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SHOULDER ARTHRITIS

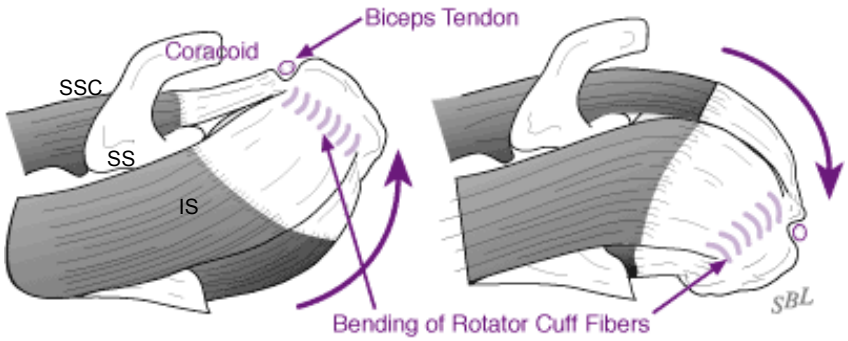
Background

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:

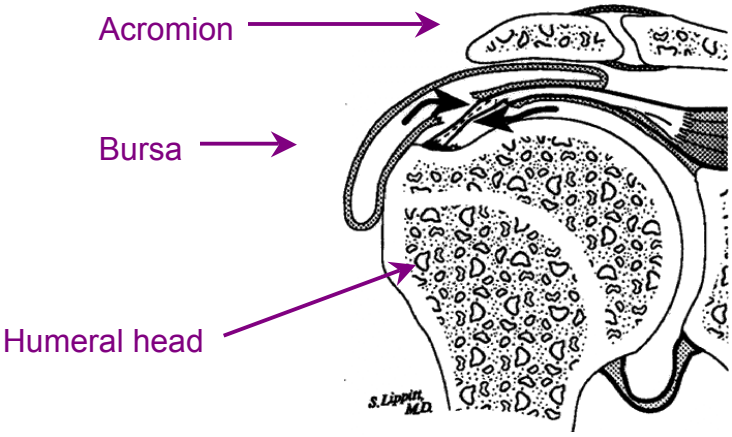
Subscapularis: muscle and tendon in the front portion of the shoulder
Supraspinatus: muscle and tendon on the top portion of the shoulder
Infraspinatus and *teres minor*: muscles and tendons in the back portion of the shoulder
The tendons of the rotator cuff glide beneath the tip of the shoulder blade (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*



Shoulder arthritis

Shoulder arthritis may develop from a variety of causes, including prior trauma (i.e. fracture or dislocation), or rheumatoid arthritis. More commonly, the condition develops gradually over time, without obvious cause. This is typically referred to as osteoarthritis. There is likely a genetic component to the condition, but this is not well understood at the current time.

Arthritis basically involves thinning or wear of the joint cartilage, and eventually results in pain and inflammation of the joint. The cartilage loss may be complete, such that exposed areas of bone then rub against one another. This can lead to loss of function and continuing symptoms.

Arthritis of the shoulder may be considered mild, moderate, or severe depending upon the appearance and condition of the joint cartilage on plain xray. In addition, tests such as MRI (magnetic resonance imaging) or CT scan (computerized tomography) may be helpful to determine the severity of the disease.

Treatment

Nonsurgical

Initial treatment of shoulder arthritis is nonsurgical. This may include physical therapy, medication (such as analgesics or anti-inflammatories), or injections of cortisone into the joint. Individual treatment recommendations depend upon your age, level of function, and the severity of disease. In addition, the status of the rotator cuff may play a role in determining treatment.

Surgical

Surgery is indicated when your symptoms or limitation of function are significant, and have not responded to the nonsurgical treatment mentioned above.

The type of surgery recommended depends upon the severity of the disease. For those patients with mild or moderate disease, an arthroscopic surgery is effective.

This surgery is performed through three to four small incisions and allows visualization of the entire joint and rotator cuff with a small camera. Small instruments are used to remove (or debride) inflamed joint tissue and cartilage debris. Stiffness of the joint caused by thickened joint capsule can also be treated with similar instruments. Arthroscopic treatment diminishes pain and improves function in 85-90% of patients in the short term (i.e. less than 2-3 years). It is unknown whether this treatment slows the progression of the disease over time.

With severe disease (i.e. complete cartilage loss), a joint replacement is recommended. This typically involves replacement of the arthritic humeral head (ball) with a stainless steel prosthesis, with a matching polyethylene (plastic) socket component. There is a roughly 30+ year experience with this procedure, during which time several technical improvements have been made. The outcome and durability of the procedure are well-documented, with over 90% of patients pleased with their results in terms of pain relief and improved function. Complications can occur, as with any surgical procedure, and include excessive bleeding, infection, subsequent rotator cuff tear, dislocation, fracture, or stiffness of the joint. In the hands of an experienced shoulder surgeon, such complications are relatively rare, occurring in approximately 5% of cases. The longest term follow up of the first generation shoulder implants (performed in the 1970's and 80's) found that 85% of patients had the same implant functioning well at 15 years after the procedure. It is likely that the improvements in implant design, materials, and surgical technique will lead to even better results with the current devices.

Activity

A common question regarding shoulder replacement surgery is: What activities can I safely be involved in? In general, most low demand physical activities are allowed. I recommend heavy activity, such as heavy free weight training, operating heavy power equipment, and high speed contact athletics be avoided. Golf, swimming, tennis, cross country skiing are common recreational pursuits that typically are not restricted. If you have particular activities that are important to you, I recommend asking about them in advance of surgery.

Those patients treated for mild or moderate disease do not have specific activity limitations. Most activities are allowed provided they do not predictably increase pain or other symptoms related to the arthritis.

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 some patients.

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