

ROUNDUP³⁶⁰

Shoulder & Elbow

Fast-absorbing suture anchors are safe for use in shoulder labral tears

■ The march of new implants and improved designs has never been faster. With more and more variety and innovation in the design and manufacture of implants, 360 was delighted to see some scientific study of a new technology. There are many different varieties of suture anchor. The latest generation comprises resorbable composite anchors but there are little current data surrounding their use. Researchers in **Virginia (USA)** have examined the newer generation biocomposite anchors to establish not only their bone in-growth properties, but also adverse effects (such as tunnel widening and adverse lytic reactions). They included 22 patients in their study and followed them up over a two-year period. The patients in the study had undergone arthroscopic shoulder labral repair performed in a similar manner. The researchers used clinical scoring, CT scan and MRI scanning to evaluate the performance of the suture anchors. Their results demonstrate good clinical outcomes at two years of follow-up. The authors found the anchors to be absorbed at a predictable rate with 68% absorbed at 12 months and 98% at 24 months. Although clinical scores were maintained, the imaging investigations were not reassuring. The authors noted no obvious mechanical failure but at least 80% of the anchor site was

replaced with soft tissue, not bone.¹ These are some of the first clinical and imaging data to support the use of biocomposite fast-absorbing anchors. We at 360 are encouraged by the clinical results, but are concerned by the low proportion of bone in-growth to the implant site once the anchor has been absorbed. We would be encouraged to see a further report of these patients with longer follow-up.

Double-row rotator cuff repair – the future?

■ Sticking with evaluating the evidence for newer suture-anchor designs, researchers in **Boston (USA)** performed a systematic review to try and resolve the controversial issue of single- versus double-row repairs. We at 360 have been avidly following the debate and although there are proven biomechanical advantages, there are no large clinical studies and we were delighted to read this systematic review. After all, if there are no clinical advantages in these times of austerity surgeons may need to be more prudent with their implants. The authors evaluated prospective studies of Level I and Level II evidence to determine both the clinical outcomes (extrapolated from reported shoulder performance scores) and the re-tear rate. The authors were able to identify seven papers with sound enough methodology for inclusion in their systematic review. All of the papers included clinical reports of patients randomly allocated to treatment with either single- or double-row

repair for their rotator cuff tear. The authors performed a heterogeneity test and established that all the patients included within the systematic review were suitable for comparison, with no confounding characteristics. The main conclusions from the study were that there were no differences found between the single-row and double-row repairs in terms of functional scores, however, there was a higher re-tear rate (nearly doubling from 27% to 43%) in the single-row group. However clinically significant, this difference was not statistically significant ($p = 0.057$), and therefore may well be the result of under-recruitment or reflective of a lack of statistical significance.² We at 360 were pleased to see a clearer message starting to emerge about the benefits of double-row repairs. Although the results are not quite statistically significant, the startling reduction in the re-tear rate and borderline significance suggests to us that a slightly larger analysis will give a definitive result in favour of the double-row technique. Although not quite enough to silence the naysayers, this review adds important information to the ongoing debate. Here at 360 we won't yet be doubling our suture anchor order, but we are poised to do so.

Can degenerate massive rotator cuff tears be addressed with partial repair?

■ With an ageing population there are changing patterns in disease, posing different challenges

for surgeons to those of previous generations. Older, more active patients suffer from cuff arthropathy and subsequent massive cuff tears. These cause significant disability, and surgical treatment can be difficult or even unsuccessful. The jury is still out as to how best to treat patients with massive rotator cuff tears. Large tears in degenerate tendons may require extensive dissection to perform an anatomical repair. We were especially interested at 360 in this comparison of complete versus partial repairs. Researchers in **Hurst (USA)** compared two different operative techniques for repair of massive rotator cuff tears. They studied a consecutive series of arthroscopic rotator cuff repairs performed over a two-year period. All of their patients underwent operation for a massive rotator cuff tear ($\geq 30 \text{ cm}^2$). The surgeons did not perform any kind of randomisation or pre-surgical treatment allocation, but rather interestingly 'did the best they could'. Intra-operatively, the surgeons attempted to mobilise the cuff and repair it anatomically. If this was not an option, they performed the partial repair procedure where the tendon is mobilised as much as possible and repaired short of its origin. The study design and follow-up were retrospective although the patients did have University of California, Los Angeles (UCLA) scores collated prospectively. The study population with massive tears comprised 97 patients (of a total of over 1000 elective cuff repairs). The

