HARRIS ORTHOPAEDICS AND SPORTS MEDICINE

Acromioclavicular (AC) Joint Injury

Introduction

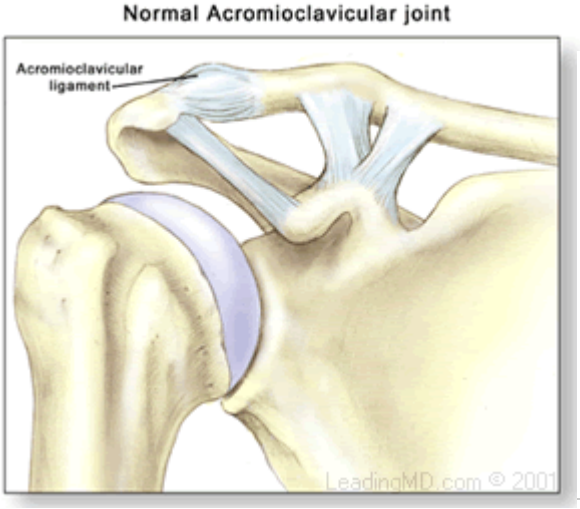
A shoulder separation is a fairly common injury, especially in certain sports. Most shoulder separations are actually injuries to the *acromioclavicular* (AC) joint. The AC joint is the connection between the *scapula* (shoulder blade) and the *clavicle* (collarbone). Shoulder dislocations and AC joint separations are often mistaken for each other. But they are very different injuries.

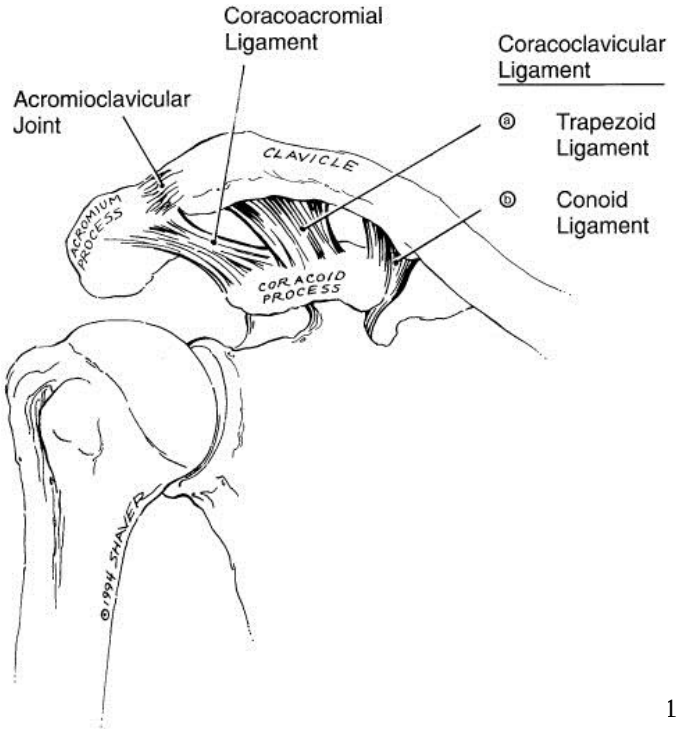
Anatomy

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

The part of the scapula that makes up the top of the shoulder is called the *acromion*. The AC joint is where the acromion and the clavicle meet. *Ligaments* hold these two bones together.

Ligaments are soft tissue structures that connect bone to bone. The *AC ligaments* surround and support the AC joint. Together, they form the *joint capsule*. The joint capsule is a watertight sac that encloses the joint and the fluids that bathe the joint. Two other ligaments, the *coracoclavicular ligaments*, hold the clavicle down by attaching it to a bony knob on the scapula called the *coracoid process*.





Injury

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The most common cause of an AC joint separation is falling on the shoulder. As the shoulder strikes the ground, the force from the fall pushes the scapula down. The collarbone, because it is attached to the rib cage, cannot move enough to follow the motion of the scapula. Something has to give. The result is that the ligaments around the AC joint begin to tear, separating (dislocating) the joint.

Symptoms

What does an AC injury feel like?

