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Anterior shoulder dislocation associated with a fracture of the ipsilateral humerus in an athlete: About a case

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Abstract
Anterior shoulder dislocation associated with a fracture of the ipsilateral humerus is a rare lesion. We describe the observation of a young patient who presented this lesion. Surgical treatment was performed with good anatomical and functional results.

Keywords: Shoulder dislocation, fracture, humerus, ipsilateral, sport

Introduction
The shoulder joint is considered to be the most vulnerable to dislocation. Dislocation often occurs in sports and traffic accidents and high-energy trauma. Diagnosis and management in most cases is straightforward. Most often the dislocation may be associated with a fracture of the major tuberosity or a rotator cuff injury, the association with a homolateral fracture of the humerus is a very rare lesion. The first case described in the literature dates back to 1940 [1]. Because of the rarity of this lesion and the difficulty of management, we report the case of a young motorcyclist who presented with an anterior shoulder dislocation with an ipsilateral humerus fracture.

Presentation of the case
This is the case of a young patient aged 22, without any particular pathological history, right-handed, motorcyclist, he was admitted to the emergency room for a trauma of the left upper limb following a motorcycle fall during a national competition. Examination on admission noted a conscious patient, hemodynamically and respiratorily stable with no other points of impact. He presented with functional impotence with epaulette sign and filling of the deltopectoral sulcus and pain with deformity of the left arm (figure 1a), the clinical examination did not note any skin opening, nor any vascular disorders downstream and the neurological examination in particular the extension of the fingers and wrist as well as the sensitivity of the dorsal face of the hand were normal. A fracture of the humerus associated with shoulder dislocation was suspected. The standard radiographic workup confirmed the lesions (Fig. 1b,c,d), the humeral head was dislocated anteriorly without associated fracture of the proximal humeral epiphysis or fracture of the scapular glenoid, the fracture of the ipsilateral humerus was located in the distal third detaching a third butterfly wing fragment classified as type 12-B2 according to AO/OTA. Under general anesthesia, the patient was treated for reduction by gentle external abduction, external rotation and traction-countertraction while grasping the proximal humeral fragment, the sensation of the protrusion and the disappearance of the acromial protrusion signaled the success of the reduction, a vascular examination was performed without particularity, an elbow orthosis was placed and a control radiograph confirmed the reduction (figure 2a, b). In a second step, we proceeded with a screwed plate osteosynthesis in front of the fracture site, which did not allow for centromedullary nailing (Fig. 2c). The postoperative sequelae were simple, with sensitivity of the dorsal surface of the hand and normal finger motricity. The arm was immobilized by an orthopedic vest for 3 weeks, then active and passive rehabilitation and a muscle strengthening program were started. The patient was able to resume sports activities six months after the trauma. Shoulder and elbow joint amplitudes are normal, the functional result is satisfactory.

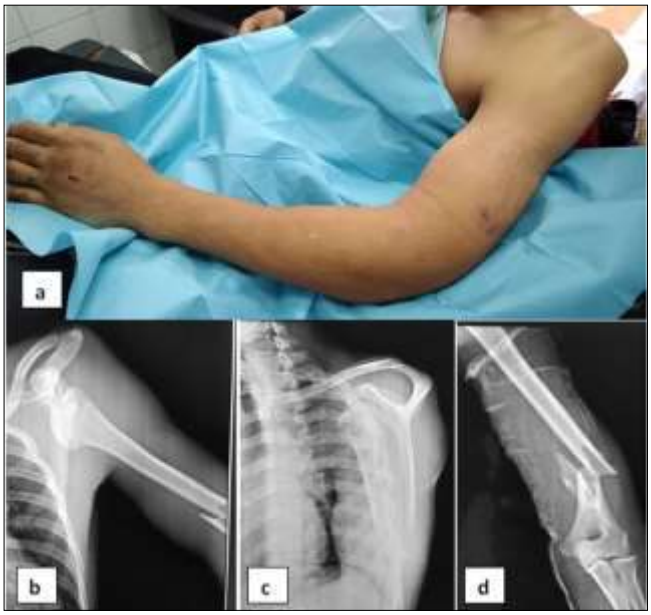

Fig 1: (a) clinical aspect of the left superior limb (b, c, d) anterior shoulder dislocation associated with ipsilateral fracture of humerus

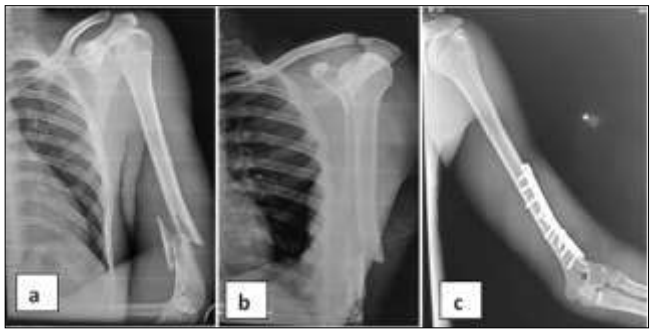

Fig 2: (a, b) Controle of reduction of dislocation (c) post-operative radiological controle

Discussion

There have been only 27 cases of shoulder dislocations complicated by ipsilateral fractures of the humeral shaft since the first case described by Winderman in 1940 [1, 2]. Shoulder dislocation is a therapeutic emergency and requires reduction in less than six hours. Reduction by external maneuver is the most common method and there are many techniques to reduce dislocation under general anesthesia, these techniques are essentially based on the integrity of the humerus which is used as a lever arm. First of all, it is important to point out the value of taking X-rays of the above and underlying joints, as one lesion can hide another. These traumas occur mostly in young adults following a violent trauma. The first problem with this entity is the mechanism, which is always controversial. Some authors suggest that the transmission of energy on the diaphyseal axis simultaneously leads to fracture and dislocation of the shoulder and compare it to the dashboard mechanism that leads to fracture of the femur with homolateral dislocation, while other authors propose that the force applied to the humerus leads first to dislocation and then to fracture [3-8]. When dislocation is associated with a homolateral fracture of the humerus, it makes it more difficult to reduce the humerus, so that the latter may fail after attempts at external maneuvering. There is no consensus in the literature on the management of this type of lesional association [2]. Because of its rarity, there are few publications describing the authors' experience with this type of lesion, and dislocation reduction has failed for some authors while for others it has been successful [5-8]. In our case, the fracture site in the distal third of the diaphysis may explain the success of reduction by external manipulation, leaving a lever arm accessible for direct and gentle manipulation of the proximal segment of the humerus. Thus, it can be said that the fracture site plays an important role in the success rate of reduction. This finding has also been described by Fei Lyu MD in her series [2].

The choice of osteosynthesis does not generally pose a problem; it is the same aptitude in front of isolated fractures of the humerus. The prognosis depends on the early management and the radial nerve involvement.

Conclusion

Anterior shoulder dislocation associated with a fracture of the ipsilateral humeral shaft is a very rare lesion. Adequate treatment is essential to avoid the complications of the two lesions which add up and compromise the function of the limb. The functional prognosis of this lesion depends on the prognosis of the shoulder, hence the importance of good rehabilitation.

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