



CASE REPORT

Traumatic Luxatio Erecta Humeri: A Case Report

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Abstract

Introduction: The first description of erect dislocation is considered to have been in 1859 by Middeldorpf and his assistant Scharm. The clinical presentation of this type of shoulder dislocation is, with the arm in complete abduction, the elbow flexed and the forearm supported on or behind the head. It may be associated with multiple complications, including acromion fractures, coracoid or clavicle, rotator cuff injury as the most common and acute form with neurovascular injury.

Clinical case: A 58-year-old male patient who, while walking, falls down the stairs on approximately 20 steps, causing pain, limited mobility and right arm block for shoulder mobility, is taken by the paramedical services to the emergency area of our hospital and attended by the traumatology and orthopedic service, is observed with limitation for the movement of the right shoulder, severe pain and obvious deformity with the hyperabductor arm aligned with the thorax axis, internal rotation of the forearm and hand in front of the head, suspicion of erect dislocation of the shoulder, an X-ray with anteroposterior projection of the right shoulder is required, showing the dislocation of the lower right shoulder with alignment of the diaphysical axis of the humerus to the spine of the scapula, it is decided to perform an urgent closed reduction manipulation.

Discussion: Within the mechanisms that have been described for this entity there are two, the first is the hyperabduction of an already abducted shoulder where the acromion acted as lever (the most frequent) and the second, an axial load on a shoulder with abduction that generated injury to the joint capsule, Radiologically, the humeral diaphysis running parallel to the spine of the scapula or parallel to the thorax with the humeral head located below the glenoid cavity is characteristic.

Traction-countertractions performed by traction on the arm axis that is in total abduction and contraction is performed on the shoulder axis with cephalic pressure, although this maneuver is usually difficult and requires intense sedation and analgesia.

Introduction

The first description of erect dislocation is considered to have been in 1859 by Middeldorpf and his assistant Scharm [1].

Lower glenohumeral dislocation accounts for only 0.5% of all shoulder dislocations. [2] is so rare that only 199 cases have been reported in the literature [3-5].

The clinical presentation of this type of shoulder dislocation is, with the arm in complete abduction, the elbow flexed and the forearm supported on or behind the head [2].

Anterior dislocations account for 95% and posterior dislocations for 4.5% of shoulder dislocations, while “erect” inferior dislocation is a very rare and uncommon entity with 0.5% of all cases [1]. The mechanism of injury most commonly associated with this etiology results from a force that generates hyperabduction of the shoulder, generating that the humeral neck is pressed against the acromion which will cause a displacement of the humeral head through the capsule [1,2].

Clinically the patient will arrive with the arm in total

abduction with the hand in front or back to the head, these characteristics will be confirmed by X-ray images observing the head of the humerus located under the glenoid and the axis of the humerus directed upward (Figure 1) [6].

It may be associated with multiple complications, including acromion fractures, coracoid or clavicle, rotator cuff injury as the most common and acute form with neurovascular injury [1].

