ROUNDUP360

Knee

For other Roundups in this issue that cross-reference with Knee see: Hip Roundup 5; and Children's orthopaedics Roundup 4.

Make it easy, release the MCL

Although considered the bread and butter of arthroscopic surgery, addressing medial meniscal tears can in fact be a challenging procedure, particularly in patients with tight medial compartments. Patients with a tight medial compartment and posterior pathology run the risk for surgeon and patient of iatrogenic chondral injury, certainly something to be avoided. Surgeons in **Hatay (Turkey)** have developed a technique to address this, through controlled release of the superficial medial collateral ligament. They describe their approach in 18 patients (mean age 43 years), all undergoing arthroscopy for medial meniscectomy. Prior to surgery the clinicians obtained valgus stress radiographs (11 kg of valgus stress). If visualisation was difficult intra-operatively, the team used a percutaneous needle release of the MCL. Follow-up was at regular intervals and both stress radiographs and an MRI scan were obtained to monitor healing of the MCL. Prior to surgery, the medial clear space on stress radiograph was 7.1 mm rising to 9.1 post-operatively and then gradually recovering to 7.2 mm at six months. The MRI scan revealed injury to the posterior two-thirds of the MCL in all cases. As would be expected, there was significant clinical benefit from the meniscectomy (Lysholm rose from 42 to 94 points). Visualisation, and first of all working space, may be severely compromised in the medial compartment of tight knees.[1] The authors of this paper have presented a neat method for performing a controlled release of the medial collateral ligament which clearly improves visualisation, and in these reported cases avoided chondral injury. We can't help thinking that it does seem a shame to present with a meniscal injury and go home with an MCL injury. A useful augment perhaps for some, but not something we will routinely be teaching our registrars just yet!

Do patients remember clinical information in day surgery?

The increasing demands of most health systems towards higher surgical throughput has resulted in the number of operations performed in outpatient or 'day case' surgical settings rising dramatically. Whilst excellent for healthcare funders, the influence on patients' recall of clinical information after this widespread change in practice has never been well assessed. Researchers in **Oxford (UK)** have set about examining the impact on patient understanding and recall of clinical information which the setting of a day care unit may have. The researchers designed a prospective study to evaluate patients' recall of clinical information. The study group of 72 patients were all undergoing day case arthroscopy procedures. All patients were provided with information concerning their surgery post-operatively and underwent a recall test prior to discharge. In addition, the research team administered a cognitive assessment at both information delivery and recall time points. Data were collected on patients' demographic and anaesthetic factors. A multivariant regression model was used to characterise factors that were associated with reduced recall. Overall, patients had poor recall of the information given to them, and their cognitive state and interval from surgery were significant risk factors for poor recall of information. Surprisingly, the investigators report that duration of anaesthetic, and administration of sedative and opioid analgesic were not related to recall problems.[2] It is essential that patients are given appropriate information post-operatively, and that they are able to act on this, not just in relation to post-operative instructions, but also in relation to the findings of their surgery. This has been shown in other studies to improve compliance, outcomes and anxiety levels of patients in the post-operative period. Allowing maximal time between anaesthetic and review, and perhaps using additional techniques such as review with a patient's relative or use of written information may help. However, we fear here at *360* that in the modern 'conveyor belt' healthcare systems, the increased efficiency may not result in patients feeling more engaged.

Osteoarthritis and arthroscopy?

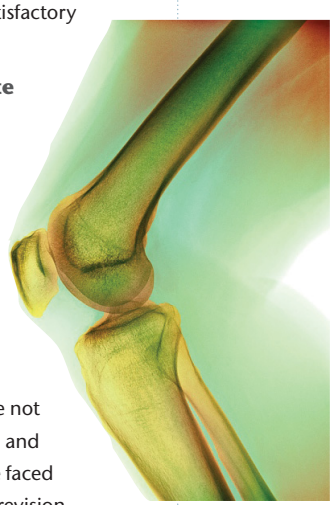
The debate is ongoing as to the value of arthroscopy in osteoarthritic change in the knee. There are a number of randomised controlled trials and other case series evaluating the benefit of arthroscopic procedures on a range of degenerative pathologies. There is no current consensus of opinion as to who will benefit from intervention in today's volatile healthcare environment, and as such, some healthcare providers are starting to deny reimbursement for these procedures. This is obviously an ideal setting for a meta-analysis, and a review team from **Eisenach (Germany)** have done just this. Following a thorough review of the indexed literature using PubMed, Cochrane and EMBASE databases, the reviewers identified 1512 potential citations, of which 30 were found to be of high quality and suitable for inclusion in the study. The review team used the Comprehensive Meta-analysis software for their analysis. The majority of studies included in this review reported mid-term results for arthroscopic procedures, and in the majority of studies around two thirds of results were good or excellent. Those studies reporting arthroscopic outcomes resulted in a significant improvement in outcomes with a standardised difference of means of around 2.3 pre- and post-operatively, with conversion rates to total knee arthroscopy of 6.1%, 16.8%, 21.7% and 34.1% at one, two, three and four years post-operatively,

