INTRODUCTION

Multiple carpometacarpal (CMC) fracture dislocations are rare.1 Divergent carpometacarpal fracture dislocations are even rarer.2 They represent less than 1% of all injuries to the hand and wrist regions. Upto 70% of carpometacarpal fracture dislocations are missed or misdiagnosed.3 In patients with multitrauma, treating physicians may be overwhelmed by other injuries that require more urgent attention. Carpometacarpal fracture dislocations will cause disruption of both the longitudinal and transverse arches of the hand. The injury causes loss of the normal axial length of the involved digit. Delayed diagnosis and treatment will usually result in wrist pain, reduced grip strength, and degenerative arthritis.4

Every attempt should be made to diagnose carpometacarpal fracture dislocations early, and initiate appropriate treatment to improve functional outcome of the injured hand.

CASE REPORT

A 26 years old Sepoy from a village near Gujranwala reported in Medical Reception Centre of Combined Military Hospital, Gujranwala, on 25th August 2010. He had met with a road traffic accident 3 hours before reporting and injured his left (L) hand with small abrasions on the face, knees and elbows. His general and systemic examination was unremarkable. There was gross swelling of the (L) hand with tenderness on the carpometacarpal (CMC) region. Capillary circulation was intact. He could move his fingers a little bit. X-rays of the (L) hand revealed divergent fracture-dislocations of ulnar four carpometacarpal joints with palmar displacement of the ring finger, dorsal displacement of the index and middle finger, ulnar displacement of the little finger, a divergence between the 4th and 5th metacarpals (Figure 1). The angle subtended between long axis of second and 5th metacarpals measured 39 degrees. This was consistent with fifth CMC joint dislocation. Under anaesthesia (L) hand was shaved and washed with pyodine scrub. Tourniquet was applied and inflated to 300 mmHg. The hand was prepped and draped. A single dorsal incision was made on the third carpometacarpal region and fracture-dislocations were reduced (Figure 2). Fixation was accomplished with percutaneous Kirschner (K-) wires across the carpometacarpal joints under radiographic guidance. A below-elbow plaster splint with the wrist in neutral position was applied. The elbow mobilization was started from the next day after reduction, and active physiotherapy of the fingers was started from 4 weeks after surgery. After 8 weeks, the Kirschner wires were removed. A removable volar splint was used for 2 weeks to facilitate hand therapy. He developed abscess on the third carpometacarpal joint at the end of 10 weeks. It presented as swelling of the hand with tip of abscess pointing on the dorsum of hand. Incision and drainage was carried out and pus evacuated. The pus was sent for culture and sensitivity. Daily antiseptic dressings and

DISCUSSION

Divergent carpometacarpal fracture dislocation is a rare injury. We report a case affecting the medial four fingers of the left hand. The injury was sustained in a road traffic accident. The case was diagnosed with anteroposterior and lateral views on X-rays. He underwent open reduction supplemented with Kirschner wire fixation. This restored the normal carpometacarpal joint, anatomical relations and achieved an excellent clinical result in terms of function.

Key words: Carpometacarpal fracture. Divergent fracture dislocation. Hand. Saddle joints.

Department of Orthopaedic, Combined Military Hospital, Gujranwala Cantonment...

Correspondence: Lt. Col. Dr. Syed Faraz Anwar, House No. 1, Gulraiz Housing Scheme II, Phase VI, Opposite Safari Hospital, Car Chowk, Rawalpindi.

E-mail: syedfrazanwar@yahoo.com

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injection Clavulanic Acid / Amoxycillin 1.2 g TID daily were administered daily for 2 weeks followed by Clavulanic Acid / Amoxycillin 1.0 g orally for 4 weeks to eradicate any element of infective arthritis and osteomyelitis. The wound healed completely. He was followed every month. At the last follow-up examination (7 months after the injury), the patient had nearly normal looking hand (Figure 3a) with complete finger and wrist movements. He had no pain while performing routine pre-injury activities. Grip strength was 95% of the contralateral dominant hand and there was no functional limitation (Figure 3b).

**DISCUSSION**

The carpometacarpal joints are anatomically stable joints. Stability arises as a result of (1) interlocking saddle joints, (2) volar and dorsal ligaments, and intermetacarpal ligaments, and (3) protection by the long flexor and extensor tendons and intrinsic muscle. A significant force is usually necessary to disrupt the carpometacarpal joints and most dislocations occur due to avulsion fractures of the involved bones.

Early diagnosis of CMC joint fracture dislocation requires a high index of suspicion, which is based on the mechanism of injury, and detailed clinical examination to identify deformities and neurological deficits that typify such injuries. No neurovascular deficit was recorded in the injured extremity in this patient. Radiographs of such a case should include the postero-anterior (PA), oblique, and true lateral views of the hand. The true lateral radiograph of the hand is invaluable in demonstrating dorsal or volar displacement of the metacarpal base. Management options include closed reduction and splintage immobilization, closed reduction and K-wire fixation, or open reduction and internal fixation.

The choice of treatment depends on the severity and stability of the CMC joints, and the expertise of the attending physician. Open reduction and K-wire fixation was chosen in this case because of the severity of injury. Compared with closed reduction and K-wire fixation, open reduction provides the advantage of a more anatomical joint restoration, and avoids the risk of tendon transfixion. The patient developed an abscess on the dorsum of hand around third carpometacarpal region, may be due to operative wound, severity of injury and post-traumatic low immunity. However, patient recovered completely after drainage and 6 weeks treatment on account of suspicion of osteomyelitis/arthritis. Presently, the patient has recovered almost completely with grip strength 95% of the contralateral dominant hand and there is no functional limitation.

**REFERENCES**