



A Rare Presentation of Palmar Metacarpophalangeal Dislocation of the Long Fingers: A Case Report and Review of the Literature

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- Received Date: 19 Apr 2023
- Accepted Date: 26 Apr 2023
- Publication Date: 30 Apr 2023

Keywords: Metacarpophalangeal dislocation, diagnosis assessment, surgical management, emergency

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Abstract

Background: Metacarpophalangeal dislocation is a rare condition in traumatology, and its management remains unclear due to the limited number of reported cases and studies. This study aims to compare our approach and outcomes with those reported in the literature, to gain a better understanding of the variability in management and outcomes across different cases and settings.

Case report: Here, we present the case of a 32-year-old male patient who sustained palmar metacarpophalangeal dislocation following a traffic accident. The diagnosis was confirmed through hand X-ray, and we successfully performed reduction under locoregional anesthesia using external maneuvers. Early rehabilitation was initiated, and the patient had a satisfactory 6-month follow-up result, with full recovery of joint amplitudes and comparable pinch strength.

Discussion: It appears that several mechanisms can lead to this condition, and diagnosis is typically made through radiography or MRI. Closed reduction by external maneuvers is often successful, but surgery may be necessary in cases of irreducibility or instability. Different surgical approaches may be used depending on the specific type of dislocation, with the dorsal approach being preferred for hyperflexion dislocations and the palmar approach being preferred for hyperextension dislocations or cases with an unknown mechanism.

Conclusion: More research is needed to better understand this rare condition and its optimal management.

Introduction

Metacarpophalangeal dislocation is a rare situation in traumatology, especially the palmar variant. This type of dislocation can be caused by a range of traumatic events, including sports injuries, falls, or car accidents. Due to the rarity of this condition, there is a limited number of reported cases and studies available in the literature, and its management is not yet well codified.

This lack of established guidelines or consensus in the medical community presents challenges for clinicians in managing this condition effectively. In this context, reporting and analyzing individual cases of palmar metacarpophalangeal dislocation can contribute to a better understanding of its management and outcomes.

We report a case of palmar metacarpophalangeal dislocation and the outcome of our management discussed in the light of the data in the literature.

Case Report

H.O., a 32-year-old patient with no prior medical history, presented to the emergency room after a traffic accident resulted in isolated

trauma to the third finger. The mechanism of injury involved forced hyperextension of the metacarpophalangeal joint, followed by active flexion. On clinical examination, the finger appeared swollen, hyperextended, and had limited mobility, with pain upon palpation of the metacarpophalangeal joint. Vascular and neural examination results were normal.

An X-ray of the hand, taken from the front and side, revealed an anterior dislocation of the metacarpophalangeal joint of the third finger (Figure 1).

Urgent reduction under locoregional anesthesia was performed using external maneuvers, including traction, anterior pressure on the base of P1, and flexion. The reduction was tested to confirm joint stability. Syndactylisation with a splint in the intralateral position was carried out to relieve pain.

Following the reduction of the dislocated metacarpophalangeal joint, an X-ray control was performed to assess the success of the reduction (Figure 2). The joint was properly aligned and stable, and no complications were found.

Citation: Oussama B, Mohammed J, Anas ZM, et al. A Rare Presentation of Palmar Metacarpophalangeal Dislocation of the Long Fingers: A Case Report and Review of the Literature. *J Acute Care Trauma Surg.* 2023;1(1):1-3.



Figure 1. X-ray of the hand showing palmar metacarpophalangeal dislocation. A: face, B: profile, C: ¾.



Figure 2. Control X-ray after reduction: A: Front, B: Profile

Discussion

Metacarpophalangeal joint dislocation in its palmar variant is a rare condition that has received limited research attention. MacLaughlin's 1965 report is likely the first documented case of this condition, indicating that diagnosis may be challenging due to its rarity [1]. The ring and little fingers are the most commonly affected, while the index and middle fingers are the least affected [2].

The literature reports several mechanisms that can lead to this condition, including a forced hyperextension mechanism described by Renshaw and Louis [3]. However, this mechanism was not reproducible in cadavers. Wood and Dobyns [4] described a mechanism of hyperflexion with axial translation of the base of the first phalanx. Betz, et al. [5] reported a mechanism of hyperextension combined with active flexion, which was also observed in our study, as well as in reports by Zrig, et al. [2] and Ramzi, et al. [6].

According to Sundaram [7], the diagnosis of palmar dislocation of the metacarpophalangeal joint is typically made using standard face and ¾ radiographs of the hand.

Malsna et al. [8] suggested the use of MRI to assess the extent of the injury and aid in surgical planning.

External maneuver closed reduction is generally feasible, as reported in four out of 18 cases in the Zrig study [2,9-11]. This finding is consistent with our study and that of Ramzi, et al. [6].

The reduction technique used in our study followed the method described by Takami et al [10], which involves traction in-axis followed by flexion with pressure applied at the base of the first phalanx. According to Zrig, et al. [2], this method allows for joint distraction, facilitating the dislocation of different structures. If reduction is successful and stable, immobilization of the joint for 3 weeks is necessary using either a metal splint in a 60-degree flexion position or active immobilization through syndactylisation. However, in cases where reduction is not possible, the joint capsule, palmar plate, lateral ulnar ligament of the finger, flexor tendon, and chronicity of the dislocation may be involved, as reported by Zrig et al, Basar et al, and Panchal, et al. [2,12,13].

In cases of irreducibility or instability, surgical intervention may be necessary, as demonstrated in the study by Lai, et al [14]. Additionally, it is worth noting that different surgical approaches may be utilized depending on the type of dislocation. The dorsal approach is typically preferred for hyperflexion dislocations, while the palmar approach is favored for hyperextension dislocations or cases where the mechanism is unclear. This allows for thorough exploration of the joint and adjacent structures, as well as precise repair of any identified lesions [2,15].

Conclusion

Metacarpophalangeal joint dislocation is a rare but potentially serious condition that requires timely and appropriate intervention. Delayed diagnosis and treatment can lead to chronicity, which can compromise joint stability and mobility. Conservative treatment options such as closed reduction and immobilization may be effective in some cases, but surgical intervention may be necessary in more severe or chronic cases. In addition to medical intervention, rehabilitation through physical therapy and exercises is crucial for achieving optimal outcomes. Further research is needed to better understand this condition and to improve its management. Overall, prompt diagnosis and treatment, along with comprehensive rehabilitation, are essential for achieving the best possible outcomes in patients with metacarpophalangeal joint dislocation.

Conclusion

The authors declare no conflict of interest.

Funding

None

Consent

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

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