respectively. While the debate still rages surrounding the utility and effectiveness of this procedure, this meta-analysis demonstrates that around 60% of patients have sustained good or excellent results.[3] The role of arthroscopy in knee osteoarthritis is highly controversial in some Nordic and western European countries where the procedure is now considered counter-indicated and reimbursement is denied. Without formal health utility analysis in a suitably large cohort of patients it is unlikely that this debate will be easily resolved.

How best to double your bundles

Anterior cruciate ligament reconstruction is now globally almost exclusively performed using hamstrings (see this month's registry feature). Although far from universal, there is little data surrounding the benefit or otherwise of different methods of preparation of double-bundled hamstrings repair. A study team in **Hokkaido (Japan)** set out to establish if both semitendinosus and gracilis are required in construction of a double-bundle graft, or if semitendinosus on its own is sufficient. Unusually for this kind of biomechanical study, the researchers devised a clinical prospective study on 120 prospective patients. All patients underwent an anatomical ACL reconstruction with a double-bundle hamstrings repair. The semitendinosus group consisted of patients where the harvested graft was more than 6 mm thick when it was used alone to construct both bundles of the anatomic repair (SemiT group). When the semitendinosus was less than 6 mm thick an additional gracilis graft was used (gracilis group). In the gracilis group the gracilis tendon was used doubled with semitendinosus to manufacture the anteromedial tendon while the postero-lateral bundle was reconstructed using the remaining semitendinosus doubled. The groups were roughly equal in size, with 61 patients in the SemiT group and 59 in the gracilis group. Outcomes were assessed and compared at two years following surgery using AP laxity measure, isokinetic torque measurements, the Lysholm score and the IKDC knee outcomes questionnaire.[4] There were no differences between either technique in any measured outcome. It appears, in fact, that it doesn't matter how a double-bundle graft is produced, the clinical outcomes and stability will be similar. Either of the two techniques described by these authors appears to yield satisfactory results.

When to operate for infection



It is common clinical practice when ordering the operative list to place infected cases last, and sicker patients earlier on the list. Often these two are not mutually exclusive, and the surgeon will be faced with performing a revision for infection prior to a primary arthroplasty. Whilst our microbiology colleagues reassure us that the particulate filters and high airflow volume in laminar flow theatres should make this an acceptable practice, many surgeons still feel very uncomfortable at the prospect. There is no evidence either way to suggest if patients are at higher risk of infection if they undergo primary arthroplasty immediately following a revision procedure for infection. A study team in **Toronto (Canada)** have provided the first research on the topic. They designed a retrospective case series with the aim of identifying any increased risk of infection in patients undergoing 'clean room' surgery after infected revision, and secondarily to compare the risk of superficial and deep infections in this group with a matched group of standard arthroplasty patients. The research team identified 83 patients (85 arthroplasties) who had been scheduled for their primary arthroplasty immediately following arthroplasty surgery for infection. Patients were all followed up to a year following primary surgery to establish the rate of early post-operative infection. These patients were matched to a control group of 321 patients (354 arthroplasties). There was a single infection in the study group and control group, giving an incidence of infection of 0.84% and 1.17% respectively. There was a lower incidence of infection in the patients in the study group (2.35% n = 2) than in the control group (n = 17 4.8%).[5] Clearly the event rates are so low in this series that the study does not have sufficient power to establish small differences in event rates. However, based on the data available (and prior to this study there was none), the current evidence base supports the practice of performing primary arthroplasty immediately following an infected revision case.

Cementless unicompartment knee replacement?

There are many things to like about the unicompartmental knee replacement: shorter hospital stay, potentially better functional outcomes, higher flexion arcs and lower complication rates. However, in every joint registry the revision rates are higher than for total knee replacement. Some of this will be due to expected disease progression, or use in unsuitable patients, however, there is also a higher than expected revision rate for aseptic loosening, usually at the cement bone interface. The most widely used unicompartmental knee replacement is the Oxford, and the designers of the Oxford knee have, reasoning that the weak link may be the cemented interface, modified the design to allow for uncemented prosthesis fixation. The authors report a designer series randomised controlled trial (Level I evidence) comparing the uncemented Oxford unicompartmental knee replacement (UKR) with the standard cemented equivalent. Patients were recruited with isolated medial compartment OA and competent ligaments. All patients received an Oxford UKR and were randomised to cemented or cementless fixation. Outcomes were assessed at one and five years. The researchers used fluoroscopy to assess the prosthesis interface at follow-up and was conducted using clinical outcome scores (Oxford Knee Score, Knee Society scores and Tegner activity scales). Sixty-two serial patients (63 knees) were randomised to either cemented (32 patients) or cementless (30 patients). During the five years of the study, four patients died and so were lost to follow-up, but there were no revisions. The cementless group had a shorter operative time (mean nine minutes). The Knee Society Functional score was significantly different (favouring the cementless group) but there were no significant differences in any other outcome measure. There were also significant differences in the radiographic evidence of fixation. While two thirds of cemented knees had tibial radiolucencies, only 7% of the cementless knees did.[6] In light of these results it would seem that the cementless Oxford UKR may have overcome some of the limitations to its use. We look forward to either independent results or registry data supporting the remarkable findings of this study.

