ROUNDUP360

Shoulder & Elbow

For other Roundups in this issue that cross-reference with Shoulder & Elbow see: *Hip & Pelvis Roundup 8; Children's orthopaedics Roundup 1; and Research Roundups 5 and 6.*

Cuff tears and plexus injury

The restoration of shoulder function following major injury to the upper limb is difficult and in the presence of a brachial plexus injury it is essential to maximise shoulder function. There is little known about the treatment of concomitant rotator cuff tear and brachial plexus injury. Surgeons in the Mayo Clinic in **Rochester (USA)** have one of the largest series of operatively treated brachial plexus lesions in the world.[1] They set out to establish the outcomes and approach for treatment of simultaneous brachial plexus and rotator cuff tears. Their study population consisted of 280 patients treated over a 12-year period with a traumatic brachial plexus injury. All patients underwent MRI scanning as part of their evaluation. The study team re-reviewed the clinical and imaging records of these patients with specific attention to defining the presence or absence of a rotator cuff tear and classification of plexus injury. Rotator cuff tears were surprisingly common in their cohort, with 23 patients (8.2%) presenting with full thickness rotator cuff tears of various varieties. The most common was a supraspinatus tear (21 patients) with infraspinatus (n = 8) and subscapularis (n = 7) tears less common. Surgical repairs were undertaken in 12 patients and the authors recommend careful management with consideration of operative repair in those patients presenting with cuff tears to optimise clinical outcomes. The authors note that cuff tears are more common in the older population and those with infraclavicular brachial plexus injuries.

Corticosteroids and physiotherapy in SAI

Subacromial impingement syndrome sometimes seems like a bit of a 'bucket diagnosis'; patients with varying pathologies all present in a similar manner with pain and positive impingement tests. What draws them all together is the common presentation and for most patients, simple interventions such as physiotherapy and corticosteroid injections are the mainstays of treatment. Given there are two apparently equivalent treatment strategies and that there is little evidence to separate the two, researchers in **Newark (USA)** designed a randomised single-blinded controlled trial.[2] The trial was designed to compare the two interventions, assessing the primary outcome measure of change in Shoulder Pain and Disability Index (SPDI) scores at one year. The study included a number of secondary outcome measures including pain and global rating of change scores and health resource use. The research team recruited 104 patients into their study, all presenting with unilateral subacromial impingement, who were randomised to treatment with either six sessions of physiotherapy or subacromial injection with 40 mg of triamcinolone acetonide. There was a comparable improvement of around 50% in both groups in their shoulder performance scores, but no significant differences between the two groups (1.5% mean difference) were seen at final follow-up. A similar picture was seen with the secondary outcomes of global rating of change scale and the pain scale, with significant improvements in both groups but no differences between them. Despite the lack of differences in functional improvements, patients in the injection group had more shoulder-related consultations with their primary care provider (60% vs 37%), required additional corticosteroid injection (38% vs 20%), and, finally, around one in five also required physiotherapy. Although there are no differences in eventual outcomes, the corticosteroid group clearly had higher cost health care with more resource use and a higher requirement for further interventions.

Diabetes and elbow replacement

Elbow arthroplasty is associated with significant complications if things go wrong. The poor soft-tissue envelope and often immunocompromised state of rheumatoid patients who most commonly require elbow replacement can sometimes result in significant and difficult to treat complications. What is not known is the effect that diabetes may have on the incidence and type of peri-operative complications. Using the US national inpatient sample data, researchers from **Chicago (USA)** retrospectively studied the outcomes of 3184 patients who underwent total elbow replacement.[3] There were 488 patients with diabetes in the group. The groups were not quite matched and the diabetic group were older (66.8 vs 58.5 years), although there were no differences in length of stay (4.1 vs 3.7 days) or cost of surgery ($56,582 vs $56,092). However, there were higher rates of complications including pneumonia (OR 2.7), urinary tract infection (OR 2.2), blood transfusion (OR 2.1) and complications on discharge (OR 1.9). However, some of these adverse events may be due to the higher comorbidity rates in the diabetes group. Consequentially the research team undertook a multivariant analysis to adjust for comorbidity confounders. Interestingly, this correction established that diabetes itself was not associated independently with increased length of hospital stay, cost or proportion of routine discharges. It seems from this data that diabetes itself does not increase the risks associated with elbow replacement although it does independently increase the risks of UTI, CVA and pneumonia, and patients should be warned of these risks.

Distal biceps tendon repairs

Distal biceps tendon injuries are often managed operatively which improves functional outcomes at the risk of some exposure to complications. Reattachment of the tendon to the proximal radius can be achieved through either an endobutton technique or suture anchor repair.

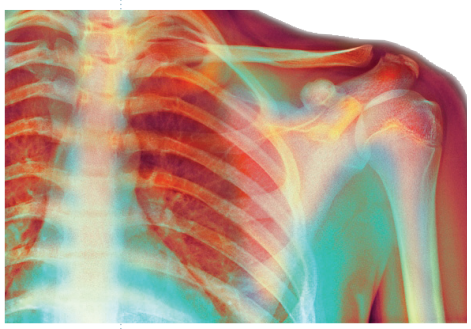
Although there is some biomechanical data to suggest the endobutton is stronger, it adds the risk of fracture through the relatively sizeable tunnel and is a slightly more tricky operative technique. There are no clinical comparisons on which to base choice of technique and surgeons from **Rochester (USA)** have shared the results of their own series of 37 patients performed over a five-year period.[4] All operations were performed at a single institution with either a suture anchor or endobutton repair of an isolated distal biceps tendon avulsion. Outcomes were assessed at a minimum of a year with the DASH score in addition to clinical examination and strength and motion testing. There were 20 patients in the endobutton group and 17 in the suture anchor group. There were slight differences in the outcomes between the two groups, with better pronation in the endobutton group (0° vs -4°) and 5° of better flexion in the suture anchor group. There were no differences in DASH outcome scores on univariate analysis. However, there was a difference in favour of the endobutton on multivariant analysis. Complication rates were around 1/3 in both groups. While there is little difference in outcomes between the two techniques both are an acceptable way to repair the tendon. As there is an over 30% complication rate in this series, one does have to ask questions about the sense of an operation with that many complications – we would like to see a well-controlled cohort or randomised controlled trial to compare the outcomes of intervention with conservative treatment.

