

CASE REPORT

Simultaneous Fracture Clavicle and Acromioclavicular Joint Dislocation: A Case Report

Maj. Rupesh Prasad¹, Lt. Col. Ponnaian Prabhakar R², Parikshat Gopal³

Abstract

Simultaneous occurrence of fracture clavicle and acromioclavicular joint dislocation is rare entity. There are only few documented cases in literature. Here we report one such case of 34-year-old male serving soldier managed by open reduction and plating.

Key-words: Acromio-clavicular, AC joint fixation, fracture shaft

¹Department of Orthopedic Surgery, Military Hospital, Jodhpur, India.

² Department of Orthopedics and Joint Replacement, Care Group of Hospitals, Nampally, Hyderabad, India.

³ Department of Orthopedic Surgery, ACMS and Base Hospital, Delhi Cantt, India.

Corresponding Author: Maj. (Dr.) Rupesh Prasad, Assistant Professor, Department of Orthopedic Surgery, Military Hospital, Jodhpur, India. E-Mail : rupeshprasad88@gmail.com

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Introduction

Acromio-clavicular (AC) joint dislocation is very common injury following axial stress on joint with adducted arm. AC joint dislocation occurs isolated or is most commonly associated with fracture lateral end of clavicle [1,2]. Simultaneous occurrence of type IV AC joint dislocation and fracture shaft of clavicle is rare entity [1].

Case Report

34 years old male right-handed serving soldier, reported to orthopaedic department with complaints of pain, swelling and deformity right shoulder following road traffic accident where he fell on his right shoulder. Following injury, he was not able to lift weight using right upper limb. There were no known comorbidities. On examination, there was swelling and ecchymosis on lateral aspect of clavicle. There was tenting of skin on posterior aspect of lateral clavicle. On palpation, only medial two third of clavicle was palpable subcutaneously and there was bony gap from junction of medial two-third and lateral one-third to acromion. All movements at shoulder joint were globally restricted and painful. Plain radiograph of right shoulder antero-posterior view showed fracture clavicle at the junction of medial two-third and lateral one-third with type IV acromioclavicular joint dislocation (Figure 1).

After pre-anaesthetic checkup, patient was taken up for surgery in ASA I. Beach chair positioning was done. Area was cleaned and draped. Superior approach was used. Incision given on superior aspect of clavicle. Lateral half of clavicle was exposed. There was



Figure 1: Antero-posterior radiograph of right shoulder showing fracture mid-shaft clavicle and type IV AC joint dislocation (Rockwood classification).

fracture shaft of clavicle with superior and posterior dislocation of lateral end of clavicle. There was button holing in delto-trapezial fascia. Fracture clavicle was reduced and fixed using 7 hole 3.5 mm DCP with locking provision. Acromioclavicular joint dislocation was managed by 3 hole 3.5 mm hook plate and suture anchor fixation in coracoid process (Figure 2). Delto-trapezial fascia repaired. Wound closure done. Drain was not used. Patient was started with pendulum exercises post operatively. Suture removal done on day 14. Range of motion exercises were started thereafter.

After 3 months, patient was again listed for surgery and hook plate

was removed (Figure 3). Patient kept under follow up and fracture united after 4 months of surgery. Patient has achieved full range of motion.

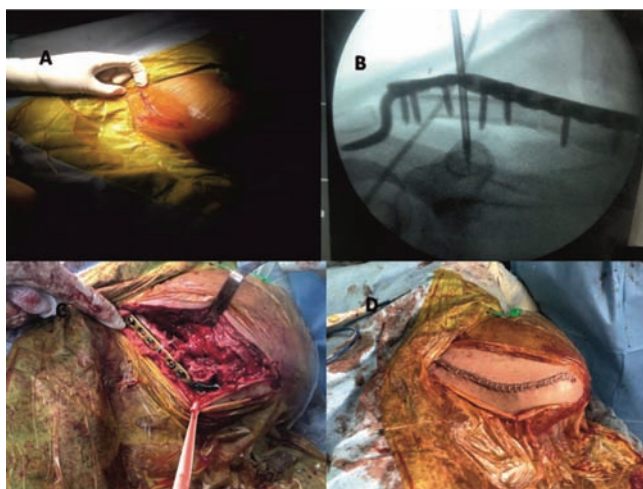


Figure 2 (in clockwise direction): Incision (A), C-arm image of suture anchor fixation (B), Per-op image of fracture clavicle fixation and AC joint stabilization with implant in situ (C), Wound closure (D)

Discussion

Isolated AC joint dislocation is common entity and classified into 6 types (I-VI) by rockwood based on degree and direction of displacement². Type IV AC joint dislocation is posterior dislocation of lateral end of clavicle and might produce button hole in trapezius muscle. It's association with fracture lateral end of clavicle is not

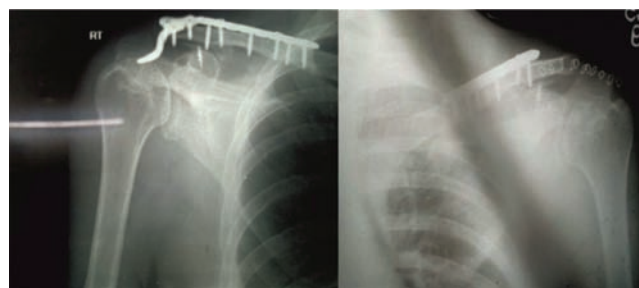


Figure 3: Post-op x-ray (Left) and x-ray after clavicle fracture union and hook plate removal (Right)

very infrequent. However, simultaneous occurrence of fracture shaft of clavicle and type IV AC joint dislocation is rare and found less in literature. Those described in literature have wide range of approach towards the cases.

Combination of AC joint dislocation and fracture shaft of clavicle is bony as well as soft tissue injury⁴. Hence, both should be addressed for better outcome. There are various methods of fixation of fracture shaft of clavicle and AC joint stabilization. Fracture shaft of clavicle can be managed conservatively, by plating or intramedullary nailing. AC joint stabilization can be done either by primary AC joint fixation (using pins, screws, suture wires or hook plate) or primary coraco-clavicular interval fixation (using Bosworth screw, wire, fascia, conjoint tendon or semitendinosus graft) [3]. In our study, we fixed fracture shaft of clavicle using 3.5 mm combi-hole plate. Primary AC joint fixation was done using 3-hole hook plate and coraco-clavicular interval fixed using suture anchor.

Table below describes various approaches used by different authors for the same injury-

S.No.	Study	Mechanism of injury	Mode of fixation
1.	Spyridon A et al [3]	Road traffic accident	Pre-contoured locking plate with 8 holes (Acumed) and tight rope (Arthrex)
2.	Dong D et al [4]	Road traffic accident	5-hole hook plate and 6-hole anatomical locking reconstruction plate
3.	Yeh PC et al [5]	Fall from horse	Clavicle plating and semitendinosis allograft
4.	Tidwell JE et al [6]	Hit a bridge and direct impact on shoulder	Pre-contoured locking plate with coraco-clavicular screw through plate
5.	Chandrasekaran M et al [7]	Road traffic accident	TENS for fracture clavicle, AC joint stabilization with coraco-clavicular reinforcement suturing with polyester suture, AC joint capsule repair
6.	Solooki S et al [8]	Road traffic accident	3.5 mm reconstruction plate and 2 x coraco-clavicular screw
7.	Eraghi AS et al [9]	Cycling accident	Pre-contoured locking plate, AC joint stabilization by endobutton and deltotrapezoid fascia reconstruction.

Conflict of Interest: All authors declare no COI

Ethics: There is no ethical violation as it is based on voluntary anonymous interviews

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