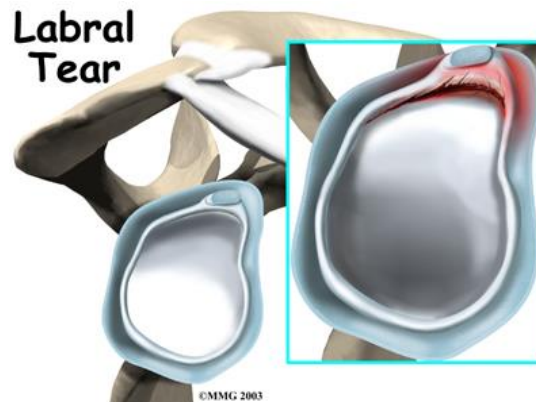


Glenoid Labrum Tear



Introduction

The labrum is a lip like piece of cartilage that deepens the socket (Glenoid) of the shoulder joint. It functions to help stabilize the shoulder. The labrum is divided into superior (top), inferior (bottom), anterior (front) and posterior (back) parts. The anterior-inferior portion of the labrum can be torn when the shoulder dislocates forwardly. A “labral tear” is also sometimes known as a "SLAP Lesion or SLAP tear". This injury is more often referred to as a “labral tear”, but you may also hear some people call it a “SLAP lesion or SLAP tear”. Both a “labral tear” and a “SLAP lesion or SLAP tear” mean the same type of injury, it just can be referred to by either name. A “SLAP lesion or SLAP tear” is just the official medical name for the injury.

Anatomy

What is the labrum?

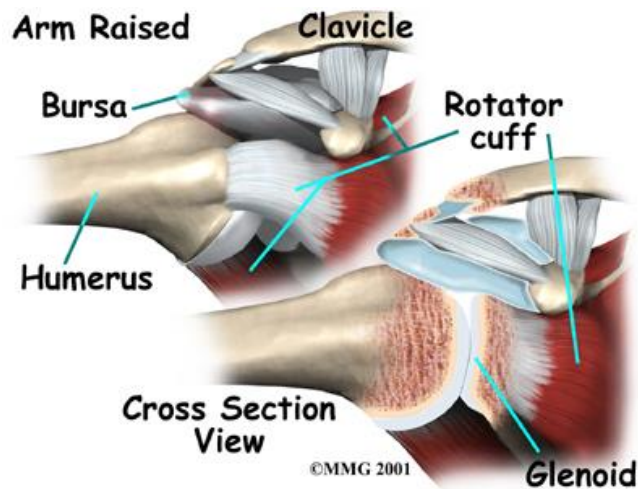
The shoulder is made up of three bones: the *scapula* (shoulder blade), the *humerus* (upper arm bone), and the *clavicle* (collarbone).

The head of the upper arm bone (humeral head) rests in a shallow socket in the shoulder blade called the glenoid. The glenoid is very shallow and flat. The labrum is a rim of soft tissue that makes the socket more like a cup. The labrum turns the flat surface of the glenoid into a deeper socket that molds to fit the head of the humerus. Because the head of the upper arm bone is usually much larger than the socket, the labrum surrounds the socket to help stabilize the joint. The rim deepens the socket by up to 50% so that the head of the upper arm bone fits better. In addition, it serves as an attachment site for several ligaments.

Anatomy continue...

The *rotator cuff* connects the humerus to the scapula. The rotator cuff is formed by the *tendons* of four muscles: the *supraspinatus*, *infraspinatus*, *teres minor*, and *subscapularis*.

Tendons attach muscles to bones. Muscles move the bones by pulling on the tendons. The rotator cuff helps raise and rotate the arm. As the arm is raised, the rotator cuff also keeps the humerus tightly in the glenoid of the scapula.



The soft labral tissue can be caught between the glenoid and the humerus. When this happens, the labrum may start to tear. If the tear gets worse, it may become a flap of tissue that can move in and out of the joint, getting caught between the head of the humerus and the glenoid. The flap can cause pain and catching when you move your shoulder. Several tendons and ligaments attach to the labrum that helps maintain the stability of the shoulder. So when the labrum tears, the shoulder often becomes less stable.

Causes

What causes the labrum to tear?

Labral tears are most often caused by a direct injury to the shoulder, such as falling on an outstretched hand (acute injury). The labrum can also become torn from the wear and tear of activity, a condition called *overuse*. An injured labrum can lead to shoulder instability. The extra motion of the humerus within the socket causes additional damage to the labrum. An extremely unstable shoulder may slip or dislocate. This can also cause the labrum to tear.