Tibial tubercle-trochlear groove confusion

Decision making in patients with anterior knee and patellar pathology can be difficult at the best of times. To many surgeons the decision making is simplified through use of the tibial tubercle-trochlear groove (TTG) measurement. This widely accepted measure essentially assesses the alignment of the sulcus of the groove

and the insertion of the patellar tendon, essential in calculating and understanding the axis of patellar tracking. The early work validating this measure and establishing the ranges of normal and suitability for surgical intervention was all done using cross sectional CT imaging. As times have moved on patients now commonly undergo MRI scans rather than CT which allows the clinician not just to assess the bony architecture but also the soft-tissue ligamentous structures, and, on the face of it, make a more rounded decision about suitability for the various surgical interventions available. Clinicians in **Rochester (USA)** are obviously the suspicious type, and noting that it was CT not MRI that was initially validated as a method of assessing the TTG, they designed a prospective diagnostic cohort study (Level II evidence) to determine the reliability of TTG when measured on MRI and CT, and determine if the two measures are equivalent and interchangeable or not. The study authors reviewed the CT and MRI scans of all patients (54 patients, 59 knees) who presented with patellar instability to their institution over an eight-year period. The scans were all independently reviewed by two musculoskeletal radiologists who calculated the TTG on both CT and MRI for both imaging modalities. As would be expected, intra- and inter-observer reliability have been calculated and then the results of the two different imaging modalities analysed using Bland-Altman analysis. The 59 knees had greatly different mean TTG measurements of 16.9 mm and 14.7 mm on CT and MRI, respectively. Unsurprisingly, with senior radiologists the inter-observer reliability was excellent, with kappa values of 0.77 and 0.84 for CT and MRI, respectively. However, when comparing CT and MRI, the inter-class correlation coefficients were only fair (0.53 and 0.54) for each rater. Within the cohort of patients there were 11 patients who had a TTG > 20 mm on CT and hence underwent realignment surgery where their mean TTG measured by MRI was only 18.7, which taken in isolation would result in a different treatment modality.[7] While both tests are reliable, the results are not interchangeable and clinicians should be wary of interpreting absolute values on MRI alone, especially when making treatment decisions.

Tarts, cherries and osteoarthritis

Every once in a while we come across a peach of a paper in our bi-monthly trawl through the global research soup. Certainly one of our favourites is this well conducted randomised controlled trial from **Philadelphia (USA)**. For reasons perhaps best known to themselves, the investigators felt that perhaps there were some as yet unknown qualities to tart cherry juice, and that perhaps it was also a cure to osteoarthritis. Undeterred by common sense, the research team recruited 58 non-diabetic patients and went to the effort of planning a well designed randomised crossover controlled trial. Patients were randomised to either cherry juice or placebo. All patients had Kellgren grade 2/3 osteoarthritis and consumed 16 oz of either cherry juice or placebo with a week's washout prior to switching treatments. Outcomes were assessed using the WOMAC osteoarthritis index and walking times prior to, and after, each treatment episode. Biochemistry including urate, creatinine and a high sensitivity CRP assay were monitored throughout treatment with paracetamol allowed as rescue therapy. Amazingly there were five adverse events recorded with the cherry juice and three with the placebo, resulting in withdrawals. There was no significant difference in any outcome measure between placebo and tart cherry juice therapy. Whilst the researchers report a larger treatment effect during the cherry juice treatment, there was no difference between treatments. There was, however, a lower hsCRP associated with the tart cherry juice treatment and the decline in hsCRP was found to be associated with an improvement in WOMAC score.[8] Usually randomised controlled trials let themselves down with a seemingly obvious (but only with hindsight) methodological flaw, however, in this case we wonder if selecting a treatment unlikely to have a therapeutic effect may be the obvious flaw. We aren't just sceptical of the benefits of tart cherry juice, here at *360*, but are completely gobsmacked that so much time and effort has gone into evaluating a cocktail ingredient as a treatment for one of the world's most common diseases. Perhaps we are missing something?

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