Surgical Management of Acromioclavicular Joint Injuries

Essay

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List of Abbreviations

AC.....Acromioclavicular

ACJ.....Acromioclavicular joint

ACLC .....Acromioclavicular ligament complex

Add.....Adduction

AP.....Antero-posterior

CA.....Coraco-acromial

CC .....Coraco-clavicular

CL......Clavicle

Co.....Conoid

DTF .....Delto-trapezoid fascia

ER .....External rotation

EXT .....extension

Fig.....Figure

FLX.....flexion

IB.....Pound

IR .....Internal rotation

K-wire.....Kirschner wire

LARS .....ligament augmentation and reconstruction system

ORIF.....Open reduction internal fixation

PA.....Postero-anterior

ROM .....Range of motion

SC.....Scapula

SSSC.....Superior shoulder suspensory complex

Tr .....Trapezoid

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Abstract

There are two etiologies of injury to acromioclavicular joint, the first by direct blow to the lateral aspect of the shoulder with arm adducted, and the second by indirect force by falling on an outstretched hand.

Diagnosis of these injuries depends on clinical presentation, physical examination and imaging studies, and it is classified in to 6 degrees of injuries.

Treatment is conservative for type one and two injuries and surgical for type 4, 5 and 6. Type 3 management is controversial, Surgical treatment may be open surgical or arthroscopic.

Keyword:
Acromioclavicular; Surgical Management injuries; Arthroscopic.

INTRODUCTION

Injuries to the acromioclavicular joint account for approximately 12% of injuries to the shoulder girdle seen in clinical practice[1]. They are between five and ten times more common in males[2].

The acromioclavicular joint provides a 'keystone' link between the scapula and the clavicle[3]. The joint is surrounded by a thin fibrous capsule which is reinforced by the superior, inferior, anterior and posterior acromioclavicular ligaments. The superior and posterior components provide the most significant contribution to horizontal stability at the joint, and the coracoclavicular ligament which consists of the conoid and trapezoid components which stabilize the acromioclavicular articulation and co-ordinate scapulothoracic rotation during abduction and flexion of the shoulder[4].

Until recently, movement at the acromioclavicular joint had not been accurately defined and was perhaps underestimated. It is now appreciated that during abduction of the shoulder, there is 15° of protraction, 21° of upward rotation and 22° of posterior tilting of the scapula relative to the clavicle at the joint[5].

Tossy, Mead and Sigmond, described three types of acomioclavicular injuries, to which Rockwood et al added a further three subgroups[2].

In type-I injuries, there is partial and in type II complete disruption of the acromioclavicular ligaments. In type-III injuries, the vertical translation at the joint is up to the width of the clavicle while in type IV, the clavicle is displaced posteriorly through the trapezius. In type-V injuries the degree of separation is greater because of the concomitant disruption of the deltotrapezius fascia attached to the lateral end of the clavicle, allowing the end of the clavicle to lie subcutaneously. In the very rare type-VI injury, the clavicle is displaced inferiorly and comes to lie below the coracoid process underneath the conjoint tendon [6].

The clinical diagnosis of an acute acromioclavicular injury is usually relatively simple since the pain is commonly localized accurately to the area of the joint. The joint is tender to palpation and the clavicle often feels mobile It is specific for injury to the acromioclavicular joint only if pain is localized to the joint[7].

The grading of the injury is made on radiological examination as determined by the extent of displacement of the articular surfaces.

Ultrasound and MRI are not widely used, but can be employed to detect effusions from the joint, assess the extent of injury to the ligaments and the deltotrapezius aponeurosis, and to determine the degree of degenerative changes in patients who develop delayed symptoms[8].

The aim of the treatment of acromioclavicular joint injury should be to return the patient to the level of function before injury, with a pain-free, strong and mobile shoulder [3].

Conservative treatment is almost universally applicable to type-I and type-II injuries, The most common form of non-operative treatment involves simple analgesia, topical ice therapy and rest in a sling to give relief from symptoms[1].

Contact sports and heavy lifting should be avoided for 8 to 12 weeks after injury[9], Operation may be considered for these patients if they have ongoing symptoms at three months after the original injury. Conservative treatment also remains the preferred initial mode of management for most type-III injuries because of the excellent prognosis in most patients with this injury, Secondary surgical reconstruction is seldom needed[10].

Operation is used to treat patients with type- IV and type-V injuries[12] Type-VI injuries are very rare, and almost all reported cases have been treated surgically[4].

A wide variety of operative procedures has been described, but none has been shown to be notably superior to the others. Accurate reduction of the joint is easier when surgery is performed within the first two weeks after injury, when the ruptured ligamentous restraints can often be

repaired directly. Most techniques of reconstruction in the acute injury involve reduction of the joint, ligamentous repair and stabilization of the joint, whereas in most delayed reconstructions an excision of the lateral end of the clavicle is performed before reduction, with stability restored by ligamentous substitution[3].

Surgical approach may be open or arthroscopic. The postoperative rehabilitation protocol varies for different techniques of reconstruction[12].