Orthopaedic and Sports Injuries Services "OASIS"

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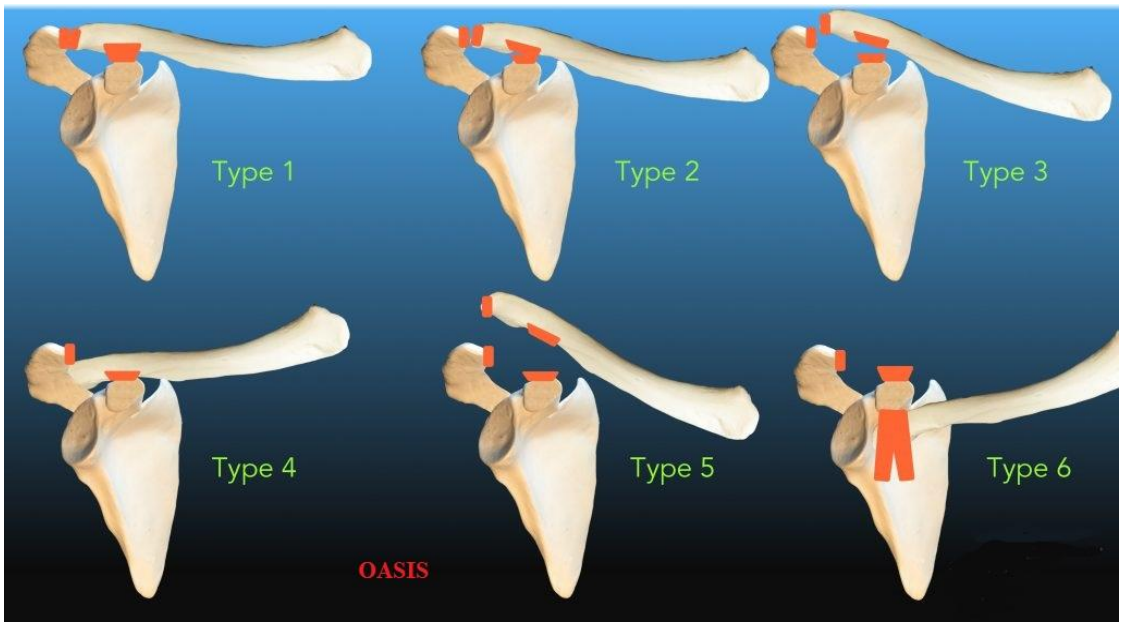
Acromio-clavicular Injury

Injuries in and around the shoulder are common in today's athletic society. Proper knowledge of the different problems and treatment options for shoulder disorders is necessary to get patients back to their preinjury state.
Acromio-clavicular (AC) joint injuries are common and often seen after bicycle wrecks, contact sports, and car accidents. The acromio-clavicular joint is located at the top of the shoulder where the acromion process and the clavicle meet to form a joint. Several ligaments surround this joint, and depending on the severity of the injury, a person may tear one or all of the ligaments. Torn ligaments lead to acromio-clavicular joint sprains and separations.
The distal clavicle and acromion process can also be fractured. Injury to the acromio-clavicular joint may injure the cartilage within the joint and can later cause arthritis of the acromio-clavicular joint.
Injuries to the acromio-clavicular joint are the most common reason that athletes seek medical attention following an acute shoulder injury. Glenohumeral dislocations are the second most common injuries seen. Men in their second through fourth decades of life have the greatest frequency of acromio-clavicular joint injuries, which are most often incomplete tears of the ligaments.

When a person falls onto their shoulder, the force pushes the tip of the shoulder down. The clavicle is usually kept in its anatomic position, whereas the shoulder is driven down, which injures the different ligaments or causes a fracture. When the ligaments are injured they are either sprained or, in more severe cases, torn.

Acromio-clavicular joint sprains have been classified according to their severity. In a type I sprain, a mild force applied to these ligaments does not tear them. The injury simply results in a sprain, which hurts, but the shoulder does not show any gross evidence of an acromio-clavicular joint dislocation. Type II sprains are seen when a heavier force is applied to the shoulder, disrupting the acromio-clavicular ligaments but leaving the coracoclavicular ligaments intact. When these injuries occur, the lateral clavicle becomes a little more prominent.

In type III sprains, the force completely disrupts the acromio-clavicular and coracoclavicular ligaments. This leads to complete separation of the clavicle and obvious changes in appearance. The lateral clavicle is very prominent. A few more types of acromio-clavicular joint sprains have been classified, but types I–III are the most common



The Rockwood classification is as follows:

- Type I - Minor sprain of AC ligament, intact joint capsule, intact CC ligament, intact deltoid and trapezius
- Type II - Rupture of AC ligament and joint capsule, sprain of CC ligament but CC interspace intact, minimal detachment of deltoid and trapezius
- Type III - Rupture of AC ligament, joint capsule, and CC ligament; clavicle elevated (as much as 100% displacement); detachment of deltoid and trapezius
- Type IV - Rupture of AC ligament, joint capsule, and CC ligament; clavicle displaced posteriorly into the trapezius; detachment of deltoid and trapezius
- Type V - Rupture of AC ligament, joint capsule, and CC ligament; clavicle elevated (more than 100% displacement); detachment of deltoid and trapezius
- Type VI (rare) - Rupture of AC ligament, joint capsule, and CC ligament; clavicle displaced behind the tendons of the biceps and coracobrachialis

Patients have pain over the acromioclavicular joint. Swelling, bruising, and a prominent clavicle may be evident, depending on the type of sprain that the patient has sustained. In types I and II sprains, deformity is usually minimal. In type III, the distal clavicle is abnormally prominent. Of note, clavicle fractures, without acromioclavicular joint sprains, can also cause the clavicle to be prominent.

