

Luxatio Erecta Humeri: A Case Report

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Learning Point of the Article:

LEH can be radiographically misdiagnosed or missed but its singular clinical presentation is diagnostic. In our case, the clinical diagnosis leads us to treat it with an early and appropriate closed method of reduction.

Abstract

Introduction: Luxatio erecta humeri (LEH) is a rare type of inferior shoulder dislocation (ISD) and easy misdiagnosed or missed. We reported a case of a traumatic LEH with a radiological interpretation of ISD. We felt that the physical presentation was compatible with the LHE type and the closed reduction by the traction and countertraction method we accomplished without complications.

Case Report: We present a case of 38-year-old man with a LEH. We performed for the early diagnosis the clinical examination and the X-rays. We felt that the physical presentation was compatible with an erecta dislocation of the humerus, whereas radiologically, this injury was interpreted simply as the inferior dislocation of the right shoulder. The closed reduction by the traction and countertraction method was accomplished without complications. We kept the reduction with a Velpeau arm sling shoulder immobilizer brace for 3 weeks and after a shoulder rehabilitation, the outcome was good.

Conclusion: The luxation erecta humeri is a type of ISD still little known but the singular and unmistakable physical presentation should allow for an early diagnosis to obtain an easy closed reduction and a good outcome.

Keywords: Luxation erecta humeri, inferior shoulder dislocation, case report.

Introduction

Case Report

Luxatio erecta humeri (LEH) is an unusual injury. This dislocation is described in a series of cases reported in the literature [1-7] and recently identified a total of 199 patients [8]. Most cases can be treated with closed reduction and immobilization, but in case of irreducibility, it requires reduction under general anesthesia and/or further operative measures. The surgery is also reserved for patients with recurrent instability, open dislocation, or humeral fractures [4]. We present a case of an acute traumatic LEH reduced without anesthesia and treated with a Velpeau arm sling shoulder immobilizer brace.

A 38-year-old man, right-handed and healthy presented to our emergency room due to a fall. The patient reported that he had stumbled while walking and he fell backwards to the ground with the abducted right arm. The physical presentation of the right upper limb was distinctive: The elbow flexed, the forearm, and the hand pronated lying behind the patient's head with the arm elevated and hyperabducted at the shoulder. He was setting with the left hand that grabbed the contralateral hand (Fig. 2a). At physical examination, this right arm position was fixed for the pain, the humeral head prominence was visible and palpable in

Author's Photo Gallery



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Access this article online

Website:
www.jocr.co.in

DOI:
<https://doi.org/10.13107/jocr.2023.v13.i12.4070>

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Submitted: 18/09/2023; Review: 02/10/2023; Accepted: November 2023; Published: December 2023

DOI: <https://doi.org/10.13107/jocr.2023.v13.i12.4070>

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Figure 1: (a and b) Emergency X-rays of the right shoulder. The anteroposterior view shows the profile of the humeral head below the rim of the glenoid with the humeral shaft parallel to the scapular spine, and the comparative view shows the profile of the humeral head below the rim of the glenoid with the abducted humeral shaft over 90° and parallel to the scapular spine compared to the contralateral shoulder.

the axilla, and there were no wounds and neurovascular deficits. We performed anteroposterior (AP) view of the right shoulder in the scapular plane projection and the comparative view X-ray that were interpreted simply as the inferior dislocation of the right shoulder (Fig. 1). The radiographic examination excluded the fractures. We performed a closed reduction without sedation: We positioned the patient supine and placed his arms on the table in the same fixed position to relax your muscles, and we gently grabbed the right wrist, extended the elbow, and applied an in-line traction on a fully abducted arm applying simultaneously a slight cephalad pressure on the humeral head in the axilla (Fig. 2b) and when the humeral head is reduced, keeping the arm always in traction, we lowered and adducted it (Fig. 2c). We blocked the reduction with the Velpeau arm sling shoulder immobilizer brace with 90° of elbow flexion and a forearm in neutral position (Fig. 2d). The X-ray in AP view in internal rotation of the arm confirmed the reduction (Fig. 3). We observed the patient clinically for 2 hours, during this time, no neurovascular deficits appeared, and we discharged him at home. After 7 days, a radiographic examination showed the maintenance of the reduction. Three weeks after the reduction, the brace was removed, the new X-rays of the shoulder documented the continuation of the reduction, and the right shoulder was stable and painless; therefore, the patient started a rehabilitation program with range of motion (ROM) exercises within 10-days period. At follow-up, 3 months after the trauma, he presented normal ROM with any pain and instability and no restrictions in any activity.

