

## Backgrounds

The dorsal lunate facet fragment represents part of a complex articular injury of the distal radius and are challenging to reduce through a standard volar approach. We propose reduction through a standard volar approach and intraoperative dorsal lunate facet reduction using a bone forceps. To evaluate the postoperative reduction we used computer tomography (CT) scan

## Methods

We retrospectively included 60 patients with a median follow-up of 44 weeks. Fracture reduction was evaluated using pre- and direct postoperative CT scans of the wrist measuring the articular gap and step of the sigmoid notch. The range of motion was evaluated

clinically by the treating physician. Bivariate analysis was performed to compare pre- and postoperative radiographic measurements and to compare wrist range of motion

## Results

There was a significant difference in flexion, extension, pronation and supination comparing the injured to the uninjured wrist. In %87 of the patients there was complete radiographic reduction of the fracture

## Conclusions

This study shows that dorsal ulnar lunate facet fracture fragments in distal radius fractures can be reduced through a standard volar approach with help of intraoperative bone reduction forceps. Using wrist computer tomography's, we showed that %87 of the patients with a dorsal ulnar lunate facet fragment had postoperative articular step or –gap of <1mm

**Cod: 1273**

## **Evaluation of Radiocapitellar Arthritis in Patients with a Second Radiograph at Least 2 Years after Nonoperative Treatment of an Isolated Radial Head Fracture**

**Dr.Amir Reza Kachooei, Dr.David Ring**

**Mashhad University of Medical Sciences**

## Backgrounds

To study if patients that have a second radiograph 2 or more years after nonoperative treatment of an isolated radial head fracture have radiocapitellar osteoarthritis (RC OA)

## Methods

We used the database of 3 academic hospitals in one health system from 1988 to 2013 to find patients with isolated radial head fractures (no associated ligament injury or fracture) that had a second elbow radiograph after more than 2 years from the initial injury. Of 887 patients with isolated radial head fractures, %6) 54) had an accessible second radiograph for reasons of a second injury (%57), pain (%30), or follow-up visit (%13). Two orthopedic surgeons independently classified the radial head fractures on the initial radiographs using the Broberg and Morrey modified Mason classification, and assessed the development of RC OA on the final radiograph using a binary system (yes/no).

## Results

Four out of 54) patients had RC OA, one with isolated RC arthrosis that seemed related to capitellar cartilage injury, and 3 that presented with pain and had global OA (likely primary osteoarthritis).

## Conclusions

With the caveat that some percentage of patients may have left our health system during the study period, about 1 in 887 patients (%0.1) returns with isolated radiocapitellar arthritis after an isolated radial head fracture, and this may relate to capitellar injury rather than attrition. Patients with isolated radial head fractures can consider post-traumatic radiocapitellar arthritis a negligible risk.

**Cod:1308**

## Relevance of Pelvic incidence in osteoarthritis of hip leading to Arthroplasty

**Dr.SMJ.Mortazavi, Dr.S.H.Shafiei, Dr.FM.Yassin Khan**

**Tehran University of Medical Sciences**

## Backgrounds

The role of pelvic incidence (PI) or measurement of other pelvic parameters such as sacral slope (SS) and pelvic tilt (PT) in Total Hip Arthroplasty (THA) due to osteoarthritis is unclear. Therefore, we undertook this study to evaluate if pelvic incidence has any relevance in THA. We like to know, if we can predict the joint degeneration or outcome of THA from pelvic parameters or does measuring PI make an impact in planning of THA. Specifically, whether patients having low or high PI show any difference in outcome after THA or there should be any intraoperative measures to consider in these patients

## Methods

This cohort study piloted on 120 people, 60 normal individuals as control group and 60 who underwent THA due to degenerative joint disease. We measured PI, SS, and PT preoperatively in 60 patients with severe osteoarthritis who underwent THA and compared it with 60 normal individuals. SPSS 20 for windows used to analyze the data.

## Results

PI angle of 60 individuals in control group ranges from 27.9 to 84.5 with mean of 50.5. Their pelvic tilt ranges between 1.0 and 25.0 with mean of 12.6. Sacral Slope of control



group ranges from 19.0 to 60.0 with mean of 39.1. Regarding treatment group, PI of these patients ranged from 27.7 to 78.1 with mean of 51. PT ranged between 1.8 and 4.8 with mean of 11.2. SS of these patients ranged from 22.0 to 57.2 with mean of 44.4.

## Conclusions

In respect to the result of our study we conclude that pelvic incidence angle or other pelvic parameters such as sacral slope and pelvic tilt are not significant predictors of osteoarthritis, it does not vary in patients undergoing THA from healthy individuals.

**Cod: 1289**

## **Total Joint Replacement Following Failed Hemiarthroplasty**

**Dr.A.Taheri Azam, Dr.A.Saeidnia, Mr.F.Safdari**

**Orthopedic Hip Surgeon, Department of Orthopedics Surgery, Tehran Medical Sciences  
Branch, Islamic Azad University, Tehran, Iran**

**Bone, Joint and Related Tissues Research Center, Shahid Beheshti University of medical  
sciences**

## Backgrounds

There are some reports regarding the outcomes of conversion total hip arthroplasty (THA) following failure of hemiarthroplasty. However, it is necessary to perform more studies to assure the acceptable outcomes of previous studies. In current study, we continued our previous study on these patients with more number of patients and longer follow up period

## Methods

A total of 138 patients from October 2009 till October 2014 had conversion of their failed hemiarthroplasties following a proximal femoral fracture to total hip arthroplasty (THA) in hospitals, . We performed a prospective analysis of the outcome of conversion surgery in patients with failed hemiarthroplasty. The patients had clinical evaluations at 1 month, 6 months, 1 year, and annually thereafter. We used Harris Hip Score (HHS) to evaluate the results of conversion procedure in terms of relief of groin pain and functional improvement.

## Results

Dislocation occurred in 6 patients (%4.34). The mean period of follow-up was 42 months (range 60–36 months). HHS score improved from mean preoperative score of  $8.40 \pm 44.93$

to  $2.27 \pm 95.41$  at final follow-up. The survivorship analysis with revision of HHS score was %89.1. Existence of infection ( $P=.038$ ) and time of primary operation to being symptomatic ( $P=.009$ ) can predict the postoperative pain significantly.

## Conclusions

We conclude that conversion of failed symptomatic hemiarthroplasty to THA is a safe option which can lead to good functional and short-term and mid-term outcomes; and patients should be informed of the possibility of incomplete relief of groin pain or other symptoms postoperatively. We also showed that time of primary operation to being symptomatic and infection in patients had poor prognosis in existence of pain postoperatively.

**Cod: 1326**

## **Investigating the Function and stability of intra-osseous the Distal Radius Ulnar Joint prosthesis on cadavers**

**Dr.A.Moradi, Dr.A.Ajvadi, Dr.E.Vahedi**  
**Mashhad University of Medical Sciences**

## Backgrounds

One of the common injuries in the distal radius-ulnar joint is arthritis in this area. Many prostheses have been made for the radioulnar joint, but none have an acceptable performance, since two parts of prostheses are not placed in the bone. We have designed a prosthesis that is replace with a distal segment of the bone. This prosthesis is drive from the Kapandji method, which is a common surgical method. In this study, we are going to test the prosthesis on the corpus

## Methods

In this study, we investigated the stability and biomechanics of artificial intra-osseous Distal Radius Ulnar Joint prosthesis on 4 corpses. The range of wrist movements was recorded in six directions before and after the operation. Artificial wrist stability tests were performed as side tensile tests in three modes (Supination, neutral and pronation), axial loading, and rotational loading in supination and pronation for artificial joint stability. Ultimately, anteroposterior and lateral radiographs were performed.

## Results

All 4 prostheses were placed without problems. The range of motion of the wrist did not changed before and after placement. The results of lateral traction tests were applied in three modes (supernatant and permeation) of the axial stretching, and lateral traction in supination and pronation demonstrated complete joint stability in all four patients. The amount of torque in supination in three patients was 8,4 and 7.2 N/m, respectively, and ,4 7, and 8, respectively in pronation. We had prosthesis failure only in one case. The amount of displacement of the removed segment in the pronation and supination has been at most 2 mm.

## Conclusions

Intra-osseous Distal Radius Ulnar Joint artificial prosthesis presented proper function on cadaver study

**Cod: 1271**

## **Radiocapitellar prosthetic arthroplasty: short-term to midterm results of 19 elbows**

**Dr.Amir Reza Kachooei, Dr.Nicole A.M. Heesakkers, Dr.Andras Heijink**

**Mashhad University of Medical Sciences**

## Backgrounds

Few studies have discussed the short-term results of radiocapitellar (RC) prosthetic arthroplasty (PA). In this study, we assessed the short-term to midterm functional and radiographic results of elbows after RC PA. Our secondary aim was to assess the survival of the RC PA.

