

## Case Report

## Complex metacarpophalangeal joint dislocation of the litter finger: A sesamoid bone seen within joint. What does it mean?

Elghoul Naoufal\*, Bouya Ayoub, Jalal Youssef, Zaddoug Omar,  
Benchakroun Mohamed, Jaafar Abdeloihab

Department of Orthopedic Surgery and Traumatology, Military Hospital Mohammed V (HMIMV), University Mohamed V Faculty of Medicine and Pharmacy, BP 10100 Rabat, Morocco

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## ABSTRACT

Dislocation of the metacarpophalangeal joint is a rare injury. The index finger is most frequently involved, followed by the thumb; the little finger is very seldom affected. The Complex dislocation of the little finger metacarpophalangeal joint is extremely rare. A few cases only had been described. Herein, we report a case of 40 years old presented, after a road accident, a dorsal metacarpophalangeal joint dislocation of the litter finger confirmed on radiographs with a clear view of the sesamoid bone within joint prompting the patient to undergo open reduction with no attempts of closed reduction initially. We elected, to treat our case, for the volar approach which allowed successful relocation of the head of the metacarpal in its anatomical position. The view of sesamoid bone within the joint is pathognomonic of volar plate entrapment. Recognition of this fact should alert the treating physician to the inevitability of open reduction for anatomical repositioning of the joint and avoid repeated attempts at closed reduction which may arise the risk of degenerative arthritis and reduced final range of motion.

## Introduction

The dislocation of the metacarpophalangeal joint is a rare injury [1]. The index finger is most frequently involved, followed by the thumb; the little finger is very seldom affected [2,3]. The Complex dislocation of the little finger metacarpophalangeal joint is extremely rare. A few cases only had been described [4,5]. We report one additional case and describe the clinical characteristics and the pathology of the dislocated joint and how it was managed.

## Case

## History

A 40-year-old woman was victim of a road accident causing deformity, pain and functional impotence of the fifth finger of her left hand. She was transferred to the emergency department where a diagnosis of metacarpophalangeal joint dislocation was obtained (based on clinical and x-rays findings). All attempts of emergency physician at closed reduction under local anesthesia were unsuccessful, orthopedic consultation was obtained.

\* Corresponding author.

E-mail address: [naoufal-elghoul@um5.ac.ma](mailto:naoufal-elghoul@um5.ac.ma) (N. Elghoul).

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### Examination

On admission, she was at 12 h after the accident, conscious, in good general condition with no hemodynamic or respiratory distress. Physical examination found the proximal phalanx of the left little finger in extension position with slightly swollen of the dorsal fifth metacarpophalangeal joint (Fig. 1), mobilization and palpation of the digit were painful along with a marked palpable prominence in the palm. There was no sign of a digital neuro-vascular lesion.

### Investigations

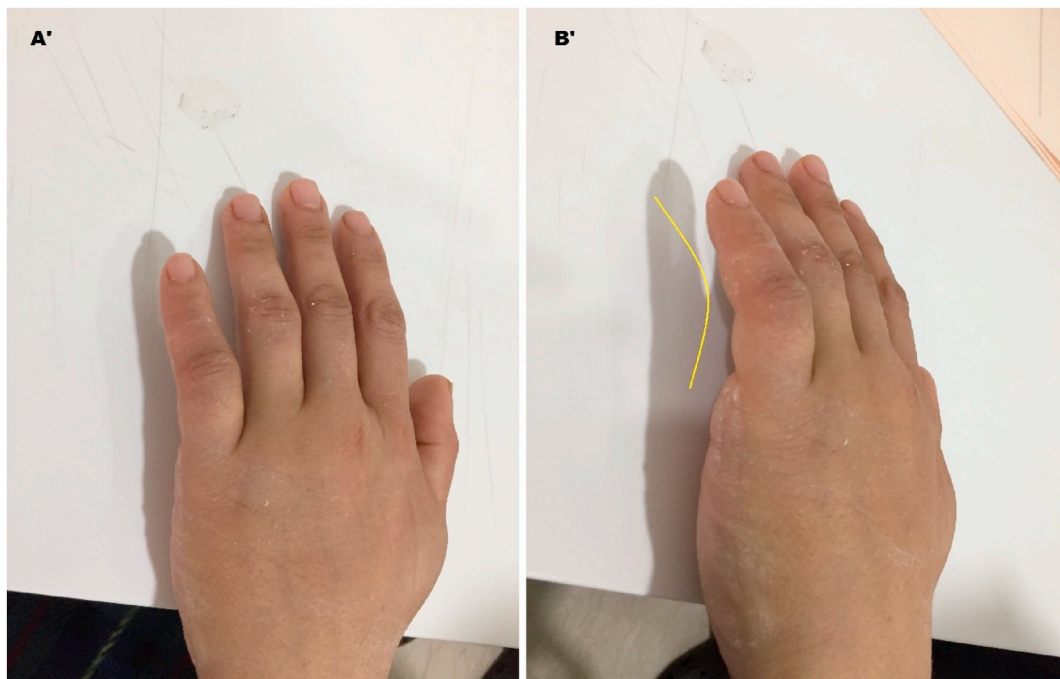
Radiographs demonstrated metacarpophalangeal joint dislocation of the small finger with an entrapped sesamoid bone (Fig. 2A). A computed tomography (Fig. 2B) confirm the pure dislocation with sesamoid bone within the joint prompting the patient to undergo surgery for open reduction with no more attempts of closed reduction under local anesthesia.

