of whom underwent a step-cut ulnar shortening osteotomy. The authors report follow-up to a minimum of 24 months and were able to report an impressive 98.8% union rate with their strategy of a palmar plate and lag screw construct. Across the whole series, there were just two cases of nonunion and all of the patients were able to return to their pre-morbid conditions within four months. There was, however, an appreciable incidence of symptomatic metalwork, with 12 patients complaining of plate-related symptoms and requiring their metalwork to be removed.

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Shoulder & Elbow

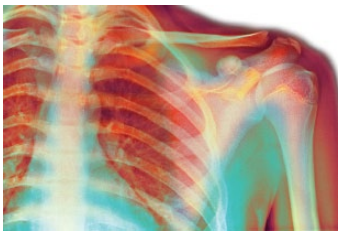
X-ref ***For other Roundups in this issue that cross-reference with Shoulder & Elbow see: Trauma Roundups 1 and 3; Children's Orthopaedics Roundup 3.***

Revision for Propionibacterium

There is a renewed interest in subclinical infection across the whole of the arthroplasty world – with understanding of biofilms, improvements in diagnoses and the understanding that often apparently culture negative patients may have subclinical loosening leading to osteolysis has sparked renewed interest in indolent infections such as *Propionibacterium*. The usual suspect in revision shoulder surgery is Propionibacterium. Often implicated in subclinical infection associated with osteolysis, this low virulence organism is also only identified on delayed cultures. With the increasing recognition that Propionibacterium is often responsible for revision arthroplasty, the question then turns to how this indolent infection is best treated. Shoulder surgeons in **Seattle, Washington (USA)**[1] have set out to establish whether single-stage revision is successful in revision surgery. They report the clinical outcomes for single-stage revision arthroplasty in patients without obvious clinical infection at the time of surgery. The surgical team sent multiple samples at the time of revision surgery for extended cultures and bacteriotyping. Patients with more than two cultures positive for Propionibacterium (n = 27/55) were compared with the remainder of the cohort. Clinical outcomes were assessed using the Simple Shoulder Test (SST) and there were no significant differences between the groups in terms of raw improvement or percentage improvements achievable, with both groups achieving around 7.5 points on average on the SST. Similarly, there were no differences in the numbers of post-operative complications, with three patients in each group requiring intervention for ongoing pain or stiffness. The authors conclude, and it certainly seems to us here at *360*, that in this series the use of a single-stage revision approach is appropriate, with outcomes similar to a control group of aseptic revisions. Care should, however, be taken to ensure that appropriate antibiotic cover is used post operatively.

Anterior instability: Bankart or Latarjet? X-ref

Recurrent anterior shoulder instability is a continual problem. There appears to be little consistent evidence to support conservative treatments in younger patients, and although some series have tentatively supported external rotation slings or rehabilitation, these are often not successful in independent series. In many centres, to try and avoid the issues of recurrent instability, younger patients undergo routine MRI scanning and arthroscopic repair as necessary to preserve the stability of the joint just at presentation following their first dislocation. Nonetheless, there are still plenty of patients who present with ongoing recurrent anterior shoulder dislocations. The mainstay of treatment for these chronic unidirectional instability patients is repair. Whilst the general trend in the shoulder world is towards achieving more and more through arthroscopic means, there are still a number of surgeons who favour more interventional procedures such as the Latarjet stabilisation. Surgeons in **Zürich (Switzerland)**[2] have reported the outcomes of an impressive cohort of 360 patients treated with either arthroscopic Bankart repair or open Latarjet repair for recurrent anterior dislocation. The cohort is reported to a minimum follow-up of six years. The authors report the longer-term success of the two procedures in this comparative series both as re-operation for instability and as a range of outcome measures designed to assess higher level shoulder function (apprehension, the subjective shoulder value, sports participation, and overall satisfaction). The series consisted of 93 open Latarjet procedures and 271 Bankart repairs, and clearly, in a series of this nature, there will be significant selection biases. Overall instability or apprehension was present in 11% of Latarjet procedures and 42% of Bankart procedures. A similar pattern was seen with the instability, with just 3% of Latarjet procedures reporting overt instability and 28% of the Bankart repairs at six years of follow-up. Reading these headline figures, we were hardly surprised here at *360* that the Kaplan-Meier analysis significantly favoured the Latarjet group. Perhaps the most interesting finding, however, was the timescale of the failures – this is a large series with significant follow-up and it makes interesting reading that a quarter of Bankart repair failures occur after 7.5 years. This paper is written from the perspective of equivalence of surgical technique and patient morbidity. The interesting presentation is the number of late Bankart repair failures, however, even allowing for this, the results in this Bankart repair series are very much on the high end of those reported in the literature, and, as such, the strong conclusions of this study should be taken with a significant pinch of salt. The procedures, of course, are not equivalent, with some morbidity



associated with the coracoid process osteotomy and risk of neurovascular injury and fracture. However, even taking all this into consideration there is some significant food for thought here – the Latarjet remains a successful long-term solution to a difficult problem.