## Methods

We included 19 elbows in 18 patients with a mean follow-up of 35 months (range, 88-12 months). Patients were examined for instability and range of motion and were assessed using Mayo Elbow Performance Index and Oxford Elbow Score at any subsequent visits. RC PA was the primary treatment in 16 elbows, and 3 were revision radial head arthroplasty with concomitant capitellar resurfacing.

## Results

Range of motion, pain, and functional scores improved significantly from the preoperative to the final follow-up visit. Categorical grouping of the final Mayo Elbow Performance Index

outcome scores showed 9 excellent, 5 good, 3 fair, 0 poor, and 2 missing data. However, stability of the elbow remained unchanged. There was no pain in 11 patients, mild pain in 5, and moderate pain in 3. Radiographic assessment showed no significant progress in ulnohumeral arthritis, although 3 elbows showed osteoarthritis progression to a higher grade. There were no major complications, including infection, revision, disassembly of the components, or conversion to total elbow arthroplasty. Survival of the RC PA was %100.

## Conclusions

Elbow arthritis seems to become stationary after RC PA. Symptomatic RC osteoarthritis would probably benefit from RC PA regardless of the etiology.

**Cod: 1279**

## Comparison of Custom-made versus Prefabricated Thumb Splinting for Carpometacarpal Arthrosis: A Systematic Review and Meta-analysis

**Dr.Amir Reza Kachooei, Dr.Aslan Baradaran, Dr.Mohammad Ebrahimzadeh, Dr.Michael Rivlin, Dr.Babak Shojaie, Dr.Pedro Beredjiklian**  
**Mashhad University of Medical Sciences**

## Backgrounds

The goal of this study is to compare two types of orthoses, prefabricated soft splints and short thermoplastic custom-made splints, that are the most common and currently prescribed for management of the first carpometacarpal (CMC) osteoarthritis (OA).

## Methods

We conducted a meta-analysis and systematic review on the literature based on Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. We extracted the outcomes of disability scores, pain scores, grip and pinch strength and gathered the unified data accordingly.

## Results

We included five randomized clinical trials with 230 patients with the mean age of 61 years and the mean follow-up was 8.1 weeks. The results of the meta-analysis of the pooled data demonstrated a statistically significant difference in disability scores among splints in favor of prefabricated splints. The rest of the outcome measures consisting of pain, grip strength,

and pinch strength were not statistically different.

## Conclusions

According to our systematic review and meta-analysis both thumb-based splints improve pain and function in first CMC OA in a short-term follow-up, nevertheless the efficacy of prefabricated splints in abatement of disability scores was significantly higher than custom-made splints. In contrast, the other outcome measures including pain, grip and pinch strength were improved identically wearing each splint.

**Cod: 1270**

## **Bilateral Arm-Abduction Shoulder Radiography to Determine the Involvement of the Scapulothoracic Motion in Frozen Shoulder. Amir Reza Kachooei, MD, Fei Wu, MD, Mohammad H. Ebrahimzadeh, MD, Farshid Bagheri, MD; Ehsan Hakimi, MD, Babak Shojaie, MD, FA; Ara Nazarian, PhD Mashhad University of Medical Sciences**

## Backgrounds

We hypothesize that there is no difference in the motion of the scapula with respect to the thoracic wall (scapulothoracic interface) between the affected versus non-affected shoulder on  $^{\circ}0$  and  $^{\circ}90$  standard arm abduction radiography.

## Methods

We enrolled 30 patients with the diagnosis of unilateral frozen shoulder after ruling out of other pathologies. Bilateral standard shoulder radiography was done in two position of  $^{\circ}0$  and  $^{\circ}90$  of arm abduction. Non-affected side was used as a control group.

## Results

The mean scapulothoracic angle of the affected side was significantly larger than the non-affected side in both  $^{\circ}0$  and  $^{\circ}90$  of abduction in spite that the scapulohumeral angles were comparable in  $^{\circ}0$ , indicating potential alteration in scapular positioning.

## Conclusions

Scapulothoracic motion and position can be affected in frozen shoulder along with other areas. All treatment modalities should be applied to this area as well if substantial difference was detected between the two sides.

**Cod: 1250**

## **Return to sport activity after Anterior Cruciate Ligament Reconstruction: A 10-6 years follow up**

**Mohsen Mardani-Kivi, Mahmood Karimi-Mobarakeh, Mohsen Mardani-Kivi M.D.**

**Gilan University of Medical Sciences**

**Keraman Universtiy of Meidcal Sciences**

### **Backgrounds**

Background: Now ACL reconstruction surgery is widely accepted in patients, but its problems and consequences over the years, especially in athletes, are still being examined. Therefore, the aim of this study was to investigate the long-term effects of ACL regeneration in athletes.

### **Methods**

Method: A total of 426 patients with ACL damage were studied during the years -2012 2008. In addition to investigation of the chondral lesion, osteoarthritis and meniscus tear other factors like sex, age, BMI, level of sport activity, pain and type of graft was evaluated in patients and the effect of these factors on the return to sport was also investigated in athletes. In patients within the first 2 years after ACL-R and last follow up Lachman test, ACL-QOL, KOOS score, IKDC and LKS was measured. In this study, the risk of ACL rupture on the opposite knee and same side was also investigated.

### **Results**

Result: During 2 years and last follow-up in patient's knee stability) according to Lachman test and KT1000-), knee function (according to KOOS score. IKDC. LKS) and quality of life (according to ACL-QOL) improved. Overall, rate of return to sport similar to pre injury in the last follow up was %64.08 and among the variables mentioned in the return to sport, chondral lesion was a limiting factor that caused a lack of return to sport similar to preinjury in %80 of patients. While more than %60 of the patients with meniscus tear could return to sport similar to preinjury. Also, the rate of return to sport similar to preinjury was higher in men, people under 30 and BMI 25-20. The risk of ACL rupture in the last follow was also %4.22 on the same knee and %10.57 on the other knee.

## Conclusions

Conclusions: Despite the improvement of patients after ACL-R during long-term follow-up in athletes, chondral lesion reduces the return to sport while this item does not apply to meniscus tears

Cod: 1236

## Relationship between Calcium and Vitamin D Levels in Patients with Osteoporosis and Osteoporosis Provinc

Dr.S Talaneh, Dr.A.Sadghiani far, Dr.O.Asna Ashari  
Tabriz University of Medical Sciences

## Backgrounds

Osteoporosis is the most common metabolic bone disease, with its most prominent features being minerals and bone marrow malformations. Bone density is a good way to check the bone consistency. If the bone density is low in comparison with the normal level, the patient may have osteopenia. The aim of this study was to evaluate the amount of calcium and vitamin D in patients with osteoporosis and osteopenia .

## Methods

Our statistical community includes 56 patients with osteoporosis and osteopenia who received daily combination therapy with calcium and vitamin D for them. T-Score and BMD (Bone Mineral Density) were measured before and after treatment in all patients

**Results** Of 56 patients with osteoporosis and osteopenia, %62 had osteoporosis and %38 had osteopenia. The daily calcium intake was %52.4 in patients less than 400 mg and %12.2 in patients between 400 and 1000 mg, and in %35.4 in patients above 1000 mg. Serum vitamin D levels were  $2.4 \pm 24 \mu\text{g}$ . After the duration of treatment BMD values in the spine and pelvic region showed a significant increase of  $2.26 \pm 1.3$  and  $17.2 \pm 2.2$ , respectively, and in the case of T-score in the pelvic region,  $100/0 \ 0.7 \pm 262$  and spinal significant increase of  $0/41 \pm 0/91$  cord showed a.

**Conclusions** According to the results, there was a significant correlation between calcium and vitamin D consumption in patients with osteoporosis and osteoporosis.

**Cod: 1237**

## **Relationship between B6 and K vitamins in the process of bone fracture weld in postmenopausal women**

**Dr.M.Hakimian, Dr.R.Nouri, Dr.S.Talaneh  
Tabriz University of Medical Sciences**

### **Backhrounds**

Vitamin B6 is a water soluble vitamins that is resistant to heat and acid. Vitamin B6 deficiency in adults causes chylosis, glucose, stomatitis, anemia, irritability, dizziness and depression. Vitamin K is a group of similar fat-soluble vitamins that the human body needs to modify certain proteins that coagulate in the blood, as well as in bones and other tissues. The purpose of this study was to investigate the association between vitamins B6 and K in The process of bone fracture weld in postmenopausal women.

