

FRACTURE OF THE MEDIAL THIRD OF THE CLAVICLE AND DISLOCATION OF THE ACROMIOCLAVICULAR JOINT

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SUMMARY

Introduction: Ipsilateral fracture of the clavicle and dislocation of the acromioclavicular joint is seen very rare.

Case Report: We report a 55-year-old male patient who had an automobile accident striking his right shoulder. Radiographic examination revealed a fracture of the medial third of the clavicle associated with Type-III acromioclavicular dislocation. The patient underwent open reduction and internal fixation of his clavicle fracture and stabilization of his acromioclavicular separation.

Conclusion: Twelve months postoperatively, the patient was asymptomatic and had a full range of motion of the shoulder.

Key Words: *Clavicle Fracture, Acromioclavicular Dislocation.*

ÖZET

MEDİAL KLAVİKULA KIRIĞI VE AKROMİYOKLAVİKULAR EKLEM ÇIKIĞI

İpsilateral klavikula kırığı ve akromioklavikular eklem dislokasyonu çok nadir görülen bir travma şeklidir. Biz araç içi trafik kazası sonucu sağ omuzuna darbe alan 55 yaşında erkek bir hastayı irdeledik. Radyografik incelemede klavikulanın üçtebir medial kırığı ile beraber Tip-III akromiyoklaviküler dislokasyon görüldü. Hastaya, klavikula kırığına açık redüksiyon ve internal fiksasyon, akromiyoklaviküler ayrışmaya mersilen şerit ile korakoklaviküler stabilizasyon uygulandı. Ameliyat sonrası onikinci ayda hastanın asemptomatik olduğu ve omuzunda tam hareket aralığına sahip olduğu gözlemlendi.

Anahtar Kelimeler: *Klavikula Kırığı, Akromiyoklavikular Dislokasyon.*

INTRODUCTION

Fractures of the medial third of the clavicle, comprise 5% to 6% of clavicular fractures.

Associated skeletal injuries may include separations or fracture-dislocations of the sternoclavicular or acromioclavicular joints¹⁻⁵.

Combined injury of a fracture of the clavicle and dislocation of the acromioclavicular joint is seen very rare. Fractures associated with acromioclavicular separations may include fractures of the midclavicle, the distal clavicle into the acromioclavicular joint, the acromion process, the coracoid process, and the sternoclavicular joint. To our knowledge, this is the first case about fracture of the medial third of the clavicle and dislocation of the acromioclavicular joint.

CASE REPORT

55-year-old male patient had a motor-vehicle accident, striking the right shoulder. The patient had tenderness, swelling and deformity of the medial third of the clavicle, as well as tenderness and deformity at the ipsilateral acromioclavicular joint. The acromioclavicular dislocation was Type-III according to the system of classification of Rockwood⁶. The distal end of the clavicle was prominent and displaced superiorly. Radiographs demonstrated an inferiorly displaced fracture of the medial third of the clavicle and a superiorly displaced Type-III dislocation of the acromioclavicular joint (Figure 1 a-b). Since closed reduction attempts of the clavicle fracture had failed, the patient underwent open reduction and internal fixation of his clavicle fracture with 4.5-mm reconstruction plate and stabilization of his acromioclavicular separation utilizing a coracoclavicular loop consisting of No.5 mersilene tape (Figure 2).

A sling was worn for four weeks postoperatively. Radiographs taken six weeks postoperatively showed union of the fracture of the clavicle (Figure 3). Eight weeks postoperatively, he returned to full activities of daily living. Twelve

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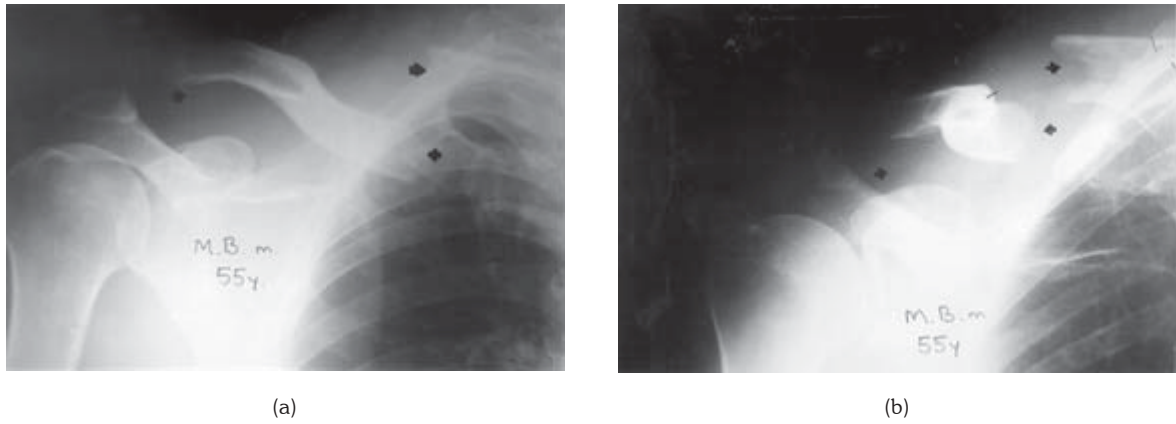


Figure 1 a-b: Radiographic views demonstrating fracture of the medial third of the clavicle and dislocation of the acromioclavicular joint.



