EXPERT OPINION ON PUBLISHED ARTICLES

Reviewer: Dr Heckroodt Laubscher
Centre for Sports Medicine and Orthopaedics
Rosebank, Gauteng
South Africa
Tel: (011) 788-5110
Fax: 086 542 7669
phlaubscher@gmail.com

Long-term outcome of frozen shoulder

Campbell Hand, Kim Clipsham, Jonathan L Rees, Andrew J Carr
Journal of Shoulder & Elbow Surgery 2008;**17(2)**:231-6

Frozen shoulder is a common and often frustrating condition to treat for most orthopaedic surgeons. This research is the largest to date to investigate the long-term outcome of this debilitating condition. It is important to note its findings as I find patients often do not understand the natural progression and therefore struggle to understand the 'hands off' approach of the attending surgeon. They get easily frustrated with doctors who tell them that their condition will improve with time. By providing the patient with the knowledge of what lies ahead often helps them in dealing with the pain and loss of function.

The researchers questioned 223 patients (269 shoulders) retrospectively at an average of 4.4 years after initial symptoms. They sent patients the Oxford Shoulder Score to complete as well as a questionnaire relating to the onset and severity of their initial symptoms.

The results confirmed many aspects of the disease that we already know, such as the fact that it is more common in female patients and that the onset of disease is mostly in the age group of 50-59 years. There was no difference between male and female patients regarding the final outcome of the disease. At four-year follow-up only about 60% of the study population stated that they had almost normal shoulder function again. The biggest complaint in the remaining group of patients who had moderate to severe shoulder symptoms was pain.

Factors that did influence outcome were:

- **Time**. Symptoms improved in the first three years and thereafter tapered off.
- **Severe symptoms at onset** showed poor outcomes.

Shortcomings of the study

Even though this is a relatively large study population for this condition its subgroup of diabetic patients was not large enough to make statistically significant conclusions in this patient group. In the article there was no mention of any treatment modalities used.

Reviewer: Dr S Matshidza
Consultant, University of Limpopo
Medunsa Campus
Tel: (012) 521-4049

Sequelae of septic arthritis of the hip in children: A new classification and a review of 41 hips

Edilson Forlin, Carlo Milani
J Pediatr Orthop July/August 2008;**28(5)**:524-8

The authors have proposed a new classification after reviewing 41 hips with sequelae of septic arthritis.

The children were aged 3 years and younger with a mean follow-up of seven years.

Hips were classified into two groups after X-rays review.

Hips with grade I sequelae were reduced hips with femoral head preserved (IA) or absent (IB).Hips with grade 2 sequelae were dislocated hips with femoral head preserved (2A) or absent (2B). They compared their material and results with those presented by Choi *et al*.

The classification was shown to be simpler and more reliable than the Choi system classification. The classification may be an aid in guiding treatment and prognosis.

A larger series and longer follow-up is needed to test the reliability of this classification. This is a level IV study with its limitation.

The classification is useful and simple to use for this common condition.

Related articles

1. Choi *et al*. Sequelae and reconstruction after septic arthritis of the hip in infants. *JBJS AM* 1990;**72**:1150-65.
2. Hunka *et al.* Classification and surgical management of the severe sequelae of septic hips in children. *Clin Orthop* 1982;**171**:30-6.
3. Choi *et al. S*urgical treatment of the severe sequelae of infantile septic arthritis of the hip. *Clin Orthop* 2005;**434**:102-9.

Reviewer: Dr Ponky Firer
Linksfield Park Medical Centre
Linksfield
Gauteng
Tel: +27 11 485-1970/1
Email: pfirer@lkdoctors.netcare.co.za

A clinically relevant assessment of posterior cruciate ligament and posterolateral corner injuries

Evaluation of isolated and combined deficiency

Jon K Sekiya, MD; Lieutenant Commander David R Whiddon, MD; Lieutenant Commander Chad T Zehms, MD; and Mark D Miller, MD

JBJS Africa Edition February 2009

Introduction

Other than in severely damaged knees, it is often difficult to determine whether the posterolateral corner (PLC) of the knee has been damaged requiring reconstructive surgery. The PLC has been documented to get damaged most commonly with posterior cruciate ligament (PCL) injuries but also with anterior cruciate ligament injuries and on rare occasions as the primary sole area of damage.

There is debate still as to what degree of PCL injury requires surgery to offer a better clinical outcome than conservative management. It is accepted that if there is concomitant damage to the PLC, the PCL and the PLC both should be treated surgically for the best outcome.