The patient has poor shoulder range of motion and moderate pain when trying to raise up the arm.

In the acute situation, the examiner may have difficulty ruling out a concomitant rotator cuff tear, as active and passive shoulder abduction manoeuvres are difficult to perform in the face of an acromioclavicular joint separation.

The most reliable physical examination test for acromioclavicular joint pathology is the cross-body adduction test. The test is performed by elevating the arm on the affected side 90º, while the examiner grasps the elbow and adducts the involved arm across the body. Although reproduction of pain with this manoeuvre may occur in patients with posterior capsule tightness or Subacromial impingement, pain is suggestive of acromioclavicular joint pathology. Restriction of range of motion, which is rarely associated with acromioclavicular joint pathology, more likely suggests adhesive Capsulitis or glenohumeral arthritis

Treatment.

Prehospital Care

- Distinguishing AC injuries from other shoulder injuries (i.e., clavicle fractures, shoulder dislocations, proximal humeral fractures) is difficult.
- Prehospital providers should splint suspected AC injuries in a position of comfort. Neurovascular status of the injured extremity should always be checked after application of a splint.
- Assess and immobilize the spine, if indicated.

Emergency Department Care

- Type I
    - These injuries involve minimal disruption of the AC joint and are intrinsically stable. Treatment involves application of a sling for comfort, ice, and analgesic agents.
    - Athletes can usually return to sports in 1-2 weeks. For patients whose symptoms do not improve within this time frame, intra-articular steroid injections may be indicated. Patients with persistent pain for extended amounts of time may be candidates for a distal clavicle excision.
- Type II
    - In these patients, the AC ligament is completely torn. For the most part, these patients receive the same treatment as those with type I injuries. However, patients with type II injuries take longer to improve. With significant instability,

strap immobilization for 2-4 weeks and no heavy lifting for 6-8 weeks are appropriate.
    - Late management of these injuries may require intra-articular steroids or surgery. Distal clavicle excision has been noted to produce inferior results compared with the same surgery in patients with type I injury due to increased instability of the AC joint.

- Type III
    - Patients with type III AC injuries have complete tearing of the coracoclavicular ligament in addition to a complete tear of the AC ligament. This injury results in superior displacement and greater instability of the clavicle.
    - Controversy exists regarding the optimal management of this injury. Most studies suggest that conservative therapy produces better functional results than operative repair.

- Type IV
    - In patients with type IV injury, the deltotrapezial fascia is disrupted in addition to complete tears of the AC and CC ligaments. This injury complex allows posterior displacement of the clavicle into the trapezius and requires reduction, usually operative.
    - In theory, a closed reduction could be possible to convert the injury into a type III AC injury, which could then be managed conservatively. Barring this possibility, surgery with an open reduction and internal fixation is necessary.
- Type V and VI: These forms of AC injury are the most severe and will universally require open reduction and internal fixation (ORIF).

Specialist Care

Grade 4,5 and 6 injuries require early surgical reduction and fixation.

Most Grade 1,2 and 3 ACJ dislocations do not require surgery and almost all can be managed with:

1. Physiotherapy – to 'retrain' the shoulder muscles
2. Painkillers and anti-inflammatories

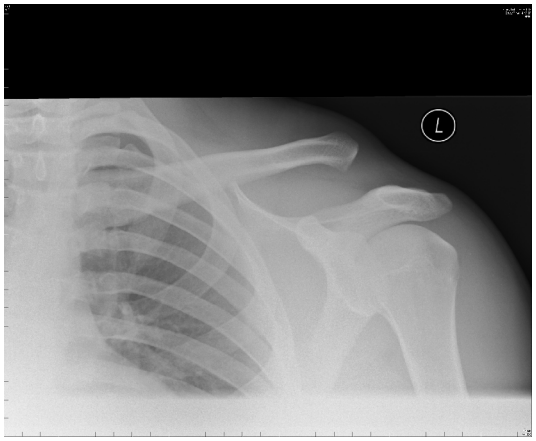
Most people fully recover without any problems, however overhead athletes and manual workers may have persistent symptoms and require surgery.

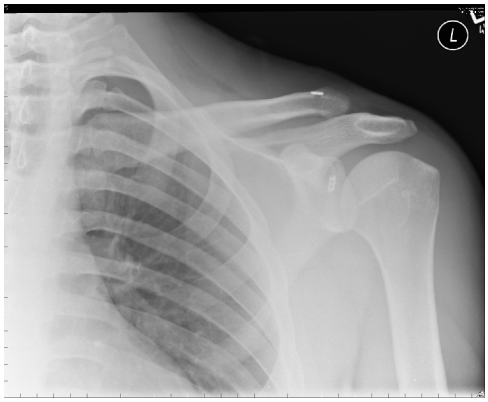
Surgery is indicated if the shoulder is still painful and there is some functional loss at about 3-6 months after the injury.

For Grade 1 and 2 injuries removal of the damaged joint is performed. This is done by keyhole surgery (arthroscopically) and is known as an Arthroscopic ACJ Excision. A Subacromial Decompression is usually done at the same time.

For Grade 3,4,5 and 6 injuries the collarbone needs to be reduced to the acromion and the procedure to do this is known as a Modified Weaver-Dunn Procedure.

I also do a Tightrope procedure for acute cases and Graft rope for chronic cases.





If you are interested in making an appointment to discuss a treatment, please contact us on telephone 01215807406

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