### **Methods**

Our population consisted of 180 postmenopausal women with a mean age of 65 years in city, divided into three groups. Women of the first group received vitamin B6 and women of the second group received vitamins B6 and K and the third group did not receive any supplement as control group. BMD of the lumbar spine and proximal femur bone were measured by Dua X-ray absorptiometry. Demographic and anthropometric data and serum levels of vitamins k, B6 and PTH were also measured. To investigate the relationship between vitamins, dual-purpose and multi-purpose analyzes were also used

### **Results**

The mean serum vitamin B6 was  $17.8 \pm 19.4$  and the mean vitamin K was  $22.7 \pm 12.9$ . In the vitamin B6 consumer group, there was a significant correlation with the buckling process ( $P = 0.0338$  OR, 3.33). In the second group, both groups of vitamin B6 and K administered, a significant correlation was observed ( $P = 0.017$  / 0 OR = 176/3). In the case of T-Score in the pelvic region, the mean of  $0.7 \pm 262.0$  and the spine was  $0.41 \pm 0.91$ , respectively.

### **Conclusions**

The use of vitamin B6 and K supplements is effective in improving the bone wrapping in postmenopausal women. However, along with these vitamins, the diet also affects.



**Cod: 1341**

## **Simultaneous bilateral total knee arthroplasty as safe procedure with low risk of mortality and morbidity**

**Dr.MM. Sarzaem, Dr.F.Amoozadeh, Dr.D.Feyzi, Dr.B.Hanafizadeh**

**Shahid Behshti University of Medical Sciences**

### **Backgrounds**

The aim of this study was to evaluate the morbidity, clinical outcome and mortality with simultaneous bilateral total knee. Bilateral total knee has advantages that include bilateral functional recovery with only single operation and anesthesia, lower cost. But there is some concerns about its complications and mortality rate in comparison to staged TKA.

### **Methods**

Between 2010 and 221 ,2017 patients with bilateral end-stage osteoarthritis had undergone bilateral total knee arthroplasty. All cases was done by one surgeon, with sub- vastus approach.221 bilateral total knee arthroplasty were analyzed to perioperative complications, mortality rate and functional outcomes.

### **Results**

The mean Oxford knee score preoperatively was 22 which knee score postoperatively was%90.46.5 of patients showed excellent outcomes also %10 of patients showed defective outcomes. One patient mortality occurred in our study which was 4 months after operation due to cardiac ischemic disease. There were one periprosthetic fracture, one infection, no component loosening and no other revisions. Symptomatic deep- vein, thrombosis (DVT), pulmonary embolism (PE), did not occurred in patients.

### **Conclusions**

According to our studies simultaneous bilateral arthroplasty is beneficial to patients, with a minimal increase in the risk of death or other complications and does not result in any significant increase in patient's morbidity or compromise in postoperative function.

**Cod: 1298**

## **Short-term outcomes of local steroid injection in carpal tunnel syndrome: Triamcinolone (20 and 40 mg) versus Methyl prednisolone (20 and 40 mg)**

**Dr.SH.Bagheri, Dr.A.Karimzadeh, Dr.SA.Reis Sadat, Dr.H.Abrishamkarzadeh, MR.F.Safdari**  
**Bone, Joint and Related Tissues Research Center, Shahid Beheshti University of medical sciences**

### **Backgrounds**

Local steroid injection is one of the most common methods to treat carpal tunnel syndrome (CTS). However, the most efficient substance and the appropriate dosage are not clearly known. In current clinical trial, the outcomes of treating CTS with local injection of triamcinolone 20 and 40 mg and methyl prednisolone 20 and 40 mg were compared.

### **Methods**

There were 73 patients with mild or moderate CTS assigned to 4 groups randomly: triamcinolone 20 mg (T20- group; 18 patients), triamcinolone 40 mg (T40- group; 20 patients), methyl prednisolone 20 mg (M20- group; 17 patients) and methyl prednisolone 40 mg (M40- group; 18 patients). Before and 3 months after injection the following measurements were performed: SNAP Amp and latency, CMAP Amp and latency, NCV, intensity of pain using visual analogue scale (VAS), pain free grip (PFG) and Boston CTS questionnaire including symptom severity scale (SSS) and functional severity scale (FSS).

### **Results**

Before the treatment, all of the variables were the same in four groups. SNAP latency, CMAP Amp and latency, NCV, pain, PFG, SSS and FSS improved after treatment in all of the groups ( $P < 0.05$ ). SNAP Amp did not changed significantly after treatment in M20- group. SNAP Amp was significantly higher in M40- group compared to M20- group ( $P = 0.024$ ). Furthermore, FSS was significantly lower in T40- group compared to T20- group ( $p = 0.009$ ). There was no significant difference between four groups in other variables after treatment.

### **Conclusions**

In short-term follow up, local steroid injection was associated with improvement in functional status, grip strength, symptoms and electrodiagnostic studies (SNAP Amp and

latency, CMAP Amp and latency, NCV). However, the authors suggest injection of methyl prednisolone and triamcinolone 40 mg due to significantly better outcomes in some variables compared to prednisolone and triamcinolone 20 mg.

**Cod: 1306**

## **Bone strength prediction following tumor surgery using voxel-based finite element method validated by in-vitro mechanical tests**

**Dr.A.Ghouchani, Dr.MH.Ebraimzadeh, Dr.GH.Rouhi**

**Azadeh Ghouchani<sup>1\*</sup>, Mohammad. H. Ebrahimzadeh<sup>2</sup>, Gholamreza Rouhi<sup>1</sup>**

<sup>1</sup>Department of Biomedical Engineering, AmirKabir University of Technology, Tehran, Iran

<sup>2</sup>Orthopedic research center, Mashhad University of Medical Sciences, Mashhad, Iran

### **Backgrounds**

Giant cell tumor (GCT) mostly affects distal femur. After removing the tumor, the defect is reconstructed by cement infilling. Fracture is a frequent post-operative complication that limits the patients' daily activities, and so a second operation might be likely needed. So, non-invasive methods for predicting the fracture risk is of great importance. To date, there is no firm biomechanical data to identify patients, affected by GCT and at high risk of fracture, for whom prophylactic actions should be made [1]. It is known that there is a correlation between the risk of bone fracture and its strength [2], thus an accurate prediction of bone strength is needed, if one intends to estimate its fracture risk. In this study, an experimentally validated finite element (FE) method, based on quantitative CT (QCT) images for predicting bone strength following tumor surgery, was introduced

### **Methods**

Nine cadaveric distal femora were evaluated. GCT surgery was simulated on the femora by an orthopedic surgeon. Each femur was QCT scanned and then tested under destructive compression load applied by a -25mm in diameter actuator to simulate stance-phase loading (Fig. -1A). The maximum force achieved was considered as the bone strength (FTest). Three dimensional voxel-based FE models were created directly from converting each voxel of the QCT images into a cubic element (Fig -1B). Non-linear elastic-plastic (Fig. -1C) material properties were assigned to each element according to experimentally derived relations based on its density value [2]. Cement was considered as a homogenous material. Boundary conditions for FE models mimicked those applied in the mechanical

tests. The proximal end of the model was fixed and displacement was applied to nodes in a -25mm in diameter circle region located on the medial condyle (Fig. -1B).

Sum of the reaction forces of these nodes, versus their displacement along the load direction was drawn, and the maximum force of the graph was considered as bone strength (FFE). In order to evaluate, and validate the FE models, they were divided into two groups: 5 femora in the development group (DG), and 4 femora in the evaluation group (EG). In DG, the material properties of the elements were modified until the difference between FFE and FTest approaches zero, employing a paired t test. In order to evaluate the accuracy of the predicted strength, the material properties employed in DG were assigned to EG's models, then results of FE analysis for EG were compared with experiments. Material properties modifications continued until the results of two groups, i.e DG and EG were consistent with the experimental data.

## Results

Voxel-based FE models had 156 to 192 different material properties for bone (Fig.-1B), with modulus of elasticity (E) and strength (S) of nearly zero to 26-21 GPa, and 175-140 MPa, respectively, depending on the specimen. The relationship between the bone strength obtained by FE analysis (FFE) versus the strength found from in-vitro tests on cadavers (FTest) can be seen in Fig. 2, which shows a good agreement between FEM data and experimentally measured of bone strength ( $R=0.917$ ;  $p < 0.001$ ).

## Conclusions

Identifying patients at high risk of fractures prior to the surgery is very important. Current clinical tools for identifying patients prone to fractures are limited to defect size and patients' pain, but they ignore many structural properties which are crucial in determining bone strength. The QCT-based FE method presented here was capable of providing a good estimation of bone strength by considering material heterogeneity and post-failure properties of bone as well as tumor geometry.