### Management

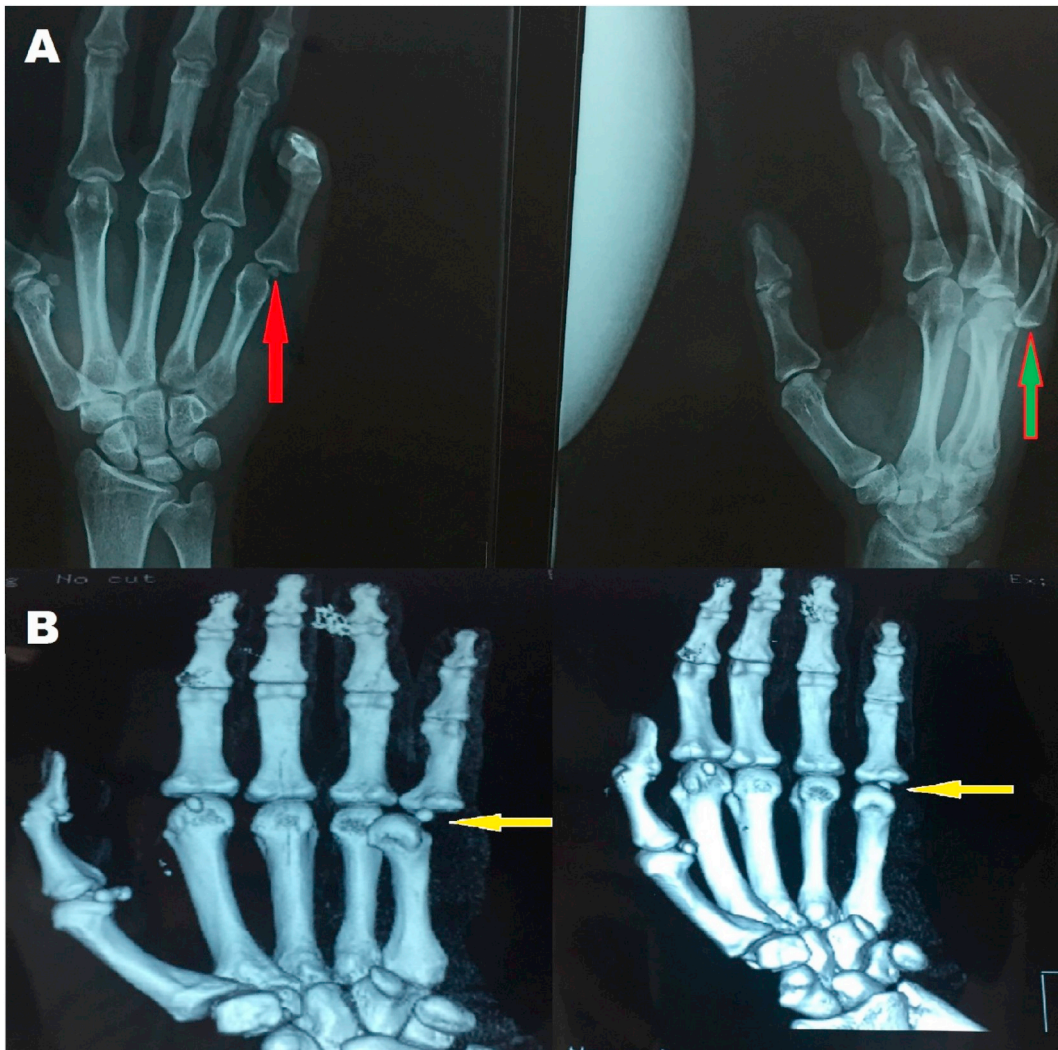
In the operating theater, under a brachial plexus block along with tourniquet control in order to allow bloodless field, a zigzag palmar incision 3 to 4 cm long, centered over the metacarpophalangeal joint, was made; following a careful dissection we found the small finger sesamoid, volar plate and flexor tendon incarcerated in joint (dorsally to head metacarpal) (Fig. 3). Following its removal from the joint with the attached volar plate, the joint was reduced easily and remained stable; x-ray confirm the reduction (Fig. 4). The finger splinted in its intrinsic plus position for 14 days, after which gentle hand therapy was initiated.

