Assessment of shoulder pain

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The assessment of shoulder pain can be confusing to say the least. The shoulder region is complex but a regionalised approach makes the assessment of the painful shoulder a logical and straightforward process. The majority of causes can be divided into four anatomical regions, with differing pain patterns. The pain patterns are those of the acromio-clavicular joint, the subacromial space, the gleno-humeral joint and cervical referred pain. (Details of less common causes and more complex examination techniques are outside the scope of this article.)

Acromio-clavicular joint type pain

The pain of the ACJ has an odd distribution. The pain is felt over the joint itself, but refers pain widely in a diamond shaped pattern. The typical pattern is pain felt over the top of the shoulder out to the tip of the acromion, up into the side of the neck and then anteriorly to the clavicle and posteriorly to the scapular spine. In a sense, this is similar to the C4 dermatome distribution.

Importantly, this pain tends to be worsened with any movement at the AC joint. Since this is the final articulation of the torso with the upper limb, most arm movements will cause pain. Typically, the pain is worse with overhead activity, especially abduction, as well as cross body adduction. Therefore, many sporting and non-sporting activities will hurt.

Clinical diagnosis is often not difficult. Pressure over the joint causes pain as does compression of the joint. The latter can be done directly (Paxinos test) or indirectly with horizontal adduction or the pull-apart test, where the patient clasps the hands in front of the chest and pulls.

Causes of AC joint pain are commonly related to acute injury, degenerative arthritis, inflammatory arthritis (rheumatoid arthritis, gout) and may relate to osteolysis as a chronic stress reaction.

Subacromial Pain

As with AC joint pain, pain from subacromial structures produces a typical pain pattern. People may localise their pain over the outer edge of the acromion but more commonly, the pain is referred into the upper arm, mainly over the deltoid and into the mid arm. Commonly, people will point to the insertion of deltoid as the site of their pain, and sometimes query why you examine higher up. This pain distribution is similar to the C5 dermatome distribution, or axillary nerve sensory distribution.

Pain in the subacromial space is worsened by movements that compress or impinge on the structures beneath the acromion. In general, most movements with the elbow by the side are pain free, but with progressive elevation of the elbow, comes increasing impingement and pain. Typically, the pain is worse with reaching forward or reaching above the head. Of course, many sports will reproduce these movement, particularly swimming, volleyball, basketball and netball. Of note, there is often night pain that keeps the person awake.

Clinical diagnosis is made by showing pain with abduction ('painful arc'), as well as specific impingement test and strength testing of the rotator cuff. Unlike AC joint pain, these movements cause deltoid pain and not top of shoulder pain. In general, flexion is not abnormal.

Amongst numerous causes of subacromial pain, the following are common:

- Rotator cuff tendinopathy (mainly supraspinatus).
- Rotator cuff tendon tear (again, mainly supraspinatus).
- Calcific tendinopathy (may be acute calcific tendinitis or chronic).
- Fracture of the greater tuberosity (usually acute presentation after a fall, but may present late with symptoms of impingement).
- Subacromial bursitis commonly occurs due to repetitive impingement, but may occur as part of an inflammatory arthritis.

Gleno-humeral joint pain

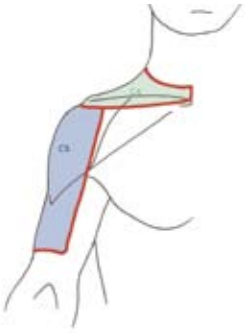
True shoulder joint pain is more diffuse and tends to present as anterior and posterior shoulder pain, as a deep aching pain. People tend to point to the anterior aspect of the shoulder, medially, or over the posterior shoulder, in the sulcus below the posterior acromion.

Due to joint involvement, the pain tends to be worsened by joint movement in all directions (unlike subacromial pain). The more movement, the worse the pain, and there is commonly some worsening after rest (morning stiffness).

Clinical assessment is aimed at identifying that there is pain with all movements. Unlike both conditions above, there is pain with external rotation movements when the elbow is by the side. The hallmark of joint pain is that it hurts with movement in all directions.

There are two major causes of joint type pain. The first is arthritis, whether inflammatory or degenerative. The second is adhesive capsulitis, or frozen shoulder. The best way to differentiate the two is to assess active movement (limited in all directions in both) and then attempt passive movement beyond the limits. In frozen shoulder, passive movement will not be possible, whereas in arthritis, significant increased range of motion will be evident.

Cervical referred pain



Always the masquerader, cervical referred pain may mimic the tidy categorisation above. Cervical origin pain often causes just neck pain but when major pain is referred, the diagnosis may be difficult.

With respect to the shoulder region, there are two main regions for referred pain, C4 and C5 distribution. Since C4 causes pain over the top of the shoulder and into the neck, it has similarities to the AC joint distribution. Similarly, C5 distribution pain is felt over the lateral shoulder and arm, down to the elbow, which has similarities with the subacromial pain.

The pain characteristics are quite different, though. The pain is often a continuous deep and poorly localised pain. It is often related to neck activity rather than shoulder activity. Facet type pain often has a sharp cervical component to the pain and radicular pain often will have a neurogenic feel (burning, tingling, etc).

Clinical assessment aims to examine the shoulder and AC joint to exclude local pathology and to examine the neck properly. There is often pain with lateral flexion and rotation to the painful side. The posterior quadrant test is useful to identify facet origin pain and the brachial plexus stretch test is useful to identify radicular pain. ■