## References

- [1] A. Ghouchani, and G. Rouhi (2017), J. Med. Biol. Eng., 2, 67-454;(4)37] J. H. Keyak et al. (2005). Clin. Orthop. Relat. Res. 228-219 ;437

**Cod: 1310**

## **Tibial tunnel preparation in posterior cruciate ligament (PCL) reconstruction? A technical tip to lessen the stress**

**Dr.SMJ.Mortazavi, Dr.A.Ramezanpoor, Dr.A.Okati**

**Tehran University of Medical Sciences**

### **Backgrounds**

To introduce a technical tip for the preparation of tibial tunnel in PCL reconstruction to reduce the chance of popliteal artery injury and to decrease the duration of the surgery.

### **Methods**

Eighteen patients who underwent PCL reconstructions at our institution between 2016 and 2017 were included in this study. In all patients, the PCL tibial aimer device inserted from anteromedial portal and its tip aimed 9-8 mm below shiny white fibers in PCL facet. The smooth guide pin then was inserted from anteromedial tibial cortex and advanced just to the posterior cortex but not through it, based on measurement of tibial tunnel length. Thereafter reaming was done over the guide pin. As the pin was engaged in the posterior cortex we were sure that it would not run before reamer to the popliteal fossa. We remove the pin when the reamer touched the posterior cortex and then continue reaming until reamer's head appeared in the PCL facet. Other steps of standard arthroscopic PCL reconstruction were done. We did CT scan evaluation of all patients.

### **Results**

The mean age of the patients in this study were 3 →25y). The mean duration of surgery was 95 minutes. There was no vascular injury. The position of tibial tunnel in all cases were accurate. The mean distance between the center of the tibial tunnel to CGD(Champagne\_ glass Drop-off ) the posterior cortex of tibia was 7.42 mm (range from 4.6 to 10.4 mm).

### **Conclusions**

Our study showed that avoiding the penetration of posterior cortex of the tibia by means of the pin during tibial tunnel preparation for PCL reconstruction is a safe, reproducible and time saving technique. Using this technique eliminates the need for fluoroscopy during the procedure.

**Cod: 2354**

## **Surgical treatment outcome of giant cell tumor of distal ulna: En bloc resection vs. curettage and bone graft**

**Dr.Khodamorad Jamshidi, Dr.Mehrdad Bahrabadi Dr.Abolfazl Bagherifard, Dr.Mehdi Mohamadpour**  
**(Tehran) Iran University of Medical Sciences**

### **Backgrounds**

Giant cell tumor (GCT) of the bone is a benign neoplasm with local aggressive behavior. Distal ulna is a very rare place for GCT. Published studies have mainly focused on case reports, and thus there is no consistent treatment strategy for this tumor at this location. This retrospective study was conducted to evaluate the oncological and functional results of 2 different surgical treatment methods for GCT in distal ulna.

### **Methods**

In this study, 9 patients with GCT of distal ulna were followed after surgical treatment of GCT of distal ulna. Of the patients, 2 had local recurrence after surgery in other hospitals and 7 had primarily been admitted to our hospital. Four patients, all with grade 2 Enneking and Campanacci's classification, were treated by extended curettage and bone grafting, while 5 patients with grade 3 were managed by distal ulnar resection. Minimum follow-up time was 24 months.

### **Results**

Patients with grade 3 GCT of distal ulna, who had extended curettage, had a local recurrence up to one year after surgery. Local recurrence was never seen in those with grade 3 disease with resection or in those with grade 2 disease with extended curettage as the treatment of GCT in this location

### **Conclusions**

Based on our study, which is the largest cohort of GCT of distal ulna, extended curettage, and en bloc resection can be

suggested as valuable methods of treatment for grades 2 and 3 tumors, respectively.

**Cod: 1329**

## **Kermanshah earthquake; health care preparedness assessment and planning strategies against natural disasters.**

**Dr.Morteza Saeb, Dr. Monireh yaghoubi, Dr.Khosro Farhadi, Dr.Seyyed saeed khabiri**  
**Kermanshah University of Medical Sciences**

### **Backgrounds**

A -7.3magnitude earthquake recently shook Ezgeleh district, located about 143 km from Kermanshah city (2017/11/12), in the western part of the country. Due to the severity of the earthquakes and the infrastructure of the nearby cities and villages, a large number of victims needed medical treatment. Since earthquake is one of the natural disasters, the state of unpreparedness of the health care systems against natural disasters is unusual. So the aim of this paper showing our acting about the critical situation and criticize our duty and review the same article for better acting with Unpredictable events.

### **Methods**

A -7.3magnitude earthquake recently shook Ezgeleh district, located about 143 km from Kermanshah city (2017/11/12), in the western part of the country. There had been no earthquake of a magnitude greater than 6.6 over the past half-century )[http://irsc.ut.ac.ir/newsview\\_fa.php?eventid=125729&network=earth\\_ismc](http://irsc.ut.ac.ir/newsview_fa.php?eventid=125729&network=earth_ismc)(. A historical earthquake in the western regions of the country in 958 AD, with a magnitude of about 6.8 Richter, destroyed Sarpol-e Zahab and took a heavy toll killing nearly all the settlers. The last historical earthquake in this area occurred in 1226 AD with a magnitude of 6.5 along the Zagros fault [http://irsc.ut.ac.ir/Kermanshah\\_M7.3.pdf](http://irsc.ut.ac.ir/Kermanshah_M7.3.pdf).

### **Conclusions**

During the first 5 days of the Ezgeleh earthquake, 855 injured people out of 9388 were admitted at the Taleghani Hospital of Kermanshah city (<https://www.mehrnews.com/news/4142365>). Regarding the number of casualties in the Ezgeleh earthquake on 12 November 2017 (in spite of the 7.3 Richter earthquake at the depth of 11 kilometers and the occurrence of a 4.3 Richter earthquake before the main earthquake and the lower number

of casualties in comparison to Bam and Rudbar earthquakes(2)), it seems that in case of a similar incident, the infrastructure of the medical centers of Kermanshah city cannot meet the treatment needs and the related procedures required. Since earthquake is one of the natural disasters, the state of unpreparedness of the health care systems against natural disasters is unusual; therefore, due to the absence of a separate committee to take action against natural disasters, the initial and timely preparedness of the health care system and the treatment of trauma patients requires preparing an efficient clinical guidance and setting up a subspecialty crisis committee under the supervision of an orthopedic team and participation of reconstructive surgeons, neurosurgeons, general surgeons, and other medical teams to act against the incidents and reduce the number of related damages.

**Cod: 1333**

## **Arthroscopic Treatment of Diffuse Pigmented Villonodular Synovitis of the Knee: Complete Synovectomy and Septum Removal—Midterm Results**

**Dr.S.Keyhani, Dr.S.M.Kazemi, Dr. Jin Hwan Ahn, Dr.René Verdonk, Dr.M.Soleymanha  
Shahid Beheshti University of Medical Sciences**

### **Backgrounds**

The purpose of this study was to evaluate and describe the clinical results of complete arthroscopic synovectomy through the four arthroscopic portals in the knees affected by diffuse pigmented villonodular synovitis (DPVNS). Between 2009 and 21, 2012 patients (15 men and 6 women) with the diffuse form of PVNS of the knee were enrolled in the study after qualification. The clinical diagnosis was confirmed by magnetic resonance imaging and postsurgical pathologic examination. All patients underwent complete synovectomy through posteromedial, posterolateral, anteromedial, and anterolateral portals. Each patient was evaluated before treatment and followed up for a minimum of 5 years (range: 79–60 months) using the Lysholm score and International Knee Documentation Committee (IKDC) score. Both Lysholm score and IKDC scores were significantly improved in all study participants. No cases of clinical recurrence, infection, joint stiffness, or neurovascular lesions were observed. This study showed that an attentive arthroscopic synovectomy is a safer alternative with better clinical outcomes, with no clinical recurrences.



Cod: 1238

## The Relationship between the Effect of Nandrolone and Vitamin D on the Recovery of Bone fractures

Dr.R.Nori, Dr.M.Hakimian, Dr.S.Talaneh

Tabriz University of Medical Sciences

### Backgrounds

Any bone deformity following a hit is called fracture. This deformation may appear in varying forms and is associated with severity and weakness. The nerve is a -19nonsteroid (a carbon atom in the hair follicle is less than 19) and It is derived from testosterone. Nandrolone's commercial forms include decanoate (decadurabolin) and phenylpropionate (dirobulin). The function of the nondellone prophyllon is similar to the khanate, but with a shorter duration of action. Nandrolone is used to treat severe burns, malnutrition and osteoporosis.