The *biceps tendon* attaches to the front part of the labrum. The *biceps* is the large muscle on the front of your upper arm. Sports can cause injuries to the labrum when the biceps tendon pulls sharply against the front of the labrum. Baseball pitchers are prone to labral tears because the action of throwing causes the biceps tendon to pull strongly against the top part of the labrum. Weightlifters can have similar problems when pressing weights overhead. Golfers may tear their labrum if their club strikes the ground during the golf swing.

Symptoms

What does a labral tear feel like?

The main symptom caused by a labral tear is a sharp pop or catching sensation in the shoulder during certain shoulder movements. This may be followed by a vague aching for several hours. At other times, the tear may not cause any pain. Shoulder instability from a damaged labrum may cause the shoulder to feel loose, as though it slips with certain movements.

Diagnosis

What tests will my doctor run?

Your doctor may suspect a labral tear based on your medical history. You will be asked questions about your pain and past injuries to your shoulder that may suggest labral damage.

In the physical examination, there are several shoulder movements that can bring on the symptoms. You may feel a catching sensation as your arm is raised, and there may be pain when the arm is held overhead. If your arm is held in front of your body, with the palm of the hand facing downward, you may feel pain when your doctor tries to push down on your arm.

Labral tears are difficult to see, even in a *magnetic resonance imaging* (MRI) scan. An MRI scan is a special imaging test that uses magnetic waves to show the tissues of the shoulder in slices. The MRI scan shows soft tissues such as tendons and ligaments as well as bones.

Labral tears may be seen using *magnetic resonance imaging-arthrogram* (MRI-Arthrogram) is where a special dye is injected into the shoulder. A MRI-arthrogram scan is a test that uses computer-enhanced X-rays to show slices of the shoulder. The soft tissues do not show up in a MRI scan (without the dye), but the special dye used in the MRI-arthrogram does allow such structure to show up. The dye shows the outline of the labrum. If there is a tear, the dye may leak into it and show up on the MRI-Arthrogram scan.

However, MRI and CT-arthrogram scans are not 100% accurate in detecting labral tears. Confirming the diagnosis of a labral tear can be extremely difficult. A surgeon may need to look into your shoulder using an *arthroscope*. The arthroscope is a small TV camera that is inserted into the shoulder joint through a very small incision. The surgeon can then see pictures of the joint on a TV screen. This allows the surgeon to look directly at the labrum to see if it is torn.

[Related Document: A Patient's Guide to MRI Arthrogram](#)

[Related Document: A Patient's Guide to MRI](#)

[Related Document: A Patient's Guide to CT scans](#)

Injury

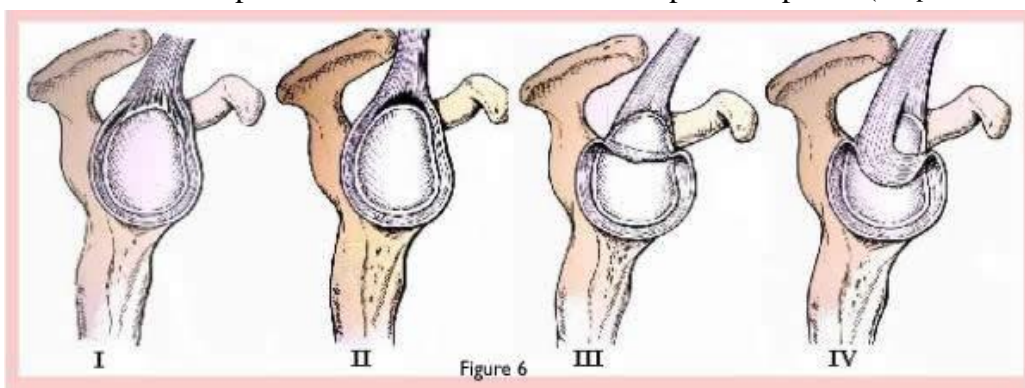
SLAP Lesions

The treatment depends upon which kind of tear there is in the labrum. The socket can be divided into four regions: anterior (or front), posterior (or back), the upper end near your head (or superior), and the lower end (or inferior) which is toward the elbow.

