



Simultaneous Bilateral Anterior Shoulder Fracture Dislocation Following a Seizure: A Case Report and Review of Literature

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Abstract

Simultaneous, Bilateral anterior fracture-dislocation of the shoulders is very rare complication of generalized seizures. most cases attributable to major trauma. Seizures and electric shock are a common cause of fractures and dislocations of shoulder although these are most commonly posterior injuries. We present interesting case report of diagnosis and treatment of a patient with bilateral anterior shoulder fracture dislocations following a seizure.

Keywords: *Bilateral, shoulder, dislocation, fracture dislocation, case report*

Introduction

Unilateral shoulder dislocation is the most common concerning 85% of all dislocations and about 15% of them are combined with greater tuberosity fractures [1]. It is said that anterior shoulder dislocations happen always secondary to trauma whereas posterior shoulder dislocations usually occur following unbalanced intense muscle contractions which happen usually in cases of electric shock, and seizures [2,3]. The most commonly reported bilateral shoulder dislocation is posterior resulting from seizure, electric shock or other causes [4,5]. Simultaneous bilateral anterior shoulder dislocation is usually of traumatic origin and occurs rarely [2,6]. A review of the literature by Sharma et al. yielded only approximately 30 cases with even fewer cases of fracture dislocations [7]. We report the case of a 43-year-old male with bilateral anterior shoulder fracture dislocations sustained during a first-time seizure episode.

Case Presentation

A 43-year-old male was brought to the emergency department complain of severe pain and significantly decreased range of motion in both shoulders following a seizure attack. Upon examination, the patient's vital signs were stable. He was conscious, alert and oriented about time, place and person. There were obvious bilateral shoulder deformities. Radial pulses were palpable bilaterally and bilateral upper limb nerve examination intact. Patient shoulders were tender to palpation with moderate swelling bilaterally. Movement of both shoulders elicited extreme pain. There was significant restricted shoulder range of motion bilaterally. X-rays radiographs of right shoulder showed anterior dislocation with three parts proximal humerus fracture and X-rays of left shoulder showed anterior dislocation with greater tuberosity fracture (**Figure 1**).

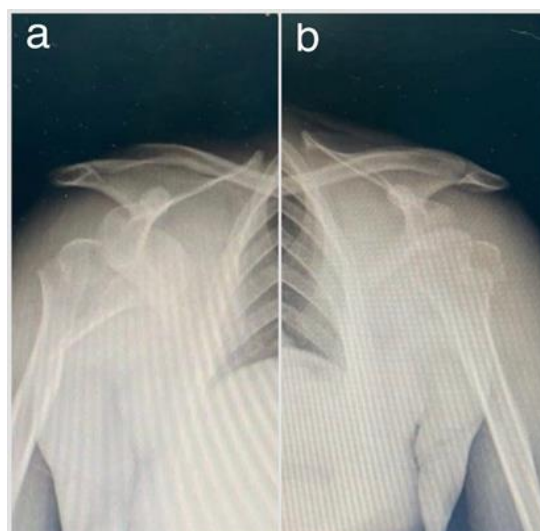


Figure 1: X-ray radiographs of the (a) right shoulder and (b) left shoulder.

Trial of reduction in emergency department with conscious sedation using traction counter traction technique for left shoulder was successful. Afterwards, computerized tomography (CT) was done for both shoulders which showed concentric reduction of left

glenohumeral joint with displaced greater tuberosity fracture, and anterior dislocation with three parts proximal humerus fracture of the right shoulder (**Figure 2**).

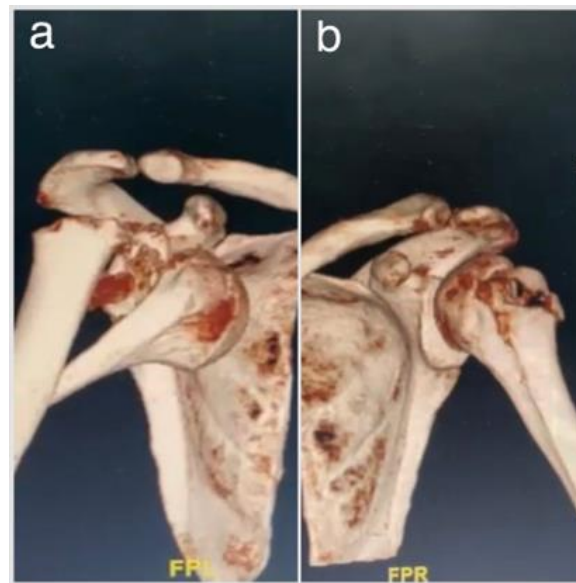


Figure 2: CT with 3D reconstruction of the (a) right shoulder and (b) left shoulder.

Patient underwent open reduction and internal fixation with PHILOS plate for right shoulder using deltopectoral approach, and open reduction and internal fixation with three cannulated screws with

washers for left humerus greater tuberosity fracture for the left shoulder using trans-deltoid lateral approach (**Figure 3**).