**Methods** Our statistical population included 108 patients (79 males and 29 females) who had fractures in the femoral artery and divided into 3 groups. Patients in the first group received 400 mg of nandrolone every day and the other group received 400 mg of vitamin D and the third group did not receive any drug as the control group. Patients were compared after the 6 months of wound coronal and radiographic and clinical evidence. The Chi Square test was used to compare the welds and was used to analyze the data from the SPSS V24

**Results** In %57.3 of patients in the Nondredent group, after 7 weeks, radiological and clinical evidence of corrosion was observed (OR = 12.11). In the same time group, There was no significant correlation (OR = 0.89, P = 0.049). In the 14th week, %73.7 of the welded nondeller group was observed, indicating a significant correlation with the control group (P = 29 OR = 213/3). However, no significant correlation was found in the vitamin D group in Hafnium (P = 0.59 OR = 76/0). In the 18th week, there was a significant correlation between the consistency of the nondeller group (OR = 13.13) and there was a significant relationship between vitamin D (P = 0.0339 OR 59/3)

**Conclusions** The use of nandrolone and vitamin D in the process of improving the welds in people with bone fractures is also effective, and the use of drug supplements, such as vitamin D, also affects the process of healing.

**Cod: 1278**

## **The role of continuous passive motion (CPM) versus no-CPM in the treatment of frozen shoulder: A systematic review and meta-analysis**

**Dr.Amir Reza Kachooei, Dr.Mohammad Ebrahimzadeh, Dr.Ashkan Baradaran, Dr.Aslan Baradaran, Dr.Alireza Mousavian**  
**Mashhad University of Medical Sciences**

### **Backgrounds**

Frozen shoulder or adhesive capsulitis is a condition defined as a gradual development of restrictions of active and passive shoulder motions without significant radiological findings other than osteopenia. Frozen shoulder is categorized into two groups, primary (or idiopathic) and secondary that is more prevalent and is associated with conditions such as diabetes mellitus surgery, trauma, thyroid disease, prolonged immobilization, stroke, autoimmune disease and etc.<sup>1,2</sup>

Its prevalence in Caucasian populations is estimated to be between 2 and %5. It occurs mainly in fifth and sixth decades of life and a onset before 40 is rare; women are more commonly affected than men.<sup>3</sup> It occurs predominantly unilateral and the non-dominant shoulder is more likely to be affected and in 6 to 17 percent of patients the other shoulder becomes involved within five years. <sup>4,5</sup>

Currently, there is no consensus as to which is the most efficient treatment. The goals in the treatments are to restore motion, improve shoulder function and to provide pain relief.

### **Methods**

Following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline, we searched in MEDLINE, MEDLINE preprints, SCOPUS, EMBASE, and the Cochrane Central Register of Controlled Trials (CENTRAL) for all published clinical studies on the use of continuous passive motion (CPM) for the treatment of frozen shoulder. We also crossed checked the bibliographies referenced in the studies identified in the primary search. [Figure 1]

Eligibility criteria

**Results** Study characteristics We included 4 studies for data extraction comprising of 208

patients divided into 105 patients treated with the CPM and 103 patients in the control group without utilizing the CPM. The mean age was 61 in 3 studies<sup>6,16,17</sup>, with one study not mentioning their patients' age<sup>18</sup>, and the mean follow-up was 18.3 weeks in total.

## Conclusions

In two studies both groups showed significant decrease in all measured parameters in the last follow-up comparing to the first visit. but no significant difference within groups, except the CPM group had a lower VAS score than the control group with a statistical significance. <sup>6,18</sup> In another study all evaluation criteria (including ROM, VAS, SPADI and constant score) were improved in both groups. But by the fourth and fifth week there was a statistical difference between groups in VAS, SPADI, constant score, abduction, flexion, internal and external rotation, all in favor of the CPM group. <sup>17</sup>

In one study, which was conducted for 6 months, both groups were improved in all outcome measures but in the end there was no statistical difference in pain and disability and ROM measures between groups. <sup>16</sup>

**Cod: 1243**

## **A case report of a -10year-old baby's broken hand**

**Dr.E.Abedini, Dr.S.Abedini, Dr.M.Asadi**

**Shahid Beheshti University of Medical Sciences**

## Backgrounds

Background and Objective: Disruptions of the palm of the palm through the work of sharp objects and wins the everyday life of individuals. The damaged member transplantation improves the quality of the individual's life and the shape and function of the affected limb

## Methods

Patient introduction: The patient is a -10year-old child suffering from complete abdominal distension in the middle of the chest while he was working. He also had a severe destruction and fracture of the distal part of the first right hand. The patient was admitted to the Emergency Hospital of the May 19th Hospital of Samsun, Turkey, in 2017, under an arthritis surgery.

**Conclusions** Complete elimination of the hand and its successful linking are rare and

reported. Hand transplantation from the full palm of the palm and follow-up of the patient in 10 months indicated successful surgery. The patient's hand bleeding and finger movements and the progression of the sensory nerves during this time was as acceptable.

**Cod: 1302**

## **Conversion of hip fusion to Total Hip Arthroplasty (THA) through Direct Anterior Approach(DAA)**

**Dr.SMJ.Mortazavi, Dr.SH.Shafiei**

**Tehran University of Medical Sciences**

### **Backgrounds**

Technical difficulties make conversion to THA from a fused hip a challenging procedure with mixed results. Here we report our surgical technique and early results of conversion of fused hips to THA via DAA

### **Methods**

Between January 2013 and January 2017 we performed 15 conversions THA in 13 patients with hip fusions through DAA. The procedure was performed on a standard table, in supine position, and with or without fluoroscopy guidance. Patients were followed up for a mean of 3 years. The clinical and radiographic outcomes of this approach are reported in this study

### **Results**

There were 9 men and 6 women with a mean age of 56-32) 45) years old. The mean time interval between fusion and THA was 35-20) 26) years. The mean follow up period was -2)3 5) years. All acetabular components were in safe zone. There was one recurrent dislocation due to abductor insufficiency. Preoperative Harris Hip Score 54-38)42) improved to -71)87 97) Postoperatively

### **Conclusions**

We believe that conversion THA in patients with previous hip fusion is easier and safer through DAA. This, in turn, is due to better access to the joint through anterior for the anatomy of hip joint and simpler fluoroscopic assistance in patients with supine position

**Cod: 1253**

## **Injury patterns among motorcyclist trauma patients: a cross sectional study on 4200 patients.**

**Dr.SH.Seyed Hossienian, Dr.MH.Ebrahimzadeh, Dr.A.Birjandinejad, Dr.MT.Peyvandi,  
Dr.F.Bagheri, Dr.J.Hasani, Dr.S.Golshan  
Mashhad University of Medical Sciences**

### **Backgrounds**

Motorcyclists are among the most vulnerable groups of road accident target population, and their mortality rate is rising due to the constant increase in the number of accidents. This paper seeks to address the epidemiological pattern of the motorcyclists who had an accident and were admitted in Educational, Research, and Health Center.

### **Methods**

This cross-sectional analysis covers all accidents of motorcyclists who were referred to Educational, Research, and Health Center from 23 August 2014 to 22 August 2016 to receive treatment. The received data were accurately checked and examined before the analysis, the potential errors were corrected, and upon obtaining the correct reliable data, the analysis was done. The gathered data was analyzed and examined in terms of the demographic variables, the accident time, the accident type, and the trauma type, via Stata Software.

### **Results**

4205 motorcycle accident cases (%14 of all cases hospitalized during the two-year study) were hospitalized; the mean age of the patients was 30 years. %88 of the cases were males and %12 were females. (Male/female ratio=7.3) collision of a motorcycle with a car and the collision of a motorcycle with a pedestrian were the most common mechanisms of injury constituted of %68 and %22 of the cases respectively. Head was the most common injured site of the body. %59.7 of the admitted patients and %85.4 of total death cases had trauma to head. The leg, foot, and face were the next commonest trauma sites. %67 of the target population received traumas on more than two parts of their bodies. the elbow, arm and hip were the least regions involved.

## Conclusions

The motorcycle accidents cause severe physical damages to the patients' body. Head trauma was the most common type, leading to a wide range of disabilities; therefore, using crash helmets and avoiding dangerous driving habits will remarkably decrease such traumas.

**Cod: 1260**

## **Unicompartmental knee Arthroplasty in Iranian population,a case series report**

**Dr.MM.Sarzaem, Dr.F.Amozadeh, Dr.D.Feyzi, Dr.B.Hanafizadeh,**

**Shahid Beheshti University of Medical Sciences**

## Backgrounds

In comparison to TKA, UKA is a less invasive procedure, providing faster recovery and less blood loss, with a lower risk of complication. Unicompartmental knee arthroplasty is an alternative to total knee arthroplasty in isolated end - stage medial osteoarthritis. UKA is currently considered as a viable option in most patients regardless of age, activity level, and weight.

