

# Unusual Cases of Four to Five Carpometacarpal Dislocations of Hand (A Report of Two Cases)

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## INTRODUCTION

Carpometacarpal dislocations are a relatively uncommon injury. They are reported largely as single cases or group of small cases [1]. Diagnosis of this unusual form of injury requires high index of suspicion, careful examination and good radiography. Dislocations at the finger carpometacarpal joints are usually high-energy injuries seen commonly in boxers and motorcyclists. Considerable swelling of the back of the hand may mask the characteristic hump at the root of the hand. The diagnosis can be easily missed due to other serious injuries. These injuries account for less than 1% injuries of hand and are frequently overlooked or missed. Disability of the hand is severe in untreated or in those where treatment is delayed.

## Cases Report

### Case - 1

A 25 year old motorcyclist presented to our hospital with injuries right side thigh, leg and hand following a road traffic accident. X-ray of the left hand AP and lateral views revealed carpometacarpal dislocations of all the five fingers of the dorsal aspect of the right hand. CT scan of the right hand was taken to confirm the diagnosis.

Open reduction of all the five carpometacarpal joints was done and stabilized with using three K-wires, stability was achieved on the day of admission. Post operatively volar POP slab was given till suture removal at two weeks, followed by short arm cast for four weeks. K-wires were removed after four weeks. Satisfactory reduction was maintained on re-examination after six weeks following cast removal. Stiffness was found and physiotherapy given. Moderate range of motion of the hand was achieved showing a good subjective functional result. Associated injuries were closed segmental fracture shaft of femur and Grade IIIIB open fracture of both bone of right lower limb.

### Case - 2

A 27 year old motorcyclist presented to our hospital with injuries right side knee, hand and index finger following hit by car while riding. Diagnosed on the day

of admission were Grade IIIIB open comminuted fracture patella, Grade IIIIB open fracture of both bone of right lower limb and traumatic amputation at PIP joint of index finger right. Shortening and closure was done for index finger on the day of admission. After one month we found abnormal swelling and deformity over dorsal aspect of wrist and the X-ray of the right hand AP and lateral views revealed carpometacarpal dislocations of all the four fingers of the ulnar side and the dorsal aspect of the right hand. An oblique view of the right hand was taken to confirm the diagnosis. Open reduction of all the four carpometacarpal joints was done and stabilized using three K-wires, stability was achieved Post operatively volar POP slab was given till suture removal at two weeks, followed by short arm cast for four weeks. K-wires were removed after four weeks. Satisfactory reduction was maintained on re-examination after six weeks following cast removal. Stiffness was found and physiotherapy given. Moderate range of motion of the hand was achieved showing a good subjective functional result.

## DISCUSSION

Carpometacarpal dislocations of the all the five or four fingers of the ulnar side of the hand are seen following highenergy trauma. These injuries are frequently missed initially because of the gross swelling of the hand, while dorsal dislocation of the second, third, fourth and fifth carpometacarpal joints produces a characteristic lump on the dorsum of the hand. A postero-anterior radiograph of a normal hand should show a clear joint space between the bases of the metacarpals and the carpus, with parallel joint surfaces. After dislocation this parallelism is lost; there is overlap, and the apparent "shortening" of a metacarpal, which may best be seen at metacarpophalangeal joint level, also indicates possible dislocation. It has been suggested that a carpometacarpal dislocation will be shown better in an oblique radiograph (Nalebuff 1968)[12] or one taken with the forearm pronated by 30 degree from the anteroposterior position (Bora and Didizian 1974)[1], but both Hazlett (1968)[10] and Dennyson and Stother (1976)[7] have suggested that a lateral radiograph is

## Unusual Cases of All Five Carpometacarpal Dislocations of Fingers of Hand (Case - 1)



Fig. 1 Day one Clinical picture showing hump at the root of the hand.

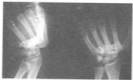


Fig. 2 Pre op X ray AP and Oblique view

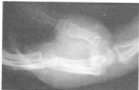


Fig. 3 Pre op X ray Lateral view

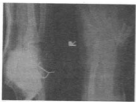


Fig. 4 Post op X ray



Fig. 5 Post op one month follow up



Fig. 6 Post op one month follow up



Fig. 7 Post op two months follow up



Fig. 8 Post op two months follow up

## Unusual Cases of Four Carpometacarpal Dislocations of Fingers of Hand (Case – 2)



Fig. 9 Pre op X ray AP view



Fig. 10 Pre op X ray Lateral view



Fig. 11 Post op X ray



Fig. 12 Post op

of more value.

The treatment of carpometacarpal dislocation may be summarized as follows: (a) no treatment – accept deformity (b) closed reduction – manipulation, reduction and external immobilization or manipulation, reduction with fixation and external immobilisation (c) open reduction – operative relocation without fixation but with external immobilisation, operative relocation with internal fixation and external immobilisation or primary arthrodesis<sup>[1]</sup>. Open reduction and internal fixation with K-wires are indicated in multiple dislocations, irreducible dislocations and in late presentations. For acute single injury pattern, closed reduction or closed reduction with K-wire fixation is only indicated.

Several authors have suggested that old unreduced carpometacarpal dislocations do not cause symptoms or functional disability (Shorbe 1938<sup>[14]</sup>; Whitson 1955)<sup>[15]</sup>. However, these dislocations disrupt both the longitudinal and the transverse arches of the hand, resulting in an impaired grasp and loss of the normal

axial length [Imbriglia 1979]<sup>[12]</sup>. It can also lead to sympathetic dystrophy and persistent dislocation can lead to stiffness of the hand.

### CONCLUSIONS

Carpometacarpal dislocation of all five or four the fingers of ulnar side of the hand is a rare form of hand injury. The diagnosis can be easily missed due to serious associated injuries and swelling may mask the characteristic deformity, and routine postero-anterior and oblique radiographs may not show the displacement clearly. A lateral radiograph of the hand should be requested for diagnosis. It is important to diagnose and treat this injury to avoid considerable morbidity associated with this condition. Even though these injuries can be treated by different methods, better results are seen in open reduction and internal fixation with K-wires. It will help in accurate reduction of the dislocations and early functional recovery.

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