

**ERECTA DISLOCATION**

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**ABSTRACT**

Erecta dislocation is a rare entity that represents 0.5% of all shoulder dislocations. During the period 2014-2020, 05 patients suffering from erecta dislocation were evaluated in our department, including four males and one female with an average age of 26 years. The right shoulder was dislocated in three cases, and the mechanism was direct in three cases. Clinically, the patients showed a typical attitude with an upper limb in forced abduction, the hand raised and inability to bring the elbow back to the body. No neurovascular injury was reported. Shoulder radiography with two orthogonal views confirmed the diagnosis by showing an inferior dislocation of the humeral head. Treatment consisted of reduction under general anesthesia followed by Dujarier's bandage for three weeks. Luxatio erecta may be rare, but its diagnosis is easy, taking into account the neurovascular complications that may be concomitant. An X-ray is systematically indicated to confirm the diagnosis. The treatment is usually non surgical by reduction under general anesthesia, followed by elbow to body bandage.

**INTRODUCTION**

Shoulder dislocation, defined as the total loss of contact between the humeral head and the glenoid cavity, is the most frequent of all traumatic dislocations. Among the different clinical forms, erecta dislocation which is a rare entity; defines the inferior dislocation of the humeral head. This inferior dislocation is a therapeutic emergency because of the risk of compression of the axillary vessels and the brachial plexus. Our series reports 5 observations collected over a period of 7 years. The objective of our work is to insist on the rare aspect of these dislocations and their clinical and therapeutic particularities.

**PATIENTS AND METHODS**

A retrospective study was conducted at the Traumatology- Orthopedics Department of the University Hospital Center of Rabat, regarding 5 cases reported during a 7-year period between 2014 and 2020. The series included 4 males and 1 female, aged between 17 to 35 years. The dislocation affected the right shoulder in 3 cases, and the left one in 2 cases.

The circumstances of occurrence were in 4 cases road traffic accidents, and in one case a fall from stairs. The mechanism of dislocation was divided into:

Direct: Direct impact on the shoulder (3 cases).

Indirect: Fall on the hand (one case), Fall on the elbow (one case).

Clinically, the patients walked into the emergency room

with a specific attitude: An irreducible abduction with a humeral head placed under the glenoid fossa. None of the patients had suffered from a neurovascular disorder.

Two orthogonal radiographic views (Anteroposterior view-lateralscapula view) were requested, confirming the erecta variety of the dislocation with an inferior subglenoid dislocation of the humeral head without associated fracture. The epiphysal cartilage was still present in only one case, without any notable fracture-separation.

The patients were taken to the operating room, where they underwent reduction under general anesthesia. A follow-up X-ray confirmed the restoration of contact between the humeral head and the glenoid fossa, with no neurovascular disorder on post-reduction clinical examination.

A Dujarrier-type, elbow to body bandage was applied for 3 weeks, with precocious proprioceptive rehabilitation.

**RESULTS**

The average follow-up time was 16 months (12 months-20 months). The average antepulsion was 140°. The average abduction was 150°. Two cases reported residual pain. All of our patients had successfully returned to functional and sporting activities. No case of recurrence was noted.

## DISCUSSION

Middeldorpf and Scharm first described luxatio erecta in 1859.<sup>[1,2]</sup> This clinical variety represents 0.5% of all shoulder dislocations.<sup>[3,5]</sup>

Two mechanisms of occurrence were described by Davids and Talbott in 1990 (Figure 2).<sup>[4]</sup> The first one, is a direct mechanism: the arm, being abducted, undergoes an axial load forcing the humeral head to move through the inferior glenohumeral ligament and the joint capsule. The second one is an indirect mechanism which occurs by the forced application of abduction on an already abducted member causing the humeral shaft to be levered over the acromion. The humeral head breaks the inferior joint capsule and the inferior and middle glenohumeral ligament. The supraspinatus and infraspinatus muscles are also torn in this mechanism.<sup>[6]</sup>

The patients presented at the emergency room in a typical attitude: arm still raised, locked in forced abduction with impossibility to bring the elbow to the body. The humeral head is palpable at the axillary cavity, the glenoid cavity is empty. A neurovascular examination is imperative.

The radiological examination confirms the diagnosis and allows the detection of potentially associated injuries. An anteroposterior and a lateral view will show the position of the humeral head under the glenoid fossa and a humeral shaft that projects above the horizontal axis.<sup>[7]</sup>

Several complications may occur depending on the age of the patient<sup>[8]</sup> before the age of 45, recurrence is the main complication, whereas after the age of 45, rotator cuff injuries and fracture of the greater tuberosity are the most common complications. Neurologically, the axillary nerve is particularly at risk, probably because of its traction at its passage through the quadrangular space.<sup>[9]</sup> The vascular complications reported in the literature were pseudoaneurysm,<sup>[10]</sup> arterial

occlusion,<sup>[11,12]</sup> and intimal tear of the axillary artery.<sup>[13]</sup> Axillary artery involvement occurs in 90% of the time at its third section,<sup>[14]</sup> as the artery remains practically immobile at this level. A case of bilateral luxatio erecta complicated by thrombosis of the axillary artery was reported by Garcia et al. requiring anticoagulant treatment.<sup>[15]</sup>

