# ARTHROSCOPIC MANAGEMENT OF ACROMIOCLAVICULAR JOINT ARTHRITIS

Thesis submitted for fulfillment for MD degree in orthopaedic surgery

By

**Ahmed Mansour Darweash**
M.B.B.ch.,MSc
orthopaedic surgery

Under supervision of:

**Prof. Dr. Ahmed Abdel Aziz**
Professor of orthopaedic surgery
Cairo University

**Prof. Dr. Khaled Shohayeb**
Professor of orthopaedic surgery
Cairo University

**Dr. Ahmed Rizk Mohamed**
Lecturer of Orthopaedic Surgery
Cairo University

Faculty of Medicine – Cairo University
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# Abstract

In this study, we describe a technique for arthroscopic treatment of injuries of a traumatic or degenerative nature that frequent affect the AC joint and may affect shoulder function. These injuries can be divided into those related to direct or indirect trauma and those related to repetitive stress or degenerative conditions that affect virtually all diarthrodial joints. Most conditions affecting the AC joint can be treated conservatively, but chronic conditions affecting shoulder function and athletic activity may require operative intervention.

Open or arthroscopic techniques may be necessary to deal with AC joint pathology and late degenerative conditions. The results of such treatment are excellent, but attention to surgical technique is necessary to avoid complications.



## Key words

1- Acromioclavicular joint

2- Shoulder arthroscopy

3- Arthritis

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# *Introduction*

# Introduction

Degenerative disease of the acromioclavicular joint is extremely common condition and is an age related phenomenon (>40 years). Fortunately in most this is not a painful condition. However, in a small number of cases the degenerative changes (osteoarthritis) within this joint may result in severe shoulder pain. The pain associated with acromioclavicular joint osteoarthritis is usually felt directly over this joint. It is aggravated by heavy lifting or moving the arm into extremes range of movements. This condition classically gives rise to a painful arc in full abduction, which is unlike subacromial impingement syndrome in which the pain is in mid abduction. Full adduction across the chest or reaching for the back pocket is often particularly painful. Symptoms frequently interrupt sleep, especially when turning into the affected shoulder. The diagnosis could be confirmed by abolishing the pain using a local anesthetic injection into this joint. Other conditions such as rotator cuff tear are frequent associations and require assessment with appropriate investigations such as MRI or shoulder ultrasound.

Initial treatment consists of 6 to 12 months of physical therapy, nonsteroidal anti-inflammatory drugs, avoidance of exacerbating activities, and other conservative modalities. The majority of patients respond well, but a few remain unable to return to their previous or desired activity levels. Previously this group of patients underwent open resection of the distal clavicle. The approach

violates the deltotrapezial fascia, weakening the surgically treated extremity, which has caused controversy in the literature. Even without complications, the recovery and time away from work is prolonged.

With advances in arthroscopic techniques, resection of the distal clavicle and medial aspect of the acromion has become possible with minimal invasiveness. The arthroscopic technique offers the advantages of rapid rehabilitation with excellent functional results.

# Objectives

- To study the arthroscopic technique for treatment of AC joint arthritis
- To investigate the advantage of this method
- To evaluate the clinical outcome of the procedure

# *Historical Review*

# Historical review of painful shoulder

From the past, many authors tried to study the different pathological problems related to shoulder dysfunction: but the exact etiology was not clearly understood. **(Bigliani et al; 1997)**

**Smith 1834,** was the first who described the ruptured supraspinatus, he thought that his injury is due to trauma. **(Skoff 1995)**

**Hamilton 1875** was the first who identified the acromial morphology as a potential source of symptoms in the shoulder. **Goldthwait 1909** proposed a mechanical attritional theory for the etiology of bursitis and indicated the importance of the length and slope of both the acromion and coracoid. In 1909 he described the difference in shape and slopes in the acromion. **Meyer in 1922 and 1931** proposed that, tears of the rotator cuff occurred secondary to attrition, as a result of friction with the under surface of the acromion, due to over use. **Codman 1934** developed an interest in the subdeltoid bursa during a trip to Vienna whilst in his third year of medical school, described the anatomy of this bursa and its clinical relevance. **Codman 1934,** defined the critical zone where most of degenerative changes occur, as a portion of the rotator cuff located one cm. medial to the insertion of the supraspinatus on the greater tuberosity. **Armstrong 1949** introduced the term *(supraspinatus syndrome)* and proposed that, the condition should be treated with a total acromionectomy. **Mclaughlin and Asherman 1951** developed the lateral acromionectomy to relieve impingement on the rotator cuff. However procedure doesn't involve removal of the anterior portion of the acromion, which nowadays is responsible for impingement. **Diamond**

**1964** noted that the acromion could be a cause of symptoms in the shoulder and suggested acromionectomy also as a solution. The disappointing results of complete acromionectomy and lateral acromionectomy, stimulated **Neer in 1972** to focus on the under surface of the acromion. He focused on the cause-effect relationship between acromial-morphology & acromial impingement. **Neer** for the first time in the history described the subacromial impingement syndrome as a distinct clinical entity. He hypothesized that the rotator cuff is impinged upon by the anterior one third of the acromion, the coracoacromial ligament and the acromioclavicular joint, rather than by just the lateral aspect of the acromion. He also suggested that the portion of the rotator cuff which is impinged upon is centered on the insertion of the supraspinatus tendon on the greater tuberosity. **(Henry, C. Lea;1997)**

In the early eighties of the last century, **Neer** had discovered also that excessive removal of acromial bone has been associated with complications and unsatisfactory results. **Neer 1983** described three pathological stages of impingement. **Neer** in the late eighties of the last century, had divided the impingement into outlet and non outlet lesions, and he clarified the outlet impingement that the coraco-acromial arch encroaches on the supraspinatus outlet, while the non outlet, where impingement occurs secondary to thickening or hypertrophy of the bursa or the rotator cuff tendon. **(Henry, C. Lea;1997)**

**Ellman 1985** described the first arthroscopic anterior acromioplasty as an alternative treatment to open acromioplasty. In the nineties of the last

century, progress had taken place in the arthroscopy surgery and produced nearly similar results of those of open procedure. **( Ellman ;1985)**

**Roye et al،1995** in a large study had shown that, impingement of the rotator cuff beneath the coraco-acromial arch is a common cause of chronic shoulder pain with the incidence, ranging from 18-20% among all shoulder problems. **(Roye et al;1995)**

**Neer and Poppen in 1987,** attributed 95% of all rotator cuff lesions to primary mechanical impingement. **Neer 1987,** also found that 10% of the population between 40-75 years develop full thickness tear due to impingement, one third of this tears occur in both shoulder of one individual. **(Neer and Poppen ; 1987)**

Arthroscopic surgery is acknowledged as minimal invasive surgery, and new techniques for its use are constantly being developed. Grateful efforts have been done from the earlier arthroscopic surgeons whom make this era more popular between orthopedic surgeons.

# *Anatomy and Biomechanics*