An unusual presentation in the emergency department with 'hands up' posture

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INTRODUCTION

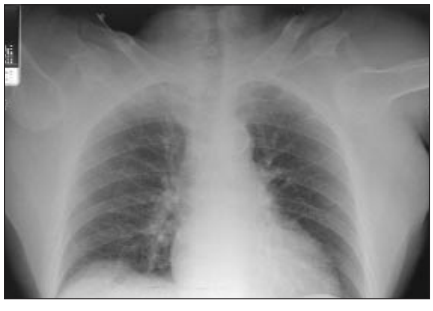
Inferior shoulder dislocation was first described by Middledorpf and Scharm in 1859. Also known as luxatio erecta humerii, this rare form of shoulder dislocation has an overall incidence of 0.5% of all shoulder dislocations. Two types are described, either subcoracoid (humeral head in front of the neck of scapula) or subglenoid (humeral head beneath the inferior rim of the glenoid). Murrard reported the first bilateral case in 1920, and since then only nine cases have been published in the medical literature.

DISCUSSION

Inferior shoulder dislocation, also known as luxatio erecta humerii, is a rare form of shoulder dislocation. Simultaneous bilateral inferior shoulder dislocation is rarer still. Newman and Bendall (1993) reported a bilateral inferior shoulder dislocation with both subglenoid and subcoracoid types seen in the same patient. The mechanism of injury involves hyperabduction of the arm at the shoulder with extension at the elbow and a pronated forearm. A violent abduction force on an already abducted arm is the usual cause, although a direct axial loading force on the fully abducted arm is also common. Pertinent literature on bilateral simultaneous inferior shoulder dislocation is reviewed in *Table 1*.

The diagnosis is suggested by the classic presentation of a 'hands up' or 'hands on head' attitude. The X-ray finding of a parallel position of the humeral shaft to the spine of scapula confirms the clinical suspicion. A traction–countertraction manoeuvre (traction to the abducted arm with countertraction on the top of the shoulder), followed by carrying the arm through an arc to the side of the body, is attempted first to achieve a closed

Figure 1. Chest radiograph showing bilateral inferior shoulder dislocation.



CASE REPORT

A 75-year-old right-hand dominant woman attended the emergency department with both arms locked in the erect position. She had fallen off a ladder and had landed vertically down on both outstretched hands. Her past medical history was unremarkable. She had had no previous shoulder trauma. On examination, both humeral heads were palpable in the axillae, lying against the lateral chest walls. On neurological assessment of the extremity, paraesthesia in the regimental badge area with deltoid weakness was noted, affecting the left shoulder. Bilateral inferior shoulder dislocations, with no associated bony injuries, were confirmed on a chest X-ray (*Figure 1*). A closed manipulation was successfully performed under sedation in the emergency department (*Figures 2* and *3*).

Subsequent electromyography and nerve conduction studies demonstrated a partial left axillary nerve injury. A magnetic resonance imaging scan of the shoulder revealed complete rupture of left subscapularis and supraspinatus tendons. Surgical repair of the rotator cuff tear was discussed with the patient but she preferred a conservative mode of treatment because of her limited functional demands.

The patient had a course of regular physiotherapy. Her left deltoid weakness recovered. At 1 year follow up, there was a complete range of motion on the right side and a useful range of motion (range of active utility movements required for performing activities of daily living) in the left shoulder with normal neurological findings. She was satisfied with the recovery achieved, although she had minimally painful, restricted terminal range of overhead abduction and rotations as a result of a rotator cuff tear on the left shoulder.

Figure 2. Post-reduction radiograph of the right shoulder.

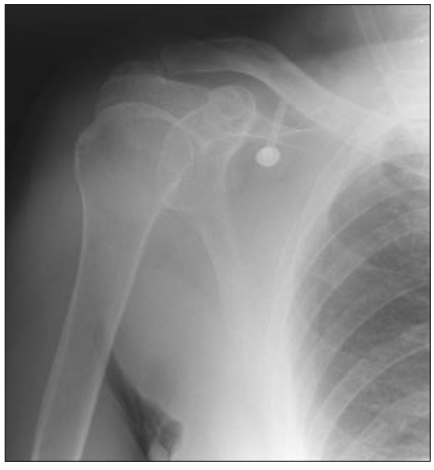
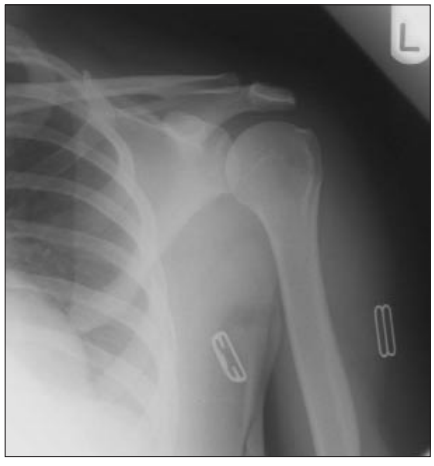


Figure 3. Post-reduction radiograph of the left shoulder.



