

## An uncommon shoulder dislocation presenting to the emergency department: inferior shoulder dislocation

### 到急症室求診的罕有肩關節脫位：肩關節向下脫位

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Three patients presenting to the emergency department with inferior shoulder dislocation were reviewed with respect to their clinical and radiological features, initial management and final results. (*Hong Kong j. emerg.med.* 2005;12:228-231)

審查三名因肩關節向下脫位到急症室求診病者的臨床及放射線學特徵、初步處理及最後結果。

**Keywords:** Closed reduction, complications, shoulder dislocation

**關鍵詞：**閉合復位術、併發症、肩關節脫位

## Introduction

Inferior shoulder dislocation, also named as luxatio erecta, is a rare type of shoulder dislocation. Its incidence is about 1 in 200 (0.5%) among all shoulder dislocations.<sup>1</sup> The objective of this study was to review three cases of inferior shoulder dislocation, their clinical and radiological presentation, management and final outcome.

## Methods

During the period of January 2000 to June 2003, patients with inferior shoulder dislocation admitted into our department through the Accident and Emergency Department were recruited. Their medical records were retrieved and reviewed.

## Results

Two female (aged 82 and 93) and one male (aged 31) patients were identified, involving one left shoulder and two right shoulder dislocations. All presented to our Accident and Emergency Department (AED) shortly after the injury. Concerning the mechanism of injury, accidental slip and fall accounted for two cases and the third patient was a motorcyclist in a traffic accident. All of them could give a clear history of abduction injury of the involved extremity. On physical examination, all of them kept their injured upper extremity in a hyper-abduction posture. Abrasion wounds were found in the axilla and the inner arm of the motorcyclist (Figure 1).

No neurovascular deficit was reported except for the motorcyclist who complained of paraesthesia along the axillary nerve distribution.

Shoulder X-rays were taken in all three cases, which showed similar radiographic features (Figures 2-4), including hyper-abduction of the injured limb with the shaft of humerus parallel to the spine of the scapula and inferior dislocation of the humeral head out of

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**Figure 1.** Abrasions over the axilla and inner aspect of the arm in the motorcyclist.



**Figure 2.** Inferior shoulder dislocation (Patient 1).



**Figure 3.** Inferior shoulder dislocation with fractured greater tuberosity (Patient 2).



**Figure 4.** Inferior shoulder dislocation with fractured greater tuberosity (Patient 3).

the glenoid fossa. Two cases were associated with greater tuberosity fractures.

Closed reduction was successfully performed in all three cases under intravenous sedation. The sedation used was diazepam or midazolam plus pethidine. One was correctly diagnosed in our AED and proper closed reduction was performed, and the other two were admitted to the orthopaedic ward for further treatment because of the odd posture of the involved upper limb at presentation. The reduction procedure was totally different from the usual way of closed reduction. It was started by gentle traction along the axis of the abducted extremity, with counter-traction by an assistant simultaneously, followed by gradual adduction of the extremity. X-rays (Figures 5 & 6) were taken immediately after the closed reduction, confirming successful reduction.

There was no procedure-related complication reported in our cases. Vascular insult, which was well known to be one of the significant complications, was not found, but there was residual paraesthesia along the axillary nerve distribution in the motorcyclist.

All the reduced shoulders were immobilised by shoulder immobiliser for a period of 2-4 weeks, and



Figure 5. Post-reduction (Patient 2).



Figure 6. Post-reduction (Patient 3).

gentle pendulum movements of the injured upper limbs were allowed during this period. Afterwards, active movement was encouraged under the supervision of physiotherapists.

The transient axillary nerve paraesthesia fully recovered in six weeks' time after the injury. Upon follow up of these three patients (18 months or more after the injury), no recurrence of shoulder dislocation was noticed.

One patient had satisfactory shoulder movement comparable to the contra-lateral side, while there was some stiffness in the other two patients. Manipulation

under general anaesthesia was performed in one of them to improve the functional status.

## Discussion

Inferior shoulder dislocation is far less common than other types of shoulder dislocations. It occurs when forceful abduction of the arm impinges the humeral neck into the acromion. As a result of this leverage action, the humeral head is forced inferiorly out of the glenoid fossa.<sup>2</sup>

Though antero-posterior and axillary view radiographs of the shoulder are almost diagnostic, some clinical clues are also useful, including the injured arm being abducted and above the head. Sometimes the dislocated humeral head can be palpated against the lateral chest wall. Together with the telltale sign of any wound in the axillary region, it becomes pathognomonic. Rarely, anterior-inferior shoulder subluxation can mimic an inferior shoulder dislocation.<sup>3</sup>

In view of this uncommon shoulder dislocation, closed reduction was not attempted by medical staff in the AED, and the orthopaedic surgeon was consulted in one case with closed reduction successfully performed in the AED. For the other two patients, closed reduction was performed by experienced orthopaedic surgeons shortly after they were admitted to the orthopaedic department.

Although closed reduction is usually successful without difficulty, failures do exist, most of the time secondary to entrapment of the humeral head in the torn inferior joint capsule. If this occurs, operative treatment with open reduction is the treatment of choice.

Concerning the complications,<sup>4</sup> the most common one is neurological, e.g. axillary nerve palsy (60%) which is usually temporary, followed by humeral fracture (37%), rotator cuff tear (12%), and rarely compartment syndrome and surgical neck fracture.<sup>5</sup>

Diminished range of motion after the injury can be caused by adhesive capsulitis within the capsule and inferior axillary fold.<sup>6</sup>

## Conclusion

Inferior shoulder dislocation is a rare type of shoulder dislocation. All patients share a characteristic clinical posture and classical radiological appearance. To avoid complications resulting from improper closed reduction at the AED, all of these cases should be admitted to the orthopaedic department for proper closed reduction, preferably to be done by experienced orthopaedic surgeons. Most cases can be successfully managed by closed reduction under adequate intravenous sedation with satisfactory outcome except those entrapped by the torn inferior capsule.

## References

1. Laskin RS, Sedlin ED. Luxatio erecta in infancy. *Clin Orthop Relat Res* 1971;80:126-9.
2. Wirth MA, Rockwood CA. Subluxations and dislocations about the glenohumeral joint. In: Bucholz RW, Heckman JD, eds. *Rockwood and Green's fractures in adults, Volume 2*. 5th ed. Philadelphia: Lippincott; 2001: p. 1110-201.
3. Goldstein JR, Eilbert WP. Locked anterior-inferior shoulder subluxation presenting as luxatio erecta. *J Emerg Med* 2004; 27(3):245-8.
4. Mallon WJ, Bassett FH 3rd, Goldner RD. Luxatio erecta: the inferior glenohumeral dislocation. *J Orthop Trauma* 1990;4(1):19-24.
5. Tomcovcik L, Kitka M, Molcanyi T. Luxatio erecta associated with a surgical neck fracture of the humerus. *J Trauma* 2004;57(3):645-7.
6. Grate I Jr. Luxatio erecta: a rarely seen, but often missed shoulder dislocation. *Am J Emerg Med* 2000;18(3):317-21.