## Methods

Between 2013 and 82 ,2018 consecutive patients had medial unilateral uniompartmental knee osteoarthritis in contrast, 7 patients had bilateral unicompartmental knee osteoarthritis.in all cases fix bearing UKA prosthesis with sub vastus approach was used. Antromedial osteoarthritis (70 cases) and osteonecrosis (19 cases) were the main causes. All patients have been evaluated clinically and radiographically before surgery, and postoperatively in 12 ,6 ,3 2 ,1 months intervals and also 5-2 years.

## Results

The mean Oxford knee score preoperatively was 20 which knee score postoperatively was %85 .44 of patients showed excellent outcomes also %10 of patients showed defective outcomes. One patient had periprosthetic fracture in tibial part wich was managed with conservative treatment. There were no revision, infection, component loosening, instability and component wear. Postoperative standing X-rays at 8 week and 1 year showed a well-fixed femoral and tibial component. There was potential improvement in mean knee range of motion as well as across various standardized knee score.

## Conclusions

This study showed UKA provide an optimal solution and higher function in the treatment of medial end\_ stage osteoarthritis. The result of this consecutive cases series demonstrated that excellent results can be achievable. Interst in UKA continues to expand as an early intervention method and is showed as a more conservative procedure than TKA with better kinematic and functional outcomes.

Cod: 2349

## Design And Manufacture of The Ergonomic Handrim for Veterans Using Standard Wheelchair At Home

Dr.N.Feyzollahi, Dr.M.Allami, Dr.MR.Sourosch

Ardebil University of Medical Sciences

- 1.Master of Science in Biomedical Engineering, Janbazan Medical and Engineering Research Center
- 2.Orthotist, Janbazan Medical and Engineering Research Center
- 3.MD, Janbazan Medical and Engineering Research Center

**Introduction:** Mobility for health, social interaction and well-being of wheelchair users is essential and should be considered as an important goal of the rehabilitation process and the success of re-establishing social interaction and providing a productive life. Wheelchairs are only devices that can substantially improve the mobility of a person when she/he does not even have the ability to walk with walking aids. Driving manual wheelchairs can cause many complications, especially in permanent wheelchair users like those with SCI or double lower extremity amputation.

**Materials and methods:** This study is a fundamental applied research and design and construction that led to the laboratory sample. In this research, the related resources were studied and studied first. Then, during the design and implementation phase of the project, after calculating the appropriate dimensions of the tool, 3D model of ergonomic handrim by CATIA were prepared and the sample was constructed by a 3D printer.

**Results:** Manual wheelchairs users often experience pain in their shoulder, wrists and hands because of their repeated use of them for pushing handrims. To eliminate defects in existing

handrims, new ones have been designed. Ergonomic handrims Which are produced in developed countries, are expensive. We designed an alpha prototype of modern ergonomic handrim and printed out it by a 3D printer.

**Conclusion:** Designing and manufacturing an ergonomic handrim, which is capable of replacing conventional driving handrim in a manual wheelchair, has an important role in increasing the comfort and prevention of upper extremity disorders in manual wheelchairs users.

**Cod: 1282**

## Current Concepts in Scaffolding for Bone Tissue Engineering

**Dr.A.Moradi, Dr.MH.Ebrahimzadeh, Dr.N.Elhopoor**

**Mashhad University of Medical Sciences**

### Backgrounds

Bone disorders are of significant worry due to their increased prevalence in the median age. Scaffold-based bone tissue engineering holds great promise for the future of osseous defects therapies. Porous composite materials and functional coatings for metallic implants have been introduced in next generation of orthopedic medicine for tissue engineering. While osteoconductive materials such as hydroxyapatite and tricalcium phosphate ceramics as well as some biodegradable polymers are suggested, much interest has recently focused on the use of osteoinductive materials like demineralized bone matrix or bone derivatives. However, physiochemical modifications in terms of porosity, mechanical strength, cell adhesion, biocompatibility, cell proliferation, mineralization and osteogenic differentiation are required. This paper reviews studies on bone tissue engineering from the biomaterial point of view in scaffolding. Level of evidence: I

**Keywords:** Bone tissue engineering, Regeneration, Scaffolds

### Methods

The incidence for all fractures among United States white population in 2010 was 1) 100,000/4017). High rates of bone vulnerability to trauma and fractures have attracted extensive researches in the bone tissue regeneration field. Bone has a hierarchical and complex structure that supports its diverse mechanical, biological and chemical functions.



The heterogeneous and anisotropic structure of bone is composed of optimized irregular arrangement and orientation of macrostructures (such as cancellous and cortical bone), microstructures (like osteons, and single trabeculae), sub-microstructures (such as lamellae), nano-structures (like fibrillar collagen), and sub-nanostructures (such as minerals, and collagen molecules) (2). These components are architecturally designed to fulfill the functional needs of each particular bone. The mechanical properties of bone are made by its component phases and hierarchical structural organization (3). These properties are defined as compressive and bending strengths as well as the fracture toughness (4). Collagen and hydroxyl-carbonate apatite are the main components of bone with a porosity of %30-10 in the outer layer of the cortical bone and %90-30 in the inner layer of the cancellous bone. Some bones like ribs are more involved in tensile stress, while others, like talus, are under heavy compressive strength.

**Cod: 1323**

## **The effect of supervised versus unsupervised (home-based) physiotherapy on functional and quality of life outcomes in the early phase following total hip arthroplasty**

**Dr.O.Shahpari, Dr.MH.Ebrahimzadeh, Dr.H.Negahban, Dr.J.Esmailzadeh, Dr.N.Elahpoor**

**Mashhad University of Medical Sciences**

### **Backgrounds**

Total hip arthroplasty (THA) is among the most common orthopedic surgeries which expected to grow with aging and its concomitant increase in the prevalence of hip osteoarthritis in the elderly populations.

### **Methods**

Rehabilitation program can take place in a clinic (in the form of supervised physiotherapy program) or at home (in the form of unsupervised, pamphlet-based program). Physiotherapy programs are generally including the range of motion and strengthening exercises combined with some functional tasks such as gait training and stair climbing to improve balance and mobility in these patients.

### **Results**

In this regard, several systematic reviewshave attempted to compare the supervised and

unsupervised home programs physiotherapy in the late stage rehabilitation following THA (i.e. more than 8 weeks) in terms of functional and quality of life outcomes. Overall, their results indicated that supervised physiotherapy seems to be equally effective in functional and quality of life terms as compared with home physiotherapy program.

## Conclusions

Besides, there are several randomized controlled trials (RCT) examined patients in the early stage of rehabilitation (i.e. the first 8 weeks following THA). In this respect, while in some RCTs, both the supervised and unsupervised home programs were equally effective in recovering functional and quality of life outcomes, in the others, a greater improvement was found for unsupervised home physiotherapy compared with supervised program. Therefore, it is yet unclear which physiotherapy program route is superior in terms of functional and quality of life outcomes in the early stage of rehabilitation in patients with THA. A computer literature search of PubMed, Scopus, Web of Science, CINAHL and Cochrane Central was conducted using relevant keywords. Two authors extracted the data independently using an online data extraction form. All data were assessed and pooled to final deduction. Surprisingly, this study found no significant difference in important measured parameters between the functional exercise groups and the control groups.

## Cod: 241

### **Assessment of the effect Cinopar (Teriparatide) in the treatment of nonunion bone fractures**

Masoud Shayesteh azar<sup>1</sup>, Mohammad Hossein Kariminasab<sup>2</sup>, Ghasem Janbabaie<sup>3</sup>, salam ghafari<sup>4</sup>, mehran razavi pour<sup>5</sup>, Sara Mahdavi<sup>6</sup>, Saber Joorebrahimian<sup>7</sup>, iman sadeghian<sup>8</sup>

**1**Associate professor of orthopedic surgery, Orthopedic Research center, Mazandaran university of medical science, Sari, Iran.

**2**Associate professor of orthopedic surgery, Orthopedic Research center, Mazandaran university of medical science, Sari, Iran.

**3** Assistant professor of oncology and hematology, Mazandaran university of medical science, Sari, Iran.

**4**Assistant professor of orthopedic surgery, Orthopedic Research center, Mazandaran university of medical science, Sari, Iran.

**5** Assistant professor of orthopedic surgery, Orthopedic Research center, Mazandaran university of medical science, Sari, Iran.

