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Perilunal Carpal Dislocation, Scaphoid Subluxation and Bennett Fracture: Rare Association

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Abstract **Case Report**

Perilunal dislocations of carp are rare and often underdiagnosed; this is mainly due to a lack of knowledge of pathology. We report the case of a 31-year-old patient who suffered a right wrist injury involving a retrolunal carpal dislocation, a posterior subluxation of the scaphoide, and a fracture of the base of the first Bennett-type metacarpal. An even rarer or even exceptional form the intervention consisted of a reduction of dislocation, stabilated by pins and repair of scapholunary ligament. The results after a retreat of 9 months are satisfactory.

Keywords: Wrist, perilunate dislocations, scapholide subluxation, Bennette's fracture.

INTRODUCTION

Perilunal luxation of carp is a rare pathology, often unknown. It results from a violent shock in the context of a high energy trauma, hand hyperextension and ulnar inclination. It is responsible for severe osteocartilaginous and capsuloliginous lesions, the origin of significant morbidity. Its treatment modalities are still discussed: if the surgical treatment is now unanimous because only it can limit residual carpal instability and osteoarthritis, many repair techniques have been proposed. Perilunate carpal dislocation is often associated with a nearby bone fracture, especially scaphoide. The association of perilunal carpal dislocation with subluxation of the scaphoide and a Bennett fracture remains exceptional.

CASE REPORT

A 32-year-old patient who suffered a motorcycle accident, he dropped his motorcycle, which was traveling 50 km per hour, with a hyperextension wrist on his right hand, causing pain with total functional impotence. The clinical examination finds abrasions of the hand with edema of the wrist without visible deformation. The vascular and nervous examination was normal, including no involvement of the median nerve. Any mobilization of the right wrist was impossible and painful.

A radiograph of the wrist face and profile showed a Bennett fracture of the base of the first right metatacarpal with a DISI displacement of the lunatum (Figure-1). A CT scan was performed confirming these lesions and showing a posterior subluxation of the scaphoide with diastasis of scapholunate spacing (Figure-2).

The patient was operated under regional anesthesia and under scopic control.The reduction of scaphoide is possible to femed but the dislocation is unstable. A posterior approach was parted, the exploration objectified a rupture of the scapho lunar ligament in its middle against the lunotriquettral ligament is intact. The reduction of the lunar scapho space is obtained by pressure of the scaphoide as well as the capitatum to correct the DISI, this reduction is stabilated by two pins, a scapholunary and the other scapho capitate. Repair of the scapholunary ligament was performed using a PDS wire. The scopic control of the fracture of the base of the first metacarpal showed no displacement (Figure-3). An immobilization was performed by a plaster taking arms, forearm and hand, the thumb being abducted with a small radial inclination. Plaster was removed in the ninth week, with wrist rehabilitation. The removal of the pins was done after 3 months (Figure-4). With a retreat of 9 months the wrist is painless with persistence of a flexion deficit of 20 degrees.

Fig-1: Initial X-rays on the face and profile showing the retrolunar dislocation of the carp with the Bennett fracture

Fig-2: CT images showing the retrolunous dislocation of the carp with the Bennett fracture and the posterior subluxation of the scaphoide

Fig-3: Postoperative radiological control showing the reduction of dislocation with two pins

Fig-4: Radiological control after the removal of the pins

DISCUSSION

Perilunal carpal dislocations are rare and account for 5% to 10% of traumatic wrist injuries. They are often underdiagnosed in the Emergency Department by the lack of knowledge of the pathology [1]. The diagnosis goes unnoticed in 15 to 50% of cases whereas a simple standard radiological examination of face and strict profile makes it easy to pose the diagnosis. Late discovery can be detrimental and cause major sequelae such as carp instability, bone necrosis or osteoarthritis. The patients are mainly young men and victims of a high-energy accident. Perilunal dislocations of carp are classified on the one hand, in posterior dislocations, the most frequent and on the other hand, in anterior dislocations, much rarer [2]. Posterior dislocations account for 85% of carp dislocations17. Herzberg in his multicenter study found 97% posterior dislocations and only 3% previous dislocations. These figures are comparable to other series [3]. The classification of Witvoet and Allieu, which refers to the degree of enucleation of the lunate, defines three types of posterior dislocations. There are three types of treatment: closed reduction and plaster immobilization, closed reduction and percutaneous pinching associated with rigid restraint and finally, open ligament and bone repair also associated with rigid restraint [4]. Orthopedic reduction should always be attempted urgently and performed in the operating room under anesthesia. This is performed by traction in the axis of the limb associated with extension flexion movements in order to reintegrate the lunatum in its initial position. Currently, the non-bloody orthopedic reduction gives unsatisfactory results [5]. A percutaneous racking can be performed under the control of the image intensifier to secure the scaphoid and the lunatum on the one hand and the scaphoid and the capitate on the other hand. However, percutaneous racking is difficult and its superiority is not proven. The procedure is completed by the establishment of an antebrachial cast in slight flexion of the wrist and radial inclination [6, 7]. However, a surgical approach is necessary in most cases in order to reposition the carp bones. The anterior or posterior approach is generally described [8]. A double anterior and posterior approach is sometimes performed but must be avoided in order not to devascularize the carp bones.

In our observation the patient presented a perilunary dislocation This type of dislocation exposes to a low risk of necrosis of the semilunar, this is explained by the fact that the vascularization of the latter is ensured in almost all by the previous brake which is intact in this case [9]. Posterior subluxation of the scaphoide witness a very important scapholunar dislocation. A Bennett fracture associated with this type of trauma is exceptional.

CONCLUSION

Peri-lunar carpal dislocations can leave serious functional consequences if they are not diagnosed soon after the trauma. The diagnosis is very easy if we know the pathology. Proper surgical treatment minimizes sequelae.

Conflicts of Interest: The authors do not declare any conflict of interest.

Contributions of the Authors: All authors have read and approved the final version of the manuscript.

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