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RESEARCH ARTICLE

BILATERAL POSTERIOR FRACTURE DISLOCATION OF PROXIMAL HUMERUS DUE TO A SIMPLE FALL: A CASE REPORT

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ABSTRACT

Background: Bilateral posteriorfracture dislocation is a rare injury when compared to unilateral anterior dislocation. It was first described in 1971 by Shaw and most of the reported cases are secondary to seizures.

Case presentation: We present a rare case of a 72 years old man who presented to the emergency department with bilateral posterior fracture dislocation of proximal humerus following a simple fall with no previous history of any seizures, CVA, previous falls or trauma to the shoulder, his ECG holter monitor showed intermittent profound sinus bradycardia that was thought to be the cause of his syncope prior the incidence. Patient was treated with bilateral shoulder hemi arthroplasty , a pacemaker was inserted andthe patients was discharged in a stable condition.Follow up after 4 weeks post operatively revealed gradual improvement in range of motion with no complications.

Conclusion: Bilateral posterior dislocation of the proximal humerus complicating syncope are rare. Profound sinus bradycardia is the likely cause for the fracture dislocations in our patient and this had not been reported before.

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INTRODUCTION

Bilateral posterior dislocation is a rare injury when compared to unilateral anterior dislocation which is much more common. Although several cases are reported in the literature,78% are secondary to a seizure. (Ref tellsi paper) Brackstone *et al*. described the triple E syndrome, electrocution, extreme trauma and epilepsy as the main cause for bilateral posterior fracture dislocation (Brackstone *et al*., 2015). In this case report we review a 72 year old gentleman who has a history of an unwitnessed fall, there was no history of electric shock, extreme trauma or seizure. We will try to explore the possibility of a simple fall causing bilateral shoulder posterior fracture dislocation.

Case presentation

This is a case of 72 years old male patient who presented to the emergency department with bilateral shoulder pain. He had abackground history of hypertension, early Parkinson's and forgetfulness.

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He was involved in an unwitnessed, unprovoked fall at his home on the day of admission. According to the patient, he felt a sudden onset of weakness of his lower limbs, there was a brief episode of loss of consciousness. The patient was unable to recall theexact details of the fall and there were no witnessesduring the incidence time. Upon waking up he called for help and family members came to aid him. They did not notice any convulsions or signs of convulsions at that time. He was oriented and alert with no problems with communication and articulation. He was then transferred to our hospital via ambulance. His surgical history included a cholecystectomy done 10 years ago. The patient was taking aspirin in the form of jusprin 81mg once daily in addition to his hypertension medication. He had no history of any allergies. Prior to the fall he was independent and was living with his wife and son who is a physician. There was no previous history of any seizures, CVA, previous falls or trauma to the shoulder. On examination the patient was vitally stable, blood pressure was 140/85 mmHg, pulse was 90 beats/min and regular and temperature was 36.7C. He was drowsy but oriented to time and place. Shoulder examination showed some ecchymosis around the posterior and lateral aspect of both shoulders, range of motion was limited due to pain and neurovascular status of both upper

limbs were normal. A full neurological examination showed no obvious pattern of neurological deficit although limited due to his injury. There were no signs of tongue biting and no other associated injuries. Initial investigations showed normal blood investigations and ECG showed a longstanding left bundle branch block. Upon further investigations for his syncope event a holter monitor showed intermittent profound sinus bradycardia (28 beats/ min) and an MRI showed right parietal cerebral infarct even though he had no neurological manifestations clinically. A carotid Doppler ultrasound, EEG and Echo were all normal with ejection fraction of 55%. With regards to his shoulders X-ray showed bilateral fracture dislocation of the proximal humerus (Fig1) and a CT showed posterior fracture dislocation of bilateral proximal humerus at the anatomical, the right proximal humerus had a fracture at the anatomical neck and Greater tuberosity that was equivilant for neer 2, the left shoulder had fracture at the anatomical neck that was equivalent to neer 1. (Figures 2 and 3). The articulating surface was not damaged by the posterior glenoid. The fracture occurred at the anatomical neck, the head had dislocated posteriorly and the posterior glenoid was pressed against the anatomical neck on both sides (Fig.4).

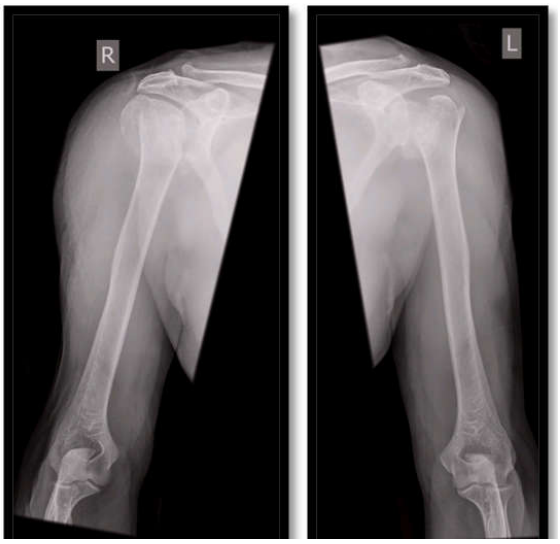

Figure 1. Showsbilateral fracture dislocation of proximal humerus

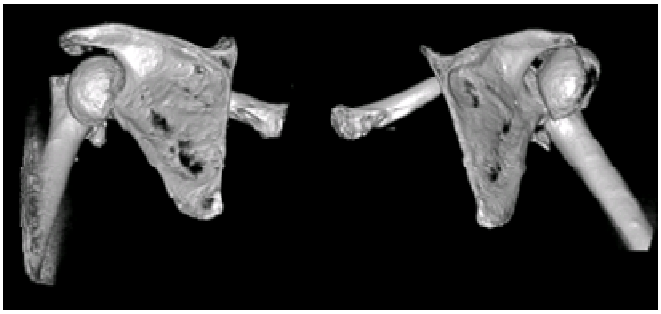

Figure 2. D reconstruction of bilateral shoulder showing posterior fracture dislocation of proximal humerus. Posterior view