Surgical site infection in the elbow X-ref

■ The elbow has a relatively poor soft-tissue envelope, and is at risk of post-operative wound infection and breakdown. There are, however, few units with enough experience of major elbow surgery to offer any guidance on the risk factors for post-operative infection, and particularly any risk factors that could be modified to reduce the risks of infection in subsequent surgery. The team in **Boston, Massachusetts (USA)**[3] have reviewed their series of 1320 patients, all treated operatively for elbow fractures over a 12-year period. The incidence of infection was perhaps lower than one might intuitively expect, with just 4% (n = 48/1320) suffering a post-operative infection, and there was no real difference in incidence between open and closed fractures (3% *vs* 4%). The most common pathogen was *Staphylococcus aureus*, responsible for around 60% of infections. Surgical factors increasing infection risk were external fixation use and plate and screw fixation, both likely markers of more severe injuries or the need for more complex surgery. Despite the size of this study (and we are sure it will be a number of years before a larger study is reported on this topic), there was little in the way of anything specific that could be concluded other than that smoking should clearly be discouraged in the post-operative period.

Who does well with hemiarthroplasty for cuff tear arthropathy? X-ref

■ With the jury still out on the long-term outcomes of reverse shoulder arthroplasty, particularly in the relatively young and active patient, shoulder surgeons are divided in opinion on the best treatment for younger patients with cuff tear arthropathy. Some favour reverse shoulder replacement, arguing that the newer 'metaglene' components have improved fixation with bony ingrowth and are likely to provide longer-term stability, and so the functional advantages of a reverse make it the option of choice. Others argue that the function of a hemiarthroplasty with cuff tear is primarily to deal with pain and that, in selected patients, hemiarthroplasty can be a reasonable, durable solution. Surgeons in **San Antonio, Texas (USA)**[4] have bucked the recent trend for reverse shoulder arthroplasty and have reported the experiences of two surgeons with 48 hemiarthroplasties performed for cuff tear arthropathy. They were able to report the outcomes to an average of 48 months of follow-up. The authors were able to report that 79% (n = 33/42) achieved an improvement of at least the minimal clinically important change. Although there were a relatively small number of patients in the series, the authors were able to draw some inferences about who did and who didn't do well with hemiarthroplasty. Patients who had a cuff tear limited only to the supraspinatus and infraspinatus, and those with limited pre-operative external rotation, were more likely to achieve the defined minimum functional improvement, where active elevation was not significantly associated with improved functional outcomes. Although there is relatively short follow-up presented in this study, the results are quite encouraging. It would be ideal to see a comparative series, or even better a randomised controlled trial, to establish the longer-term outcomes.

Steroid injections of little benefit in rotator cuff tendinosis

■ The use of steroid injection in the shoulder is *de rigueur* in shoulder clinics the world over, being used for symptomatic treatment and diagnosis. Although their use is almost ubiquitous, there is still some controversy, particularly when used in cuff tears. A review team from **Austin, Texas (USA)**[5] reviewed the evidence surrounding the benefit, or otherwise, of steroid injections when used in the subacromial space to tackle pain from rotator cuff tendinosis. The review team identified 11 studies describing the outcomes of 726 patients, all of whom had undergone either corticosteroid injection or placebo for rotator cuff tendinosis in a randomised study. The authors undertook an effect size analysis using a random effects model and reported their outcomes in terms of numbers needed to treat. It appears that (perhaps counter-intuitively) this well conducted meta-analysis does not support a reduction in pain intensity following injection with corticosteroid over placebo. They were able to report a small transient improvement in pain scores between four and eight weeks, with five patients needed to treat. The authors conclude that, at best, corticosteroid treatments provide minimal transient pain relief in a small number of patients. Given the concerns that many clinicians have surrounding the potential to accelerate degeneration following rotator cuff tears, the authors question whether this treatment should really be offered in future.

Immediate range of motion better following shoulder arthroplasty

■ Immobilisation following shoulder arthroplasty is part of orthopaedic doctrine in many units; the rationale, not unreasonably, being that outcome is dictated by the function of the rotator cuff muscles and this in turn is determined by the healing of the tuberosities. However, in recent years, more rapid rehabilitation protocols have found some favour within the shoulder fraternity. Immediately post-operatively is not the weakest time for any bony or soft-tissue repair, and a counterargument would be that rapid post-operative mobilisation is known to optimise outcomes in many arthroplasties and may be the best option in this case as well. Surgical trialists in **Meyrin (Switzerland)**[6] have tested the hypothesis that, following total shoulder arthroplasty, early mobilisation is superior to the traditional immobilisation rehabilitation regime. They designed a study comparing immediate motion (IM) with delayed motion (DM) following total shoulder arthroplasty. Sixty participants were enrolled and randomised to either treatment. Surgery was essentially the same, with all patients undergoing lesser tuberosity osteotomy at the time of surgery. Outcomes were assessed using functional outcome measures at four weeks, eight weeks, three months, six months, and one year following surgery. There were some interesting differences in post-operative final ranges of motion, with the immediate mobilisation group doing better with external rotation (65° *vs* 53°) and equivalent forward flexion (141° *vs* 144°), although the delayed mobilisation group gained four spinal levels of internal rotation as opposed to the two levels gained in the immediate mobilisation group. The composite ranges of motion were roughly equivalent, however, with a trade-off seen of external and internal rotation between the two groups. What was different was the initial functional ranges of motion, with the immediate mobilisation group having significantly better outcomes to three months when outcomes went on to equalise. The other notable difference was in the rate of lesser tuberosity nonunion, with the immediate mobilisation group having a significant rate

