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Bilateral posterior fracture dislocation of shoulder after electrocution: A rare case report

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Abstract

Introduction

This is a case report of a bilateral posterior fracture-dislocation of the shoulder after electrical shock to an electrician. At first presentation, the upper limbs of the patient were in a position of internal rotation, and passive and active external rotation of shoulder were painful. Radiographs and computed tomography of both shoulders showed bilateral posterior fracture-dislocation. This case presentation underlines the critical value of systematic clinical and radiographic evaluation of severe bilateral shoulder fracture-dislocations, prior to the ultimate proper treatment followed by appropriate rehabilitation programme, for successful patient outcomes.

Materials and Methods

A 40-year-old man, who worked as an electrician, was brought to the emergency department following an electrical shock. Initially, his complaints were pain in both hands, muscle weakness and numbness in both upper limbs.

It was on the second day of his hospitalization that he complained of pain in both shoulders and was unable to move them. Shoulder radiographs in the anteroposterior (Fig. 1) showed posterior fracture-dislocations of both shoulders. Computed tomography of both shoulders subsequently (Fig. 2), confirmed bilateral posterior fracture-dislocation of the shoulders with Right side Neer's three-part fracture with posterior dislocation and left two-part fracture with dislocation.

Results

The patient was examined at 3 and 6 months post-operatively. At 3 months he had almost normal range of motion of shoulders and at 6 months he had complete functional recovery. Examination of the shoulders revealed stability with normal range of motions. The patient experienced no pain and had returned to his daily work routines.

Keywords: Bilateral shoulder posterior fracture-dislocation, electrical shock, electrocution, posterior dislocation of shoulder

Introduction

Bilateral posterior dislocation of the shoulder is a rare and uncommon injury whereas bilateral posterior fracture-dislocation of the shoulder are even infrequent, however bilateral posterior fracture-dislocation of the shoulder following electrocution is an incomprehensible oddity. Shoulder dislocations, however, are common and account for half of all major joint dislocations and with an incidence of 10-24 cases per 100,000 people yearly¹. Posterior dislocation is even less common accounting for 1%-4.7% of all types of shoulder dislocations. Bilateral posterior shoulder dislocation is a rare occurrence with approximately 2.5%-15% of all posterior dislocations. Epileptic seizure, extreme trauma are two major mechanisms of this entity. However electrical shock accounts for less than 5% of all bilateral posterior shoulder dislocations.

This report presents the case of a patient with rare injury of posterior fracture-dislocation of the shoulder following an electrical shock. The case signifies the importance of clinical and radiographic examinations, the appropriate treatment, and satisfactory functional post-operative patient outcomes.

Methodology

A 40-year-old man, who worked as an electrician, was brought to the emergency department

following an electrical shock. The patient had no past medical or surgical history, no co-morbidities, no allergies, was not on any medications. Initially, his complaints were pain in both hands, muscle weakness and numbness in both upper limbs. He was monitored by the cardiology department for 24 hours during which no cardiac abnormality was noted on repeat ECGs. It was on the second day of his hospitalization that he complained of pain in both shoulders and was unable to move them, following which a cross reference was given to orthopedics department. On examination the arms were in internal rotation. Passive and active external rotation was restricted due to pain. Shoulder radiographs in the anteroposterior (Fig. 1) showed posterior fracture-dislocations of both shoulders. Computed tomography of both shoulders subsequently (Fig. 2), confirmed bilateral posterior fracture-dislocation of the shoulders with Right side Neer's three-part

fracture with posterior dislocation and left two-part fracture with dislocation. Closed reduction for the Right shoulder under General anesthesia was attempted with a unsatisfactory result then immediate decision of open reduction was taken and performed, The patient was operated in a supine position & using a deltopectoral approach, Open reduction was performed followed by Internal fixation of anatomical neck of humerus fracture with Proximal Humerus Internal Locking System (PHILOS) plating. Closed reduction was performed at the same time for Left two part fracture dislocated shoulder under general anesthesia and confirmed under fluoroscopy guidance. Post-operative radiographs showed satisfactory reductions with positions of the implant (Fig. 3). No complications were observed, such as paralysis of the axillary nerve, damage to the brachial plexus, and injury of the axillary vessels.