### Follow up

At four months of follow-up, the metacarpophalangeal joint was painless, with normal joint movement and no instability.



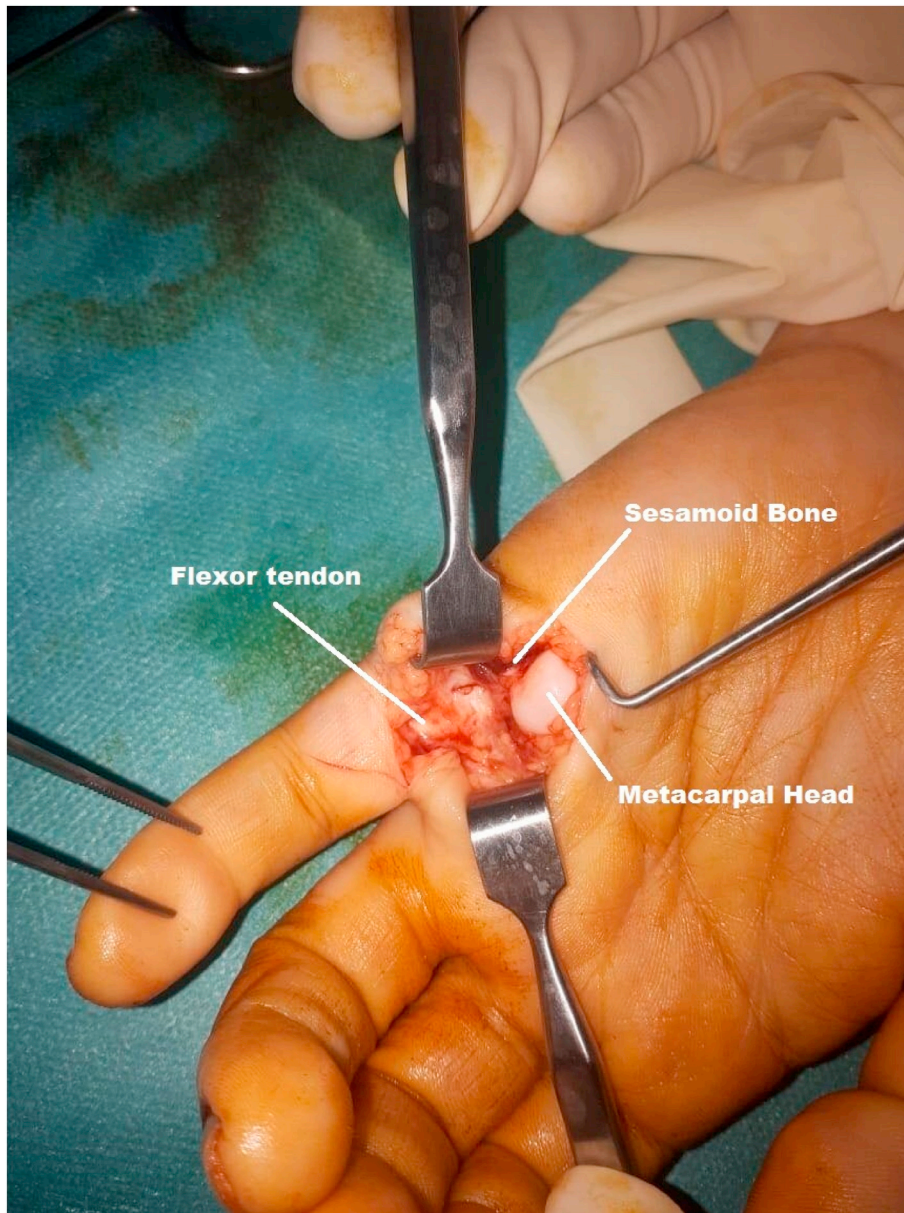
**Fig. 1.** Clinical aspect of the complex metacarpophalangeal joint dislocation of the little finger:  
A': Lateral deviation of the fifth finger with respect to other fingers.  
B': Flexum (yellow line) and edema on the dorsum of the fifth finger.



**Fig. 2.** A: X-rays showed dorsal complex metacarpophalangeal joint dislocation of the small finger (green arrow) with the sesamoid bone within the joint (red arrow); B: Computed tomography confirm the pure dislocation with no osteochondral fragment; sesamoid bone within joint (yellow arrow).