The grey area has been to decide whether a PCL on its own requires surgery. Many believe that conservative treatment for grade I and II injuries, i.e. less than 10 mm side to side posterior laxity difference gets good clinical results, but that grade III laxity requires surgical correction.

Purpose of the article

The authors of this article had the hypothesis (in company with many knee specialists) that for a grade III PCL laxity to occur other structures (in the study the PLC) have to be injured.

Study methodology

Using 10 cadavers (20 knees) the authors did serial sectioning of first the PCL and then the PLC. They measured the posterior drawer displacements by clinical posterior drawer testing and Telos stress radiology, and the abnormal external rotation by the dial test. Their statistical methods and inter- and intra-observer comparisons are sound.

There is debate still as to what degree of PCL injury requires surgery to offer a better clinical outcome than conservative management

Results

Intact knees show grade 0 posterior laxity and a mean 10.5° of external rotation in the dial test. After complete section of the PCL and any meniscofemoral ligaments present they reproduced a grade II posterior laxity in all specimens. Sectioning only the PCL also significantly increased external rotation in the dial test. A summary of the increased laxity and rotational changes is given in *Table I*.

From this the authors concluded that if there is a grade III posterior drawer sign, or greater than 10 mm radiologic stress-test laxity different from the normal knee there must be significant damage to the PLC. They further discuss failures of PCL surgery suggesting that it is because of unrecognised PLC damage. They have claimed that this study better helps the clinical assessment of PCL and PLC injury by using the laxities (increased displacements/rotations) as a guide to diagnosis.

Weaknesses of the study

1. The PLC sectioning was carried out by cutting a block of bone, which included both the popliteus and lateral collateral ligament attachments from the femoral epicondyle. They defined this as their PLC injury. Many PCL and PLC injuries do not have a concomitant lateral collateral ligament injury, or certainly not one that is clinically detectable. After a certain degree of posterior displacement and external rotation the lateral collateral ligament acts as a restraint to external rotation, albeit relatively weak compared to the popliteo-fibular ligament – popliteus complex.

Table I

	Intact	PCL Grade III	PCL + PLC
Telos	2.9 ± 0.5 mm	12.7 ± 1.0 mm	22.3 ± 1.6 mm
Dial test 30°	10.5° ± 1.0°	15.1° ± 1.1°	21.6° ± 1.5°
Dial test 90°	10.5° ± 0.8°	16.2° ± 0.89°	27.5° ± 1.6°

We thus do not know from this study the degree of laxity that an 'isolated' popliteo-fibular ligament injury and PCL would give both in posterior drawer laxity and rotational (dial test) laxity. This would be more clinically relevant.

2. The posterior medial corner of the knee also supplies restraint to posterior laxity. This structure was not considered in this study.
   We do not know whether a grade III posterior drawer sign (greater than 10 mm side to side posterior laxity with stress testing) could occur with the PCL and posteromedial injury.
3. The mechanism of assessment used to determine external rotation (dial test) incorporated a drill bit just below the tibial tubercle and rotation was then measured with the goniometer based on the position of this drill bit. The authors do not mention the 'resting or time 0 position of the knee' from which they set the base line position of rotation of the tibia. They do not discuss if this time 0 position actually changes once the PCL has been sectioned. For if this was the case they may have had errors in their rotational assessment.
4. The more sensitive (increased laxity) method to assess the dial test with a PCL deficient knee is to hold the tibia anteriorly reduced and then do the dial test. The authors did not address this.

Conclusion

This paper importantly emphasises the role the PLC plays in posterior stability. It agrees with other studies that confirm increased posterior drawer laxity if the PLC is damaged.

A new concept introduced is the fact that a grade III posterior laxity cannot be produced without PLC injury. (But the flaws of their PLC injury simulation have been mentioned.) What we don't know from the study is that if a grade III PCL laxity can be produced by partial PLC injury such as a stretching of the popliteo-fibular ligament/popliteus muscle tendon junction injury.

Take home message

If there is a grade III PCL laxity then there is almost certainly PLC damage which will need attending to if the PCL reconstruction is going to be successful.

Reviewer: Dr EJ D'Alton
Consultant: Department of Orthopaedics
University of Limpopo
Medunsa Campus

Soft-tissue injury in orthopaedic trauma

Yuan-Kun Tu, G On Tong, Chin-Hsien Wu, Kanit Sananpanich, Ryosuke Kakinoki
Injury: Volume 39, Supplement 4, October 2008; S2-S17

This is a review article on soft tissue injury in orthopaedic trauma that will be of value to registrars from intermediate level and beyond.