investigators were able to achieve complete repair in just over half (52 patients), with the remainder having a partial repair. At the final follow-up (mean 24 months) both groups of patients had identical shoulder performance scores.³ This study, while not adhering to the scientific rigour of a randomised controlled trial, does give us pause for thought at 360. Their patients received benefit from both complete and partial cuff repairs, and there was no difference between the groups. Perhaps a more aggressive approach could be taken with patients deemed to have an irreparable cuff tear?

Open and arthroscopic stabilisation of Bankart lesions are equally efficacious treatments

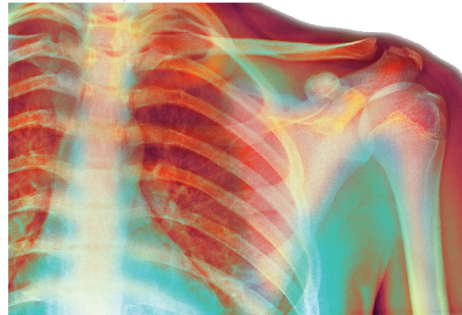
■ Moving further afield, a research team in **São Paulo (Brazil)** has challenged us to think again about the widely perceived advantages of arthroscopic stabilisation of patients with Bankart lesions and subsequent shoulder instability. 360 has noted that publications pertaining to, and practice of, open shoulder surgery have declined as arthroscopic surgery has taken off. We have also noticed a lack of evidence for this change in practice. The investigators here included patients under the age of 40 years with an isolated, clinically symptomatic Bankart lesion. Patients were randomised to either open or arthroscopic surgical repair, performed in both cohorts with the use of metallic suture anchors. Patients were randomised to reduce confounders and followed up to 38 months to establish mid-term outcomes. The study methodology included functional outcome measures (DASH & UCLA score), complications and failure. At just over three years of follow-up the investigators did not find any difference in complications or failure of the surgery, but they did find a statistically significant difference in the DASH scores. This difference was not clinically significant and therefore probably clinically irrelevant.⁴ We like being challenged

in our beliefs, here at 360, and there is definitely food for thought in this randomised controlled trial. While this study does not address other potential benefits of minimally invasive shoulder surgery it does show that, based around patient-reported outcome measures at least, open and arthroscopic techniques are equally effective. The study's findings could nevertheless be interpreted in a different way. Given equivalent functional scores and complications, the more patient-requested arthroscopic procedure could be regarded as the gold standard. We will leave you to make your own judgement.

Predicting the risk of revision humeral head replacement

■ Humeral head replacement and resurfacing is a long-established procedure and is widely practised across the globe; however, there are surprisingly few long-term follow-up studies in the literature. The department of epidemiology at the Mayo Clinic in **Rochester (USA)** has stepped into the gap and conducted a cohort study to establish the long-term survival and risk factors for revision surgery in humeral head replacement. There has, up to this point, been very little published in this area and this 20-year follow-up study sparked our interest at 360. The researchers included 1359 patients in their study who underwent 1431 humeral head replacements (HHR) between 1976 and 2008 in their institution. They calculated survival at five, ten and 20 years using the Kaplan-Meier method, and undertook both univariate and multivariate Cox regression analysis to determine the relative contributions of each factor to the risk of revision. Their study aimed to determine the contribution or otherwise of age, gender, BMI, comorbidity, fixation method and underlying diagnosis. Over the 20-year follow-up period 114 HHRs were

revised and survival was 93.6% at five years, 90% at ten years and 85% at 20 years. The multivariate analyses revealed that while accounting for confounders, greater age was associated with a lower risk of revision (HR = 0.97) and higher BMI was associated with a higher risk of revision (HR = 1.04).⁵ The authors have concluded, and clearly demonstrated, an excellent long-term survival and that both obesity and lesser age



are risk factors for a higher revision rate after HHR. We are particularly reassured at 360 that there was no association with gender, underlying diagnosis or co-morbidity with revision rates. Many patients who benefit symptomatically from HHR have multiple co-morbidities, and based on these data the patients do not have a higher revision rate.

