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ROTATOR CUFF TEAR ARTHRITIS

Background

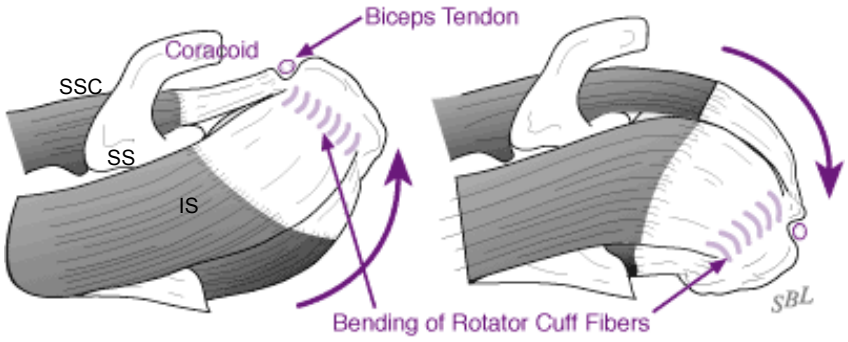
The shoulder is a modified ball and socket joint. The ball is the upper portion of the arm bone (humerus). The socket (glenoid) is the outer portion of the shoulder blade (scapula), which rests on the back of the chest wall. There are numerous muscles which are important for shoulder function that stabilize and control the position of the shoulder blade on the chest wall. As well, there are four muscles that arise from the shoulder blade and join together to insert on the periphery of the ball. These muscles and their tendons (the tissue that connects the muscle to bone) are called the rotator cuff. A rotator cuff that attaches to the bone is important for normal shoulder function. The rotator cuff provides strength and stability to the ball and socket, which allows the large chest (pectoralis) and upper arm (deltoid) muscles to provide power to the shoulder through a full range of movement.

The four muscles of the rotator cuff are:

Subscapularis: muscle and tendon in the front portion of the shoulder
Supraspinatus: muscle and tendon on the top portion of the shoulder
Infraspinatus and *teres minor*: muscles and tendons in the back portion of the shoulder

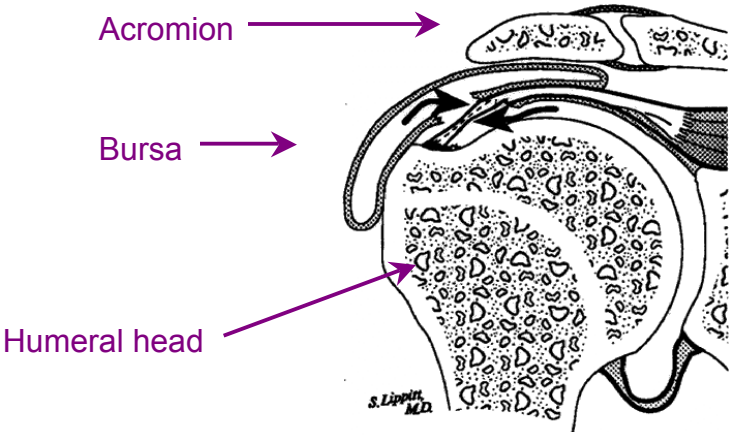
The tendons of the rotator cuff glide beneath the tip of the shoulder blade (called the acromion). A large, fluid-filled sac called a bursa is located between the tendons and the bone and helps lubricate the rotator cuff when the arm is elevated and rotated. Inflammation of the bursa is often an important part of rotator cuff disease.

VIEW FROM OVERHEAD*



Subscapularis = SSC
Supraspinatus = SS
Infraspinatus = IS

CROSS SECTIONAL VIEW FROM FRONT*



Rotator cuff tear arthritis

Problems of the rotator cuff are a common cause of shoulder pain and weakness in the general population. For most shoulder specialists, surgery to repair or treat disease of the rotator cuff is a commonly performed procedure.

The risk of developing a tear of the rotator cuff increases with age. Tears develop for a variety of reasons. They may be the result of a sudden injury, such as a dislocation of the shoulder or other high energy trauma, or they may develop gradually over time. Tears of the rotator cuff may or may not result in weakness or limitation of function. The most common presenting symptom of a torn rotator cuff is pain. The pain is often felt in the upper arm, but may radiate to the front or back of the shoulder, or to the neck or elbow. Pain often occurs while sleeping, with overhead activities, or when reaching behind the back or in front of the body.

In some patients, the presence of a large or massive rotator cuff tear may eventually lead to arthritis of the shoulder. In this condition, the cartilage on the end of the bone surfaces wears away, leading to increased pain and stiffness. This is the condition referred to as rotator cuff tear arthritis.

Treatment

The treatment recommended for rotator cuff tear arthritis depends on how long the symptoms have been present and how much your quality of life is affected. As the patient, you play a role in deciding treatment, as there may be more than one option available to you.

Nonsurgical treatment

Not all patients with rotator cuff arthritis require surgery. Many patients respond favorably to appropriate medication. In addition, injection of cortisone into the joint often relieves pain associated with inflammation. Finally, a period of rest and

modified activity may help, with eventual transition into a light therapy program designed to maintain reasonable strength and flexibility.

The duration of nonsurgical treatment varies from patient to patient, and is tailored to each individual. In some cases, altering medication or repeating cortisone injections may be considered to control symptoms.

Surgical treatment

Surgical treatment of rotator cuff tear arthritis continues to evolve. Historically, most patients have undergone a partial replacement of the shoulder joint. In this procedure (called a hemiarthroplasty), the arthritic ball (humerus bone) is replaced with a metal ball (prosthesis), which is inserted into the bone. The arthritic socket is typically left in place, as the absence of a functioning rotator cuff does not allow replacement of the socket. In some cases, a portion or all of the rotator cuff may be repaired in combination with the joint replacement.

In patients with very poor function due to the rotator cuff tear, a standard joint replacement may not provide adequate or desired function. In this case, a “reverse” prosthesis, in which a ball replaces the socket and a socket replaces the ball, may be considered. This device has been utilized extensively in Europe in the last 10-15 years, and is approved by the Food and Drug Administration for use in the United States. The reverse prosthesis is typically used for older patients who expect to be involved in light physical activity. In such people, the results in terms of pain relief and improved movement have been quite successful. In many patients, the ability to comfortably raise the arm to the shoulder level can be restored.

Outcome

No matter which operation is performed, physical therapy after surgery is critical to achieving a good result. Patients who remain motivated and follow the recommended aftercare generally do the best. While recovery after shoulder surgery can be slow, most patients are back to reasonably full activity 3-6 months after surgery. People often notice gradual improvement for up to 12-18 months after their operation. The main goal of surgery is pain relief, which is achieved 85-90% of the time. Improvements in strength and function are less predictable, but are achieved by the majority of patients.

** The figures used in this handout were adapted from the University of Washington Department of Orthopaedic Surgery website.*