The initial treatment of all is the reduction of the

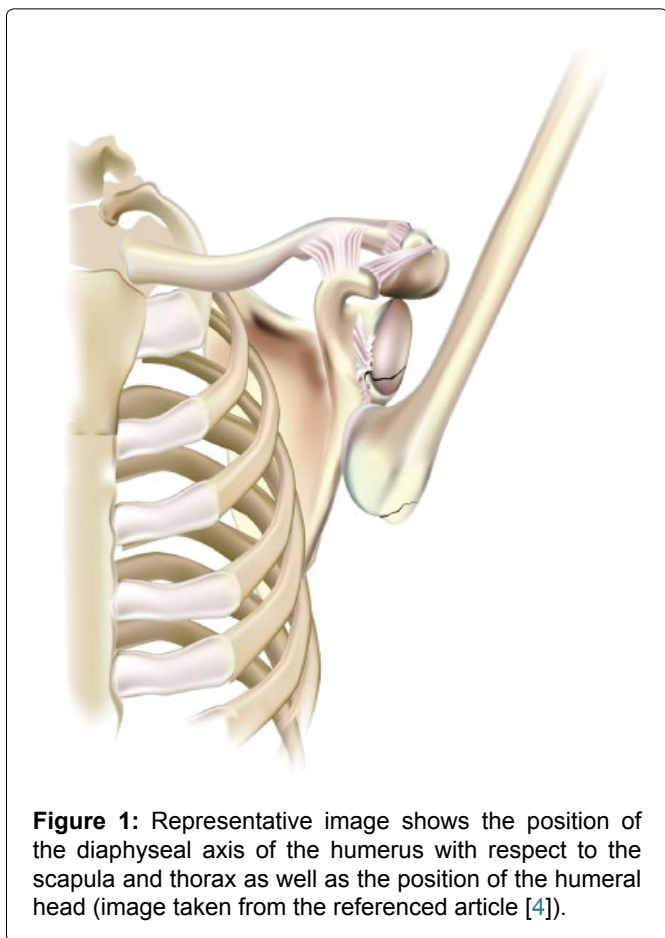


Figure 1: Representative image shows the position of the diaphyseal axis of the humerus with respect to the scapula and thorax as well as the position of the humeral head (image taken from the referenced article [4]).

urgent form, the traction-countertraction maneuver is used mostly followed by the staggered maneuver, it is suggested that at the end of rehabilitation an evaluation of rotator cuff function be made as a possible complication [2].

In case the management is not successful, the transsurgical reduction could be chosen.

Case Report

A 58-year-old male patient who, while walking, falls down the stairs on approximately 20 steps, causing pain, limited mobility and right arm block for shoulder mobility, is taken by the paramedical services to the emergency area of our hospital and attended by the traumatology and orthopedic service, is observed with limitation for the movement of the right shoulder, severe pain and obvious deformity with the hyperabducted arm aligned with the thorax axis, internal rotation of the forearm and hand in front of the head, suspicion of erect dislocation of the shoulder (Figure 2), so an X-ray with anteroposterior projection of the right shoulder is required, showing the dislocation of the lower right shoulder with alignment of the diaphyseal axis of the humerus to the spine of the scapula (Figure 3), it is decided to perform an urgent closed reduction manipulation using a manoeuvre with two hands and bringing the lower luxation to an anterior luxation, after which remanipulation is performed to bring the anterior luxation to a proper shoulder position (Figure 4), the patient is evaluated neurologically and no neurovascular injury data are observed.

The universal shoulder immobilizer is placed for 3 weeks and later to initiate mobility in favor and gravity.

Discussion

Erect shoulder dislocation is considered a rare and uncommon entity that is reported with a frequency of 0.5% of all shoulder dislocations.



Figure 2: (A,B) Clinical photographs of the patient at the time of arrival at the hospital and emergency room, the shoulder is observed in maximum abduction.

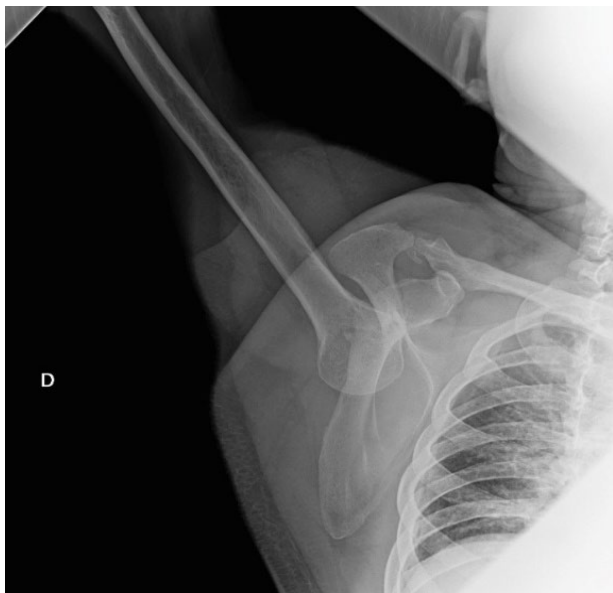


Figure 3: Anteroposterior radiograph of the right shoulder. The dislocation of the gleno-humeral joint towards the bottom is observed with the diaphyseal axis parallel to the spine of the scapula.



Figure 4: Anteroposterior radiograph of the right shoulder is observed with good joint congruence at glenohumeral level after reduction.