The soft tissue injuries are discussed in six sections: Influencing factors; co-morbidities; biological responses; diagnosis and treatment; compartment syndrome; and gunshot wounds.

Influencing factors and mechanism of injury

The choice of fixation (internal vs external) is dictated by factors which include type of force and the region it is applied to.

Co-morbidity in compromised patients

Non-immune defence mechanisms which include vascular insufficiency are discussed. Factors that influence the immune system directly include diabetes mellitus and steroid therapy.

Biological responses in wound healing

The biological response in wound healing is discussed.

A brief overview of vacuum-assisted wound care is given. This has gained in popularity in recent years.

Diagnosis and treatment for closed soft tissue injury

The dilemma for some closed injuries lies in the inaccessibility of the deep tissues. Classification systems like the AO/ASIF system may aid the clinician in decision-making. Doppler studies of soft tissues have been used.

Soft tissue injuries in gunshot injuries

There is a growing debate whether low velocity gunshot injuries should be debrided at all, provided appropriate prophylactic antibiotics are given. Delayed primary nailing may be done 3-10 days after injury.

The indication for angiography in these injuries is diminished and absent pulses.

Most nerves are injured indirectly and 70% recover spontaneously. Indications for early exploration include very proximal injuries and early open reduction and internal fixation.

Blast and explosion injuries

These injuries are on the increase as a result of acts of terrorism. In suicide bombers transmission of Hepatitis B and C or HIV infection should be considered in the victims.

In conclusion this article discusses some soft tissue factors in orthopaedic trauma. There is growing evidence that it is not necessary to do debridement in low velocity gunshot injuries. The expansion of the concept of 'damage control orthopaedics' where even isolated fractures are treated with an external fixator, while soft tissues become more friendly, could have been included.

Reviewer: Dr C Wessels
Orthopaedic Surgeon
Moot General Hospital
Tel: (012) 330-8205

Thromboembolism following foot and ankle surgery: a case series and literature review

DK Wukich, DH Waters
The Journal of Foot and Ankle Surgery 2008;**47**(3):243-9

In recent times, medical practice has evolved to such a degree that practically every part of patient care needs to be proven in studies. Studies are widely classified into levels 1 to 4, where level 1 denotes large randomised and prospective studies that are ideally double blind. This concept is tailor-made for the areas of medicine that mainly function non-surgically. The surgical disciplines often have to deal with studies that are perceived to be of lower power. The area of thromboembolism prophylaxis is specifically prone to this malady. Foot and ankle surgery currently has no level 1 studies to use as a guideline. In light of this dearth of 'acceptable' knowledge, this article is a welcome confirmation of what a highly respected colleague such as Professor Wukich deems as correct.

The study would probably be regarded as level 4 standard because it has no control group. Academic purists would tend to disregard a series such as this. The reality is, however, that it reviews 1 000 consecutive operations by a single respected surgeon over a period of 18 months. The cases are well documented and the results correlate well with the two level 2 studies by Mizel *et al* and Solis and Saxby.

The most important aspect of the article is that the authors have been able to combine several series to generate a total pool of 6 357 patients who underwent foot and ankle surgery. The total incidence of venous thromboembolism (VTE) was 0.83%.

The authors conclude that the routine use of prophylaxis is not warranted. The exceptions are clearly stated but all orthopaedic surgeons will be au fait with them. Commonly accepted risk factors such as age, obesity and previous VTE are briefly discussed. The main focus is on areas that are more specific to foot and ankle surgery. Risk is attributed to age above 40 years, long immobilisation, non-weight bearing and obesity. Tourniquet time was considered (only one operation had a tourniquet for longer than 130 min) and no pattern was found. Interestingly enough, five of the seven patients in this series who developed VTE had a calf tourniquet, one had an ankle tourniquet and one had no tourniquet. It turns out that only 10% of the patients had thigh tourniquets and that in 3% of cases the tourniquet was not inflated.

The article shows major weaknesses when evaluated in the glaring spotlight of academic correctness, but is very likely to be an accurate reflection of what happens daily in busy foot and ankle practices around the world. It reads slightly disjointed at times but the conclusion reconfirms that routine VTE prophylaxis is not warranted in foot and ankle surgery.