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## Common Shoulder Conditions Explained

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### Frozen Shoulder

The term **Frozen Shoulder** is often used rather loosely but refers to a specific pathological condition of *adhesive capsulitis*. This is a fairly common condition affecting up to 3% of the population during their lifetime. A frozen shoulder often presents with symptoms indistinguishable from rotator cuff impingement, that is to say with pain over the upper outer aspect of the arm and difficulty sleeping. The distinguishing feature of a frozen shoulder is however the loss of rotation at the shoulder joint.

The cause of frozen shoulder is unknown but for the majority of patients the condition is self-limiting and over a period of two to three years there is usually a gradual reduction in pain followed by a recovery in the range of movement in the shoulder. The early phases of frozen shoulder are characterized by more severe pain and there may be tenderness around the joint. The underlying pathology appears to involve thickening and infiltration of the ligaments which help to stabilize the shoulder joint and which are usually soft and pliable. When a patient develops a frozen shoulder the ligaments become stiff, thickened and appear inflamed.

#### Diagnosis

The diagnosis is a clinical one from the history and clinical examination. The features include little pain or tenderness around the shoulder and a global restriction of movement, and particularly external rotation.

#### Treatment

The management of frozen shoulder remains controversial. It is usually the case that physiotherapy is unproductive particularly in the early stages of the condition when there is a lot of pain and inflammation. Corticosteroid injections into the shoulder may help to relieve pain but usually do not restore movement to the joint.

A manipulation under anaesthetic (MUA) will often produce a dramatic improvement in range of movement but the effect is unpredictable and in approximately one third of patients there is no detectable improvement in pain or function.

In resistant cases an arthroscopic release (key hole surgery) to divide the thickened shoulder ligaments may be effective at restoring motion to the shoulder.

### Rotator Cuff Impingement

The rotator cuff, as its name implies, is a sheet of tendon (cuff) attached to muscles which rotate the ball of the shoulder. Tendons become less resilient in adult life and may start to weaken and to wear or become degenerate with the passage of time.

The upper most portion of the rotator cuff tendon attached to the supraspinatus muscle is most vulnerable because of pressure caused by its movement against the bone forming the upper outer "point" of the shoulder - the acromion. When the tendon is degenerate or injured it may become more inflamed by rubbing against this "roof" of the shoulder, a situation referred to a **rotator cuff impingement**.

Rotator cuff impingement is associated with pain on movement of the shoulder, particularly when reaching up above the head, across the chest or behind one's back. The pain is often felt in the upper arm rather than over the shoulder joint. The pain is often particularly noticeable at night.

Treatments for rotator cuff tendonitis include anti-inflammatory medication, physiotherapy exercises to help reduce pressure on the tendon and corticosteroid injections around the tendon to reduce pain and inflammation. If these measures fail and the pain persists arthroscopic surgery or key hole surgery may be necessary to remove the under surface of the acromion. This is a procedure known as **arthroscopic subacromial decompression**. This type of surgery is usually carried out under general anaesthetic and involves making two or three small puncture wounds around the shoulder which do not always require stitching.

Arthroscopic subacromial decompression surgery is moderately painful for a few days, but the painful tendon may remain irritable for several months following surgery. The average time until resolution of shoulder pain is approximately three months after surgery and improvement may occur for up to a year. Most patients are not significantly restricted in their activities however for more than a few weeks after surgery and can often drive within a week or two.

### Rotator Cuff Tears

With severe degeneration or after an injury the rotator cuff tendon may tear. The optimum treatment for rotator cuff tears remains controversial. Degenerate tears in the rotator cuff tendon are very difficult to repair because of weakness of the tissue and sutures placed in the tendon will often fail to hold. In longstanding degenerate tears of the rotator cuff there is also a permanent degeneration of the muscle supplying the tendon so that even if the tendon is successfully re-attached there may still be a persistent weakness and loss of function.

There is a general agreement that tears following an injury in younger patients should probably be repaired since the tissue is usually strong enough to hold sutures and if a tear can be made to heal then this may minimise further long term problems with the shoulder in later life. It is recognized that untreated tears of the rotator cuff tendons tends to get bigger over time and the bigger the tear the less likely it is to be successfully repaired. There is an argument therefore for early intervention in the form of operative repair of torn tendons in young individuals following injury.