Shockwave therapy in frozen shoulder

■ Adhesive capsulitis can be a surprisingly tricky condition to treat. While some patients end up with surgical intervention, many patients can be managed with conservative therapies such as physiotherapy, analgesia and in some cases steroid injections. The role for extracorporeal shockwave therapy (ESWT) is unclear in these patients, and researchers from **Taipei (Taiwan)** set up a randomised controlled trial to establish the differences between the two treatment modalities.[5] Their study included 40 patients randomised to either oral steroids or ESWT. Outcomes were assessed with the Constant Shoulder Score (CSS) and Oxford Shoulder Score. There were improvements seen in both groups throughout the duration of the study. The ESWT group improved more rapidly than the oral steroid group as measured by CSS – particularly in the range of motion component. In the longer term the steroid group continued to improve throughout the duration of the study while the patients in the ESWT group reached peak improvement by week six. The authors of this study argue that their results support the use of ESWT in the shorter term. Here at *360*, however, we have some reservations about the application of this study to clinical practice. Ideally, in a comparative randomised controlled trial the comparison group would either be the gold standard treatment or standard of care and the intervention would be added and controlled for with placebo. The majority of shoulder surgeons would not regard oral steroids as a standard of care for adhesive capsulitis.

Hydrodilation and steroids for adhesive capsulitis

■ Further down the treatment pathway for frozen shoulder than the conservative measures tested in the previous paper, many shoulder surgeons recommend hydrodilation as a minimally invasive ultrasound-guided intervention for frozen shoulders that are resistant to conservative measures. This can be a surprisingly effective intervention and has been well described previously. Researchers in **Seoul (South Korea)**, wondering if the addition of capsular distension to intra-articular steroid would offer an alternative result, have reported a comparative case series of patients treated with either ultrasound-guided intra-articular ketorolac injection or capsular distension.[6] Outcomes were assessed at one, three and six months following completion of treatment with assessment of pain, functional scores and range of movement. Over a three-year period the study team recruited 121 patients



into their study, of whom 57 received ultrasound-guided triamcinolone while the distension group received ketorolac made up to 20 mls of 0.5% lidocaine. The Shoulder Pain and Disability Index (SPADI) were improved at all outcome assessments, as were pain scores and passive range of movement in both groups following injections. That said, there were no differences between the groups in terms of functional or pain scores, however, there were significant differences in passive range of movement at three and six months in the distension group. There did not seem to be any downsides to treatment with steroids and hydrodilation in combination as this was equally effective in terms of pain relief and functional improvements in patients with frozen shoulder but there were greater improvements in passive abduction and external rotation with the hydrodilation group.

Just what do our patients read?

■ Shoulder instability is one of those diagnoses that can have significant functional overlay and multiple different aetiologies, making patients particularly susceptible to misleading or inaccurate information on the internet. There is plenty of substance to the belief that online sites provide poor quality information for patients requiring any form of surgery. Researchers from **New York (USA)** set out to establish what information was available to the general public on public websites.[7] The review team used three internet search engines to search for "shoulder instability," "loose shoulder," and "shoulder dislocation". Three independent observers graded the quality of information available using a bespoke set of scoring criteria in addition to assessing the balance of discussion of surgical and non-surgical options. Furthermore, the readability of the information was assessed using the Flesch-Kincaid score. The quality and accuracy of the website information was analysed by three independent observers who evaluated 82 websites. The quality and accuracy was directly related to the search terms entered. Searching for "shoulder instability" yielded better quality and accuracy of information when compared with "loose shoulder" although this was associated with significantly more advanced reading levels. As might be expected, websites with higher reading ages yielded better quality information although only 28% of websites mentioned surgical options for shoulder instability. This paper underlines the need for professional body-sponsored neutral information written in an accessible manner to inform patients in an appropriate way.

What happens to that stable radial head fracture?

x-ref Trauma

■ The majority of isolated stable radial head fractures are managed conservatively with little in the way of operative intervention recommended for those fractures where uneventful union will occur on its own. Although widely accepted as the treatment of choice, there is little long-term data to inform clinicians (and patients) as to how

these patients do in the longer term. Researchers in **Edinburgh (UK)** conducted a prospective outcome study including all patients suffering a Mason type I or II fracture of the radial neck or head over an 18-month period.[8] Patients were managed non-operatively and followed-up with the long-term outcome measure of the DASH score. The study cohort consisted of around 100 patients with a mean age of 46, the majority of whom had fallen from a standing height. The cohort was roughly divided between type I and II fractures. Follow-up was continued to ten years following injury, by which point the DASH score was 5.8 and the Oxford Elbow Score was 46. In terms of subjective reporting of symptoms, one in four reported some form of elbow pain and 14% reported stiffness. Poorer outcomes (as defined by the DASH score) were associated with increasing age, deprivation indices, fracture displacement and compensation proceedings. Longer-term patient outcomes were consistently good in this series, supporting the use of primary non-operative treatment in patients with stable radial head and neck fractures.

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