Within the mechanisms that have been described for this entity there are two, the first is the hyperabduction of an already abducted shoulder where the acromion acted as lever (the most frequent) and the second, an axial load on a shoulder with abduction that generated injury to the joint capsule. The falls represent up to 12%, while in our patient this correlates with what is reported in the literature.

The dislocation of the erect humerus consists of three stages: 1a blocked, 1b reduced with Hill-Sachs injury, migration 1c to anterior or posterior luxation, 2a anterior head to subscapular, rotator cuff not

completely separated, possible closed reduction, 2b complete avulsion of rotator cuff and closed reduction is not possible, 3 fractures in valve and anterior head to subscapular with complete avulsion of rotator cuff [7].

Clinically it occurs with the arm blocked in total abduction with the hand pronated on or behind the head.

Radiologically, the humeral diaphysis running parallel to the spine of the scapula or parallel to the thorax with the humeral head located below the glenoid cavity is characteristic.

Traction-countertractions performed by traction on the arm axis that is in total abduction and contraction is performed on the shoulder axis with cephalic pressure, although this maneuver is usually difficult and requires intense sedation and analgesia [4].

Another technique is described in which the first step is to convert the lower luxation into anterior luxation by placing an adjacent hand on the patient's shoulder on the lateral side of the middle part of the humerus shaft and the other hand on the medial epicondyle from a lower to the previous position, subsequently reduce anterior luxation to a harmonic position of the gleno-humeral joint [8].

It is important to remember that the nerve most at risk during this reduction is the axillary nerve possibly by elongation.

We report a clear case of clinical and radiological signs of erect shoulder dislocation.

We also described the clinical presentation that even before having radiological control is only diagnosed in our patient, it is important because the rapid resolution of this condition is essential to limit neurological and vascular lesions [3,4].

Conclusion

It is important to know how to determine and diagnose erect dislocation because it is essential to act immediately to prevent associated injuries. The position of complete abduction of the arm associated with a position of the hand in pronation behind or in front of the head makes us think immediately of the diagnosis, it is important to corroborate with radiological images to be able to perform the treatment [3,4].

It should be noted that the initially recommended manoeuvre is traction-countertraction to reduce dislocation or convert it into an anterior dislocation and then reduce it to its correct position [3].

In our case it was done in this way without associated complications.

Funding

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Conflict of Interest

None.

References

1. Gökkuş K, Sagtas E, Saylik M, Turan A, Atmaca H (2015) Luxatio erecta humeri: Report of a swimming injury with analysis of the mechanism of the injury and associated injuries in literature. *J Emerg Trauma Shock* 8: 43-48.
2. Prasetia R, Rudianto D, Herman H, Lesmana R, Nagar H (2021) Luxatio erecta of the humerus: The spectrum of injury of inferior shoulder dislocation and analysis of injury mechanisms. *Arthroscopy Techniques*.
3. Minicelli M (2023) Luxatio erecta humeri: A case report. *Journal of Orthopaedic Case Reports* 14: 40-43.
4. Nambiar M, Owen D, Moore P, Carr A, Thomas M (2018) Traumatic inferior shoulder dislocation: A review of management and outcome. *Eur J Trauma Emerg Surg* 44: 45-51.
5. Owen S, Nambiar M, Moore P, Thomas M (2016) Luxatio erecta humeri with neurovascular compromise: Inferior glenohumeral dislocation illustrating associated injuries. *BMJ Case Rep* 2016: bcr2016217120.
6. Sharma H, Denolf F (2004) Atypical subglenoid inferior glenohumeral dislocation clinically mimicking anterior dislocation. *European Journal of Trauma* 30: 259-261.
7. Wolf O, Ekholm C (2022) Luxatio erecta of the humerus: The spectrum of injury of inferior shoulder dislocation and analysis of injury mechanisms. *JSES Rev Rep Tech* 2: 497-504.
8. Nho J, Dodson C, Bardzik F, Brophy H, Domb G, et al. (2006) The two-step maneuver for closed reduction of inferior glenohumeral dislocation (luxatio erecta to anterior dislocation to reduction). *J Orthop Trauma* 20: 354-357.