

**Retro-Lunar Dislocations: About 12 Cases**

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**Abstract:** The retro-lunar carpal dislocations are often under-diagnosed in the emergency services by the lack of knowledge of the pathology. The modalities of taking care of the lunations are still discussed; if the surgical treatment is now unanimous because it alone can limit residual carpal instability, bone necrosis or osteoarthritis. Many remedial techniques have been proposed, although controversial, the authors agree that a maximalist open-minded attitude gives the best results. Our work presents the results of a retrospective series of 12 cases of retro-lunar carpal dislocations. We will discuss the epidemiology of this condition, the different types of lesions, therapeutic modalities.

**Keywords:** Dislocation, retro-lunar, treatment

**INTRODUCTION**

The retro-lunar carpal dislocations are rare traumatic lesions whose functional prognosis can be disabling at a distance. They are often under-diagnosed in the emergency department by the lack of knowledge of the pathology, whereas a simple standard radiological examination of face and strict profile makes it easy to pose the diagnosis. Their methods of care are still subject to controversy.

Our work presents the results of a retrospective series of 12 cases of retro-lunar carpal dislocations, supported in the trauma-orthopedic department of Ibn Sina Rabat Hospital over a five-year period from 2013 to 2017 We will discuss the epidemiology of this condition, the different types of lesions, the therapeutic modalities.

**MATERIAL AND METHODS**

Our work, which consists of a retrospective study, deals with 12 cases of luxation and fracture dislocation of the carp, treated in the traumatology-orthopedics department of Avicenna Rabat Hospital that we collected over a period of 5 years from 2013 to 2017.

Three causes were found for these retro-lunar carpal dislocations: 6 cases of road accident, 5 cases of falling from a high place on the hand in hyper extension in the context of a work accident and 1 sports accident case. The lesion sat on the right in 6 cases and on the left in 6 cases.

**RESULTS**

In our series, peri-lunar carpal dislocation was the preserve of the young adult; the average age at the time of the trauma of our series is around 29 years old with extremes of 18 and 54 years, and all patients were male.

Pain, swelling, functional impotence and wrist deformity were the main signs found, and none of our patients had a cutaneous lesion or vasculoneural involvement (Table-1). In our series, ten cases were initially diagnosed and two cases had neglected lunar dislocations more than two months.

**Table-1: Table summarizing the various clinical signs found.**

Clinical signs	Number of cases
Pain	10
Edema	10
Lameness	12
Deformation	5
Vasculoneural involvement	0
Skin lesions	0

All our patients benefited from a radiograph of the traumatized wrist of face and profile. The realization of a wrist scanner was considered necessary in four cases. These radiological examinations made it possible to specify the type of dislocation, to search for associated fractures, and to establish a classification.

The retro-lunar dislocation was pure in six cases, trans-scapholunar in five cases and associated with a fracture of the radial styloid in only one case.

According to the HERZBERG classification, dislocation was stage 1 in three cases, stage 2a in five cases, and stage 2b in four patients (Table-2).

**Table-2: Types of lesions according to the Herzberg classification**

Lesion	Stage of HERZBERG			Total
	1	2a	2b	
Pure retro-lunar dislocation	03	02	01	06
Trans-scapho-lunar fracture	00	03	02	05
Radio-lunar Fracture luxation	00	00	01	01

A reduction by external maneuver under general anesthesia was attempted in the ten recent cases as soon as they were admitted to the emergency department, but this attempt failed in 70% of cases. In

all three cases of success, the reduction was followed by plaster immobilization in one case and percutaneous racking in two cases (Figure-1).



**Fig-1: Recent pure retro-lunar dislocation treated by reduction and percutaneous broaching (a) Pure retro-lunar dislocation. (b) Persistence of scapholunate diastasis after orthopedic reduction. (c) X-ray control after percutaneous broaching: scapholunate and pyramido-lunar.**

The delay in surgical management was 10.5 hours in nine patients, with extremes between 5 and 20 hours. Two patients underwent surgery after 2 months as a result of neglected wrist trauma, while only one patient was operated on. The surgical approach was dorsal in eight cases and combined (dorsal and ventral)

in one case, whereas in two patients, osteosynthesis was performed percutaneously. In the surgical technique, nine patients underwent osteosynthesis, while the two neglected cases underwent resection of the first row of carp (Table-3). The opening of the carpal tunnel was performed in three cases.

