ROUNDUP360

Shoulder & Elbow

Platelet-rich plasma appears to work

Platelet-rich plasma (PRP) seems to be popping up everywhere, this time in a study published from **Plano (USA)**. Surgeons reported a level III case-control study of the effects of PRP in a fibrin matrix on post-operative tendon healing after rotator cuff repair. Post-operative healing was judged by MRI and on clinical outcome. There were 40 patients, 20 with and 20 without PRP, all procedures being performed by the same surgeon. Rehabilitation was held constant. Patients, who had a mean age of 57 years, were followed for a mean of 31 months. Results were remarkable, with post-operative MRI studies showing 60% of controls to have persistent full-thickness tendon defects. The figure for the PRP group was a highly significant 30%. It thus appears that the use of PRP in a fibrin matrix does lower the rate of retearing.[1] Wonderful, thinks *360*, evidence that this PRP miracle juice might actually work.

In further support of PRP in the upper limb comes a paper from **Athens (Greece)**. Surgeons on this occasion looked at its effect for lateral epicondylitis (tennis elbow) by comparing an injection of PRP with an injection of autologous blood. This level I study took 28 patients and divided them equally into two groups. One had a single injection of PRP and the other a single injection of autologous blood. Both groups received a standard rehabilitation programme afterwards and the patients were reviewed regularly for six months. In brief, PRP won. The method might improve more once details of indications, concentration, number and time of injections and rehabilitation protocol are considered further. It seems that PRP might well be of use for chronic refractory tennis elbow.[2]

Instability

Anterior shoulder instability is frequently associated with a glenoid bone defect, a lesion that is widely considered to be one of the major causes of recurrence of instability after stabilisation procedures. Surgeons from **Rome (Italy)**, as part of a level II study, have looked at this phenomenon in 161 patients in order to establish what might be the most significant predictors of glenoid bone loss in association with shoulder instability. They found a glenoid bone defect in 72% of their cases. Its presence was significantly associated with recurrence of the dislocation, an increasing number of dislocations, male gender and the type of sport performed.[3] By such reckoning, *360* feels, the more a patient dislocates the greater the chance of a bone defect appearing and the harder dislocation is to control.

A helpful radiological review has also appeared from **New Delhi (India)**, describing the use of MRI in glenohumeral instability. MRI and MR arthrography have now become essential investigations for this condition, especially ahead of arthroscopic surgery. Injuries associated with glenohumeral instability are variable and may involve the bones, labroligamentous components, or the rotator cuff. Anterior instability is associated with injuries of the anterior labrum and the anterior band of the inferior glenohumeral ligament, in the form of a Bankart lesion and its variants. However, posterior instability is associated with reverse Bankart and reverse Hill-Sachs lesions. Multidirectional instability often has no labral pathology on imaging but shows specific osseous changes such as increased chondrolabral retroversion.[4] This article, which strikes *360* as being ideal for the non-shoulder specialist or orthopaedic trainee, reviews the relevant anatomy in brief and the MRI and arthrographic techniques. It clearly describes the MRI findings in each type of instability as well as common imaging pitfalls. Furthermore, its text is free.

Fixing the fractured clavicle

When fixing a plate to a clavicle, knowledge of safe zones for drilling is clearly helpful. After all, the acetabular surgeons depend on them, so why not shoulder surgeons, too? A team from **London (UK)** has reported the anatomical relationships between the clavicle and its adjacent vascular structures. By so doing, they have divided the bone into three zones, based on the relationships of the nearby blood vessels. The medial end of the clavicle has the subclavian vessels immediately behind it, with the vein intimately related to it. Sometimes the vein is actually opposed to the posterior cortex itself. The middle one-third of the clavicle has the artery a mean of 17.02 mm away and the vein nearer at a mean of 12.45 mm. At the lateral end of the clavicle the artery is a mean of 63.4 mm distant and with the vein at a mean of 75.67 mm. These are invaluable findings for the surgeon about to undertake a clavicular plating in the aftermath of a fracture of the bone.[5]

Long head of biceps

To understand the abnormal it is first essential to understand what is normal, so a publication on the intra-articular variations of the long head of the biceps tendon by a group from **Ankara (Turkey)** is most welcome. Here, they carefully recorded data about the tendon in a patient population of 671 arthroscopies undertaken in one centre. Of these patients, 50 (7.4%) were included as possible variants of the long head of biceps tendon. These variants included a simple vinculum, cord, pulley types, synovial tunnel types that might be partially or totally fused to the capsule and more complex types adherent to the capsule or the rotator cuff. Any association with labral pathology was also analysed. It appeared that the prevalence of labral pathology was higher in patients with variants of the long head of biceps tendon. This was particularly so for the pulley-type variant.[6]

