ROTATOR CUFF PROBLEMS

This informational handout has been prepared to help patients and their families better understand the diagnosis and treatment options of rotator cuff disease and injury. Before discussing specific problems of the rotator cuff, it will help to review some of the anatomy of the shoulder and the rotator cuff.

ANATOMY

The shoulder is not a true ball and socket joint like the hip. One side is round and the other side is flat. The round side is called the humeral head and the flat side is called the glenoid and is part of the shoulder blade. The bones that form the shoulder joint do not provide much, if any, built-in stability because of their shape. The structures that do provide stability are in the ligaments which surround the joint and are attached to the humeral head on one side and the glenoid on the other. These ligaments are in the front of the shoulder, the underside of the shoulder and the back of the shoulder. On top of the shoulder and on top of and overlying the ligaments of the shoulder in the front and the back are a group of tendons. Attached to the tendons are muscles and this group of tendons and muscles is called the rotator cuff.

Other important structures about the shoulder as far as rotator cuff disease and injury is concerned are the acromion, which is the bone on top of the shoulder, and the collarbone or clavicle, which are attached to the acromion. This joint is called the acromioclavicular, or AC, joint. The acromion and the AC joint, particularly in the older age groups, can develop spurs which can irritate the rotator cuff and cause abnormal wear and tear of the rotator cuff.

DIAGNOSIS

To arrive at a specific diagnosis, I will have taken a history (your story about your symptoms, their onset and your injury, if any), examined you and reviewed your X-rays. All the above are helpful in establishing a diagnosis. Some of these diagnoses are as follows:

ROTATOR CUFF TENDONITIS

This term means more or less the same thing as bursitis and tendonitis of the shoulder. There are several causes of this problem. In young patients, the most common cause is overuse such as repetitive throwing, weightlifting, overhead racquet sports, swimming and so forth. In some athletes, these activities lead to inflammation or tendonitis. As mentioned above, the rotator cuff is composed of four muscle-tendon units and any or all of these can be involved. The supraspinatus and the biceps are most commonly involved. What overuse does to the tendons in these cases is not known absolutely. It is felt that small, microscopic tearing of the tendon occurs. Because of poor blood supply to the tendon itself, the body's attempt at healing is not totally successful. We think this leads to an irritative process in the tendon which ultimately is called tendonitis.

Symptoms are generally those of pain, usually after activity at first and then during activity. The pain can usually be relieved by rest, but in some cases, the pain may be rather severe and require more specific treatment. The general treatment for this group of patients is non-surgical including prolonged rest, often six weeks or more and appropriate exercises to strengthen and stretch the rotator cuff muscles and tendons. Rest and exercises along with the use of non-steroidal anti-inflammatory drugs and an occasional injection of cortisone will almost always result in improvement. The use of heat for 10 – 15 minutes before workouts and ice afterwards is also important.

If return to athletics is done with indicated modifications of the activity, exercises, symptomatic treatment such as heat before and ice after, and occasional use of non-steroidal anti-inflammatory drugs, the patient will usually be able to continue participation at the desired frequency and level.

qcos
queensland combined orthopaedic specialists

www.qcos.net.au
Tel: 07 3721 8600

Some throwing athletes and others involved in overhead activities will develop tendonitis secondary to instability or subluxation of the shoulder. If the above-described conservative, non-surgical treatment fails in this group of patients, then surgery to reconstruct or stabilise the shoulder may be indicated. This subject is covered in another handout.

An occasional young patient will have an abnormally formed acromion or spurring which leads to rotator cuff tendonitis with overuse. If this is the case, and it fails to respond to treatment as outlined, arthroscopic surgery may be indicated to remove the spurring.

IMPINGEMENT SYNDROME

Older patients can develop the same symptoms from the same activities. Most patients forty years old or over normally develop some wear and tear changes in the tendons of the rotator cuff and are more susceptible to rotator cuff tendonitis with overuse. They become inflamed, as does the bursa between them and the acromion. The presence of spurring on the acromion and the AC joint is more prevalent in this age group.

When the rotator cuff tendons become inflamed, they tend not to function properly and are thought to "impinge" on the spur from the undersurface of the acromion. This is often called "Impingement Syndrome". These patients have symptoms the same as or similar to those described above, but the most prominent complaint is pain with overhead use and athletic activities. Night pain and inability to lie on that side are also common.

