

Surgical treatment of Trapezo-metacarpal luxation

Bienvenu Jean Celien OKOUANGO ^{1, *}, Anas RGUIBI ¹, Karim FETTACH ¹, Oussama EL ADAOUI ^{1, 2}, Driss BENNOUNA ^{1, 2} and Mustapha FADILI ^{1, 2}

¹ Traumatology and orthopedics department Wing 4, University Hospital Center Ibn Rochd, Casablanca, Morocco.

² Faculty of Medicine and Pharmacy, Hassan II University, Casablanca, Morocco.

International Journal of Science and Research Archive, 2024, 13(01), 508–512

Publication history: Received on 28 July 2024; revised on 07 September 2024; accepted on 09 September 2024

Article DOI: <https://doi.org/10.30574/ijrsra.2024.13.1.1634>

Abstract

Introduction: Trapeziometacarpal dislocation, often resulting from violent trauma in young people, is generally diagnosed clinically and by imaging. It can cause instability of the first column and promote the development of rhizarthrosis. The treatment of fresh dislocations gives rise to debates between orthopedic and surgical approaches. This series reports a number of cases rarely exceeding fifteen.

Material and method: This is a retrospective series of five cases of trapezio -metacarpal dislocation collected between January 2017 and October 2022 in the trauma-orthopedics department of Wing 4 of the Ibn Rochd University Hospital in Casablanca.

Results: The patients were mainly men with an average age of 34 years, with lesions mainly located on the right side and caused by road accidents or falls. The diagnosis was confirmed by radiographs, mainly revealing isolated trapeziometacarpal dislocations. Treatment consisted of percutaneous metacarpo - trapezius pinning, with good short-term results for all patients.

Discussion: Trapeziometacarpal dislocation is a rare pathology. Its diagnosis is based on radiological examinations and therapeutic approaches such as trapeziometacarpal pinning.

Conclusion: Treatment by reduction followed by pin stabilization seems to offer satisfactory results for trapeziometacarpal dislocation.

Keywords: Surgical treatment; Dislocation; Trapeziometacarpal; Thumb column

1. Introduction

Trapezoid -metacarpal dislocation is a rare entity, following a generally violent trauma in young subjects. Diagnosis in principle easy, clinical then radiological or even arthroscopic. Making it possible to determine the ligamentous structures affected as well as possible pathological associations. Causing instability of the first column, it potentially causes rhizarthrosis. The treatment of a fresh dislocation remains controversial, with authors divided between proponents of orthopedic and surgical treatment. The number of cases reported in our series exceptionally exceeds fifteen.

* Corresponding author: Bienvenu Jean Celien OKOUANGO

2. Material and methods

We present here a retrospective series of five cases of trapezio -metacarpal dislocation treated in the orthopedic traumatology department of Wing 4 of the Ibn Rochd University Hospital Center in Casablanca between January 2017 and October 2022, covering a period of 5 years and 10 months. The main objective of our study was to analyze the epidemiological, clinical, radiological and therapeutic aspects associated with this pathology.

All patients aged at least 18 years, of all sexes, admitted during the study period for trauma to the spine of the thumb requiring surgical intervention for the management of trapezius dislocation were included in our study. -metacarpal

3. Results

There were five patients, 67% of whom are male with an average age of 34 years (25-48 years) and 33% are women with an average age of 21.5 years (20-23 years) (figure 1).

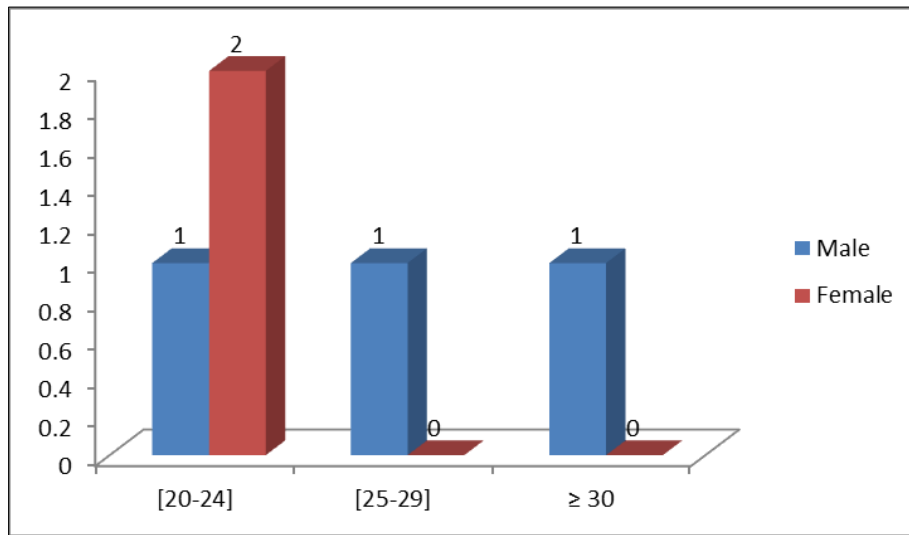


Figure 1 Distribution by sex and age group

The right side was affected in five cases (83%), and the left side in one case (17%). The etiologies were dominated by road accidents (67%) and falls due to clumsiness (33%). The clinically suspected diagnosis was confirmed by specific radiographs of the trapeziometacarpal (figure 2), which revealed four isolated trapeziometacarpal dislocations (83%) and a single dislocation associated with a tearing of the palmar tubercle and a fracture of the trapezium. (17%).