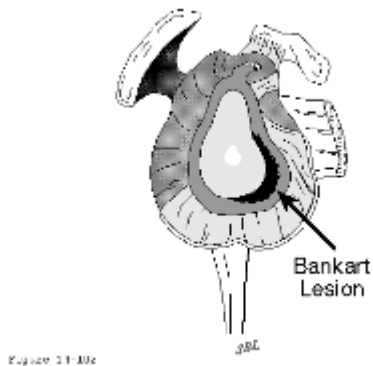
The biceps tendon attaches at the superior end where it blends in with the labrum. The labrum runs from there around the joint, both in an anterior and in a posterior direction. Due to injury in this area where the biceps tendon attaches, the labrum also can get injured. The injury in this area can be mild or it can be severe. Because the injury typically involves the biceps tendon and the labrum, because it is at the superior end of the socket and because it can effect the labrum attachments anterior and posterior to where the biceps attaches in this region, the acronym or abbreviation for this injury is a SLAP lesion. This stands for an injury which is Superior Labrum Anterior and Posterior. In a lesser injury the labrum is only partially detached in this area. In a more severe injury the whole labrum is pulled off of the bone along with the biceps tendon. The most common classification divides SLAP lesions into six types (Figure 6).

Six SLAP Classification

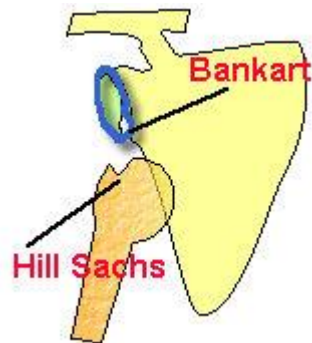
- Type I: Degenerative changes and fraying of the superior (top) labrum, but remains firmly attached to the glenoid rim. No avulsion (detachment) of the biceps tendon is present (see Figure 6, I).
- Type II: Degenerative changes and fraying are present in type II lesions. The glenoid labrum is detached completely (avulsion) of the anterosuperior (frount/top) to the posterosuperior (back/top) labrum off the glenoid rim. This portion of the labrum is lifted by the long biceps tendon, and the attachment of the biceps tendon is unstable (see Figure 6, II).
- Type III: With type III lesions, the superior (top) labrum is displaced into the joint (bucket-handle), while labral attachment to the glenoid rim and biceps tendon remains intact. The insertion of the biceps tendon is not unstable (see Figure 6, III).
- Type IV: The superior (top) portion of the labrum is displaced into the joint (bucket-handle) and the long biceps tendon is also affected, involving partial rupture (tear) (see Figure 6, IV).
- Type V: Includes a combination of SLAP with Bankart lesion, often seen with acute anterior shoulder dislocation. This tear is to part of the labrum called the inferior (bottom) glenohumeral ligament. When the inferior glenohumeral ligament is torn, this is called a Bankart lesion. (see Figure 6, V)
 - Another possible injury to the shoulder is called Hill-Sachs lesion; which is often accompanied by a Bankart lesion. Hill-Sachs lesion is a fracture to the posterior (back) humeral head. (see Figure 6, V with Hill-Sachs lesion)
- Type VI: extension of superior labral tear into the anterosuperior capsule. (No photo available)



Six SLAP Classification continue...



V



V with Hill Sachs lesion



Treatment

What treatment options are available?

Nonsurgical Treatment

Your doctor's first goal will be to control your pain and inflammation. Initial treatment for pain control is usually rest and anti-inflammatory medication, such as aspirin or ibuprofen. Your doctor may suggest a *cortisone* injection if you have trouble getting your pain under control. Cortisone is a strong anti-inflammatory medication. It can provide good relief, although its effects are temporary.

Your doctor will probably have a physical or occupational therapist direct your rehabilitation program. Your first therapy treatments will try to ease pain and inflammation by using such treatments as heat or ice. Hands-on treatment and various types of exercises are used to improve the range of motion in your shoulder and the nearby joints and muscles.

Later, you will do strengthening exercises to improve the strength and control of the rotator cuff and shoulder blade muscles. Your therapist will help you retrain these muscles to keep the ball of the humerus in the glenoid. This will improve the stability of your shoulder and help it move smoothly during all your activities. You may need therapy treatments for four to six weeks. Most patients are able to get back to their activities with full use of their arm within this amount of time.