The initial treatment, as outlined above, is appropriate for patients in this category also. Some patients in this group will also have calcium deposits in the rotator cuff secondary to degeneration and overuse.

ROTATOR CUFF TENDONITIS OF UNKNOWN ORIGIN

Some patients can develop an acute, severe pain in the shoulder without known previous aggravating activities. These patients can also be dramatically relieved with a cortisone injection. These injections can be done infrequently. Generally, once every six weeks over a three to four month period is not considered excessive. The number and frequency of injections can vary a great deal from patient to patient. Cortisone relieves inflammation, but can weaken the tendon, so it is not injected directly into the tendon.

FROZEN SHOULDER/ADHESIVE CAPSULITIS

This diagnosis is one that I see in some patients who have had a painful shoulder for a long time and have either had no treatment or the treatment prescribed has not been effective enough. These patients have a good bit of pain most of the time which is made worse by use. Because of the inability to move the joint secondary to pain, they have lost motion or full use of the arm. The lay term for this condition is "frozen shoulder". The medical term is "adhesive capsulitis".

The treatment for this condition can be prolonged and difficult. It generally consists of the same treatment methods prescribed above and supervised physiotherapy is often helpful, as is a very vigorous home therapy programme.

Use of non-steroidal anti-inflammatory drugs and more frequent steroid injections are also helpful. All of the treatments are aimed at regaining motion and reducing pain. Occasionally, it is necessary to put the patient to sleep and move the shoulder through a range of motion to break up adhesions and stretch the muscles and tendons. This has not been necessary very often in my experience. If, after regaining motion, the pain persists secondary to impingement or spurring, then surgery as described below might be suggested.

ROTATOR CUFF TEAR

There are two primary causes of tears in rotator cuff tendons. One is acute trauma, as in a fall or injury. Rotator cuff tears are rare in patients under 40, and substantial trauma is required to tear the rotator cuff tendons in a young patient.

In older patients, less trauma is required. In some, the rotator cuff simply wears apart or gradually pulls apart secondary to use of the shoulder. This sometimes is aggravated by spurring. Patients who experience a fall or other injury to the shoulder will, of course, have pain at the time of injury, but as the pain subsides, they will notice at least some difficulty or inability to get the arm overhead. This movement will usually be associated with pain. In patients with rotator cuff tears secondary to wear and tear or degenerative changes, pain with use of the arm in the overhead position is usually the primary symptom. Sometimes, there will be associated cracks, pops and difficulty sleeping.

DIAGNOSTIC STUDIES

A specific diagnosis of rotator cuff tear or rupture can usually be made from your history, examination and X-rays. An MRI (Magnetic Resonance Imaging) is a test which is often quite helpful in establishing a diagnosis and differentiating between a tear and tendonitis of the rotator cuff. This test is done in an x-ray department as an outpatient and gives fairly accurate information about the status of the rotator cuff and other structures in and around the shoulder. It is also very useful in planning surgery, if required. Other diagnostic tests which have been and are used in some cases are ultrasounds. Ultrasounds are not as sensitive or accurate as MRIs .

TREATMENT OPTIONS

Some patients with small rotator cuff tears function fairly well with only aggravating or annoying pain. In patients with satisfactory function and tolerable pain, surgery is probably not indicated and occasional use of some conservative treatment methods will suffice. For those with increased pain and difficulty with normal daily activities and/or work activities, surgery is probably the best option.

SURGICAL TREATMENT

Failure to respond to non-surgical, conservative treatment is often an indication for arthroscopic surgery. Surgical treatment of impingement syndrome and rotator cuff tears involves looking with an arthroscope into two different areas of the shoulder.

First is the joint itself, or the glenohumeral articulation. This helps to identify other possible problems inside the shoulder itself, such as lesions within the biceps tendon. The underside of the rotator cuff and any tears can be seen and identified from this view.

The second area is called the subacromial space. This is a space between the acromion (the bone on top of the shoulder) and the top of the rotator cuff tendons and muscles. The space is normally occupied by a bursa which is the lubricating sac between the acromion and the rotator cuff. In cases of tendonitis, it is often thick and inflamed.

It is usually partially or completely removed in these cases. Tears of the rotator cuff can be identified from this view also. Spurring of the acromioclavicular joint and the acromion can be seen.

If no tear of the rotator cuff is present, this subacromial space can be decompressed by removing the bursa and spurs and some of the acromion, which can be done arthroscopically through small incisions.