Treatment is non-surgical if there are no complications.<sup>[16]</sup> Nho et al (Figure 4).<sup>[17]</sup> state that the reduction procedure consists of two steps: first, transforming the inferior reduction into an anterior reduction, and second, reducing the humeral head into the glenoid fossa. In order to do this, the operator places one hand on the shaft and the other hand on the medial condyle of the humerus. The hand on the shaft will apply anterior and rotational force to the humeral head to bring it back to the anterior position, then the arm is brought back in adduction-external rotation to reduce the head in the glenoid fossa. Elbow-to-body immobilization is performed for three weeks. Clinical and radiological controls are imperative. Rehabilitation remains essential for a satisfactory functional recovery.<sup>[18]</sup>

## CONCLUSION

Luxatio erecta is a rare form of shoulder dislocation that occurs most often after a trauma. Its diagnosis is established clinically and confirmed by standard radiography. Due to the significant dislocation of the humeral head, neurovascular complications are frequent. The combination of reduction, bandaging and early rehabilitation is the guarantee of a good evolution.

### Conflicts of interest

The authors declare no conflict of interest.

### Authors' contributions

All authors contributed to the care of the patients and the writing of the manuscript. All have read and approved the final version of the manuscript.

## Figures

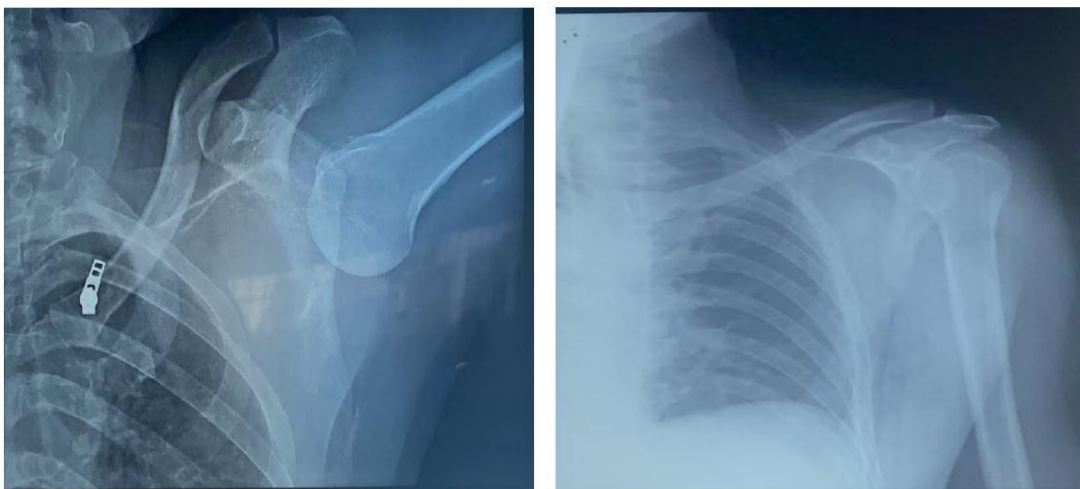


Figure 1: Radiographic images showing luxatio Erecta and Its reduction.

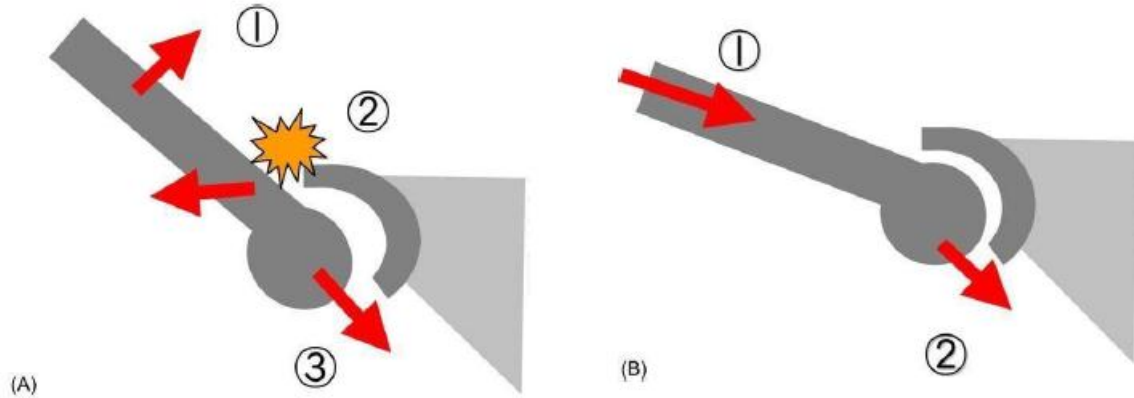


Figure 2 (6): Mechanism of luxatio erecta.

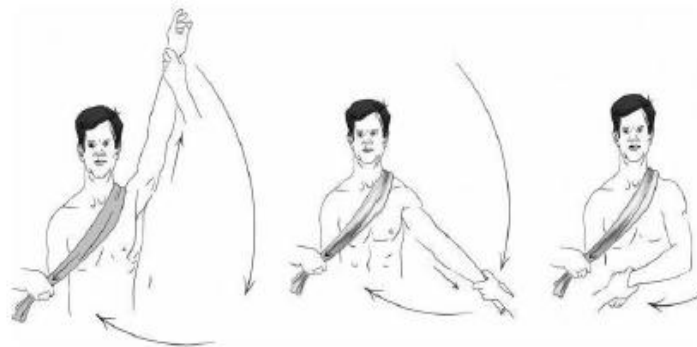


Figure 3(19): Reduction by push-pull method.



Figure 4(19): Reduction using the method described by Nho et al.

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