Surgery

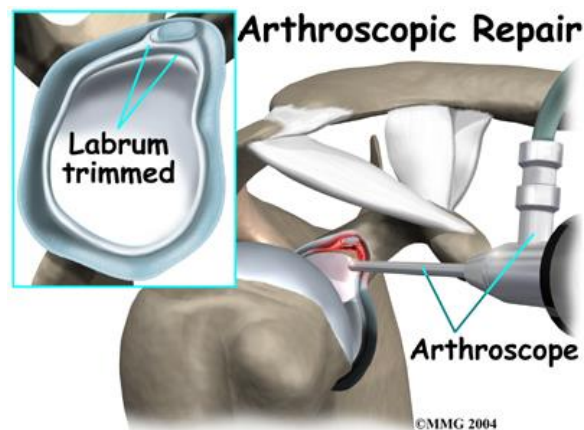
If your symptoms don't go away, you may need surgery. Surgical treatment for this condition is still evolving. Surgeons have not known about the problem long enough to adequately evaluate the results of different treatments.

Labral Debridement

The arthroscope can be used to treat many labral tears. If the tear is small and is mostly getting caught as you move the shoulder, simply removing the frayed edges and any loose parts of the labrum may get rid of your symptoms. This is called *labral debridement*.

Labral Repair

If the tear is larger, the shoulder may also be unstable. If this is the case, the labral tear may need to be repaired, rather than simply removed. Several new techniques allow surgeons to place small staples into the labrum through an arthroscope. The staples attach the labrum to the bone of the glenoid.



Open Procedure

If the tear is too large to repair through the arthroscope, the surgeon will need to make an incision in the front of the shoulder. The main drawback of making the larger incision is that it will probably take you longer to recover from surgery.

The recovery again depends upon many factors, such as where the tear was located, how severe it was. It is believed that it takes at least four to six weeks for the labrum to re-attach itself to the rim of the bone, and probably another four to six weeks to get strong. Once the labrum has healed to the rim of the bone, it should see stress very gradually so that it can gather strength. It is important not to re-injure it while it is healing.

How much motion and strengthening of the arm is allowed after surgery also depends upon many factors, and it is up to the surgeon/Physical Therapist (PT) to let you know your limitations and how fast to progress. Because of the variability in the injury and the type of repair done, it is difficult to predict how soon someone can return to activities and to sports after the repair. The type of sport also is important, since contact sports have a greater chance of injuring the labrum repair. However, a vast majority of patients have full function of the shoulder after labrum repair, and most patients can return to their previous level of sports with no or few restrictions.

Rehabilitation/ Recovery

What should I expect after treatment?

Nonsurgical Rehabilitation

Even nonsurgical treatment requires a rehabilitation program. Some evidence suggests that shoulder instability may eventually make labral tears worse. The goal of therapy will be to strengthen the rotator cuff muscles to make the shoulder more stable. At first you will do exercises with the therapist. Eventually you will be put on a home program of exercise to keep the muscles strong and flexible. This should help you avoid future problems.

Rehabilitation/Recovery After Surgery

Rehabilitation after surgery is more complex. You may need to wear a sling to support and protect the shoulder for a few days after surgery. A physical or occupational therapist will probably direct your recovery program. Depending on the surgical procedure, you will probably need to attend therapy sessions for one to two months, and you should expect full recovery to take up to three months. Getting the shoulder moving as soon as possible is important. However, this must be balanced with the need to protect the healing tissues.

The first few therapy treatments will focus on controlling the pain and swelling from surgery. Ice and electrical stimulation treatments may help. Your therapist may also use massage and other types of hands-on treatments to ease muscle spasm and pain.

Therapy proceeds quickly after a simple arthroscopic surgery to clean up the frayed edges or loose parts of the labrum. Sessions start with range-of-motion exercises and gradually work into active stretching and strengthening. Overhand athletes start their sports gradually within four to six weeks. They can usually return to competition within three months.

After surgery to repair the labrum, therapists usually begin with passive exercises. In passive exercises, the shoulder joint is moved, but your muscles stay relaxed. Your therapist gently moves your joint and gradually stretches your arm. You may also be taught how to do passive exercises at home.

Active therapy starts about six weeks after repair surgery. Active range-of-motion exercises help you regain shoulder movement using your own muscle power. Light isometric strengthening exercises are started about this time. These exercises work the muscles without straining the healing joint.

By about the tenth week, you will start more active strengthening. Exercises will focus on improving strength and control of the rotator cuff muscles. They help tighten the ball of the humerus in the glenoid socket and can improve the stability of the shoulder. A stronger and more stable shoulder helps keep the ball of the humerus centered in the socket during all your activities. Some of the exercises you will do are designed get your shoulder working in ways that are similar to your work tasks and sport activities. Your therapist will help you find ways to do your tasks that don't put too much stress on your shoulder. Before your therapy sessions end, your therapist will teach you a number of ways to avoid future problems.

* References available upon request