If a small to moderate sized rotator cuff tear is identified in addition to the above, it can be repaired either via the arthroscope or via a small open incision. This amounts to sewing it back on to the bone which was its original attachment.

Patients who have tears, that are old or chronic and large, present difficult treatment problems. In rotator cuff tears, the tendon pulls off the bone and since the tendon is attached to the muscle, it shortens or retracts resulting in a gap between its original attachment site and eventual resting place. Because of the gap, which is sometimes large, and the fact that the muscle/tendon unit is shortened and has been in that position for some time, it resists being stretched out which makes repair difficult. In some patients, it is necessary to use a larger incision and to cut through the acromion to expose the retracted tendon/muscle so as to lengthen it and allow repair. In smaller tears, it is not necessary to lengthen the muscle and tendon. In both cases, if it has been retracted, the repair is made under some tension. Because of the tension, it is occasionally necessary to splint the arm away from the side using a foam pillow which relieves some of the tension. This splint will have to remain in place for about one month after surgery.

If a repair is done for small moderate sized tears, no splint is necessary, but a sling is used for about four weeks after the surgery. In some older patients with very large old tears, simple spur removal with an arthroscope will give satisfactory pain relief, but function (motion) of the shoulder and arm will probably not be improved. This approach does avoid the somewhat prolonged and difficult rehabilitation after repair of a large tear and may be desirable in some patients. This will be discussed with those of you that I feel would want to consider this approach.

TIME IN HOSPITAL

After arthroscopic decompression (removal of spurs without rotator cuff repair), the patients are discharged on the next day. A sling is used for one to two weeks and range of motion exercises are begun as symptoms will permit. Since no repairs of tendons or muscles have been carried out, then no damage will occur from a vigorous range of motion exercise programme.

Although this is an arthroscopic procedure, a lot of surgery has been done and it will take 2 – 3 months to regain full motion and for the soreness to subside. You will be instructed by the physiotherapy staff in appropriate exercises both before and after the surgery. The need for supervised physiotherapy varies a great deal from patient to patient.

After rotator cuff repair, most patients will need to be in hospital for 1 – 2 days. Exercises after rotator cuff repair are different from those done after simple spur removal. Because repair involves putting tendon back to bone, this has to be protected to allow healing.

An exercise technique called passive range of motion is used in patients who have had this done. This means that you do not use your muscles to move the arm and shoulder. It is done for you either by the physiotherapist, a family member or you doing it using your other arm. This is carried out for one month after the surgery. After one month has passed, another technique call active assisted range of motion is begun. This means that you begin to use your muscles, but helped with that either by the physiotherapist, a family member or you doing it using your other arm. This is done for the next two weeks. At six weeks, you can begin to exercise on your own, using your own muscles. A varying degree of help from the physiotherapist from this point on is necessary. A vigorous home programme is necessary in all cases.

Recovery from surgery to repair small to moderate tears takes about 3 months or more in a few cases and at least 6 months for larger tears. Return to normal daily activities which involves use of the operated shoulder can be judged from the above. Non-lifting activities below waist level can begin at 6 weeks. Return to athletic activities, overhead work and heavy lifting will require at least three months or more.

WHAT YOU CAN EXPECT

What you can expect from arthroscopic surgery for impingement problems (spur removal) is at least improvement in your pain and usually enough improvement to make having the surgery worthwhile. More often than not there is wear and tear (degenerative changes) in the tendon and it is not unusual to have some residual soreness in the shoulder. If you have spur removal and repair of a torn rotator cuff, then you can expect significant improvement in your pain and improved function (motion of the shoulder).

COMPLICATIONS

Inadequate pain relief can occur but is not common or usual. Large rotator cuff tears repaired under tension can pull apart and fail. If this happens, you should still get improvement in your pain, but function or motion would probably not be improved.

Loss of range of motion can also occur secondary to inadequate relief of pain and/or inadequate rehabilitation.

Other complications such as infection and blood clots can occur, but are extremely rare in my experience. If infection occurs, it is a serious problem and would probably cause the surgery to fail and possibly make the shoulder worse.

Anaesthetic complications can occur. These complications and the type of anaesthetic will be discussed with you by an anaesthetist on the day of surgery. You will either go to sleep or have some local anaesthetic injected at the base of the neck to numb the shoulder.

I hope this information has given you a better understanding of what is wrong, your treatment options and what you can expect from the various options.