Throwing athletes and posteromedial elbow impingement

Overhead throwing athletes appear to be at risk of developing posteromedial elbow impingement, a problem investigated by a team from

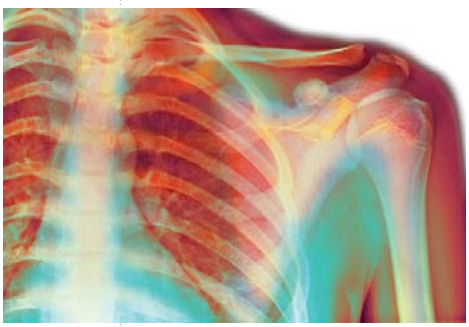
Philadelphia (USA). Over an eight-year period, nine throwing athletes were diagnosed with the condition. Investigation was by means of either noncontrast or direct arthrogram MRI. Arthroscopic treatment included debridement of posteromedial synovitis, removal of loose bodies and excision of the olecranon spur. All patients were examined at a mean of 68 months after this procedure. Although this was only a level IV study, the authors concluded that arthroscopic debridement, olecranon spur excision and loose body removal would allow a return to throwing sports and that reliable subjective and objective results could be achieved in carefully selected patients.[7]

Reverse shoulder replacement after trauma

A reverse shoulder replacement is sometimes used in the management of trauma. Surgeons from **Laon (France)** have looked into this as a suitable treatment for recent trauma in the elderly patient. As part of a level IV study, the authors retrospectively reviewed 35 patients, predominantly female, with a mean age of 75 years. There were eight complications in eight patients (23%). These included two complex regional pain syndromes, four dislocations, one deep infection and one aseptic loosening of the metaglene. Only 58% of the patients were satisfied with their treatment because of the limited shoulder movement that prevented proper eating, dressing and hygiene. Furthermore, 49% of the radiographic images were considered abnormal on review.[8] *360* has to agree with the authors' conclusions that although there was only one case of aseptic loosening of the metaglene, the results were both clinically disappointing and radiologically worrying. It seems inappropriate to support the concept of a primary reverse shoulder replacement in the management of recent trauma of the proximal humerus.

Internal fixation or hemiarthroplasty for three- and four-part fractures?

Alternatives for treatment of three- and four-part fractures of the proximal humerus include hemiarthroplasty or open reduction and internal fixation. Which is better has been studied by a group from **Tucson (USA)** who looked retrospectively at 57 patients with a mean follow-up of 35 months. Those receiving a hemiarthroplasty were slightly older than those who were internally fixed (mean 66.4 years *versus* mean 56.9 years) and the groups were slightly unbalanced with 15 in the hemiarthroplasty group and 42 internally fixed. However, in this latter group, 41 achieved union while one developed avascular necrosis that required a subsequent hemiarthroplasty. Meanwhile in the hemiarthroplasty group there was one revision for prosthetic loosening. No significant differences were apparent between the two groups for SF-12 or visual analogue scale pain scores, although these measurements trended towards better results with open reduction and internal fixation. However, internal fixation did certainly win when it came to range of movement post-operatively, as well as a number of other scores used in this study. These included the American Shoulder and Elbow Surgeons score, the Simple Shoulder Test, patient satisfaction, Constant score, Kelsh adjusted Constant score and the UCLA Shoulder score.[9] The *360* view? Perhaps a slightly unbalanced study but nevertheless internal fixation seems a good choice if appropriate conditions exist.



All-arthroscopic repair of the torn rotator cuff

Finally, a two-part article on the rotator cuff from the Hospital for Special Surgery in **New York (USA)** makes good reading. This study enrolled 193 patients who underwent an all-arthroscopic rotator cuff repair and who were then assessed at one, two and five years post-operatively. This was a level II, prospective cohort study marred slightly by only 55% of the original patients being available for review at the five-year point. However, despite this, it appears that the mid-range results of all-arthroscopic rotator cuff repairs are good and that the functional results remain constant over five years. Ultrasound healing rates continue to increase with time, although the mechanism and clinical significance of this finding are uncertain.[10] Meanwhile, radiographic healing did not correspond to clinical outcome while larger tears in older patients who underwent concomitant procedures were predictive of radiographic defects at five years. Younger patients with single tendon tears were more likely to undergo spontaneous resolution of a radiographic defect.[11] Useful information, *360* agrees, for advising patients about the mid-term results of this all-arthroscopic procedure.

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