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## Case Report

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# CONCURRENT DISLOCATIONS OF CARPOMETACARPAL AND METACARPOPHALANGEAL JOINTS OF THE THUMB

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**Dislocation of more than one joint in a digit is a rare injury and there are only a few reports of double joint injuries in the thumb. In this report, a patient with concurrent dislocation of carpometacarpal and metacarpophalangeal joints of her thumb is introduced. The patient's management and outcome are presented.**

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### Introduction

There are a few case reports in the literature of uncommon double joint injuries to the thumb, involving carpometacarpal (CMC) plus metacarpophalangeal (MCP) or interphalangeal joints.<sup>1-3</sup> Combined Bennett's fracture/dislocation and metacarpophalangeal joint dislocation has been also reported.<sup>4</sup> In double level injuries, the more prominent injury may disguise the other injury, which may result in improper treatment. Henceforth, a thorough examination of patient's hand is necessary.

### Case Report

A 40-year-old right-handed housewife suffered a left thumb injury in a car accident, while she was trying to guard her body from injury with forward-outstretched hands. On examination, her left thumb appeared deformed, with pain and tenderness in the CMC and MCP joints. X-ray revealed dorsal CMC and MCP joint dislocations of the thumb (Figure 1).

Under regional anesthesia, both joints were treated by closed reduction. The MCP joint was

stable after reduction but the CMC joint was unstable. We performed open reduction, capsule repair, and ligament reconstruction to treat the unstable CMC joint. During surgery on the CMC joint, we observed that the dorsoradial ligament was torn and the volar oblique ligament was stripped off the thumb metacarpal subperiosteally. A fleck of chondral fragment measuring 5 x 5 mm was detached from the volar articular surface of the trapezium. The fragment was excised and the joint irrigated. The CMC dislocation was reduced; the CMC capsule repaired and ligament reconstruction accomplished with a harvested slip of the flexor carpiradialis (FCR) tendon, which was routed through a gouge hole to the base of the thumb metacarpal bone, passed under abductor pollicis longus (Ab PL) and FCR, and finally, secured over the radial side of the joint, according to Eaton's procedure. Then, the thumb was immobilized with a thumb spica cast for 6 weeks after which progressive range of motion (ROM) exercises began.

One year postsurgery, the patient's CMC joint was clinically stable, the MCP joint had not been hyperextended and its ROM compared to the other side, was the same. The patient could flatten her palm on table and could oppose the thumb to the base of little finger. Pinch grip and power grip were 15 lbf (75% of that of unaffected side) and 45 lbf (approximately 69% of that of unaffected side), respectively. Both radial and palmar abduction were 40°.

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**Figure 1.** Radiograph showing concurrent dislocations of carpometacarpal and metacarpophalangeal joints of the left thumb.

The Grind test was positive, but the patient did not have complaints about inability to perform her routine daily activities. X-ray showed the joint space was preserved without subluxation or osteophyte formation.

### Discussion

It seems that in this rare injury the patient first suffered from a hyperextension injury to her MCP joint, and after dislocation of the MCP joint, the continued force to the flexed thumb caused it to become dislocated and also to shear off a fleck of chondral fragment from the volar articular surface of the trapezium. Our findings of the torn dorsoradial ligament and stripped-off volar oblique ligament, which were seen in this patient, have been also observed by other authors.<sup>5-7</sup> It may be convenient to address CMC treatment after management of MCP dislocation. The MCP joint

may be managed by closed reduction or open reduction, if there is an obstacle to closed reduction.

The spectrum of management for acute CMC dislocation includes closed reduction,<sup>6</sup> closed reduction plus percutaneous pinning,<sup>8</sup> open reduction with capsular repair, and ligament reconstruction.<sup>5,9</sup>

Since Eaton's ligament reconstruction is a reliable and durable procedure and its excellent functional outcome has been well-proven, particularly when performed in acute conditions,<sup>8</sup> we also chose to perform ligament reconstruction according to Eaton's procedure.

Our patient has been satisfied with her functional outcome after one year, however, further long-term follow-up is needed for more reliable assessment.

### References

- 1 Ibrahim S, Noor MA. Simultaneous dislocations of the carpometacarpal and metacarpophalangeal joints of the thumb. *Injury*. 1993; **24**: 343 – 344.
- 2 Freedman DM, Eaton RG, Glickel SZ. Long-term results of volar ligament reconstruction for symptomatic basal joint laxity. *J Hand Surg [Am]*. 2000; **25**: 297 – 304.
- 3 Jari S, Waseem M, Srinivasan MS. Simultaneous Bennett's fracture and metacarpophalangeal dislocation of the same thumb in a soccer player. *Br J Sports Med*. 2000; **34**: 463 – 464.
- 4 Moore JR, Webb CA Jr, Thompson RC. A complete dislocation of the thumb metacarpal. *J Hand Surg [Am]*. 1978; **3**: 547 – 549.
- 5 Shah J, Patel M. Dislocation of the carpometacarpal joint of the thumb. A report of four cases. *Clin Orthop Relat Res*. 1983; **175**: 166 – 169.
- 6 Simonian PT, Trumble TE. Traumatic dislocation of the thumb carpometacarpal joint: early ligamentous reconstruction versus closed reduction and pinning. *J Hand Surg [Am]*. 1996; **21**: 802 – 806.
- 7 Strauch RJ, Behrman MJ, Rosenwasser MP. Acute dislocation of the carpometacarpal joint of the thumb: an anatomic and cadaver study. *J Hand Surg [Am]*. 1994; **19**: 93 – 98.
- 8 Uchida S, Sakai A, Okazaki Y, Okimoto N, Nakamura T. Closed reduction and immobilization for traumatic isolated dislocation of the carpometacarpal joint of the thumb in rugby football players. Two case reports. *Am J Sports Med*. 2001; **29**: 242 – 244.
- 9 Wee JT, Chandra D, Satku K. Simultaneous dislocations of the interphalangeal and carpometacarpal joints of the thumb: a case report. *J Hand Surg [Br]*. 1988; **13**: 224 – 226.