Figure 2 Profile incidence according to Kapandji

The treatment consisted in all cases, after reduction, of a percutaneous vertical metacarpo - trapezius pinning using the Wiggins technique associated with a pinning of the base of the first metacarpal and a pinning of the trapezium in one case.



Figure 3 Maneuvers to reduce trapeziometacarpal dislocation

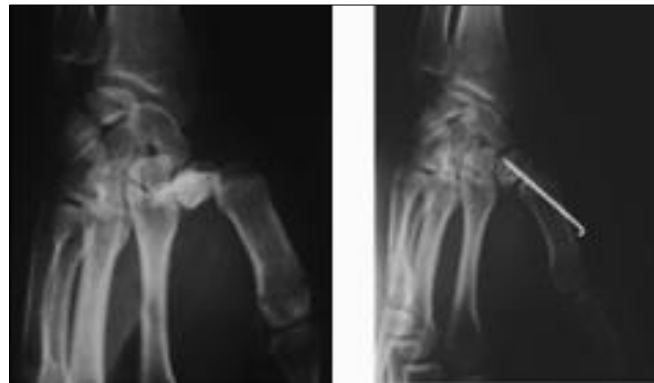


Figure 4 Trapezoid -metacarpal dislocation with dorsoradial displacement treated by trapezoid -metacarpal pinning

Early results were evaluated by retrospective chart review. The long-term results were directly evaluated during the clinical and radiographic assessment carried out in the patients, with an average follow-up of 19 months (eight to 29 months).



Figure 5 Clinical evolution after 6 months

All patients had good early results which were maintained over time. Only one patient presented with algodystrophic syndrome which progressed well under calcitonin.

4. Discussion

Trapeziometacarpal dislocation is a rare lesion. The number of cases reported per series exceptionally exceeds fifteen (1). It affects people between 20 and 40 years old more often (1,2). Men are more affected than women (2). Trapezoid -metacarpal dislocation can be secondary to: a public road accident, a sports accident, an accident at home, a work accident (2,3).

The diagnosis is essentially radiological, the clinical signs, often discreet, are masked by edema (3). The clinical signs are:

- pain that is spontaneous or caused directly by palpation of the anatomical snuffbox or indirectly by pressure on the spine of the thumb;
- functional impotence is very variable and sometimes very discreet (3,4).

The physical signs are: upon inspection, the shortening of the thumb column as well as the “fork-shaped” deformation of the trapeziometacarpal are very suggestive of dislocation (Tillaux sign). Traction on the column of the thumb allows you to feel the sensation of piston or crackling (4).

The radiological assessment allows the diagnosis. Two specific incidences of the trapeziometacarpal were described by Kapandji :

- *thumb seen from the front*: the common principle is to have the nail plane of the thumb parallel to the plane of the film.
- *thumb seen in profile* : this is the flexion-extension plane of the thumb which must be parallel to the plane of the film (5).

Other para-clinical examinations are only useful in chronic instability and have no justification in emergencies (5,6).

Two clinical forms are described, either a fresh or old trapeziometacarpal dislocation (6) .

At the level of the thumb spine, resuming movements as early as possible is an essential requirement to obtain the best functional result in the treatment of traumatic injuries. The latter will always seek to reduce the dislocation and ensure the reconstruction of the anatomical integrity of the articular surface (6,7).

Alongside orthopedic methods, we will consider surgical methods, whether closed or open (7).

Trapezio -metacarpal pinning remains a method of choice widely practiced by orthopedists, consisting of performing a temporary arthrodesis. Depending on the more or less proximal penetration of the pin, two techniques have been described:

- that of Wegner and
- that of Bundens and Wiggling (7).

5. Conclusion

Trapeziometacarpal dislocation is a rare lesion that is sometimes overlooked at the emergency stage. The progressive risk is chronic, disabling instability and osteoarthritic degeneration. Treatment by reduction followed by stabilization by possibly open wire in the event of bone or ligamentous interposition has given as good results as the more sophisticated ligamentoplasties proposed by some authors.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

References

- [1] THOMIME JM. Fracture, sprain, dislocation of the hand and fingers. Encyc Med Chir (paris): Musculoskeletal system.1992

- [2] Wiggig HE ; Bundens WD and Park BJ. A method of treatment of fracture-dislocation of the first metacarpal bone. *J Bone J Surg.* 1954;36A:810-9
- [3] Moutet.F ; Lebrun C; Bellon C; Hampel P; Guinard D; Turn Y; Massart P. Joint lesions of the first column of the thumb. *Ann chir.*1989 ; 43 N6:49 1-502
- [4] Randriamananjara NFR, Pichat F. About recurrent trapezoid-metacarpal dislocation treated by active extensor brevis ligamentoplasty . *Acta orthop . Belgium ,* 1985, 51, 110-116.
- [5] Costagliola M. Carpometacarpal dislocations. *Ann. Chir .* 1966.20.1466
- [6] Shah JS, Patel M. Dislocation of the carpometacarpal joint of the thumb. A report of four cases. *Clin Orthop* 1983;175:166–9
- [7] Watt H, Hooper G. Dislocation of the trapeziometacarpal joint. *J Hand Surg (Br)* 1987;12:242–5