The symptoms depin on what the "grade" of sepration (explained below). Symptoms range from mild tenderness felt over the joint after a ligament sprain to the intense pain of a complete separation. Grade two and three separations can cause a considerable amount of swelling. Bruising may make the skin bluish several days after the injury. In grade three separations, you may feel a popping sensation due to shifting of the loose joint. Grade three separations usually cause a noticeable bump on the shoulder.

Prevention

What could I do to revent this injury?

Prevention of significant AC joint through early diagnosis of the problem and avoidance of causative maneuvers, if possible.

Diagnosis

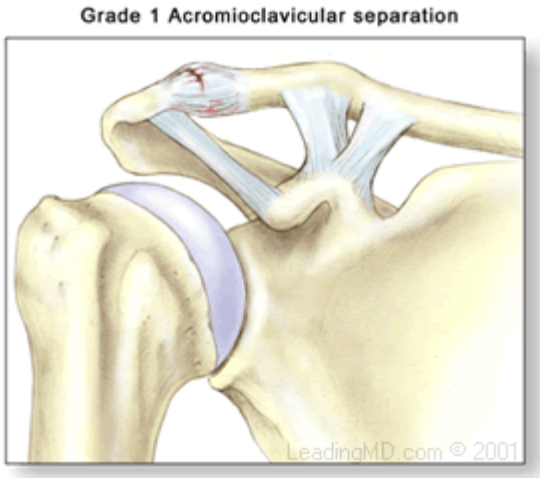
What tests will my doctor run?

Your doctor will need to get information about your injury and a detailed medical history. Diagnosis is usually made by the physical examination. The patient has poor shoulder range of motion and moderate pain when trying to raise up the arm. Your doctor may move and feel your sore joint. Special tests like with the cross-body adduction test. Your doctor may order X-rays. X-rays can show an AC joint disruption, and they may be necessary to rule out a fracture of the clavicle. In some cases, X-rays are taken while holding a weight in each hand to stress the joint and show how unstable it is.

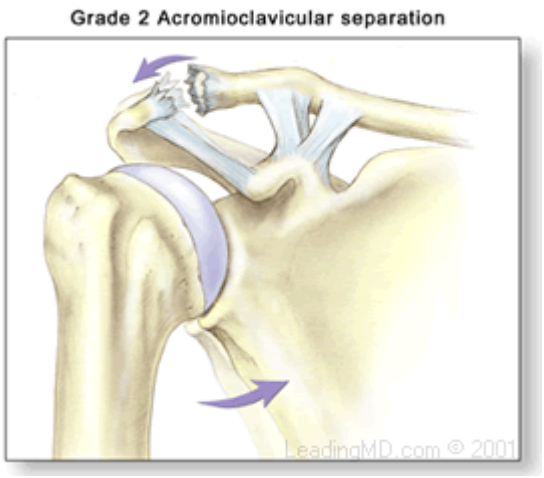
Diagnosis continue…

The severity of an acromioclavicular joint injury depends on which supporting structures are damaged, and the extent of that damage. Tearing of the acromioclavicular ligament alone is not as serious of an injury, but when the coracoclavicular ligaments are ruptured, the whole shoulder unit is involved, thus complicating the dislocation. Simple AC injuries are classified in three grades ranging from a mild dislocation to a complete separation:

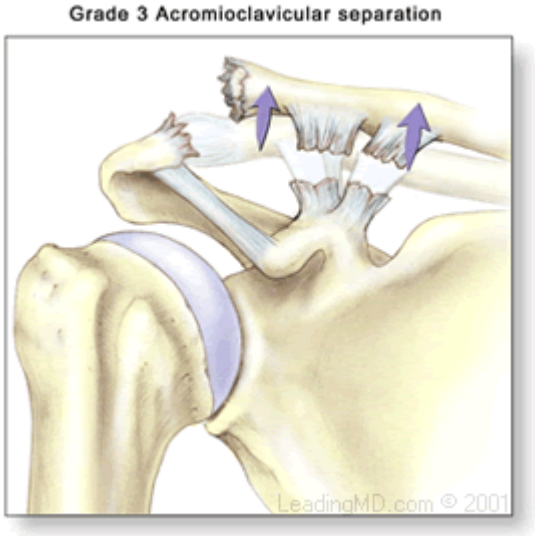
Grade I - A slight displacement of the joint. The acromioclavicular ligament may be stretched or partially torn. This is the most common type of injury to the AC joint.