Discussion

The LEH is a rare traumatic type of inferior shoulder dislocation (ISD). This injury represents only 0.5% of all shoulder dislocations. There are two mechanisms causing the ISD. The first mechanism is a hyperabduction force to an already abducted arm in which the acromion acts as lever on proximal humerus, and the second mechanism is an axial compression on the abducted arm in which a direct load of the humeral head breaks the capsule and the inferior glenohumeral ligaments. The ISD in 12% of cases is caused by the fall from standing height [8]. In our case, the LEH was caused by a low-energy trauma as a fall backward to the ground while the patient walking. Probably, both a hyperabduction force to an abducted arm to defend the skull from the impact on the ground and the axial load as a body weight on humeral head caused the LEH. The clinical presentation of LEH is distinctive, unmistakable, and diagnostic. In our case, the singular and fixed attitude of the arm elevated and hyperabducted at the shoulder and the forearm and the hand pronated lying behind the head, with the humeral head prominence visible and palpable in the axilla, helped us in the diagnosis before the radiographic examination. It is distinctive of LEH an abducted arm over 90° [1]. Some complications are reported for the LEH as fractures of acromion, greater tuberosity, humeral head, glena, clavicle, coracoid, furthermore, may be present with the LEH glenohumeral cartilage or capsular defects, rotator cuff and labral tears, humeral avulsion of glenohumeral ligament, disruptions of the adjacent muscles [5,9,10]. Severe or transient neurovascular injuries of brachial plexus, axillary nerve, radial