Fig 1: (a) Pre-operative radiographs - anteroposterior

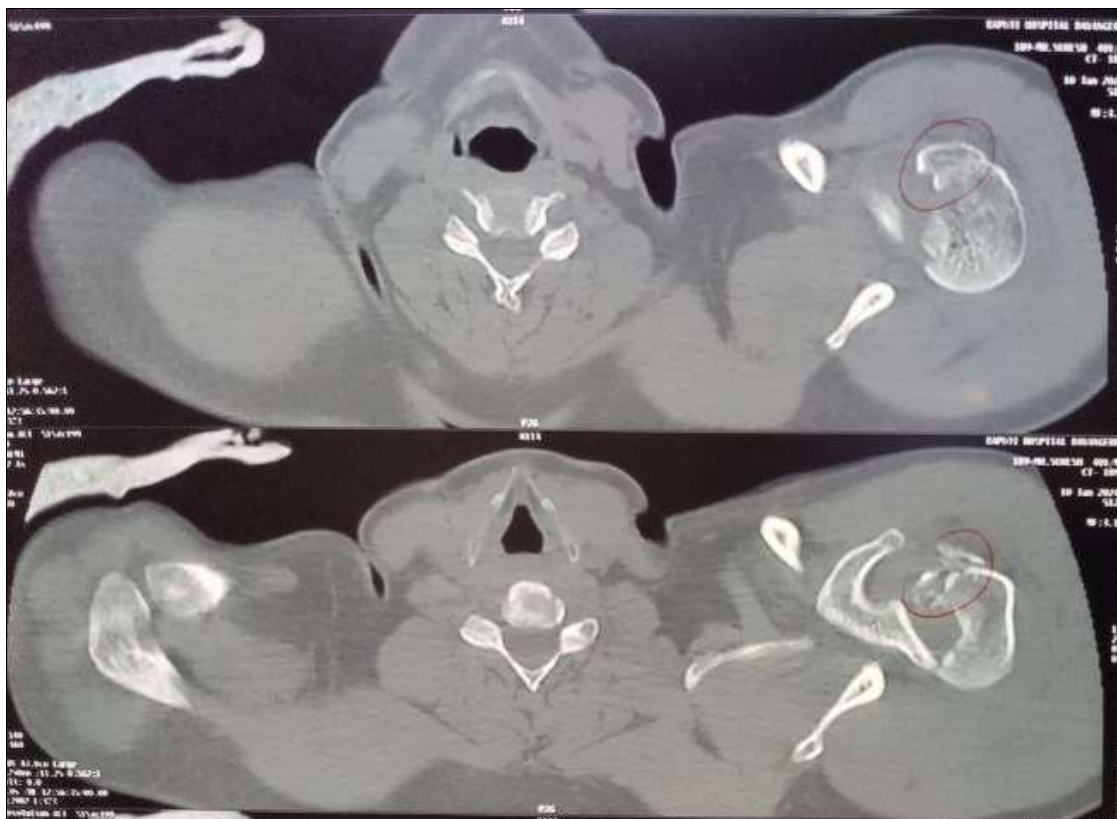


Fig 2: Computed tomography of both shoulders showing bilateral fracture-dislocation.

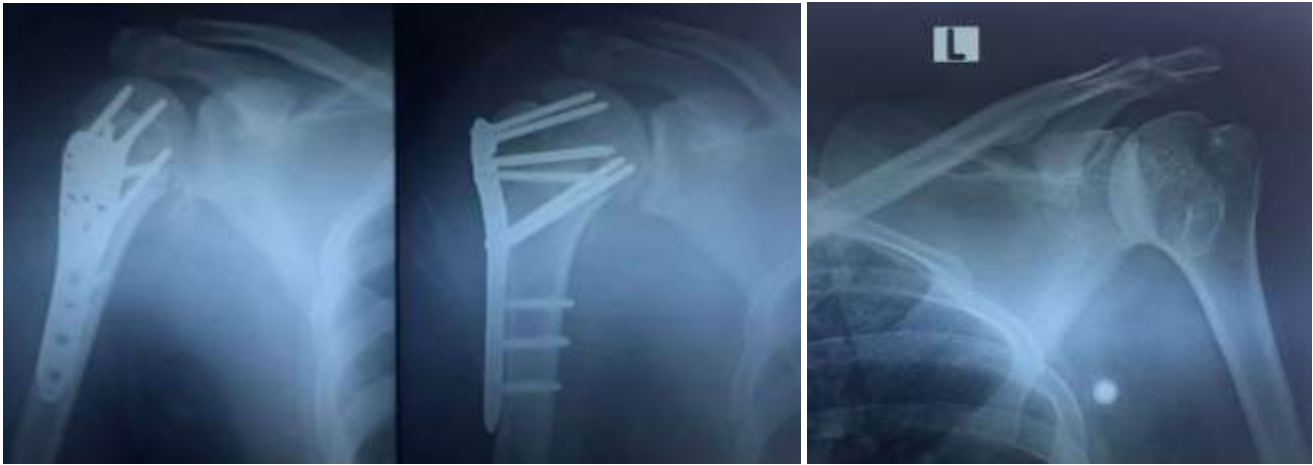


Fig 3: (a) Immediate post-operative Right humerus with PHILOS plate and (b) Left shoulder post closed reduction radiographs of both shoulders.