6 Student research committee, mazandaran university of medical science, sari, iran

7 Student research committee, mazandaran university of medical science, sari, iran

8 Student research committee, mazandaran university of medical science, sari, iran

## Introduction

Non-union is a clinical and treatment challenge for surgeons and specialists. Satisfactory repair of orthopedic fractures is so important for function and life quality of the patients. A way to achieve this goal is to use systemic treatment. This study aimed to investigate the effect of Teriparatide on Non-union fractures.

## Material and Methods

A case series study conducted on 17 patients with Non-union fracture. A radiographic evaluation performed before the intervention. All x-ray images confirmed by a radiologist for Non-union. Then all the patients underwent 3-month treatment with Teriparatide. Finally, a control X-ray image conducted in order to assess the outcome. Data analyzed using SPSS version 16.

## Results

Sixteen patients with nonunion fracture were evaluated in this study. Of this patients, nine individuals were male and eight were female. The mean age of the patients was  $20.51 \pm 45.18$  years. The mean time past from the accident was 50 weeks. Femoral bone was the most reported impaired place in our study. Out of the 16 patients who followed, recovery was seen in 10 patients (62.5%) with Cinopar .

## Conclusion

It is concluded that the treatment with Cinopar was effective to some extent. However, due to the few sample size of the study and also the loss of an accurate orthopedic and radiologic assessment as a nonunion cure index, the efficacy of Cinopar still remains unclear.

## Keywords

Teriparatide, Non-union fracture, Bone healing

Cod: 243

**Comparison of the results of surgical and non-surgical treatments in intra-articular fractures of calcaneus**

**Mohammad Hossein Kariminasab<sup>1</sup>, Seyed Mokhtar Esmailnejad Ganji<sup>2</sup>, Masoud**

**Shayesteh azar<sup>13</sup>, ,mehran razavi pour<sup>4</sup>. salman ghafari<sup>4</sup> mirdavod mirhosseini<sup>5</sup>,iman sadeghian<sup>6</sup>**

**1Associate professor of orthopedic surgery,Orthopedic Research center, Mazandaran university of medical science, Sari, Iran.**

**2Clinical Research Development Center, Shahidi Beheshti Hospital, Babol University of Medical Sciences, Babol, Iran.**

**Cancer Resrch Center , Health Research Institute , Babol University of Medical Sciences, Babol, Iran.**

**Mobility Impairment Research center University of Medical Sciences, Babol, Iran.**

**3Associate professor of orthopedic surgery,Orthopedic Research center, Mazandaran university of medical science, Sari, Iran.**

**4Assistant professor of orthopedic surgery, Orthopedic Research center, Mazandaran university of medical science, Sari, Iran.**

**5 orthopedic surgeon,Orthopedic Research center, Mazandaran university of medical science, Sari, Iran.**

**6 Resident of Orthopedic surgery,mazandaran university of medical science,sari,iran**

## Introduction

Calcaneal fractures include about %2 of all fractures and also they are the most common fracture in the tarsal region. The present study was designed and evaluated to determine the consequences of surgical and non-surgical treatments in adult patients with Calcaneal fractures.

## Materials and Methods

This clinical trial study was carried out to assess the surgical and non surgical methods in patients with intra\_articular fractures of calcaneus referred to educational centers of Mazandaran University of Medical Sciences. Satisfaction rate based on VAS criteria, and pain and function and organ alignment were evaluated by AOFAS.

## Results

63 patients were studied. 26 patients (%41.3) were in the open surgical group and 37pations (%58.7) were in the non-surgical group. The mechanism of damage in %8.2pations (4 patients) was caused by low energy trauma (LET). In %81.7 of patients (49 patients) with high-grade trauma (HET) was caused by height fall, and in %11.7 of patients (7 patients),

high-energy trauma was caused by non-falling from height. The average score of AOFAS (from 0 to 100) was  $76.35 \pm 17.19$  (at least 22 and a maximum of 100). There was no significant difference between the mean scores in the two treatment groups

## Conclusion

This study showed that non-surgical in Comparison with sugical methods in patients with calcaneus fracture in grade 4&3 ,That is Patients' satisfaction dont have any effect on the duration of treatment and improvement, and it is possible to choose non-surgical treatment with regard to this and more complications of surgery.

## Keywords

Surgical, non-surgical, intracranial clecanea fractures

**Cod: 2356**

## **Short term outcome of medial epicondylar osteotomy and total knee replacement in patients with bilateral sever varus knee**

**Dr.F.Mirza Tolooei**

**Uramia University of Medical Sciences**

## Backgrounds

Background: Total knee arthroplasty in patients with severe varus deformity is demanding. In most of these patients, extensive medial release is needed and this may yield to instability. Medial epicondylar osteotomy may be a better option instead of complete medial collateral release

## Methods

Material and methods: 14 patients had undergone medial epicondylar osteotomy for medio-lateral imbalance correction in total knee replacement. In seven cases, extensive medial release had been previously done for the contralateral side. Patients were evaluated one year after operation for clinical results. Physical examination was done and clinical questionairs were recorded for patients. Radiography was also done and union of the osteotomized fragment was evaluated.

## Results

Results: The mean varus angle before surgery was  $4.7 \pm 23.6$  degrees and corrected to

the  $2.96 \pm 12.6$  degrees after operation. The mean varus of contralateral side was  $21.6 \pm 1.7$  degree and corrected to  $7.5$  degrees after operation. Medial joint line opening in valgus stress test was  $0.42 \pm 2.7$  mm in osteotomized side and  $0.9 \pm 3.5$  mm in contralateral side. Mean ROM for osteotomized side was  $4.34 \pm 97.86$  and for contralateral side was  $100.71$  degrees  $\pm 2.76$  ( $p=0.69$ ). There was one case with non union. In non of knees with medial release or osteotomy patients had complain of medial instability. Three of patients were satisfied more from osteotomy than release. VAS for pain was lesser in osteotomized knee.

## Conclusions

Conclusion: medial epicondylar osteotomy is a safe technique and has the same results of well controlled extensive release.

**Cod: 2347**

## Evaluation of the early and long term orthopedic complications caused by combat injuries to Ankle-Foot in Iranian Veterans

**Mostafa Allami<sup>1</sup>, Elahe Faraji<sup>2</sup>, Mansoor Soroush<sup>3</sup>**

- 1. Orthotist, Janbazan Medical and Engineering Research Center**
- 2. Ph.D in Corrective Exercise, Janbazan Medical and Engineering Research Center**
- 3. Orthopedic surgeon, Janbazan Medical and Engineering Research Center**

**Introduction:** More than 10,000 people have suffered one or more injuries to the ankle and foot in the Iran-Iraq war (1988–1980). According to past studies, if treatment and rehabilitation of the ankle and foot are not carried out carefully, it may ultimately cause secondary complications to the person's other lower extremity and spine.

**Materials and methods:** A descriptive and analytic cross-sectional study was carried out in 11 provinces in veterans with ankle and foot disorders in the years 2012 to 2015 by using the method of health needs assessment. The data gathering tool was 8 questionnaires. In this paper, the results of the musculoskeletal assessment questionnaire have been analyzed which were completed by specialists of orthopedic surgeons, physiatrists, physiotherapists, and orthotists.

**Results:** 1192 veterans participated in this study. The mean age of participants was  $\pm 52.03 \pm 8.24$  years and nearly two thirds of them were overweight or obese. After primary surgery up to the time of the study, a total of 1096 complementary surgeries were performed on the right and left ankle and foot of the veterans and  $\%46.3$  (523) patients did not suffer any other war related musculo-skeletal injuries except ankle and foot disorders. Leg length discrepancy and drop foot were the most common disorder caused by war in this group.

Low back pain was the main reason for referring to the physician (%51.1), followed by knee pain (%41.4) and then ankle (%37.0). Only %22.5 of veterans at the time of the study used ankle and foot orthosis.

**Conclusion:** Based on the results of this study and similar studies, the early and long-term orthopedic complications due to war related ankle and foot injuries in this group are numerous which leads to pain, disturbances in walking, and ultimately a decrease in their quality of life. The lack of awareness of the veterans and the rehabilitation team in the use, prescription, and provision of appropriate interventions such as orthoses has led to several secondary complications in this group and imposed heavy economic and social burdens on them, family and society.

**Cod: 1295**

## **The results of open reduction internal fixation in patients with distal femoral intra-articular fractures**

**Dr.S.M.Kazemi, Dr.MR.Abbasian, Dr.M.Karimzadeh, Mr.F.Safdari**

**Shahid Beheshti University of Medical Sciences**

**Backgrounds** Distal femoral intra-articular fractures (DFIAF) can be very challenging. Although, satisfactory outcomes have been reported, however, there are several complications interfering the patients after treatment. In current retrospective study, the outcomes of treating DFIAF with open reduction internal fixation (ORIF) using locking plates (LCP) were investigated.

