Rotator cuff tears are commonly encountered by the radiologist with an interest in musculoskeletal disease. The prevalence of cuff tears increases with age as the tendons degenerate. Tears range from partial thickness tears of one tendon, full thickness within one tendon, complete tear of one tendon to massive tears (defined as full thickness tears of antero-posterior dimension larger than 5cm). Not only do patients experience pain from the tear, range of movement is also limited secondary to superior humeral subluxation resulting in acromiohumeral impingement and malalignment progressing to arthropathy of the glenohumeral joint.

The surgical options available to patients depend on the extent of the tear and the local surgeons' practice. For massive rotator cuff tears, options include debridement, subacromial decompression, transposition of the subscapularis tendon and reverse total shoulder arthroplasty to name a few. Since 2007, a further surgical option has been available: superior capsular reconstruction. It has been shown that the superior capsule is a crucial stabiliser of the shoulder joint, and when torn, can lead to increased laxity of the shoulder joint. In this operation, in addition to repair of the torn tendons, the aim is to place a buttress between the humeral head and the acromion, thereby reducing superior subluxation of the humeral head and improving the kinetics of the shoulder joint. Currently in the UK, NICE advises that the procedure should only be used in the context of research.

SURGICAL TECHNIQUE Open or laparoscopic technique. Tears of the rotator cuff are repaired if possible. Suture anchors are inserted into the superior greater tuberosity and superior glenoid. A graft is attached and secured in position.

Figure 1: Depiction of the shoulder joint, anterior. I= infraspinatus tendon, S= subscapularis tendon and muscle, G= glenoid, HH= humeral head.

Figure 2: The graft, either a fascia lata autograft or acellular allograft, is then attached and secured in position. Side-to-side sutures can be placed, securing the graft to the infraspinatus tendon.

Figure 3: AP shoulder radiographs. Although slightly different projections, it is possible to appreciate an increase in acromio-humeral distance in the post operative radiograph (2), compared to the pre-operative radiograph (1).

Figure 4: Coronal (1) and sagittal (2) T1 demonstrates two suture anchors (white arrows) within the greater tuberosity of the right humerus. Similar appearances are demonstrated in the superior glenoid.

Figure 5: Sagittal oblique PD fat sat. The graft material (white arrow) is low intensity on T1 and PD fat sat. A= acromion, HH= humeral head.

References: