CASE REPORT

Bilateral luxatio erecta humeri

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Accepted 21 March 2005

Introduction

Luxatio erecta humeri or inferior dislocation of the glenohumeral joint is a rare form of shoulder dislocation, with bilateral cases being even less frequent. We present a case of bilateral inferior dislocation of the glenohumeral joint and discuss the presentation, mechanism, diagnosis and treatment of this rare injury.

Case report

A 45-year-old construction worker was brought into the Emergency Department after jumping off some collapsing scaffolding. The scaffolding was adjacent to an empty swimming pool, and he landed with both arms outstretched (both shoulders in full abduction with elbows in extension) into the 10 foot deep pool. On presentation he was holding both arms in 140° abduction with the elbows flexed at 90 and the forearms resting on his head. Any attempts at lowering the arms either by the patient or the emergency department staff elicited severe pain.

Both the humeral heads were palpable in the axillae. The brachial, radial and ulnar pulses were intact bilaterally. Sensation to pinprick was intact with C5 to T1 parasthesia bilaterally. Muscle power could not be tested due to extreme pain. No other injuries were noted.

Radiographic examination showed inferior dislocation of both glenohumeral joints with no associated fractures (Figs. 1 and 2). Closed reduction of the dislocations was achieved under sedation in the Emergency Department by applying inline cephalad traction to the extended arms in turn. Counter traction on the superior aspect of the respective shoulder was maintained with a sheet. The shoulder joints were immobilised in Polyslings and post manipulation radiographs showed successful reduction with no associated fractures. Post reduction examination showed well-perfused upper limbs with reduced sensation over bilateral “badge-patch” distribution, suggesting an axillary nerve palsy. Motor power was grade 2 on shoulder abduction bilaterally (MRC power grading); all other muscle groups of the upper limb were grade 5 bilaterally. The shoulder joints were immobilised in Polyslings for 3 weeks and then physiotherapy was started.

At 8 weeks follow up, both upper limbs had no vascular deficit with complete resolution of axillary nerve sensory disturbance. Muscle power was grade 4 on shoulder abduction bilaterally with all other muscle groups being grade 5.
Discussion

Inferior dislocation of the glenohumeral joint (luxatio erecta humeri) is a rare injury accounting for about 0.5% of shoulder dislocations. Middeldorpf and Scharm were the first to recognise luxatio erecta as a unique injury in 1859, whereas Murard was the first to describe a case of bilateral inferior glenohumeral dislocation. This form of dislocation can occur in virtually all age groups. Cases of bilateral luxatio erecta are quite rare, with only 10 previous accounts in world literature.

Luxatio erecta is the result of direct or more frequently, indirect forces acting on the shoulder joint. The indirect mechanism of injury involves the arm being forced into hyperabduction at the shoulder joint. This results in levering of the humerus on the acromion causing a tear in the inferior glenohumeral capsule, the inferior and middle glenohumeral ligaments and the rotator cuff. With this mechanism fractures of the inferior glenoid rim, acromion and the greater tuberosity can occur.

The direct mechanism involves axial loading of the humerus from above with the arm fully abducted at the shoulder and the elbow fully extended. This mechanism, although being less frequent than the indirect type, resulted in the bilateral inferior dislocations sustained by our patient.

The clinical presentation of luxatio erecta is unique. The patient is usually distressed, giving the impression of hysteria. The involved arm is hyperabducted at the shoulder joint and flexed at the elbow, with attempts at adduction by the patient or the physician being extremely painful. Skin creases may be present on the superior aspect of the shoulder, indicating the acute angle between the acromion and the humeral shaft. The glenoid fossa is empty and the humeral head may be palpable in the axilla adjacent to the lateral chest wall. Neurovascular compromise may be present, most commonly the axillary nerve.

Radiological evaluation involves visualisation of the dislocation in two views along with orthogonal views (axillary lateral, transcapular lateral, apical oblique). The antero-posterior (AP) projection often demonstrates an inferior displacement of the humeral head relative to the glenoid, with the shaft of the humerus lying parallel to the spine of the scapula. The transcapular lateral (Y-view) has
the benefit of being taken without having to move the patient and has the benefit of closely defining the relationship of the humeral head and the glenoid fossa.

Most cases of luxatio erecta can be managed by closed reduction. Adequate analgesia is essential for successful reduction. Closed reduction is achieved by applying in-line cephalad traction on the extended arm while an assistant applies counter traction to the superior aspect of the shoulder and the chest with a rolled bed sheet or towel. Once the humeral head is reduced into the glenoid fossa, the arm is adducted towards the body in an arc and is immobilised. Post reduction AP and lateral projections will verify adequate reduction and any possible fractures. In some cases, luxatio erecta may be complicated by a button hole deformity of the inferior capsule. In such cases open reduction is required to reduce the dislocation.10

Most common complications include fractures of the greater tuberosity or a rotator cuff tear, which may be present in up to 80% of cases.10 Neurological injuries may be present in 60% of cases,7 and most commonly involve the axillary (circumflex) nerve. Mixed brachial plexus and isolated radial and ulnar nerve injuries have also been reported.3 Prognosis for neurological injury is excellent with most cases resolving spontaneously from 2 weeks to 1 year.7 Vascular injuries complicate about 3.3% cases,7 predominantly affecting the axillary artery or vein. In most instances, the vascular insufficiency resolves with reduction of the dislocation, although two cases of axillary artery occlusion necessitating saphenous vein graft bypass of the occlusion have been described.1,6 Prognosis for normal shoulder function is good in uncomplicated cases, although joint instability or adhesive capsulitis may lead to significant morbidity.2

Conclusion

A bilateral luxatio erecta humeri is a rare form of shoulder dislocation with a unique mechanism and presentation. Because of its rare nature it may be misdiagnosed,2,10 resulting in inappropriate manoeuvres to try to reduce the dislocation. Diagnosis is established on the basis of classical presentation, appropriate mechanism of injury, physical examination and is confirmed by radiography. Reduction in most cases is achieved by the traction and countertraction method. Prognosis is good for most uncomplicated cases.

References