Arthroscopic treatment for frozen shoulder is effective in the long term

■ Frozen shoulder can be a tricky condition to treat, particularly in terms of knowing who and how to treat. Researchers from **Kagora (Australia)** investigated the longer-term outcomes of arthroscopic capsular release. We were particularly pleased at 360 to read this well-conducted cohort study investigating a common condition over a longer time course. As the authors indicate in their paper, if you do not know what has happened in the longer term, how do you really know if your treatment has worked? Especially in a condition such as adhesive capsulitis with a relapsing and remitting nature. The research team aimed to investigate the outcomes

of 43 patients treated for idiopathic adhesive capsulitis over a long-term follow-up in their institution. As frozen shoulder is characterised by stiffness and pain the researchers investigated both in their study. The thorough evaluation of their patients' shoulders included function, with patient-reported scores and a Likert scale; pain with a patient-reported score; and range of movement with regular clinical evaluation in the first year and then at a mean of seven years' follow-up. The investigators found a sustained statistically significant clinical improvement in pain frequency, severity, shoulder function and stiffness, and difficulty in completing activities, compared with the findings at the initial presentation at one year and maintained to seven years. The authors concluded that surgical release for adhesive capsulitis is successful.⁶ We were heartened at 360 to find there is hope for the frozen shoulder. In contrast with reports of conservative treatments, which show sustained improvements in pain scores only, this long-term follow-up study also shows sustained benefits in range of movement scores. Perhaps we should all be taking a more aggressive approach in the management of idiopathic adhesive capsulitis in future.

Long-term follow-up of the Bristow-Latarjet procedure

■ From **Umeå (Sweden)** comes a tremendous study on the effect of a capsular repair, bone block healing and position on the results of the Bristow-Latarjet procedure. This appears to be thanks to a well-kept hospital registry. In 360's view, Sweden is the home of the register, that has lent so much to so many different aspects of orthopaedic and trauma surgery. For this study the authors evaluated the results of the May modification of the Bristow-Latarjet procedure ('coracoid in standing position') in 319 shoulders with respect to 1) coracoid healing and position and 2) surgical treatment of the joint capsule. From 1980 until 2004, all shoulders with

a Bristow-Latarjet repair were registered at the authors' hospital. Their study consists of three different cohorts with respect to follow-up. For series 1, 118 shoulders operated on between 1980 and 1985, had 15 years' radiographic and clinical follow-up. For series 2, 167 shoulders that had surgery between 1986 and 1999, underwent retrospective follow-up by a questionnaire and outcome scores - Western Ontario Shoulder Instability Index; DASH; Subjective Shoulder Value - after ten to 23 years. For series 3, 34 shoulders treated between 2000 and 2004, with an added modified Bankart repair ('capsulopexy') in 33 shoulders, were prospectively followed up for five to eight years with the same questionnaire and scores as series 2. Of the 319 shoulders, 16 (5%) had one or more redislocations and three of these (1%) had revision surgery because of remain-

ing instability. There were one or more subluxations reported in 41 shoulders (13%). The worst scores were found in 16 shoulders with two or more subluxations. Radiographs showed bony healing in 246 of 297 shoulders (83%), fibrous union in 34 (13%), migration by 0.5 cm or more in 14 (5%), and no visualisation in three (1%). There were five of six shoulders that had the transplant positioned 1 cm or more medial to the glenoid rim and had redislocations (83%). Shoulders with migrated transplants did not differ from those with bony or fibrous healing with respect to redislocations and subluxations. When just a horizontal capsular shift was added to the transfer, the recurrence rate (redislocations or subluxations) decreased, with two of 53 (4%) compared with 37 of 208 (18%) with just anatomical closure of the capsule, and the Western Ontario Shoulder

Instability Index score improved significantly (92 versus 85.6). In total, for 307 of 319 shoulders (96%), patients were satisfied or very satisfied at final follow-up. So it appears that the open Bristow-Latarjet procedure yields good and consistent results, with bony fusion of the coracoid in 83%. A position of the coracoid 1 cm or more medial to the rim meant significantly more recurrences. The rate of recurrences decreased and subjective results improved when a horizontal capsular shift was added to the coracoid transfer.⁷ 360's view? Watch the position of that coracoid.

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