An Ulnar-Type Dislocation of Fifth Carpometacarpal Joint: Case Report and Review of the Literature

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J Hand Microsurg:2020;12(suppl S1):S61–S63

Abstract

Keywords

- carpometacarpal joint
- ulnar side dislocation
- diagnosis
- treatment

Unilateral pure dislocation of the fifth carpometacarpal joint (CMCJ) is a very rare injury. We are reporting the second case of an ulnar type of unilateral dislocation of a fifth CMCJ. Indian salutation (Namaskar) test and radiographs aid in diagnosis. Closed reduction and internal fixation by K-wires restored the normal anatomic relationships of the fifth CMC joint. This type of injury is prone to be missed in an emergency room due to soft tissue swelling, and particular attention should be paid to diagnose it in polytrauma patients. A review of the literature is presented.

Introduction

Dislocation of carpometacarpal joints (CMCJs) of the fingers is an uncommon injury, though not rare injuries. They are often associated with motor vehicle accidents, crush injuries, and fall of heavy objects on the hand. These injuries are often difficult to diagnose because of extensive soft tissue swelling and by not having true lateral radiograph, so it is often overlooked.¹

We report the second case of isolated dislocation of fifth CMCJ successfully managed operatively. The clinical presentation, radiologic diagnosis, and treatment were discussed with a review of the literature.

Case Report

A 56-year-old man came with history of fall from a running bus. After primary resuscitation, a secondary survey revealed an open bimalleolar fracture of the right ankle and degloving of skin of both the legs. Left hand was painful, and swelling was present.

On examination, there was a tender swelling of the dorsal aspect of the left hand. Indian salutation test² was positive as there was a 1-cm shortening of the little finger noted as compared with the uninjured hand. There was no neurovascular deficit in the fingers. Posterior-anterior (PA) radiograph revealed an isolated ulnar dislocation of the fifth CMCJ without any other associated injury or fracture of other metacarpals (► Fig. 1). The dislocation reduced by

gentle linear traction of the little finger under general anesthesia and direct pressure over the dislocated metacarpal base. Reduction was found to be unstable under C-arm and stabilized by using three percutaneous Kirschner wires (K-wires) (► Fig. 2), and below-elbow volar slab was applied. The K-wires and slab were removed at 6 weeks.

The patient made a good early functional recovery and returned to his previous occupation after 3 months without

Fig. 1 Post-injury radiographs. Posterior-anterior view showing ulnar dislocation without any fracture of the fifth CMCJ, and lateral view showing no abnormality.

Fig. 2 Postoperative radiograph. Posterior-anterior and lateral views showing reduction in dislocation of the fifth CMCJ and stabilized by Kirschner wires.

any limitation. At 6 months post-injury, he had full range movement, painless grip, and strength equal to uninjured hand. Radiograph showed maintained reduction in fifth CMCJ without any sign of incongruity or arthritis (► Fig. 3).

Discussion

An isolated pure dislocation of fifth CMCJ is a relatively rare injury first reported by McWhorter in 1918.³ This injury has been recognized to be of two types depending on dorsal or

Fig. 3 Six months follow-up radiograph showing anatomical reduction of fifth CMCJ without any sign of arthritis.

volar displacement, which may be easily missed on routine radiographs.⁴⁻⁷ The fifth CMCJ is much more mobile than central three CMCJs. The fifth CMCJ is a modified saddle joint similar to the thumb CMCJ. The bases of the fourth and fifth metacarpals articulate with the hamate. The distal surface of hamate is divided into two facets with a faint vertical ridge. Articular surface for the fourth metacarpal is transverse and that of the fifth metacarpal is sloping ulnar wards. The pull of the flexor carpi ulnaris tendon inserting into the base of the fifth metacarpal and ulnar wards sloping articular surface of the fifth CMCJ are two important factors for creating instability.⁸ Most dislocations of CMCJ of the fingers are dorsal, but volar dislocation of both the fourth and fifth CMCJs have been reported.^{9,10} Simultaneous divergent CMCJ dislocation involving different digits is another rare injury pattern reported in the literature.¹¹ Fisher et al¹² developed a systematic analysis on standard radiographic views. Principles of parallelism, symmetry, overlapping articular surfaces, indistinct cortical rim, and parallel M-lines are used in this evaluation. In solitary fifth CMCJ dislocations, slight ulnar offset of the fifth metacarpal on the hamate was the most consistent finding, in association with the loss of parallelism, symmetry, and cortical margin distinctness. The correct diagnosis of a subtle dislocation is often visible only on this projection. In this case, clear dislocation seen on the PA radiograph and the lateral radiograph did not reveal the injury (► Fig. 1).

Indian salutation test² has been described for this injury, raised the index of suspicion for CMCJ injury. It is done by pressing hands together and comparing the length of the fingers (► Fig. 4). Reduction was not difficult but was unstable because of the aforementioned anatomical factors. Percutaneous K-wires (1.2 mm) stabilization is suggested.^{13,14}

An isolated unilateral fifth CMCJ dislocation to the ulnar side¹⁵ is the second case reported and diagnosed on PA view and not appreciated on the true lateral view, which is classically found to be mandatory in making the diagnosis of these injuries.

In conclusion, ulnar type of fifth CMCJ dislocation is a very rare injury, and the Indian salutation test that raised the clinical index of suspicion and confirmed by radiograph followed by closed reduction and percutaneous K-wires fixation gives an excellent outcome.

Fig. 4 Schematic presentation of Indian salutation test.

Conflict of Interest

None declared.

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