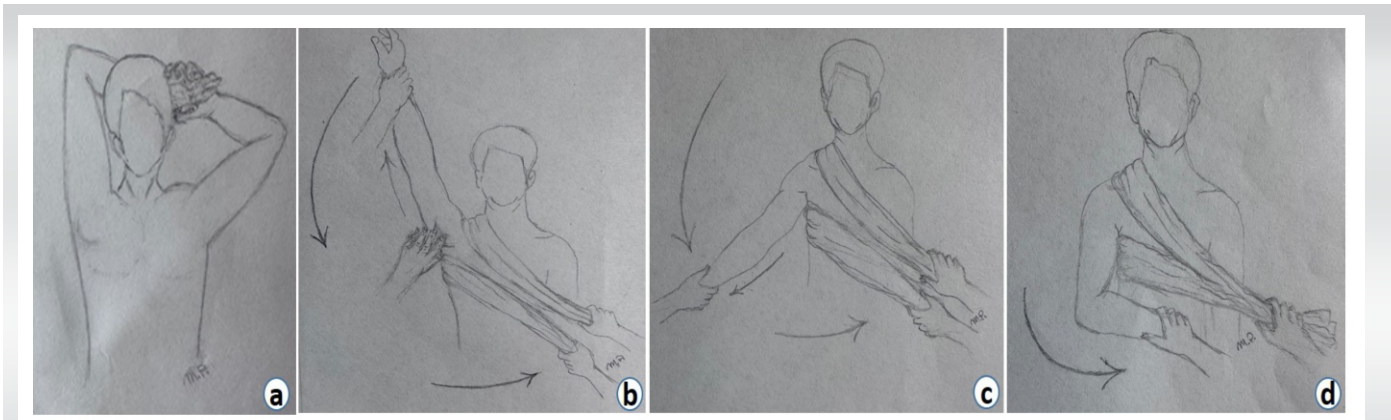


Figure 2: (a-d) The clinical presentation of luxatio erecta of the right humerus and the traction-countertraction method of shoulder reduction. (a) This picture shows the clinical presentation of luxatio erecta with the elbow flexed, the forearm, and the hand pronated lying behind the patient's head with the arm elevated and hyperabducted at the shoulder and the left hand that grabbed the hand of the dislocated side. (b) This picture shows how with the elbow extended, the traction is applied in line with the arm fully abducted and how the pressure is applied on the humeral head in the axilla and the countertraction is applied on the torso. (c) This picture shows that when the head of the humerus is reduced, the arm is always kept in traction and is lowered and adducted. (d) This picture shows how the reduction is blocked, with the elbow flexed at 90° and the forearm in neutral position.

and ulnar nerves may be associated with luxatio erecta [6]. In our case no fractures and no neurological deficits were present. There are two types of inferior dislocations shoulder joint: The sub glenoid dislocation and the true erecta dislocation. In the sub glenoid dislocation, the humeral head is locked in the sub glenoid region without the hyper abducted posture with the arm lying by the side of the body in neutral position [11]. This dislocation can be reduced with a traction on the arm and the lateral thrust of the humeral head and at the same time with a direct downward pressure on the top of the acromion. Instead, typical features of LEH in AP and in Y lateral views X-rays of the shoulder are the humeral head below the inferior rim of the glenoid or in sub coracoid location with abducted humeral shaft almost parallel to the scapular spine [1-5]. We reported a case of

LEH with suspicious and unclear signs of inferior dislocation of the right shoulder in AP view X-ray and for this reason, it was necessary to perform the comparative view X-ray in the scapular plane projection. The comparative projection confirmed more clearly the inferior dislocation of the head of the right shoulder with the abducted arm over 90° compared to the contralateral and the humeral shaft almost parallel to the scapular spine. In our case, we felt that the physical presentation was compatible with the diagnosis of an erecta dislocation of the humerus and the closed reduction by the traction and countertraction method was accomplished without complications as well as in the cases reported by Isaac Grate [12] and with a good outcome. We describe a clinical presentation of LEH with a missed or not specified radiographic interpretation. The LEH may be misdiagnosed or missed but the physical presentation and examination are diagnostics [12]. This is important for the prognosis of this dislocation that is directly influenced by early diagnosis and successful reduction [4, 10].



Figure 3: Post-reduction X-ray of the right shoulder in a brace. The X-ray in an anteroposterior view in internal rotation of the arm shows the reduced scapulohumeral joint dislocation with the humeral head in the glenoid and the humeral shaft lying by the side of the body.

Conclusions

The fixed attitude of the arm elevated and hyper abducted at the shoulder and the forearm and the hand pronated lying behind or in front of the skull with the humeral head prominence visible and palpable in the axilla are diagnostic features of the luxation erecta humeri. Radiographically, this injury can be missed or misdiagnosed. In our case, we felt that the physical presentation was compatible with the diagnosis of erecta dislocation of the humerus and the closed reduction by the traction and countertraction method was accomplished without complications.

Clinical Message

LEH is a rare type of traumatic ISD and for this reason can be radiologically misdiagnosed or missed, but the singular physical presentation, and the humeral head prominence visible and palpable in the axilla are diagnostics and the closed reduction by the traction and countertraction can be performed.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

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Conflict of Interest: Nil
Source of Support: Nil

Consent: The authors confirm that informed consent was obtained from the patient for publication of this case report

How to Cite this Article

Minicelli MG. Luxatio Erecta Humeri: A Case Report. *Journal of Orthopaedic Case Reports* 2023 December;13(12): 40-43.