**Table-3: Summary table of therapeutic methods and surgical techniques performed in our series**

Type of lesion	Geste chirurgical	Total
Pure	Orthopédic treatment	1 case
	Scapho lunar and pyramido-lunar broaching	4 cases
	Resection of the first row of carp	1 case
Trans-scapholunate	Scaphoid screwing + pyramido-lunar, capitato-lunar and radio-lunar broaching	2 cases
	Scaphoid screwing + pyramido-lunar and capitato-lunar broaching	1 case
	Broaching of the scaphoid + pyramido-lunar and radio-lunar broaching	1 case
	Resection of the first row of carp	1 case
Radiolunate	Broaching of the inferior extremity of the radius + scapholunate, capitato-lunar and radiolucial insertion.	1 case

Postoperatively, all operated patients were immobilized by a plaster splint for six weeks. The pins were removed within an average of 49 days, with extremes between 42 days and 70 days, before starting rehabilitation.

After a mean follow-up of 12 months, the average Cooney score is 78/100. 4 patients have residual pain, with an average VAS of 3.5 / 10.

The average flexion-extension arc of the traumatized side is 91 °, and the average clamping force is evaluated at 85% compared to the healthy side.

**DISCUSSION**

The majority of studies [1-5] show that the retro-lunar carpal dislocations usually affect the young man. Indeed, during a trauma in the young subject, the maximum stress is absorbed by the carp, and there will be a maximum of capsulo-ligamentous lesions and bones at this level. Whereas in older subjects (beyond the age of fifty), these wrist injuries are more likely to result in fractures of the lower extremity of the radius. It is the same in children, who present above all, fractures-detachment of the lower extremity or the distal quarter of the forearm, in this case the ligaments are much more resistant than the bone.

All recent lunar dislocations must be reduced urgently [1, 3, 5]. A radiological control (face and strict profile) after reduction is carried out, in order to specify the lesions and to evaluate the imperfections of reduction.

In cases of pure retro lunar dislocation, if the reduction is perfectly anatomic, orthopedic treatment may be attempted, under cover of careful radiological monitoring detecting secondary displacement. Otherwise, surgical treatment is necessary, either in the open by a posterior approach allowing the complementary reduction by scapho-lunar and pyramido-lunar arches, with suture or ligament reinsertion, or by percutaneous braching.

In old lesions not exceeding 3 months, a "conservative" surgical treatment must be attempted, with reduction and fixation often difficult and requiring a double anterior and posterior approach [6]. Indeed, the biological process of healing has fixed the deformities, and a surgical release of the soft parts is necessary to reduce. The assessment of the state of the cartilages is fundamental because it will guide the therapeutic choice. A reconstruction will be preferred whenever it seems reasonably cartilaginous [7], this will be more often possible in fracture dislocations [8]. After 3 months, the degenerative lesions are generally too advanced, imposing a more radical attitude (resection of the first row, arthrodesis, prosthetic surgery).

Inoue and Shionoya [6] recommend resection of the first row, for chronic LPLC seen beyond 2 months of trauma, if the cartilage of the large bone head is well preserved.

If we compare our series to that of the literature [7-11], the average follow-up of our series was 12 months, lower than the others that are more than 50 months. Regardless of either the lesion type or the therapy, Cooney's mean functional score was 78/100. In the other series, the results are similar, ranging from 63 to 84/100. The flexion-extension range of motion varies according to the studies. The results of the clamping force of our series are also very close to those of the literature.

**CONCLUSION**

The modalities of taking care of the lunations are still discussed; if the surgical treatment is now unanimous because it alone can limit residual carpal instability, bone necrosis or osteoarthritis. Many remedial techniques have been proposed, although controversial, the authors agree that a maximalist open-minded attitude gives the best results.

**Conflicts of interest**

The authors do not declare any conflict of interest.

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