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Case report

Bilateral anterior shoulder dislocation with bilateral fractures of the greater tuberosity: A case report

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ABSTRACT

Bilateral anterior dislocation of the shoulders with fractures of both greater tuberosities is very rare. A 76-year-old woman sustained a bilateral anterior dislocation of her shoulders with fractures of the greater tuberosity on both sides after a fall on stairs. Her arms were abducted and externally rotated. Radiological examination revealed the bilateral anterior dislocation and also the bilateral fractures of the greater tuberosity. Prompt closed reduction followed by a 3 weeks immobilization and subsequent rehabilitation allows a good outcome. Results at one-year follow-up were satisfactory with normal range of motion and no redislocations occurring. To our knowledge, this is the first reported case of bilateral anterior shoulder dislocation associated with fractures of both greater tuberosities in elderly woman.

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1. Introduction

Although the shoulder is the most frequently dislocated joint, bilateral glenohumeral dislocations are rare and almost always posterior.¹ Such dislocations are usually caused by sports injuries, epileptic seizures, electrical shock, or electro-convulsive therapy.^{2–6} However, simultaneous bilateral anterior shoulder dislocation is very rare and usually for traumatic origin with only about 30 cases described in the literature.^{2,7–11} Bilateral fracture-dislocation is even rarer, with only few cases reported. In the past, seizures had been incriminated for bilateral anterior shoulder fracture-dislocation.^{7,12,13} We report an unusual case of bilateral dislocation of the shoulders with bilateral fractures of the greater tuberosity following a fall on stairs in a 76-year-old woman.

2. Case report

A 76-year-old woman experienced bilateral anterior dislocation of the shoulders with fractures of the greater tuberosity on both sides after a fall from stairs. She presented to the emergency department complaining of acute bilateral shoulder pain and stiffness. She had no history of seizure, epilepsy, alcohol intake or previous shoulder dislocation. Physical examination revealed fullness over the anterior aspect and flattened contour of both shoulders below the tip of the acromion suggestive of bilateral shoulder dislocations. Both arms were abducted and externally rotated. She was neuro-vascularly intact bilaterally. The anteroposterior view revealed bilateral anterior dislocation of the shoulders as well as fractures of both greater tuberosities (Fig. 1). Bilateral reduction was promptly performed under general anaesthesia by

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Fig. 1 – X-ray demonstrating the bilateral anterior shoulders dislocation with bilateral fractures of the greater tuberosity.

Fig. 2 – Post-reduction X-ray showing anatomical reduction of the greater tuberosity on both reduced shoulders.

closed manipulation and confirmed by radiographs which showed an anatomical reduction of the greater tuberosity fracture on both sides (Fig. 2). Both arms continued to be neurovascularly intact and shoulders were immobilized for 3 weeks. The patient received physical therapy as tolerated and was able to resume her daily activities 2 months later. At one-year follow-up, the outcome was satisfactory and the shoulders were stable and painless with very good range of motion and no redislocations occurring. Radiographs showed an anatomical consolidation of the fractures of the greater tuberosity on both shoulders. She was satisfactory discharge of our care at that stage.

3. Discussion

Anterior shoulder dislocation is the most common major joint dislocation encountered in the emergency department probably because of the position naturally adopted by the upper extremity during a fall. The injury mechanism is forced extension, abduction, and external rotation. Our elderly woman missed a stair and fell on outstretched upper limbs in abduction and external rotation. Bilateral shoulder dislocation is rare and almost always posterior.¹ Such dislocations are usually caused by sports injuries, epileptic episodes, seizures, electrocution including electroconvulsive therapy, drug overdose, neuromuscular disorders, or severe emotional

disturbances.^{2,3,14–16} However, bilateral anterior shoulder dislocation is very rare and only about 30 cases were reported in the literature, 15 of which were of fracture-dislocation. Most were due to violent trauma from sports injuries and electrocution but also seizures and diabetic nocturnal hypoglycemia were incriminated.^{7,15,17,18} Bilateral anterior shoulder dislocation was first described in 1902 in a patient with muscular contraction caused by a camphor overdose.^{2,19} Bilateral fracture-dislocation is even rarer, with only few reports in the literature. Associated fracture of the greater tuberosity occurs in 15%⁷ of the anterior dislocation cases and signifies an associated rotator cuff tear.²⁰ Patients typically present with acute shoulder pain and decreased range of motion with the upper limb in abduction and external rotation. Physical examination reveals a humeral head palpable in the anterior aspect of the shoulder. Clinical diagnoses of dislocation types and associated fractures may be inaccurate without imaging.^{2,21,22} Radiographs combined with computed tomography (CT) are recommended to make an accurate and early diagnosis. CT scan is superior to routine radiographs in revealing bone fragments displacement and may be useful for planning the reduction procedure.

MRI may evaluate, in surgical candidates, rotator cuff tear and other shoulder pathology. Patients are generally treated by closed reduction techniques under general anaesthesia

followed by shoulders immobilization and subsequent active and passive physiotherapy. Age over 40 years, the first episode of dislocation and the mechanism of injury are three significant clinical factors associated with occurrence of fractures in bilateral anterior dislocations.²³ Our patient was 76 years of age and it was an initial episode of bilateral dislocation. Dinopoulos et al reported a 76-year-old woman who experienced an anterior dislocation of both shoulders with a 3-part fracture of the right proximal humerus following a fall on outstretched arms.¹¹ The outcome was satisfactory after closed reduction and shoulders immobilization. Cottias et al²⁴ reported recently a case of bilateral anterior shoulder dislocation caused by hypoglycemia-induced convulsion with bilateral fractures of the greater tuberosity and bilateral non-displaced fractures of the tip of coracoid process. There were no humeral neck fractures or rotator cuff tear associated. The management of the right shoulder was surgically made. Our case of posttraumatic bilateral anterior shoulder dislocation with bilateral fractures of the greater tuberosity is extremely rare. Our elderly lady was treated with early bilateral closed reduction followed by immobilization of both shoulders and physical therapy. After one-year follow-up, she had regained very good range of motion with satisfactory function in both sides with no redislocations occurring. A fracture of the greater tuberosity occurs in approximately 10% of dislocations and is usually associated with the humeral head in a subglenoid, low subcoracoid, or subclavicular position.²⁵ In these cases, reduction manoeuvre may depend on the position of the humeral head. The greater tuberosity is displaced in the approximately 15% of all anterior shoulders dislocations of the shoulder.²⁰ The diagnosis of a rotator cuff tear is almost sure when the fracture of the greater tuberosity is displaced. Functional impairment is commonly seen if the greater tuberosity is not reduced anatomically.²⁶ Our patient underwent closed reduction and both fractures of the greater tuberosity were anatomically reduced. She was able to resume her daily activities 2 months after. Although the most of anterior shoulder dislocations are easily reduced by classical closed manoeuvres and adequate sedation and analgesia, the interposition of biceps tendon, subscapularis or a greater tuberosity fragment can prevent reduction.^{27–29} General anaesthesia is indicated for these cases. Complications like fractures, brachial plexus injury, soft-tissue injuries, vascular injury and recurrent dislocations have been reported.¹⁴

4. Conclusion

Bilateral anterior dislocation of the shoulders with associated bilateral fractures of the greater tuberosity is an extremely rare injury. Even the clinical examination may help to suspect the dislocation but radiographs are mandatory to make an accurate and early diagnosis. Non-displaced and minimally displaced fractures are typically treated successfully non-surgically followed by shoulders immobilization. Surgery is recommended for unreduced dislocation or displaced fracture. Subsequent physiotherapy usually leads to satisfactory results after both surgical and nonsurgical treatment.

Conflict of interest

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

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