

## Isolated Displaced Fracture Acromion : A Case Report

Nithin Reddy D<sup>1</sup>, Giridhar Boyapati<sup>2</sup>, Suneel Ramanujapuram<sup>3</sup>

1. MS (Ortho), Fellow in Arthroplasty, Maxcure hospitals, Hyderabad. dr.nithinreddy

2. MS (Ortho), FIJR (SEMC, USA), J&J Fellow Fellow in Computer assisted Hip and Knee Arthroplasty, Maxcure hospitals, Hyderabad.

3. MS (Ortho), Consultant orthopaedic & hand surgeon, Maxcure hospitals, Hyderabad.

Corresponding Author: Giridhar Boyapati

**Abstract:** Displaced fracture of the acromion without associated shoulder injury is rare. A 34-year-old gentleman presented with an isolated acromion fracture resulting from a direct trauma to his left shoulder following episode of seizure. Although surgical indications have been reported, the literature regarding surgical approaches and fixation techniques for management of these fractures is limited. Open reduction and internal fixation using multiple cc screws was performed and the fracture was healed without complications. The patient achieved good shoulder function at 1 year followup after the surgery. Fixation with cc screws can provide adequate stability in this rare type of shoulder fracture.

**Key words :** Acromian fracture, shoulder injuries

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### I. Introduction

Fracture of the scapula occurs infrequently. Acromion is the lateral projection of the spine of scapula and fracture of this bone is a rare orthopaedic condition as it accounts for only 8% of all scapular fractures (1). Most of these fractures have been associated with concomitant skeletal and soft tissue injuries of the shoulder (2, 3). With a significantly displaced fracture of the acromion, the normal function of the shoulder may be impaired or the sub acromial space compromised by compression of the rotator cuff, and the long head of the biceps tendon or deltoid muscle, causing impingement syndrome (4, 5). Open reduction and internal fixation is indicated when the fracture is associated with significant displacement. We are presenting a case with an isolated displaced fracture of the acromial base as well as the results of his operative treatment up to 1 year follow-up.

### II. Case Report

A 34-year-old IT professional presented with acute pain and swelling of his left shoulder sustaining direct trauma following episode of seizure. On examination there was swelling and tenderness over the lateral end of the clavicle and acromion. Neurological and vascular examinations of the upper limb were normal. Passive and active motion of the shoulder was painful and limited. The radiograph of the shoulder revealed a displaced fracture of the acromion (Figure 1). Under general anesthesia, through a superior approach, the fracture of the acromion was exposed and fixed with 2 cc screws (Figures 2 and 3). No deltoid or rotator cuff tears noted. Post-operative radiograph confirmed the good reduction of fracture and complete restoration of height of sub acromial space. Following the surgery, the shoulder was immobilized in an arm sling. Gentle active motion and shoulder physiotherapy was initiated at 4 weeks after surgery. The range of abduction was about 10° less in comparison to a normal contralateral shoulder. Physiotherapy and strengthening exercises of the shoulder were continued until the maximal recovery was achieved. At 4 months postop shoulder movements were painless and patient was able to return to the pre-injury activity working level. At 1 year followup he had an acceptable functional outcome according to the shoulder constant score (Figure 4).

### III. Discussion

Fractures of the scapula are infrequent with acromion fracture being even rarer injury. Scapular fractures represent 3-5% of all shoulder injuries and 0.4 - 1% of all fractures (2, 4). Acromial fractures account for only 8% of all scapular fractures (1).

Most case reports of acromion fractures published in literature were due to road traffic accidents. Sports injuries causing such lesions are rare; seen with shooting [11, 12]. Commonly associated with fracture of the clavicle and the acromio-clavicular subluxation.

Kuhn et al. in a review of 27 fractures of the acromion during a 15-year period defined five distinct types that were classified into three groups. Stress fractures, Type I with minimal displacement and Type IA avulsion fractures, which heal rapidly. Type IB fractures result from direct trauma, with minimal displacement. Type II displaced fractures that do not reduce the sub acromial space are treated by a non-operative technique; however, a type III with inferior displacement and with sub acromial space involvement requires surgical treatment (6).

Scapular fractures have been classified into three types including acromion, coracoids and body fractures. These fractures are usually caused by a direct trauma or a violent contraction of the surrounding muscles, and may be isolated or associated with other shoulder injuries. To the best of our knowledge there are only few case reports in the literature about isolated acromion fracture. The causes of the fracture have been by a superior displacement of the humeral head, stress fracture or evulsions by a single violent muscle contraction of deltoid or subscapularis tendon or repetitive sub maximal load to the shoulder (7-10). This fracture can be managed by non-operative or surgical means depending on the initial displacement.

For fixation of displaced acromion fracture, a variety of techniques including tension band wiring, screw, reconstruction plate, and kirschner wire have been advocated (6, 8). In our case, despite displacement of acromion fracture, no other skeletal or soft tissue injury was noted. A minimal incision on the acromion with direct muscle splitting approach was a safe and easy technique to expose and reduce the fracture. Other modalities like k wire fixation and narrow reconstruction plate could be used. Kirschner wires in the older literature have now been replaced by screws and small plates across the acromion. Anterior-posterior screws in a lag technique are successful in simple fracture with limited comminution.

Use of cannulated screws and placing wires through the cannulation and then over the superior surface of the acromion in a tension-band-like fashion is advocated by some to improve healing rates [13, 14, and 15]. In case of comminution plating is preferred. The advent of multiple methods demonstrates not only the lack of consensus on the best method but also the variability in the presentations of an os acromiale [16].

#### **IV. Conclusions**

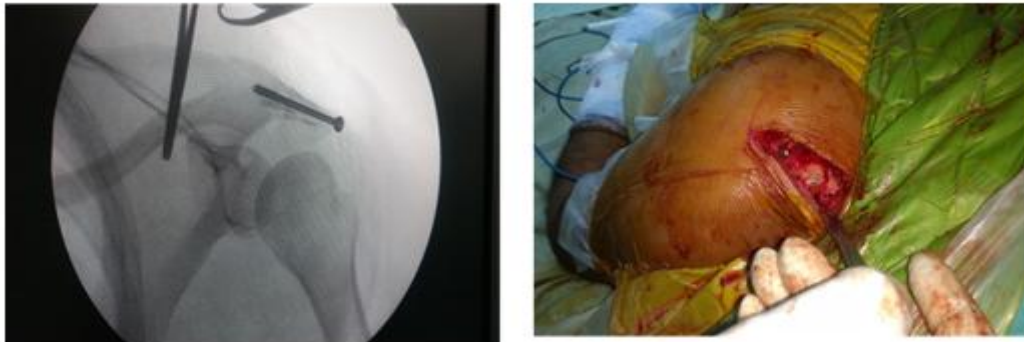
Acromial fractures are usually associated with other lesions of the shoulder girdle. Isolated displaced fractures of the acromion are clearly the exception to the rule. These fractures can be treated with good results with early surgical treatment and proper fixation. Open reduction and cc screw fixation gives good functional outcome in these fractures.

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**Figure 1:** anteroposterior radiograph of shoulder showing displaced fracture of acromion



**Figure 2:** intra operative view showing approach and fixation with 2cc screws op



**Figure 3:** immediate post op



**Figure 4:** 1 year followup radiograph showing united fracture.

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