

Complete Dorsal Carpo-Metacarpal Spatular Dislocation: A Case Report

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How to cite this paper: Dabire, M.N., Tinto, S., Zeba, Z.A.A., Korsaga, A., Darga, C. and Da, S.C. (2022) Complete Dorsal Carpo Metacarpal Spatular Dislocation: A Case Report. *Open Journal of Orthopedics*, 12, 26-30.

<https://doi.org/10.4236/ojo.2022.121003>

Received: December 19, 2021

Accepted: January 21, 2022

Published: January 24, 2022

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Abstract

Carpo-metacarpal dislocations are rare traumatic injuries resulting from violent trauma; they are mostly observed in young subjects. The spatular form is often accompanied by metacarpal fractures. We report a clinical case of complete dorsal carpo-metacarpal spatular dislocation. This was a 34-year-old patient, admitted for a closed trauma of the right hand, in whom the clinical examination noted edema of the hand. The radiological workup showed a complete dorsal spatular dislocation associated with a fracture of the base of the 2nd metacarpal. The reduction of these lesions in closed focus followed by stabilization by metacarpal broaching associated with an intermetacarpal transverse broach was done under scopic control in emergency. Functional rehabilitation was started in the 3rd week. The broaches were ablated at the 6th week. The functional result at 3 months was satisfying with good muscle strength. Resumption of work was effective at 8 weeks. Carpo-metacarpal dislocations are rare injuries, often unrecognized, especially in polytrauma patients, and have a good functional prognosis if they are managed correctly in an emergency.

Keywords

Dislocation, Carpo-Metacarpal, Spatular, Traumatic Hand

1. Introduction

Carpo-metacarpal dislocations are rare, especially in the four long fingers [1]. With a frequency of 1% of hand and wrist traumas, they are the result of violent traumas in young patients [1] [2]. Complete spatular dislocations are more often dorsal than palmar or divergent; they are often accompanied by metacarpal

fractures [3]. Their diagnosis is radio clinical: X-ray of the wrist, face and strict profile; as an X-ray of the face and 3/4 hand to look for associated lesions in the hand. We report the case of a 34-year-old patient who presented with a dorsal complete spatular fracture-dislocation following a traffic accident. He was managed in the trauma emergency room.

2. Patient and Observation

Mr. O.D., 34 years old, forester, right-handed, with no previous pathological history, was admitted to the emergency department of our service for closed trauma of the right hand resulting a road traffic accident (fall from a motorcycle). He presented with pain and absolute functional impotence of the right hand. The physical examination in the emergency room showed significant edema with a dorsal deformity of the right hand (**Figure 1**). He did not present any vascular or neural disorder, or any skin opening. Conventional radiography (face and profile) of the right wrist showed a complete dorsal spatular dislocation associated with a comminuted fracture of the base of the 2nd metacarpal (**Figure 2**). Closed reduction, under general anesthesia, by external maneuvers (traction in the axis of the fingers followed by direct manual pressure on the base of the metacarpals) followed by a metacarpal pinning associated with transverse inter-metacarpal pinning, was performed under scopic control (**Figure 3**). The immediate postoperative control X-ray showed a satisfactory reduction (**Figure 4**). Additional wrist restraint with a plaster cast was performed for 45 days. The removal of the pins followed the removal of the plaster cast. Progressive active functional rehabilitation of the fingers began as early as the third postoperative week, with the splint remaining on between sessions. At three months, the functional result was satisfactory, with muscle strength rated 4+ and full recovery of wrist and finger mobility. Work was resumed at the 8th week.



Figure 1. Preoperative photo of the hand.



Figure 2. Frontal and lateral X-ray of the right wrist showing the spatular dislocation associated with a fracture of the base of M2.



Figure 3. Intraoperative scopic control.



Figure 4. The immediate postoperative control X-ray.

3. Discussion

The carpo-metacarpal joint is a very stable joint, thus requiring a very violent trauma to disrupt it. This makes carpo-metacarpal dislocations rare, especially in the last four fingers [1]. Clinical diagnosis is sometimes difficult because of the edema that sets in very quickly, thus masking the deformity; or when the trauma occurs in the context of a polytrauma. X-rays are used to make the diagnosis. It is essential to perform a strict lateral view showing the direction of displacement of the metacarpal bases, and an oblique view showing the mobile or fixed metacarpals and a frontal view [4]. However, conventional radiography is not always sufficient, hence the frequent use of computed tomography (CT) to better analyze the lesion [4] [5]. Costagliola *et al.* [6], classify carpo-metacarpal dislocations into isolated spatular dislocations, partial spatular dislocations, and complete spatular dislocations. Orthopedic reduction is usually possible when the dislocation is recent and less than 10 days old [2]. Reduction, followed by open-focus stabilization via the dorsal approach, is essential for most authors, especially to remove incarceration or in case of diagnostic delay. In case of residual instability or recurrence, stabilization can be obtained by intramedullary pinning, oblique or crosswise, thus attaching the dislocated metacarpal(s) to the carpal bones and/or to the adjacent healthy metacarpal [7]. If the intermetacarpal ligaments are not disrupted, it is recommended to synthesize the fixed metacarpals to the carpus, and if they are disrupted, synthesize the mobile metacarpals to the fixed ones [8]. After reduction and stabilization, most authors recommend plaster cast immobilization in the intrinsic position for five to six weeks [9]. The majority of authors agree that removal of the pins around the sixth week should be followed by functional rehabilitation of the wrist and fingers [5] [10]. Treatment of these lesions has good results when undertaken correctly in an emergency [11] [12]. The presence of associated injuries, persistent subluxations, and soft tissue injuries are poor prognostic factors [5]. Residual pain decreased grip strength and finger mobility, subluxations and secondary displacement are the complications most often reported in the literature [11]. Lawlis and Gunther [13], point out that the results obtained in patients with carpo-metacarpal dislocation of the four rays were better than those of patients with dislocation of the 2nd and 3rd rays.

4. Conclusion

Spatular dislocations are rare lesions, often unrecognized, especially in polytrauma patients. Only medical imaging can make the diagnosis. The functional prognosis depends on the associated lesions, and on the precocity of appropriate management.

Patient Informed Consent

The patient has given his advised consent to publish this case.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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