#### Surgery for rotator cuff tears.

There are a variety of different ways of repairing the rotator cuff tendon but whilst small tears can often be adequately treated with arthroscopic or key hole surgery. However larger tears may require a mini-open or open approach. The operation is usually carried out under a general anaesthesia with a nerve block to help relieve pain immediately after the surgery.

The outer muscle of the shoulder, the deltoid, is split exposing the underlying rotator cuff. The cuff is then freed up from its retracted position and is pulled into a shallow trough in the bone at the edge of the shoulder joint in the region of the greater tuberosity. Following repair of the rotator cuff

tendon the shoulder must be protected whilst the tendon is re-attaching itself to the bone. This process of healing takes several months and after a period of six weeks in a sling protected exercises are begun with no heavy lifting or straining for several months following surgery.

Shoulder function will tend to improve over many months and it may take a year for the strength in the shoulder to improve.

### **Acromio-clavicular Joint Arthritis**

Pain felt on the top of the shoulder is often from the acromio-clavicular joint at the end of collar bone. Pain from this joint may come on following injury or as a result of degenerative change or arthritis in the joint. Pain is often well localized to the joint in question, but may radiate up into the neck or down the outer aspect of the shoulder.

#### Diagnosis

The pain from the acromio-clavicular joint tends to restrict shoulder joint movement less than rotator cuff problems. Clinical examination often reveals tenderness over the AC joint at the outer end of the clavicle where there may be swelling of the joint. Pain can usually be demonstrated with the patient reaching above head height or across the front of the chest.

#### Treatment

The treatment of acromio-clavicular joint pain involves resting the shoulder and physiotherapy. NSAID's or anti-inflammatory medication is usually helpful. Sometimes a corticosteroid injection into the acromio-clavicular joint relieves the symptoms. If these measures are unsuccessful then the damaged acromio-clavicular joint can be excised and this can be done through an arthroscopic or key hole technique. The procedure is carried out under general anaesthetic and the recovery is similar to that following an arthroscopic subacromial decompression.

Often AC joint arthritis is associated with degeneration of the rotator cuff and rotator cuff tendonitis. Often at shoulder arthroscopy a sub-acromial decompression is combined with an excision of the distal clavicle.

### **Glenohumeral Arthritis**

The ball and socket joint of the shoulder is anatomically called the gleno-humeral joint. This is between the humerus or upper arm bone and the joint surface of the scapula. Wear and osteoarthritis of the main ball joint of the shoulder usually presents with pain and stiffness and there may also be a crunching or grinding sensation in the joint.

In the early phases of this condition anti-inflammatory medication may be helpful and function may be helped by some physiotherapy. As the disease progresses and pain, stiffness and disability (inability to use the arm) becomes more persistent consideration should be given to shoulder joint replacement surgery.

The may take the form of either a hemiarthroplasty where the ball of the damaged shoulder joint is replaced and the shallow sockets is left untouched or a total shoulder arthroplasty where the glenoid surface is also replaced. The level of pain relief is probably slightly superior if a total shoulder replacement is performed but there are more complications from re-surfacing the glenoid. It is usual practice in the United Kingdom for surgeons to perform more hemiarthroplasties than total arthroplasties for shoulder arthritis.

The results of shoulder replacement depend to a large extent on the condition of the rotator cuff tendons at the time of surgery. If the rotator cuff tendons are thin or damaged then the functional result is less good, although patients will still usually achieve good relief of pain.

The procedure is carried out under a general anaesthetic often with a nerve block to improve post-operative pain relief. The muscles at the front of the shoulder are separated and the ball of the shoulder joint is divided removing the damaged surface. The interior of the upper humerus is then hollowed out to accept a press fit metal stem with a replacement metal ball of a similar size to the bone which was previously resected. Post-operatively a sling is usually worn for three or four weeks and physiotherapy exercises are necessary for several months to regain movement and strength in the shoulder.

Most patients achieve improved movement and relief of pain within three to six months post-operatively.

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