**Methods** There were 51 patients enrolled. In last visit, Lysholm score was completed for all of the patients. Pain intensity and satisfaction were measured using visual analogue scale (VAS). Degenerative changes were assessed on plain x-rays. Bilateral knee range of motion was measured and compared. The patients were followed for  $7.2 \pm 17.4$  (range: -13 27) months.

**Results** Fractures were united in all of the patients. Degenerative changes were found in 15 patients (%29.4). (Grade 2 ,1 Kellgren\_Lawrance ) 3 patients developed superficial infection. Deep infection was found in one patient who underwent surgical irrigation and debridement. The pain intensity was  $1.3 \pm 2.7$  (range: 4-0). Nineteen patients required to use analgesics (%37.2). VAS for satisfaction averaged  $1.1 \pm 7.7$  (range: 9-4). The Lysholm score averaged  $8.3 \pm 81.8$  (range: 84-71). The range of knee motion was significantly limited in operated side compared to the healthy one ( $12.4 \pm 116.6$  Vs  $7.3 \pm 125.3$ ;  $p < 0.001$ ).

**Conclusions** Treatment of DFIAF using ORIF can be associated with complete fracture healing. However, the incidence of degenerative changes, pain and loss of ROM are considerably concerning.

*Take a walk with us ...*



ACS MB & FB Knee system

ACS SC (Revision)

Revision hip system (MUTARS RS)

Radial head (ICARA)

Total Shoulder system (AGILON)

Total Elbow system (NES)

Total Ankle system (TARIC)



# Regen

ALLOGRAFT

شرکت دانش بنیان

## فرآورده بافت ایرانیان

این شرکت با پشتوانه علمی و اجرایی کادر هیات علمی و متخصصان و کارشناسان واحد فراهم آوری اعضا و نسوج پیوندی دانشگاه علوم پزشکی تهران و با موافقت ریاست و تحت پوشش مرکز رشد تجهیزات پزشکی آن دانشگاه در سال ۱۳۹۰ تأسیس گردید.

در ادامه موفقیت‌های کسب‌شده در تولید و ارائه محصولات آلوگرافت پیوندی در کشور، این شرکت با پیاده و بومی‌سازی دانش روز و بکارگیری استانداردهای بین‌المللی مورد نیاز این گروه محصولات، اقدام به تولید محصولات آلوگرافت پیوندی کرده است.

محصولات این شرکت به عنوان **Gold Stadar** و **First Choice** در بازسازی ضایعات بافتی بدن (بافت نرم و بافت استخوانی) به عنوان داربست، حجم‌دهنده و گاهی پانسمان بیولوژیک در حیطه‌های مختلف پزشکی بکار می‌رود.

از رشته‌های تخصصی کاربر محصولات شرکت، می‌توان به جراحان ارتوپدی، جراحان مغز و اعصاب، جراحان ترمیمی، سوختگی و پلاستیک، جراحان ENT و رینوپلاستی، جراحان فک و صورت و دندانپزشکان، متخصصان پوست و زیبایی اشاره کرد.



آدرس: تهران، خیابان آزادی، ابتدای جمالزاده شمالی، کوچه شهید محمد یزبه، پلاک ۵  
تلفن: ۶۶۱۲۱۰۵۴ - ۶۶۱۲۱۰۶۴ (۰۲۱)  
فکس: ۶۶۱۳۱۰۵۹ (۰۲۱)  
وبسایت: [www.regen.ir](http://www.regen.ir)  
ایمیل: [info@regen.ir](mailto:info@regen.ir)



## مرکز MRI دکتر محمد اطهری

(شرکت نسیم سحر اطهر)

- مرکز MRI دکتر اطهری: MRI (۱/۵ تسلا- تا وزن ۲۰۰ کیلو گرم) - MRI (باز) - سی تی اسکن اسپیرال و مولتی اسلایس - سونوگرافی (معمولی - داپلر رنگی) - رادیوگرافی دیجیتال (3Joint + Full Spine) - ماموگرافی دیجیتال - سنجش تراکم استخوان - گرافی پانورکس دیجیتال - نوار مغزی - نوار عصب، عضله.  
تهران - خیابان استاد مطهری - خیابان جم - کوچه نظری - پلاک ۳۳  
تلفن: ۸۸۸۳۰۳۲۶ - ۸۸۸۳۲۸۶۵

- مرکز تصویربرداری آرین: MRI (۱/۵ تسلا- تا وزن ۱۵۰ کیلو گرم) - سی تی اسکن مولتی اسلایس - سونوگرافی (معمولی - داپلر رنگی - سه بعدی) - رادیوگرافی دیجیتال (3Joint + Full Spine) - ماموگرافی دیجیتال - سنجش تراکم استخوان - گرافی پانورکس دیجیتال - گرافی تک دندان دیجیتال  
تهران - فلکه دوم صادقیه، پشت بیمارستان ابن سینا، خیابان اعتمادیان، پلاک ۴۲  
تلفن: ۴۵۸۶۱

- مرکز MRI سینا اطهر: MRI (۱/۵ تسلا- سی تی اسکن مولتی اسلایس - سونوگرافی (معمولی - داپلر رنگی) - رادیوگرافی دیجیتال - ماموگرافی دیجیتال - سنجش تراکم استخوان - گرافی پانورکس دیجیتال  
تهران - خیابان شریعتی - نرسیده به میدان قدس - روبروی داروخانه طالقانی - کوچه ماهرزاده - پلاک ۷  
تلفن: ۲۲۷۴۱۷۷۵

- مرکز تصویربرداری پزشکی محمد: MRI (۱/۵ تسلا - سی تی اسکن اسپیرال - سونوگرافی (معمولی - داپلر رنگی - سه بعدی) - رادیوگرافی دیجیتال - ماموگرافی دیجیتال - سنجش تراکم استخوان - گرافی پانورکس دیجیتال  
ورامین - نرسیده به میدان ولیعصر - جنب بیمارستان ۱۵ خرداد  
تلفن: ۳۶۲۳۱۵۱۰

- مرکز تصویربرداری نصر نبوی: MRI (۱/۵ تسلا- سی تی اسکن اسپیرال - سونوگرافی (معمولی - داپلر رنگی) - رادیوگرافی دیجیتال - ماموگرافی دیجیتال - سنجش تراکم استخوان - گرافی پانورکس دیجیتال  
اسلامشهر - شهرک سعیدیه - خیابان ادیب - جنب بیمارستان امام (رضا)ع  
تلفن: ۵۶۱۴۹۰۵۷

**شبانہ روزی - طرف قرارداد با کلیہ بیمہ‌ها**

# MonoLoc Locking Compression Plate System

**KANCHUI**  
A Medtronic Company

## Elbow



Distal Medial Humeral Locking Compression Plates 2.7/3.5



Distal Dorsal Humeral Locking Compression Plates 2.7/3.5



Distal Locking Compression Plates 3.5

## Wrist



Distal Lateral Radius Locking Compression Plates 2.7



Distal Radius Volar Column Plates R2.7



Distal Dorsal Radius Locking Compression T-Plates 2.7



Distal Radius Locking Compression Plate, Volar 2.7



Distal Dorsal Radius Locking Compression, Oblique L-Plates 2.7



Distal Radius Volar Locking Compression Plate, 2.7

## Knee



Proximal Lateral Tibia Locking Compression Plates 4.5/5.0



Locking Proximal Tibial Plate



Locking Medial Proximal Tibial plate



Distal Femoral Locking Compression Plates 4.5/5.0

## Ankle



Distal Tibia Locking Compression Plates 3.5



Anterolateral Distal Tibia L Locking Compression Plate 3.5



Calcaneal Locking Plates



Locking Lateral Distal Fibula Plates, 2.7/3.5

## Shoulder



Anterolateral Clavicular Locking Compression Plate, 2.7/3.5



Clavicular Locking Compression Plate 3.5



Clavicular Locking S-Plates 3.5



Clavicular Locking Compression Plates 3.5



Clavicular Reconstruction Locking Compression Plate 3.5



Proximal Humeral Locking Compression Plates 3.5

## Hand



Locking Reconstruction Plate 1.5



Locking Condylar Plate 1.5



Rotation Correction Locking Plate 2.0



Mini Condylar Locking Plate 2.0

## Hip



Pelvic Locking Reconstruction Plate 3.5



Proximal Lateral Femoral Locking Compression Plates 4.5/5.0



Proximal Lateral Femoral Locking Compression Plate

## Foot



Locking Plate 2.4, Straight



Locking L-Plate 2.7 Oblique



Locking Condylar Plate 2.4



X-Locking Plate



Tel: 021 75917  
web: www.tjn-eng.com

تهران جراح نوین