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Rotator Cuff Disorders

Rotator cuff disorders are one of the most common causes of shoulder pain. There are three common conditions that can affect the rotator cuff: rotator cuff tears, subacromial impingement and calcific tendonitis. Most people with rotator cuff problems can be successfully treated by a combination of exercises (avoiding overhead activities), painkillers, physiotherapy and occasionally steroid injections. Surgery is sometimes an option.

What is the rotator cuff?

The rotator cuff is a group of four muscles that are positioned around the shoulder joint. The muscles are named:

- Supraspinatus
- Infraspinatus
- Subscapularis
- Teres minor

The shoulder joint

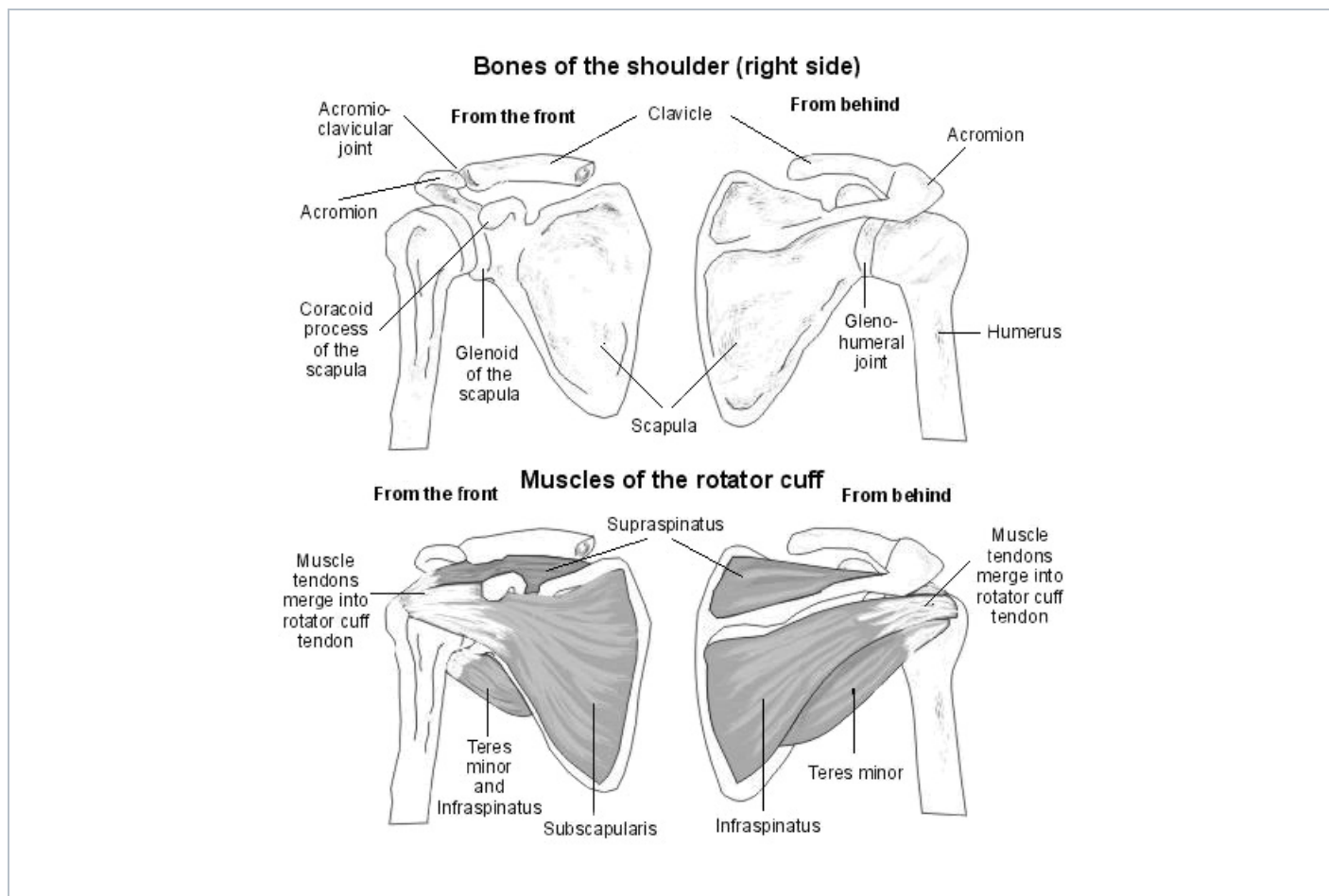
There are three bones in the shoulder region: the collarbone (clavicle), the shoulder blade (scapula) and the upper arm bone (humerus). The scapula is a triangular-shaped bone that has two important parts to it: the acromion and the glenoid. The three bones in the shoulder region form part of two main joints:

- The acromioclavicular joint between the acromion of the scapula and the clavicle.
- The glenohumeral joint between the glenoid of the scapula and the humerus.

There are also a number of muscles, ligaments and tendons around the shoulder. Ligaments are fibres that link bones together at a joint. Tendons are fibres that attach muscle to bone.

What does the rotator cuff do?

The rotator cuff muscles interlock to work as a unit. They help to stabilise the shoulder joint and also help with shoulder joint movement. The four tendons of the rotator cuff muscles join together to form one larger tendon, called the rotator cuff tendon. This tendon attaches to the bony surface at the top of the upper arm bone (the head of the humerus). There is a space underneath the acromion of the scapula, called the subacromial space. The rotator cuff tendon passes through here. The subacromial space is filled by the subacromial bursa. This is a fluid-filled sac which helps the rotator cuff to move smoothly. It has a large number of pain sensors.



What are rotator cuff disorders?

Rotator cuff disorders usually cause subacromial pain, and the term subacromial pain is now often used to cover all causes of rotator cuff disorders. It is the most common cause of shoulder problems.

Who gets rotator cuff disorders?

Rotator cuff disorders are extremely common and can happen to anyone. Sometimes they are caused by an injury such as falling on to the affected arm; this is more likely to be the cause if you are aged under 40. Overuse, either through sport or profession, may be a cause but they can occur without any obvious cause.

What are the symptoms of rotator cuff disorders?

The main symptoms are pain in and around the shoulder joint and painful movement of the shoulder. If there has been an injury, the pain may come on suddenly. Pain is worst when you use your arm for activities above your shoulder level. This means that the pain can affect your ability to lift your arm up - for example, to comb your hair or dress yourself. Swimming, basketball and painting can be painful but writing and typing may produce little in the way of pain. Pain may also be worse at night and affect sleep.

Occasionally your shoulder or arm may also feel weak and you may have reduced movement in your shoulder. Some people feel clicking or catching when they move their shoulder.

How are rotator cuff disorders diagnosed?

Your doctor may be able to find out what is causing your rotator cuff disorder just by talking to you and examining your shoulder. They usually start by asking questions about your shoulder. These questions may include when your shoulder problems started, whether you have had any specific injury and what aggravates your shoulder problem.

They will then perform an examination of your shoulders. This usually involves moving your shoulder in various positions and comparing it with the unaffected side. They will also examine your neck, as **neck pain** can sometimes cause pain in your shoulder.

Occasionally, your doctor may suggest an **X-ray** of your shoulder to rule out other causes of shoulder pain. They may refer you for more detailed investigations such as an **ultrasound scan** or a **magnetic resonance imaging (MRI) scan**.

Frozen shoulder is another relatively common cause of shoulder pain.

What causes rotator cuff disorders?

There are a number of different causes of rotator cuff disorders. The most common problems include:

- Rotator cuff tears
- Subacromial impingement
- Calcific tendonitis

Rotator cuff tears

The rotator cuff is very vulnerable to being damaged within the subacromial space. This can lead to a tear that is not only painful but also makes the shoulder weak. It can happen suddenly after a single injury or can develop gradually. Rotator cuff tears can be minor/partial or full/complete depending on the degree of damage to the tendon. Minor tears to the rotator cuff are very common and may not cause any symptoms at all but small tears may be very painful and larger ones less so. A tear can be seen on an ultrasound or MRI scan but not on X-ray.