## Discussion

Metacarpophalangeal joint dislocations are rare because of the strong connective tissue support around the joints and the joint's basal location in the hand [6]. A dislocation is considered to be simple when it is easily reducible without open surgical procedures and complex when open reduction is necessary [1]. The common mechanism of injury is forced hyperextension of the vulnerable digit. This locks the metacarpal head in the palm and results in a dorsal dislocation of the proximal phalanx [7]. The Complex dislocations involve separation of the volar plate from the proximal phalanx and entrapment of the plate within the joint. Its physical characteristics include mainly a palpable metacarpal head, slight hyperextension of the proximal phalanx on the metacarpal head to about 30–40° (90° in simple dislocation), and slight ulnar deviation of the affected digit [5]. X-ray is used to confirm and make the diagnosis. It is advisable to define skeletal trauma by two x-ray views projected at 90° angles to each other [8]. Since the sesamoid is embedded in the volar plate, if sesamoid was seen within the joint, it is pathognomonic of volar plate entrapment. Recognition of this fact should alert the treating physician to the inevitability of open reduction for anatomical repositioning of the joint [5,8] and avoid repeated attempts at closed reduction which may arise the risk of degenerative arthritis and reduced final range of motion [1].



**Fig. 3.** Clinical aspect after volar approach.

Complex dislocations treated surgically can be approached dorsally [9] or volarly [10] or in a combined approach. The surgeon must be mindful of the presence of osteochondral fragments that may require fixation or excision, depending on their size and location [9] reason why we realized a computed tomography in our case. The volar approach was found to be a reliable alternative for treating dorsal MCP dislocations [10].

Due to road accident, our case presented a dorsal metacarpophalangeal joint dislocation of the litter finger confirmed on radiographs with a clear view of the sesamoid bone within joint prompting the patient to undergo open reduction with no attempts of closed reduction initially. To treat our patient, we elected for the volar approach which allowed successful relocation of the head of the metacarpal in its anatomical position.

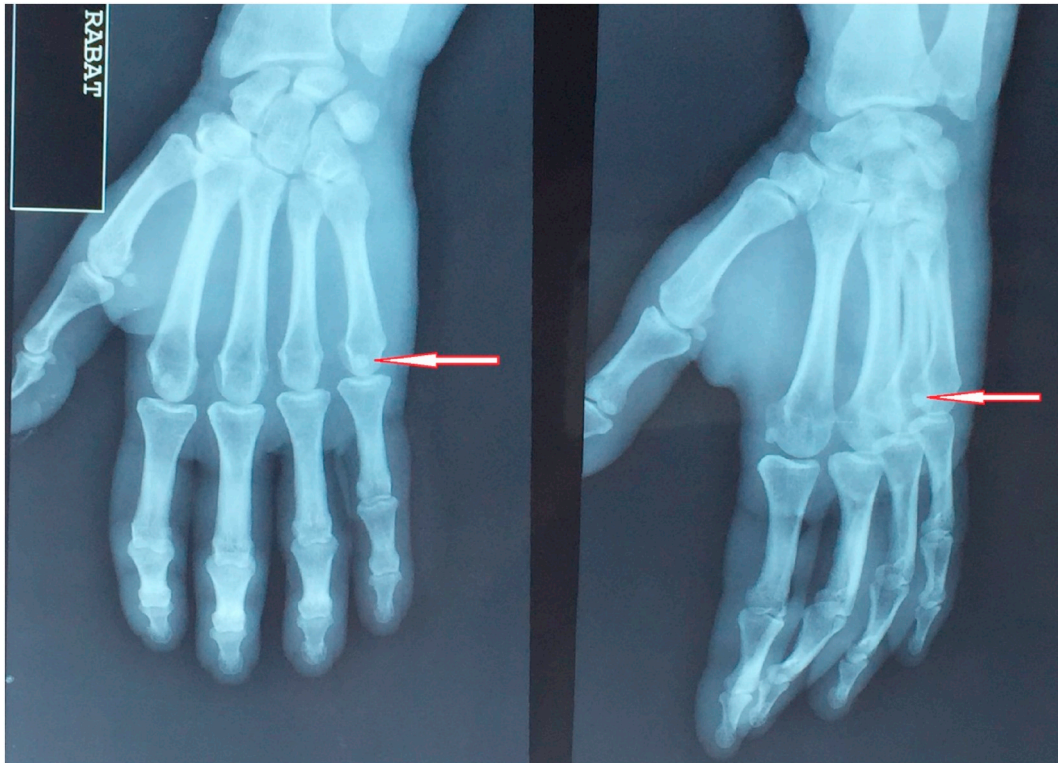


Fig. 4. X-rays confirm the successful reduction of the dislocation. Note position of the sesamoid bone (arrow).

## Conclusion

In metacarpophalangeal joint, a palpable metacarpal head, slight hyperextension of the proximal phalanx and sesamoid bone within the joint mean a complex metacarpophalangeal joint dislocation; and so an open reduction. That can avoid repeated attempts at closed reduction which may increase the risk of degenerative arthritis and reduced final range of motion.

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