

Trans-Scapho-Retro-Lunar Dislocation Fracture Associated with Carpal Tunnel Syndrome: A Case Report

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Abstract

Trans-scaphoretrolunar carpal dislocation fracture is rare and constitutes 5% to 10% of traumatic injuries to the wrist. It is one of the trauma diagnoses regularly faulted by the doctor in the emergency room, often because it is associated with other more severe injuries (multiple traumas during a public road or fall from a high place).

We report a rare observation of a young man aged 21 who was treated for a trans-scapho-retrolunary fracture of the carpal stage III according to the classification of Witvoët and Allieu associated with sensory disturbances in the median nerve territory. Treated surgically with satisfactory functional result at 13 months of follow-up.

Keywords: Dislocation-Trans-Scaphoretrolunar-Canal; Compression; Fracture

Introduction

Trans-scapho-retrolunar carpal dislocation fractures are rare lesions that may go unnoticed in 15 to 50% of cases. They are often underdiagnosed in the Emergency Department due to ignorance of the pathology. The late discovery can be detrimental and lead to major sequelae.

The present observation reports an exceptional anatomical form of retrolunar carpal dislocation with compression of the median nerve by the semi lunar bone associated with a scaphoid fracture, the surgical management of which allowed to obtain good results.

Case Observation

It is about a young man aged 25 years without notable pathological history, victim of an accident on the public road following a fall of his motorbike with reception on the level of the left hand. He presented a functional impotence of the left wrist associated with paresthesia in the territory of the median nerve.

The examination on admission found edema and deformation of the right wrist, without skin opening, with a deficit in the territory of the median nerve without vascular damage. Any mobilization of the right wrist was impossible and painful.

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The radiological assessment was carried out and revealed a posterior perilunar dislocation of the carpal with proximal avulsion of the lunate located opposite the distal epiphysis of the radius, associated with a fracture of the scaphoid bone (Figure 1).

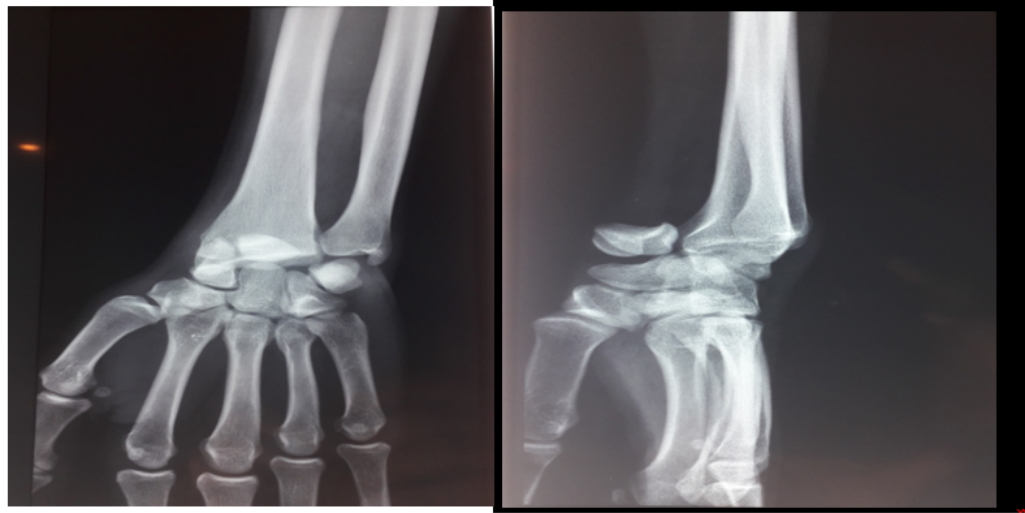


Figure 1: X-rays showing a trans-scapho-retro-lunar dislocation fracture.

An emergency surgical intervention was performed by anterior approach, the exploration of which found the free lunatum without any attachment projecting at the level of the carpal tunnel (Figure 2). The patient benefited by the palmar approach from an opening of the annular ligament and reintegration of the semi lunar and fixation by pinning associated with osteosynthesis of the scaphoid (Figure 3). An additional plaster immobilization by an intrinsic splint was carried out for six weeks at the end of which the pins were removed and a rehabilitation was undertaken.



Figure 2: Intraoperative aspect showing the carpal dislocation.