Functional Outcome of Both Shoulders Post-Operatively

The patient was put on shoulder immobilizer and arm pouch for both shoulders for four weeks. Simultaneously he underwent an intensive rehabilitation programme, according to the American Society of Shoulder and Elbow Therapists, with active and passive ranges of motion, muscle strengthening and capsular stretching exercises. The patient was examined at 3 and 6 months post-operatively. At 3 months he had almost normal range of motion of shoulders and at 6 months he had complete functional recovery. Examination of the shoulders revealed stability with normal range of motions. His Constant Score was 97 on the right side and 90 on the left side. The patient experienced no pain and had returned to his daily work routines.

Discussions

Bilateral posterior fracture-dislocation of the shoulder, described by Munter in 1902, continues to be a rare injury. Very few cases have been reported of dislocations due to electrical shocks.

Management of posterior fracture-dislocation of the shoulder depends on the type of fracture, the duration of dislocation untreated, the patient's age and demand, occupation, and level of activity & on the size of the humeral head impression defect.

Open reduction and Internal fixation is a good treatment option for reduction and simultaneous fixation of the fracture. Head defects if any, up to 25% head articular surface can be treated by closed reduction and pin stabilization. For defects between 25% and 50% head articular surface, or unstable joints, surgical treatment is required. Thus, subscapularis tendon transfer into the bone can be performed for unstable joints. For defects with over 50% head articular surface, if a three- or four-part fracture is complicated by dislocation or a case of younger patients with highly comminuted fractures, treatment with hemiarthroplasty can be considered.

Our patient was a young active man, with both proximal humeral fractures three part and undisplaced two part. Open reduction and closed reduction methods were both successful for each type of fractures respectively along with Internal fixation with a PHILOS plating for the three part displaced fracture. Finally both shoulders had good stability and mobility. A good rehabilitation programme achieved good results post-operatively, the patient had no pain and was satisfied with the functional result.

In conclusion, orthopaedicians must be prudent when treating patients with injuries from electrical shock, as there may be

fractures and dislocation of the shoulders without any classical symptoms and signs. Doctors in the accident and emergency (A&E) department must conduct an appropriate and early clinical and radiological examination to recognize and diagnose such injuries. When indicated, these injuries could be treated with or without surgery providing very good results post-operatively.

Informed Consent

Informed consent was obtained from the patient for data and photographs submission for publication.

Conflict of Interest

The authors declare no conflicts of interest.

References

1. Zacchilli MA, Owens BD. Epidemiology of shoulder dislocations presenting to emergency departments in the United States. *J Bone Joint Surg Am.* 2010;92(3):542-549. doi: 10.2106/JBJS.I.00450
2. Ozer H, Baltaci G, Selek H, Turanli S. Opposite-direction bilateral fracture dislocation of the shoulders after an electric shock. *Arch Orthop Trauma Surg.* 2005;125(7):499-502. doi: 10.1007/s00402-005-0830-6
3. Claro R, Sousa R, Massada M, Ramos J, M Lourenço J. Bilateral posterior fracture-dislocation of the shoulder: Report of two cases. *Int J Shoulder Surg.* 2009;3(2):41-45. doi: 10.4103/0973-6042.57935
4. Rezazadeh S, Vosoughi AR. Closed reduction of bilateral posterior shoulder dislocation with medium impression defect of the humeral head: a case report and review of its treatment. *Case Rep Med.* 2011;2011:124581. Doi:10.1155/2011/124581
5. Ketenci IE, Duymus TM, Ulusoy A, Yanik HS, Mutlu S, Durakbasa MO. Bilateral posterior shoulder dislocation after electrical shock: A case report. *Ann Med Surg (Lond).* 2015;4(4):417-21. doi:10.1016/j.amsu.2015.10.010
6. Kechagias VA, Katounis CA, Badras SL, Notaras I, Badras LS. Bilateral Posterior Fracture-Dislocation of the Shoulder after Electrical Shock Treated with bilateral Hemiarthroplasty: A Case Report. *Malays Orthop J.* 2022;16(1):146-9. Doi:10.5704/MOJ.220

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