Figure 2: Intraoperative photograph showing the incisions: the longitudinal incision for acromioclavicular joint and the horizontal incision for the clavicular fracture exposure.

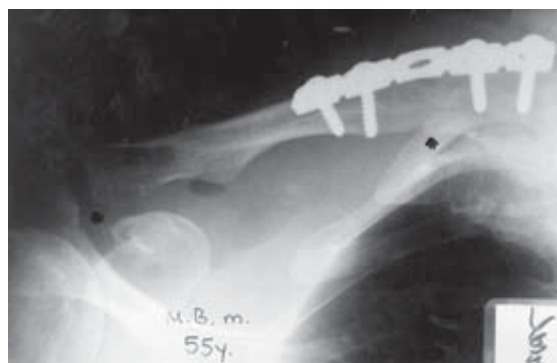


Figure 3: Radiographic view taken six weeks postoperatively demonstrating union of the fracture and reduction of the acromioclavicular joint.

months postoperatively, the patient was asymptomatic and had a full range of motion of the shoulder.

DISCUSSION

Complex injuries involving the clavicle and acromioclavicular joint have been reported in the literature. Kanoksikarin and Wearne and other authors¹⁻⁴ reported ipsilateral sternoclavicular dislocation and clavicular fracture. Another injury to consider is the panclavicular dislocation (traumatic floating clavicle)⁷⁻¹⁰. In this injury, both sternoclavicular ligaments and coracoclavicular ligamentous structures are disrupted. Fractures of the distal end of the clavicle with involvement of the acromioclavicular joint are well known. Elliott¹¹ reported a case having tripartite injury of the clavicle which consisted of fracture of the middle of the clavicle and injury of both acromioclavicular and sternoclavicular joints. Recently, Wurtz and colleagues⁵ reported four patients with a fracture of the middle third of the clavicle and dislocation of the acromioclavicular joint. Various treatment methods were used and achieved good results in all four patients with 1- to 3-year follow-up. However, our patient had an inferiorly displaced fracture of the medial third of the clavicle associated with type-III acromioclavicular dislocation. This type of fracture-dislocation is prone to several complications. The nonunion rate is very high, since these patients had severe trauma, manifest by the degree of displacement of the fracture fragments, the amount of soft tissue damage, and associated acromioclavicular joint separation. And also the acromioclavicular joint injury may cause bad cosmesis, decreased strength and endurance of the injured shoulder.

Fractures of the medial third of the clavicle easily may be overlooked as a result of bony overlap. Therefore, satisfactory x-rays are crucial. Moreover, associated acromioclavicular separation may not be apparent, because of the displaced fracture of the clavicle. Indeed, Wurtz and colleagues⁵ reported three patients who had a Type-IV dislocation of the acromioclavicular joint; hence, the distal end of the clavicle was displaced posteriorly into the substance of trapezius muscle. They recommended an axillary lateral radiograph to assess the distal end of the clavicle for posterior displacement.

The management of the acromioclavicular separations associated with the fracture of the clavicle should be focused on reduction of the

acromioclavicular separation, when possible, with closed treatment of the fracture of the clavicle⁵. However, closed reduction of the clavicular fracture had been recommended for middle third fractures. Since our patient had remarkable inferior displacement of the medial third of the clavicle, open reduction and internal fixation was inevitable. Surgical methods may include internal fixation of acromioclavicular joint with transfixation pins, coracoclavicular ligament fixation either with coracoclavicular screws, or coracoclavicular loops, excision of the distal clavicle and dynamic muscle transfers. Acromioclavicular repairs and stabilization remain popular procedures. However, we must point out that the pins can bent, break, migrate, and create serious consequences. Taft and colleagues¹² reviewed 127 patients and found that patients treated operatively with acromioclavicular fixation had a higher incidence of posttraumatic arthritis. Coracoclavicular ligament fixation with screws is a technically demanding procedure and necessitates a second operation to remove the screw. However, coracoclavicular loops has been associated with distal clavicle erosion. Goldberg and colleagues¹³ reported erosion of the distal clavicle by a Dacron graft in some cases. Since our patient had associated clavicle fracture we tried preserve the distal clavicle and acromioclavicular joint. We preferred to use No.5 mersilene tape as a coracoclavicular loop for anatomic acromioclavicular stabilization. We performed open reduction and internal fixation of the clavicle with 4.5-mm reconstruction plate. First, we passed the coracoclavicular loop, and later on, placed the reconstruction plate, in order not to lose the reduction of the clavicle fracture.

In conclusion, acromioclavicular separation associated with the fracture of the medial third of the clavicle is seen rarely. This clinical entity, if overlooked, may create a painful shoulder and loss of shoulder functions. Acromioclavicular stabilization with open reduction and internal fixation of the clavicle can demonstrate successful results.

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