of nonunion (81% *vs* 96%). In contrast to the perceived wisdom, immediate mobilisation does not offer poorer long-term outcomes. It certainly offers more rapid mobilisation and a greater external rotation arc at the trade-off of lesser tuberosity union rates and internal rotation arc. Either approach would seem to be perfectly acceptable but the more rapid return to function has the edge for us here at *360*.

Glenoid version in shoulder dislocation X-ref

Given the focus in recent years on glenoid version in adult reconstruction and outcomes, it is surprising that there has been little in terms of investigation into the effects of glenoid version on shoulder dislocation rates in native shoulders. We were delighted to see this cross-sectional study from a team based in **Bolu (Turkey)**,[7] aiming to establish the potential link between glenoid anteversion and anterior shoulder dislocation. Although the potential for a link seems obvious, there has previously not been a suitable study to establish this one way or the other. The authors report a comparative case series evaluating the glenoid geometry of 63 patients with one or more anterior shoulder dislocations and a comparator control group of 63 individuals with no shoulder pathology or signs of instability. The study reports the glenoid version angle using an axial CT cut. Interestingly (although possibly not surprisingly), the investigators established that there were significantly higher version rates in the dislocation group when compared with the non-dislocation group. There was, however, no demonstrable relationship between mechanism of dislocation and other factors such as glenoid version angle and number of dislocations. It is reasonable to conclude that glenoid anteversion predisposes to, but does not cause, dislocation in the shoulder.

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Spine

X-ref ***For other Roundups in this issue that cross-reference with Spine see: Oncology Roundup 6; Research Roundup 5.***

How accurate is the MRI Scan?

MRI scans are seen in many areas of orthopaedic practice as a "gold standard" diagnostic modality. However, because the MRI has become a basic healthcare "commodity", we tend to forget that there may be meaningful differences in quality. Scan acquisition location is sometimes determined by patient choice and scans are increasingly used in primary care to screen patients. These scans are sometimes used to determine the need for specialist referrals, particularly in the UK and US. The accuracy of the radiologist's report in this setting is of paramount importance, as the images themselves will often not be reviewed by the requesting professional who may be a non-specialist primary care physician or physiotherapist. The authors of this study from **New York, New York (USA),**[1] who are not specialist spine radiologists, set out to investigate the variability in "interpretive findings" by accredited radiologists in their region around New York City. A single patient with back and L5 radicular symptoms underwent scanning in ten different imaging centres and the reports produced were compared with a "gold standard" consensus report by the authors. There was a large variability in reporting, with 49 distinct findings recorded. None of these 49 findings were unanimously reported across all ten reports, and only one finding (an anterolisthesis at L5-S1) was reported in nine out of ten exams. A Fleiss' Kappa statistic was used to assess inter-rater agreement (1.0 indicating perfect agreement and 0 or less indicating agreement no better than chance). The overall Fleiss' Kappa statistic across all ten exams was 0.20 ± 0 .03 indicating poor agreement. Most spine specialists in secondary care will be able to review and interpret the imaging themselves. They will also have access to radiologists with whom to query reports in addition to correlation with clinical findings and the history they have taken. However, this is not the case in primary care, and this study has huge implications for musculoskeletal interface or triage services, whose role is to screen referrals to secondary care, especially if there is an (over)reliance on the MRI report itself. The authors state that an incorrect MRI diagnosis has the potential to delay appropriate care, which in turn can have a negative impact on patient, outcomes and costs.

Dural tears an economic and clinical disaster?

Complications are the fear of every spinal surgical patient and their surgeon. Although dural tears and dural leaks can be innocent, they are relatively common complications that can be incredibly serious. Incidental, inadvertent dural tears occur in up to 20% of lumbar spine cases. Dural repair can be straightforward with only a slight increase in operative time and is thought to reduce the incidence of post-operative complications. However, these complications still occur, and can include associated neurological injury, headaches and electrolyte disturbance. The negative consequences though are often seen in the post-operative period and investigators in **Charlottesville, Virginia (USA)**,[2] set out to quantify the economic and medical effects of dural injury in an elderly population undergoing primary lumbar discectomy. A cohort of 41 655 patients, all of whom were older and undergoing lumbar discectomy, were included in the study. The patient cohort was assembled using Medicare Insurance data and two groups were compared: those who had an incidental dural tear and those who did not. A dural tear rate of almost 5% was recorded which probably reflects the increased incidence in the older patient with degenerative stenotic spines. The results were striking: there were greater rates of wound