SHOULDER CASE STUDY

Painful arc

62 year old triathlete

Introduction:

- Lucy is a 62 year old active female who has competed in triathlon and is a gardener.
- She also enjoys yoga and lifting weights.
- She originally injured her shoulder last year and for months thought she had "pulled" a muscle and tried rest.
- She has had to reduce activity and has trouble with daily tasks including drying her hair, snapping her bra and turning the key in her car.

What are the possible causes of Lucy's pain?

Possible causes include rotator cuff pathology, subacromial bursitis, a labral tear and adhesive capsulitis, among others.

Are there any specific questions you would ask in the history?

It is important to establish the duration and timeline of symptoms, details of specific trauma and a review of activities that aggravate symptoms.

What specific physical examination findings would you look for?

With shoulder injuries it is important to assess range of movement, strength and in this case certain movements may aggravate symptoms and provide a pointer to the diagnosis. Specific active, passive and resisted movement tests can be performed to assess the painful arc. Restricted movement may be a sign of adhesive capsulits which is largely a clinical diagnosis with few specific radiological findings. Other methods can be used to exclude pathology such as AC joint arthropathy.

What investigations would you consider?

There may be a role for x-ray, however the diagnosis is likely to be made with ultrasound or MRI. X-ray can be important to assess acromion morphology, the subacromial space, presence of soft tissue calcification in the rotator cuff and the AC joint.

What are the advantages and disadvantages of ultrasound and MRI in this case?

Ultrasound is easily accessible, uses no ionising radiation and is relatively inexpensive. It is very useful in the setting of the painful arc, as it assesses the rotator cuff well for tendinopathy and tears, visualises the subdeltoid bursa, and dynamic assessment can be performed to look for subacromial impingement during abduction. MRI is also increasingly accessible and uses no ionising radiation. It allows for excellent assessment of all shoulder structures including the bones and soft tissues. The rotator cuff and bursa are at least as well seen on MRI as on ultrasound, however MR does not allow for dynamic assessment. MR does however allow assessment of intra-articular structures such as labral pathology which could mimic cuff symptoms in certain circumstances, or co-exist.

What does the ultrasound show? See Figure 1

There is a dark (hypo-echoic) defect in the rotator cuff tendon (in this case supraspinatus). This is a tear of the tendon, containing fluid. in severe cases the tendon is retracted medially beneath the acromion. Rotator cuff tears can be partial or full thickness (depth through the tendon), and complete or partial width (breadth of the tendon).

What does the MRI show? See Figure 2

The black supraspinatus tendon has a fluid filled (bright) defect, which is the cuff tear. Fluid communicates with the subdeltoid bursa over the superfical surface of the tendon (which is thickened in this case).

What are the options and principles of management for a rotator cuff tear?

Management is often initially conservative, with rest, attention to any contributing factors and medication for pain relief. The use of steroids and physiotherapy may be complementary. Bursal steroid injection may be beneficial when there is associated bursitis and impingement. Surgery may be required when conservative measures fail. In addition to repair of the tendon, other factors including acromion and AC joint pathology may be addressed if there is structural abnormality contributing towards painful arc symptoms. A well devised post-surgical exercise programme is very important to reinstate strength and range of motion.

Figure 1: X-ray scans

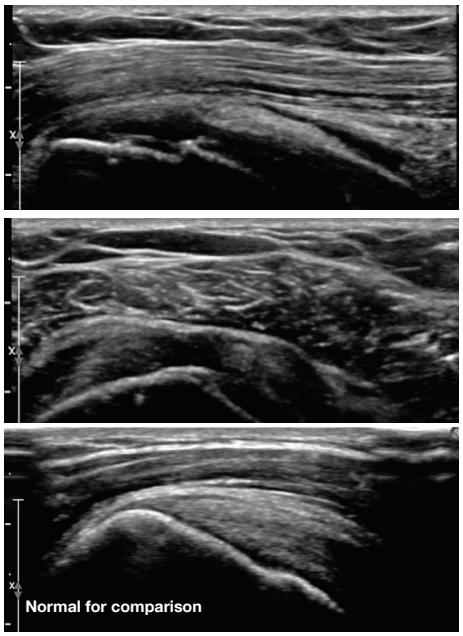
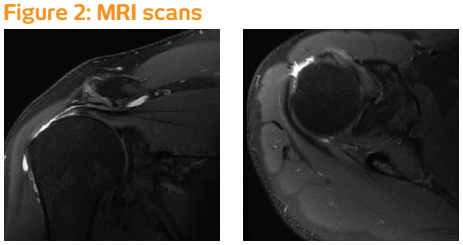


Figure 2: MRI scans



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