

Journal Club: 10 February 2011

Organiser: Dr Justin Roe

The North Sydney Orthopaedic and Sports Medicine Clinic

Recent papers published in JBJS (Am) & JBJS (Br)

Report written by Mr Reza Mayahi & Mr Joel Melton

Introduction

This journal club was chaired by Dr Justin Roe and took place at the North Sydney Orthopaedic and Sports Medicine Clinic. The meeting was attended by one consultant, five fellows and one registrar. Recent papers, relating to the Knee and published in the Journal (Am & Br) were reviewed. A summary of each paper was presented prior to a full discussion. The best four papers are presented below.

Evaluation of patellar height: a simple method.

Portner O, Pakzad H.

J Bone Joint Surg [Am] 2011;93-A:73-80.

Reviewed by Mr Joel Melton

Summary

The authors have devised a single angular measurement to evaluate patellar height and the purpose of the study was to introduce this new method and to assess its validity by comparing it with three classic, commonly used ratios.

Overall 269 lateral radiographs of the knee were evaluated. All measurements for the Insall-Salvati, the Blackburne-Peel, and the Caton-Deschamps indices plus the plateau-patella angle were recorded, along with basic demographics. For validation, the new method was compared with the established methods and interobserver and intraobserver reliability were computed.

There was excellent correlation between the proposed angle and the three selected indices, especially with the Blackburne-Peel index. Interobserver and intraobserver reliability was high and compared favorably with that reported in the literature for the three classic ratios. The mean plateau-patella angle was 25° and ninety percent of the measurements fell between 20° and 30°.

The authors conclude that the plateau-patella angle, their new method of evaluating patellar height, can be measured rapidly with use of either a goniometer or digital software. Its range is easy to remember, it is reliably reproduced, and it correlates well with traditional methods. They conclude that it is thus a valid and easy alternative method for the evaluation of patellar height.

Study strengths

- Good study design.
- Valid alternative method for evaluating patella height.
- Correct calculation of inter- and intra-observer errors.
- Clearly written paper.

Study weakness

- This angle is significantly affected by the posterior slope of the tibia and the authors do not discuss this fact in detail.
- The authors did not reference a similar paper describing an alternative assessment of patella height with a very similar design (Knee Surg Sports Traumatol Arthrosc. 2009 Dec;17:1412-15).

Relevance

We felt that the paper described a potentially useful measurement but that the effect of tibial slope may cause wide (0-10°) variations in the angle described for patients with the same patella height.

Acute isolated injury of the posterior cruciate ligament treated by a dynamic anterior drawer brace: A PRELIMINARY REPORT.

Jacobi M, Reischl N, Wahl P, Gautier E, Jakob RP.
J Bone Joint Surg [Br] 2010;92-B:1381-4.

Reviewed by Mr Andrew Barnett

Summary

The authors of this study investigated the role of a functional brace worn for four months in the treatment of patients with an acute isolated tear of the posterior cruciate ligament to determine whether reduction of the posterior tibial translation during the healing period would give an improved final position of the tibia.

The initial mean posterior sag was significantly reduced to a mean of 2.3 mm and 3.2 mm after 12 and 24 months respectively. Radiological measurement gave similar results. The authors concluded that the posterior cruciate ligament has an intrinsic healing capacity and, if the posteriorly translated tibia is reduced to a physiological position, it can heal with less attenuation. The authors suggest that the applied treatment in the brace produces a good to excellent functional result.

Study strengths

- Prospective data collection

Study weakness

- The study was a case series of only 21 patients.
- The group was not matched to a control group.

Relevance

The results appear favourable in the absence of a control group. However, we did not feel that the study yielded strong enough evidence to consider using the brace. The authors themselves refer to Shelbourne's work which showed that residual laxity of the PCL had no significant effect on outcome scores in 271 patients who were analysed prospectively. We would debate the need for bracing.

Symptomatic pulmonary embolism after outpatient arthroscopic procedures of the knee – the incidence and risk factors in 418323 arthroscopies.

Hetsroni I, Lyman S, Do H, Mann G, Marx RG.

J Bone Joint Surg [Br] 2011;93-B:47-51.

Reviewed by Mr Reza Mayahi

Summary

This is a retrospective study of a large cohort of patients. The aim of this study was to evaluate the incidence and risk factors for symptomatic PE in patients undergoing day case knee arthroscopic procedures. The study was limited to residents of New York State to minimise bias and underestimation of the number of cases as a result of re-admissions, due to PE, to hospitals outside New York State.

The incidence of pulmonary embolism was almost 3 cases in every 10 000 arthroscopies. Statistical analysis showed that age and operating time had significant dose-response increases in risk ($p < 0.001$) for a subsequent admission with a PE. Female gender was associated with a 1.5-fold increase in risk ($p = 0.03$), and a history of cancer with a threefold increase ($p = 0.05$). There was no increase in risk with type of surgery or co-morbidity.

The authors conclude that symptomatic PE following day case knee arthroscopy is a rare event and that its potential risk should be mentioned to patients undergoing such surgery.

Study strengths

- Huge sample size.
- Addresses a relevant and significant issue.
- Reasonable attempt to minimize bias.

Study weakness

- Retrospective analysis.
- There is a lack of data about potential PE-related deaths and symptomatic PE that may have occurred outside a hospital without readmission or admissions to hospitals outside New York State.
- No information about thrombo-prophylaxis, tourniquet use, obesity or smoking.

Relevance

Given the fact that risks with a predicted frequency of 1 in 2300 (Newell and Newell vs Goldenberg 1995) and 1 in 14000 (Rogers vs Whittaker 1993) have been judged significant to be mentioned to a reasonable patient, we believe and agree with the authors, that this rare complication should be mentioned to patients when obtaining informed consent, especially if there are significant risk factors present.

Outcome of surgery for recurrent patellar dislocation based on the distance of the tibial tuberosity to the trochlear groove.

Tecklenburg K, Feller JA, Whitehead TS, Webster KE, Elzarka A.
J Bone Joint Surg [Br] 2010;92-B:1376-80.

Reviewed by Dr Con Glezos

Summary

The authors set out to evaluate the outcome of two procedures, namely lateral release alone and lateral release combined with medial transfer of tibial tuberosity, in a series of patients with recurrent patellar dislocations. The decision to use one or other operation was based on the TTTG distance. Patients with a distance of >10mm had medial transfer of their tibial tubercle in addition to an arthroscopic lateral release and this was performed in 33 knees with isolated lateral release in the remaining 13 knees.

A total of 35 patients (46 knees) were evaluated at a mean of 38 months post-operatively with 42 knees assessed in person and four knees having a telephone review. There were further episodes of patellar dislocation in six of the 46 knees available for review, five (15.2%) in the TTT group and

in one (7.7%) in the lateral release group. The mean post-operative TTTG distance in the tibial tuberosity transfer group was 8.9 mm compared with the mean pre-operative value of 16.8 mm.

Study strengths

- A single surgeon performed all the procedures and the surgical technique used was consistent.
- The surgical procedures, post-operative care, follow-up details are well-described.
- Robust methodology

Study weakness

- Numbers too small for statistical analysis.
- A significant proportion of patients were unavailable for follow-up.
- Other pathologies, in particular patella alta, were not addressed which is likely to be the biggest contributing factor to their higher dislocation rate.

Relevance

Inclusion of patients with patella alta has skewed the results and it was felt that exclusion of such patients would have enabled a more accurate assessment of the effectiveness of the two procedures and improved the study. In the cases of pathological patella alta, medialisation of the tubercle alone is not sufficient and distalisation of the tuberosity should be performed.