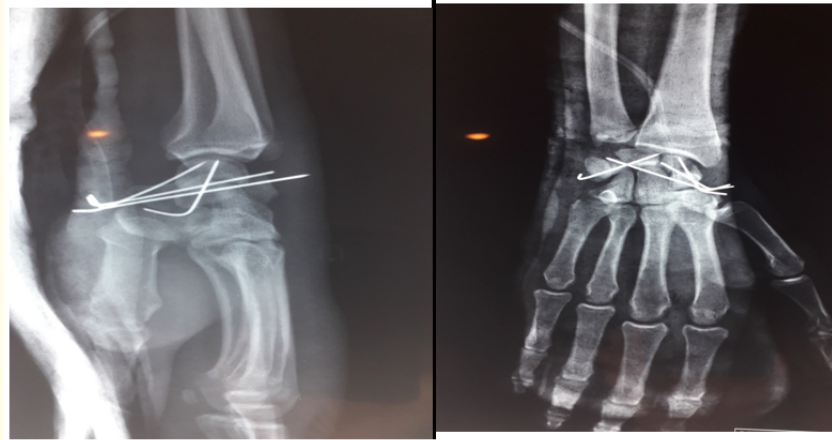


Figure 3: Early post operative radiograph.

The patient presented a slight occasional pain with mobility reduced by 15% compared to normal at the follow-up of 8 months. On the radiological level, there is a consolidation of the scaphoid without any sign of semi-lunar necrosis has yet appeared (Figure 4).



Figure 4: Postoperative radiograph at 8 months.

Discussion

According to the literature [1], road accidents represent the primary cause of trans-scaphoretrolunar carpal dislocation fracture, it is most often secondary to a high-energy trauma following a direct fall on the hyperextended and supination hand.

In this context Several theories on the mechanism and the lesional sequence have succeeded complementing each other rather than opposing each other.

According to Mayfield either a rupture of the scapho-lunar ligament complex creating a scapho-lunar disjunction which is the first stage and which is constant in retrolunar dislocations, The scaphoid fracture would be the result of direct compression of the posterior margin of the radius on the scaphoid, this force continuing to be exerted, the capitatum drives the lunatum forward and is placed under the radius. The anterior dislocation of the lunatum is therefore the ultimate term of the retro-lunar dislocation.

In our observation, the patient presented a stage III retrolunar dislocation according to the Witvoët and Allieu classification [3]. At this stage the semi-lunar is completely free and inevitably doomed to necrosis, Constituting a rare lesion. The percentage of which varies according to the series. Pandit [4] publishes the case of a stage 3 trans-scaphotrans-capito-retro-lunar fracture-dislocation with enucleation of the lunatum in the forearm. The lunatum and the proximal pole of the scaphoid necrotize at 6 months. Herzberg [5] found no case in a multicenter study of 166 cases of perilunar dislocation while Lacour [6] found four cases in a series of 62 patients.

Clinically intense pain and total functional impotence must arouse attention. A deficit in the territory of the median nerve must be systematically sought given a possible compression of the carpal tunnel by the semi-lunar. As was the case with our patient. As the front X-ray is often misleading, a detailed analysis of the profile image is the essential element for making an accurate diagnosis.

On the therapeutic level Only early surgery allows a complete lesion assessment and good stabilization Surgical repair by an anterior approach is logically more interesting allowing ligament repair procedures to be carried out, A palmar approach facilitates the reposition of the semi-lunar and makes it possible to repair the anterior capsular breach systematically found. Thus in the event of compression of the carpal tunnel by the semi lunar the anterior approach allows the median nerve to be released, surgical treatment also allows the osteosynthesis of the scaphoid by pinning or screwing in compression. The opinions of the various authors [7] differ with regard to the factors determining the prognosis of fractures-dislocations of the lunar area. This can be explained by the insufficient recoil and the limitation of the series. In the multicentre study by Herzberg [5], the prognosis is the same in dislocations as in fractures-dislocations. According to Wagner and Panting [8] the existence of a scaphoid fracture is the essential pejorative factor of the result, while Witvoët and Allieu [3], find slightly less favorable results in trans-scapho-retrolunar dislocations. This was not the case in our case and we agree with Campbell, Garcias-Elias [9], and Rawlings [10] that this element should not modify the functional result. The poor result of certain trans-scapho-retro-lunar dislocations in certain series [11] can be explained by the choice of orthopedic treatment. On the other hand, the semi-lunar tilt, the appearance of semi-lunar necrosis, and especially the time between the accident and the reduction of the dislocation, play an important role in determining the result. Thus, many authors [12] consider that the quality of the reduction is an essential prognostic factor. We have actually found better results when the reduction was early and anatomical.

Conclusion

It is a rare trauma lesion often unrecognized and diagnosed late, the risk of which in the event of late or even unsuitable treatment is the evolution towards instability.

carpal sequelae linked to the early degenerative osteoarthritis process. our work has brought to light this pathology while insisting on an early diagnosis and perfect anatomical reduction of a trans scapho-retrolunar dislocation fracture which seem to us the best guarantors of a favorable evolution.

Disclosure of Interest

The authors declare that they have no competing interest.

Consent

Patient gives informed consent for publication.

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