The patient was admitted under the care of the orthopedic service and it was decided to do a bilateral shoulder hemi arthroplasty. (Fig.5) It was thought that the bradycardia may have been the cause of his syncope and a pacemaker was inserted. The patient tolerated both procedures very well and was discharged home in a stable condition

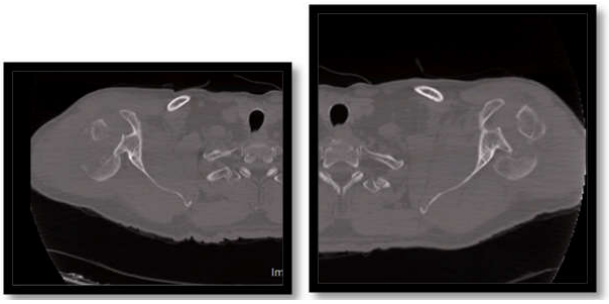

Figure 1. CT image showing intact articulate surface of humeral head

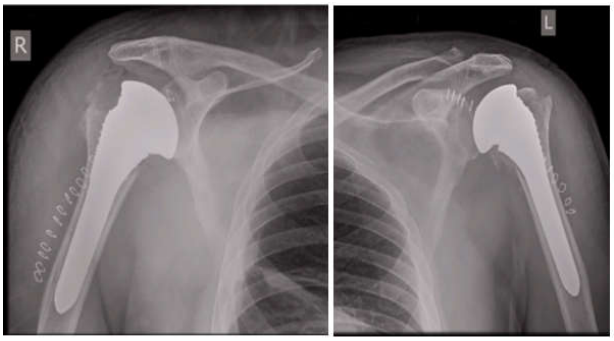

Figure 4. Post op xrays showing bilateral shoulder hemiarthroplasty

Follow up

In the immediate post-operative period, range of motion was very limited due to pain. Focus was to start early range of motion with active assisted forward flexion of bilateral shoulders. The patient was able to 30 degree forward flexion on day 4 post op. 3 weeks post op the patient was seen in clinic, he remained dependent with regards to eating and clothing, pain was still an issue at time affecting the quality of his sleep. His range of motion was 40 degree forward flexion and 20 degree abduction all active range or motion. After 4 weeks post op a follow up phone call to the patient revealed he had started to feed himself independently with gradual improvement in range of motion and pain.

DISCUSSION

Posterior fracture dislocation was first described in 1971 by Shaw (Shaw, 1971). Initially adduction, internal rotation and flexion of the proximal humerus by forces of the internal rotators occur. Further contraction of the shoulder griddle muscles pushes the humeral head superiorly and posteriorly against the acromion and medially against the glenoid fossa. After dislocation, the humeral head usually gets impinged against the posterior glenoid rim causing injury to the articular surface. Proximal humeral fracture is very common type of injury with high morbidity rates (Lanting *et al*., 2008; Jo, 2012) . It is considered the third most common fracture among 65 years individuals and over, accounting for 5% of all fractures, and the third most common osteoporotic fracture in old patients (Seo *et al*., 2016; Launonen *et al*., 2015). Displaced proximal humeral fracture's treatment is controversial (Agarwal *et al*., 2016). Its Incidence rate reached 6.6/1000 person years (Lanting *et al*., 2008), and it is expected to increase significantly in the next 30 years (Hashmi *et al*., 2016).

Many risk factors affect the proximal humeral fracture outcome including, fracture pattern, age, co-morbidity, calcium sulfate grafts, osteoporosis, and head and neck shaft angle (Lee *et al*., 2009). 74 patients with proximal humeral displacement were evaluated in Spain, their mean age were 70.9 years (Calvo *et al*., 2007). another study was done in German conducted 118 female patients with mean age 63.3 ± 14.8 years to investigate the functional outcome (Hanson *et al*., 2009). Furthermore, a retrospective study in France reported poor outcomes of 107 cases with proximal humeral fracture from 2009 to 2011 (Gadea *et al*., 2016). In addition, statistics of proximal humeral fractures in United Kingdom were calculated in 2008 with population between$47.9/10^5$/year to $98.7/10^5$/year, and the p value was ($p < 0.0001$) (Clement, 2014). Nevertheless, Between 2000 and 2012, 92 Proximal humeral fractures were identified in 91 patients with rheumatoid arthritis (Ochi *et al*., 2016).

Conclusion

We present a rare condition, which involves bilateral posterior dislocation of the proximal humerus in a 72 years old patient who has a history of an unwitnessed fall, and no history of electric shock, extreme trauma or seizure.Profound sinus bradycardia leading to syncope prior to the incidence is the likely cause for the fracture dislocations in our patient and this had not been reported before.

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