

Rotator Cuff Anatomy

The rotator cuff consists of four muscles that attach the “ball” of the shoulder to the “socket” of the shoulder. They are located under the deltoid muscle, the large fleshy muscle on the outside of your shoulder. The muscles that make up the rotator cuff consist of the supraspinatus, infraspinatus and the teres minor in the back of the shoulder. In the front of the shoulder there is the subscapularis. All of these muscles insert on the scapula, or wing bone, and surround the shoulder. These four muscles are attached to the bone by a large tendon called the rotator cuff tendon. This is the tendon that tears when a rotator cuff tear occurs. The most common part of the cuff tendon that tears is the one attached to the supraspinatus muscle. The tendon passes under a bone called the acromion and can become compressed between this bone and the shoulder ball. This process causes bursitis or impingement. Occasionally, an injection into this space can significantly decrease the pain.

Rotator Cuff Tears

There are many mechanisms by which a rotator cuff tear can occur. In younger patients the tears usually occur from an obvious traumatic incident, such as a fall. While trauma can still occur in older individuals, more commonly the tears occur from over activity, such as catching a falling object or lifting too much weight. Occasionally, no mechanism can be recalled and the shoulder simply started hurting.

A rotator cuff tear is only one of the many causes of shoulder pain. A history of how your shoulder pain started will be discussed, as well as what type of activity makes the pain worse. Most rotator cuff tears cause pain, most commonly at night. The pain is commonly located on the outside part of the shoulder, and can radiate to the elbow with activity. The pain usually gets worse with reaching, lifting or overhead type activity. A lot of patients complain of weakness as well. X-rays of the bones are taken to see if any arthritis, or loose one pieces are present within the shoulder causing the pain. Rotator cuff tears do not show on x-ray. An MRI scan might be ordered to further evaluate the possible causes of the pain. An MRI will take a picture of the soft tissue around your shoulder. That is the muscles, tendons, ligaments and other structures that do not show up on x-ray.

Treatment Options

Conservative, or non-operative, treatment of shoulder pain usually consists of a course of physical therapy to improve the range of motion and strength of the shoulder. This is done to rebalance the shoulder musculature so the bones are aligned correctly, which may help decrease the pain. If there is no relief, or significant weakness is present, an MRI scan will show whether or not there is a rotator cuff tear. For patients with many medical problems, continued strengthening exercises may help decrease the pain. However, the tendon will not heal naturally, and the tears tend to get larger as time goes on. It is suggested that young patients, or those with significant impairment or weakness, undergo a surgical repair of the rotator cuff to help diminish the pain and improve strength.

Rotator Cuff Surgery

Many improvements in rotator cuff surgery have occurred over the past few years. Initially, rotator cuff repair required a large incision and dissection down to the tear so that it could be repaired. A stay in the hospital was usually required. More recently, rotator cuff repair is performed with an arthroscopic procedure. In this procedure, a small incision is made on the back of the shoulder and a camera is inserted. Water is pumped into the joint to improve visualization. The entire shoulder can be examined and the rotator cuff tear can be visualized from both inside the joint and from the space above the joint. The bone where the rotator cuff attaches is cleared of scar and an anchor is placed in the bone. These anchors are small, about 5mm, and are made of an absorbable plastic. They will not show up on x-ray or set off metal detectors at the airport. The sutures that are attached to the anchors are then passed through the tendon and the tendon is tied to the bone where it has the chance to heal. Occasionally, the bone spur is smoothed out as well to stop it from wearing on the tendon.

These procedures are usually performed as same day surgeries. A regional anesthetic is used to help decrease the pain for the first 8 to 10 hours after the surgery. The block is placed where the nerves to the shoulder are in the neck and paralyzes and numbs the entire arm so that there is no pain. In most cases a general anesthetic is also used. When the block wears off, there will be more pain that can last up to 72 hours after the surgery. A sling is used initially to help protect the rotator cuff repair. The size of the tear and the quality of the tendon tissue play a role in what you can do with the arm after surgery. In general, the use of the arm is limited after the surgery. Elbow range of motion without the sling is allowed once the block has worn off. No active reaching or lifting with the arm is allowed up to two months after the surgery. Physical therapy is started within the first two weeks after surgery to work on passive shoulder motion that does not damage the rotator cuff repair.