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reduction and is nearly always successful (Peiro et al, 1975; Gelczer et al, 1996; Mesa et al, 1996).

Investigations by ultrasound scan, magnetic resonance imaging (MRI) scan and/or electrophysiological studies may be indicated in the post-reduction period. Complications can be partial or complete injury to the rotator cuff, axillary vessels and/or brachial plexus. Vascular injuries may result in intimal tears, transaction and/or thrombosis of the axillary artery or vein. The most commonly injured structure is the axillary nerve. Neurological injuries are more common than vascular injuries, and tend to resolve after the reduction.

The patient should be warned of possible significant long-term complications such as adhesive capsulitis, recurrent dislocation and instability (Brady et al, 1995; Gelczer et al, 1996; Mesa et al, 1996; Kumar et al, 2001). The most common long-term complication is adhesive capsulitis. Associated fractures can involve the inferior glenoid rim, greater tuberosity or acromion. Karaoglu et al (2003) mentioned the overall incidence of unilateral inferior dislocation is approximately 1 in 200 shoulder dislocations with a 3% vascular, 60% neurological and 80% rotator cuff injury rate.

Treatment is by closed reduction under intravenous sedation or general anaesthesia except in irreducible cases where the capsule is buttonholed, requiring an open reduction. Small rotator cuff tears can be treated conservatively. Early surgical repair is preferred in complete and large rotator cuff tears. Although operative management of complete rotator cuff tears is recommended by most authors, this patient preferred to be treated conservatively because she had limited functional demands, as in the case reported by Karaoglu et al (2003).

TABLE 1.
Pertinent literature on bilateral inferior shoulder dislocation

Reference	Age and sex	Mechanism of injury	Neurovascular injury	Rotator cuff tear	Return to work
Kumar et al (2001)	58 years, male	Slipped and fell in the garden, intoxicated, fell on outstretched arms	Bilateral brachial plexus injury	Bilateral partial rotator cuff tears	Yes
Mesa et al (1996)	32 years, male	Road traffic accident, car overturned a few times, patient braced both arms against the roof of the car in an attempt to prevent head injury	Bilateral sensory median and left axillary nerve injury	None	Yes
Gelczer et al (1996)	45 years, male	Fell off horse, riding at high speed, fell on both outstretched arms	None	None	Yes
Brady et al (1995)	80 years, female	Tripped and fell in the garden, fell on outstretched arms	None	None	NA
Newman and Bendall (1993)	75 years, female	Road traffic accident, thrown on outstretched arms (right subcoracoid, left subglenoid)	None	None	NA
Peiro et al (1975)	49 years, male	Both arms pulled as machine started accidentally while cleaning a cement mixer with head and trunk in the machine	Left axillary nerve injury	None	No
Karaoglu et al (2003)	70 years, female	Fell off ladder, fell vertically down on outstretched arms	None	Bilateral complete rotator cuff tears	NA
Current case	75 years, female	Fell off ladder, fell vertically down on outstretched arms	Left axillary nerve injury	Left complete rotator cuff tear	NA

NA = not applicable

CONCLUSIONS

Simultaneous bilateral inferior shoulder dislocation, also known as luxatio erecta humerii, is a rare form of shoulder dislocation. This case report emphasizes the importance of diagnosing and documenting potential associated axillary nerve injuries, brachial plexus complications and rotator cuff tears in patients with bilateral inferior shoulder dislocation. Investigations by ultrasound scan, MRI scan and/or electrophysiological studies should be considered to help confirm the suspected clinical findings and to aid planning further management. Patients should be warned about the likelihood of some functional limitations with such injury. HM

Brady WJ, Knuth CJ, Pirrallo RG (1995) Bilateral inferior glenohumeral dislocation: luxatio erecta, an unusual presentation of a rare disorder. *J Emerg Med* **13**(1): 37–42

Gelczer RK, Swee RG, Adkins MC (1996) Bilateral inferior glenohumeral dislocations. *J Trauma* **40**(5): 825–6

Karaoglu S, Guney A, Ozturk M, Kekec Z (2003) Bilateral luxatio erecta humeri. *Arch Orthop Trauma Surg* **123**(6): 308–10

Kumar KS, O'Rourke S, Pillay JG (2001) Hands up: a case of bilateral inferior shoulder dislocation. *Emerg Med J* **18**(5): 404–5

Mesa M, Carpintero P, Carpintero J (1996) Bilateral luxatio erecta humeri. *Acta Orthop Belg* **62**(2): 116–9

Murrad J (1920) Us cas de luxatio erecta de l'apaule, double et symetrique. *Rev Orthop* **7:** 423–8

Newman KJ, Bendall R (1993) Bilateral inferior shoulder dislocation: both subglenoid and subcoracoid types seen in the same patient. *Injury* **24**(10): 684–5

Peiro A, Ferrandis R, Correa F (1975) Bilateral erect dislocation of the shoulders. *Injury* **6**(4): 294–5