Grade II - A partial dislocation of the joint in which there may be some displacement that may not be obvious during a physical examination. The acromioclavicular ligament is completely torn, while the coracoclavicular ligaments remain intact.



Diagnosis continue…



Grade III - A complete separation of the joint. The acromioclavicular ligament, the coracoclavicular ligaments, and the capsule surrounding the joint are torn. Usually, the displacement is obvious on clinical exam. Without any ligament support, the shoulder falls under the weight of the arm and the clavicle is pushed up, causing a bump on the shoulder.

There are a total of six grades of severity of AC separations. Grades I-III are the most common. Grades IV-VI are very uncommon and are usually the result of a very high-energy injury such as one that might occur in a motor vehicle accident. Grades IV-VI are all treated surgically because of the severe disruption of all the ligamentous support for the arm and shoulder.

Treatment

What treatment options are available?

In general, most AC injuries don't require surgery. There are certain situations, however, in which surgery may be necessary. Most patients recover with full function of the shoulder. The period of disability and discomfort ranges from a few days to 12 weeks depending on the severity of the separation.

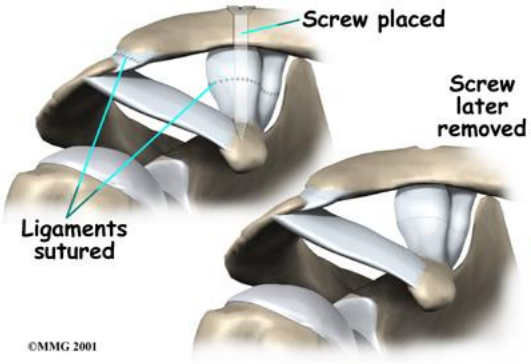
Nonsurgical Treatment

Treatment for a grade one or grade two separation usually consists of pain medications and a short period of rest using a shoulder sling. Your rehabilitation program may be directed by a physical or occupational therapist.

The treatment of grade three AC separations is somewhat controversial. Many studies show no difference whether a person is treated with surgery or conservative treatment. Even with surgery, a bump may still be present where the separation occurred.

Surgery

Some surgeons prefer to repair severe grade three AC separations, especially in high-level throwing athletes.



The surgery is usually done through a four-inch incision over the AC joint. The surgeon starts by putting the joint into its correct position. A screw or some other type of fixation may be used to hold the clavicle in place while the ligaments heal. To fix the joint using a screw, the surgeon inserts the screw through the top of the clavicle and into the coracoid process. When a screw is used, it is usually removed six to eight weeks after the surgery. If it is not removed, the screw will probably break.

Some surgeons use surgical tape to connect the clavicle and coracoid. A small drill hole is made in the clavicle and corocoid. The surgical tape is looped through each hole and pulled snugly. In some cases, sutures are also used to repair and reinforce the torn coracoclavicular ligaments.

Rehabilitation / Recovery

What should I expect after treatment?

If you don't need surgery, range-of-motion exercises should be started as pain eases, followed by a program of strengthening. At first, exercises are done with the arm kept below shoulder level. The program advances to include strength exercises for the rotator cuff and shoulder blade muscles. In most cases, the pain goes away almost completely within three weeks. Full recovery can take up to six weeks for grade two separations and up to 12 weeks for grade three separations. Since there is little danger of making the condition worse, you can usually do whatever activities you can tolerate.

Rehabilitation/Recovery after Surgery

Your surgeon may have you wear a sling to support and protect the shoulder for a few days. A physical or occupational therapist will probably direct your recovery program. 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.

Rehabilitation/recovery after surgery contune…

Therapists usually wait four weeks before starting range-of-motion exercises. You will probably 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 be taught how to do passive exercises at home.

Active therapy starts six to eight weeks after surgery, giving the ligaments time to heal. Active range-of-motion exercises help you regain shoulder movement using your own muscle power. You might begin with light isometric strengthening exercises. These exercises work the muscles without straining the healing joint.

After about three months, you will start more active strengthening. Exercises will focus on improving strength and control of the rotator cuff muscles and the muscles around the shoulder blade. Your therapist will help you retrain these muscles to keep the ball of the humerus centered in the socket. This helps your shoulder move smoothly during all your activities.

Recovery from shoulder surgery can take some time. You will need to be patient and stick to your therapy program. Some of the exercises you'll 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