

Management of carpometacarpal joint dislocations of four fingers on ulnar side

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Access this article online	
Quick Response Code:	Website: www.innovativepublication.com
	DOI: 10.5958/2395-1362.2016.00015.3

K wires were removed after 6 weeks post-operatively and physiotherapy was started. Full range of movements of the hand was achieved showing excellent result.

Introduction

Carpometacarpal dislocations of the fingers of ulnar side of hand are a relatively uncommon injury. They are documented largely by reports of single case or groups of small cases¹. Diagnosis of this unusual form of injury requires high index of suspicion, careful examination and good quality radiographs with appropriate views. Dislocations at the finger carpometacarpal joints are usually due to high energy trauma seen in road traffic accidents². 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.

Such types of injuries account for less than one percent injuries of hand and are frequently overlooked or missed. Disability resulting from such injuries in untreated or delayed treatment are severe in nature.

Material and Method

A thirty years male presented at this institution with history of road traffic accident with gross swelling over left hand. His xrays of left hand showed dislocations of carpometacarpal joints of index, middle, ring and little fingers with fracture distal end radius with disruption of distal radio-ulnar joint.

3D CT scan of left hand was done. Dorsal dislocation of carpo-metacarpal joints of index, middle, ring and little fingers was present. There were no fractures of carpal bones.

He was managed with analgesics and below elbow splint was given with ice fomentation and strict limb elevation.

After swelling subsided, he was operated closed reduction and multiple K wires fixation was done. K wires were inserted from base of metacarpals of index, middle, ring and little finger and anchored in carpal bones. One K wire was inserted from base of index metacarpal through the base of middle finger metacarpal for more stability.



Fig. 1: Pre-operative x-ray



Fig. 2: Pre-operative 3D CT scan showing dislocations of carpo metacarpal joints of all fingers on ulnar side



Fig. 3: Immediate post-operative x-ray showing reduction with k wires for stability



Fig. 6: Clinical photograph immediate post-operative



Fig. 4: Six weeks postoperative x-ray



Fig. 5: Ten months postoperative x-ray

Discussion

Carpometacarpal joint dislocations of all the four fingers of the ulnar side of the hand are seen following high energy trauma.

The increased mobility on the ulnar side may predispose to the noted greater frequency of injury. Stability at the finger carpo-metacarpal joints is provided by a system of four ligaments. They are the dorsal metacarpal, palmar metacarpal and the two sets of interosseous ligament. The index metacarpal has a particularly stable configuration through its wedge shaped articulation with the Trapezoid³.

These injuries are frequently missed initially because of gross swelling of the hand and overlap on the lateral x ray. 3D CT scan is usually done to rule out injuries involving carpal bones. High index of suspicion, accurate radiographs especially oblique views and 3D CT scan are usually required to diagnose the condition accurately⁴.

Accurate reduction of carpo-metacarpal joints closed or if necessary open reduction is mandatory to achieve proper reduction. Multiple K wires are used to maintain the reduction in multiple dislocations, irreducible dislocations and late presentations.

The treatment options are:

1. Closed reduction without fixation
2. Closed reduction and K wire fixation
3. Closed reduction with fixation with external immobilization
4. Open reduction and internal fixation with multiple K wires are indicated in multiple dislocations.

Injury to the ulnar nerve is frequently seen due to its close proximity to fifth carpo-metacarpal joint⁵. It can also lead to sympathetic dystrophy and persistent dislocation can lead to stiffness of the hand.

Carpometacarpal dislocations of index, middle, ring and little fingers of the hand is a rare form of hand injury. It is very important to diagnose and treat this injury to avoid considerable morbidity associated with this condition. These injuries are treated by closed or open reduction if necessary with multiple K wire fixation. This helps in accurate reduction of the dislocations and early functional recovery.

Conclusion

Excellent functional outcome was seen in this case. Accurate reduction, stabilization with K wires for six weeks and aggressive physiotherapy in form of hand exercises resulted in excellent outcome.

Competing Interest: Nil

Acknowledgement and Funding: Nil

References

1. Hsu JD, Curtis RM. Carpo-metacarpal dislocation on the ulnar side of the hand. *J Bone Joint Surg.*1970;52A:927-8.
2. Jobe MT. Fractures, dislocations and ligamentous injuries. In: Terry Cannale, editor. *Campbell'S operative orthopaedics.*9th edition. Baltimore: Mosby, 1998;3395-6.
3. Henry M. Fractures and dislocations of the hand. In. RW Bucholz and JD Heckman, editor. *Rockwood and Green's fracture in Adults .5 th edition.* Lippincot: Williams and Wilkens 2002;721-3.
4. Parkison RW, Paton RW. Carpo-metacarpal dislocation: An aid to diagnosis injury 1992;23(3):187-8.
5. Lawis JF, Gunther SF. Carpo-metacarpal dislocations. Long term follow up *J Bone Joint Surg* 1991;73A:52-9.