Subacromial impingement

Also known as subacromial pain syndrome, tendinitis, tendonitis, bursitis, trapped tendon.

As you lift your arm up, the rotator cuff pushes the top of the upper arm bone (humeral head) under the acromion. Anything that affects the cuff, such as minor tears or overuse after a period of inactivity, can lead to the humeral head not being pushed down properly. It therefore moves too close to the acromion. This causes pain. It can also happen due to problems with the bone of the acromion. These can include arthritis and bony spurs (protrusions).

Calcific tendonitis

Calcific tendonitis is the name given when calcium builds up in the rotator cuff tendon. It can cause an increase in pressure in the tendon and a chemical irritation. It may be extremely painful. The cause is not known but it can eventually go away without any treatment. It tends to be more common in people between 30 and 60 years of age.

The calcium deposit may affect the way the rotator cuff works causing subacromial impingement but calcium deposits are also seen in people with no symptoms.

What are the treatment options for the rotator cuff disorders?

You should avoid doing anything that aggravates the pain. For example, overhead activities, such as that performed by plasterers or painters and decorators. This may mean that you have to modify or change your work activities. However, do not completely rest your shoulder. Strengthen your shoulder but don't try to work or play through the pain.

- **Pain relief:**
 - **Painkillers** such as **paracetamol** are usually helpful.
 - **Anti-inflammatories** are painkillers too but they also reduce any inflammation and are commonly prescribed. They include **ibuprofen**, **diclofenac** and **naproxen**. Side-effects sometimes occur with anti-inflammatories. Always read the leaflet that comes with the medicine packet for a full list of cautions and possible side-effects. If they don't help fairly quickly stop taking them.
 - **Stronger painkillers:** these may occasionally be needed.
 - **Ice packs:** these can also help to reduce pain, especially if there has been a sudden injury. A bag of frozen peas is an easy ice pack to use in the home.
- **Physiotherapy:** it is really important to keep your shoulder strong and mobile. It is very useful to see a physiotherapist for advice and to be prescribed an exercise programme to do at home if the symptoms aren't settling quickly.
- **Steroid injection:** this can help to reduce the pain, allowing you to undertake your exercise programme. It may reduce the inflammation in the subacromial space. A second steroid injection can be given after six weeks if the response to the first one was good. More than two steroid injections is not recommended.
- **Surgery:**
 - Rotator cuff tears - surgery may be required if the tear followed a sudden injury and when pain and weakness have not improved with steroid injections and physiotherapy.
 - Subacromial impingement - surgery is rarely required. If necessary an arthroscopic subacromial decompression (ASD) can be performed. This is done to increase the amount of space between the acromion and the rotator cuff by surgically removing bone and other tissue from part of the shoulder blade. However, recent research suggests that this operation is not as effective as previously thought:
 - In a study of over 300 people with subacromial shoulder pain, a third had no treatment, a third had 'sham' surgery (that is they had an operation but didn't have any tissue removed) and a third had an ASD.
 - The two surgical groups, whether tissue was removed or not, did a bit better than no treatment but not enough to consider surgery to be more effective.
 - It has been suggested that the slight benefit of both ASD and 'sham' surgery might be due to the physiotherapy following the operation or to a placebo effect.
 - Calcific tendonitis - 'ultrasound-guided barbotage' may be performed. This involves injecting the calcium deposit with salt water and sucking it out through a syringe. The calcium deposit may also be removed by surgery if the pain is extremely severe. An ASD will be carried out at the same time.

How long does it take to recover from a rotator cuff disorder?

If rotator cuff disorders are adequately treated, there can be complete recovery. This will involve daily exercises to strengthen the shoulder and to keep it strong. Recovery can take at least six months and is often longer than this.

Further reading & references

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