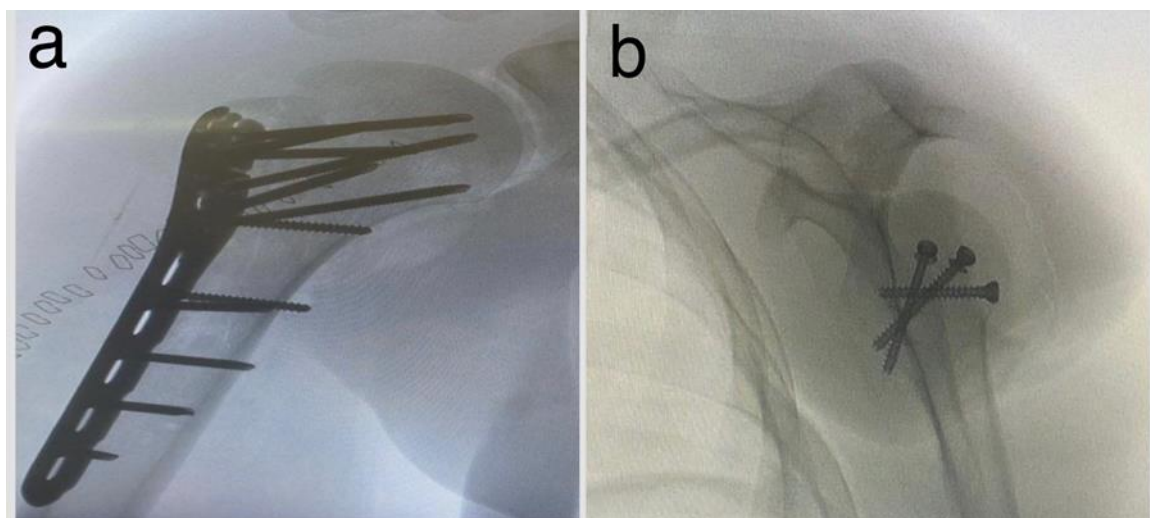


Figure 3: Post-operative X-ray radiographs of the (a) right shoulder and (b) left shoulder.

Discussion

Simultaneous bilateral anterior shoulder dislocations are a rare entity, with fracture dislocations even more uncommon [8-11]. The simultaneous bilateral posterior variant, first described over 100 years ago, is more commonly described. A comprehensive search of the literature produces few cases of simultaneous bilateral anterior fracture dislocations caused by a seizure [11-13].

The unique aspects of this case are the simultaneous anterior dislocations, causing bilateral greater tuberosity fractures (left greater than right), with one side requiring operative intervention for a displaced greater tuberosity and multiple recurrent dislocations. The cause of his seizure activity was attributed to the combination of tramadol hydrochloride and nortriptyline, lowering the seizure threshold, a known side effect of this medication. Since his initial hospitalization, he has experienced no additional seizure activity and has been seizure-free since this initial episode at age 28.

Typically, in the setting of a seizure, the weak external rotators are overwhelmed by the internal rotators, causing an

exaggerated adduction and internal rotation, resulting in posterior dislocation [14]. Anterior dislocations are more commonly the result of trauma, with positioning of the shoulder in extension, abduction, and external rotation during a fall. The resultant impingement of the greater tuberosity on the acromion causes the dislocation. They are typically unilateral as one extremity usually takes the brunt of the force. It is in only about 15% of anterior dislocations that a displaced fracture of the tuberosity occurs. A displaced greater tuberosity fracture almost certainly represents an incompetent rotator cuff, and long-term instability and disability can ensue [15]. This patient had instability because of the fracture pattern and injuries, necessitating an open reduction and fixation with allograft augmentation to provide stability. An increased risk of fracture with glenohumeral dislocations is noted to occur in the setting of advanced age, first time dislocations, and high-energy mechanisms [16]. The combination of these factors makes bilateral anterior shoulder fracture dislocations rare. In this case of a young patient with a low energy mechanism, the severity of the greater tuberosity fracture is quite impressive. It is not known why some dislocations occur

anteriorly during seizure activity, since the majority of shoulder dislocations associated with seizures are posterior, though, may be due to the position of the shoulders during the seizure.

Whether the dislocation occurs anterior or posterior, the same initial management principles apply, early reduction and immobilization. Early fixation of this patient's left shoulder was performed in the setting of recurrent instability showing early failure of nonoperative management.

Ethics approval and consent to participate

An informed consent to publish this case was signed by the patient prior to submitting the manuscript.

List of abbreviations

CT: computerized tomography.

Data Availability

Not applicable.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

Funding Statement

Authors did not receive any funding for this paper.

Authors' contributions

AKA saw the patient in the emergency department, performed the initial management and wrote the case presentation. MA and AKA performed the surgical procedures. AMA participated in the post-op care and wrote the discussion part. All authors read and approved the final manuscript.

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