

Complex Dorsal Metacarpophalangeal Dislocation—Long-Term Follow-Up

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Purpose To describe the long-term follow-up results of complex dorsal metacarpophalangeal joint dislocation (MPJD). We hypothesize that there would be no long-term functional deficit in most patients, even with the presence of one of the familiar complications.

Methods We describe 5 patients with a median follow-up of 13 (range, 7–36) years and review the literature focusing on follow-up and complications.

Results All patients reported full function of the hand. Compared with the contralateral finger, a mild loss of MPJ flexion was noted in 2 patients. Grip strength was reduced in 2 patients. The mean *QuickDASH* score was 4.5 (range, 0–20.5). Two patients with osteochondral metacarpal head fractures treated with screw fixation demonstrated secondary osteoarthritis changes on x-ray. The literature indicates that complications in patients with complex dorsal MPJD are related to failure of diagnosis, multiple attempts at closed reduction, concomitant osteochondral fracture, traumatic open reduction, or prolonged immobilization, and may result in joint stiffness, early degenerative arthritis, or osteonecrosis of the metacarpal head, pain, premature epiphysis closure, and metacarpal shortening.

Conclusions The findings from this study suggest that complex dorsal MPJD treated on the day of injury with dorsal or volar open reduction techniques can eventually result in a satisfactory outcome, even with one of the complications mentioned. (*J Hand Surg Am.* 2016; ■ (■): ■–■. Copyright © 2016 by the American Society for Surgery of the Hand. All rights reserved.)

Type of study/level of evidence Prognostic V.

Key words Adolescent, adult, child, complications, dislocations, metacarpophalangeal joint.



DORSAL METACARPOPHALANGEAL JOINT dislocations (MPJD) occur from a forceful hyperextension injury, often a fall on an outstretched hand. The pathogenesis and anatomy of irreducible dislocations, as first described by Kaplan, refer to

instances in which the volar plate is avulsed from its attachment to the metacarpal and becomes interposed between the proximal phalanx and the metacarpal. In addition, the metacarpal head may be entrapped in the tendons and ligamentous structures as it displaces volarly. In the index finger, the flexor tendons are displaced ulnarly and the lumbrical radially. In the little finger, the common tendon of the abductor digiti minimi and flexor digiti minimi is displaced ulnarly, with the flexor tendons and lumbrical displaced radially. The natatory ligament is displaced dorsally and the superficial transverse metacarpal ligament proximally.¹

Complex dislocations treated surgically can be approached dorsally² or volarly¹ or in a combined approach. The surgeon must be mindful of the presence

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TABLE 1. Demographic and Clinical Data at Presentation

Case No.	Age (y)	Gender	Digit Involved	Hand Involved	Dominant Hand	No. of Reduction Attempts	Time to Operation (d)	Surgical Approach	Intraoperative Transected Structures	Osteochondral Fracture of Metacarpal Head	Postoperative Immobilization Time (d)
1	22	M	Little	L	R	1	0	Dorsal	Volar plate	Yes—fixed with screw	None
2	13	M	Index	L	R	1	0	Dorsal	Volar plate	Yes—fixed with suture	None
3	18	M	Index	R	R	1	0	Dorsal	Volar plate	Yes—fixed with screw	26
4	14	M	Index	R	R	1	1	Dorsal	Volar plate	No	None
5	15	F	Index	L	R	1	0	Volar	Volar plate + nataatory ligament	No	3

TABLE 2. Demographic and Clinical Data at Last Follow-Up

Case No.	Follow-Up Time (y)	Age (y)	Work	Range of Motion of Involved MPJ	Range of Motion of Contralateral Hand MPJ	Grip Strength of Involved Hand (kg)	Grip Strength of Not Involved Hand (kg)	QuickDASH Score (0–100)	X-ray Finding	Metacarpal Length Discrepancy
1	34	56	Driver	0°–90°	0°–90°	70	80	0	OA	No
2	12	25	Soldier	0°–90°	0°–100°	52	50	0	Normal	No
3	13	31	Air conditioner technician	0°–90°	0°–105°	60	65	20.5	OA	No
4	7	21	Gardener	0°–120°	0°–120°	60	80	2.3	Normal	No
5	36	51	Waiter	0°–90°	0°–90°	60	40	0	Normal	No

MPJ, metacarpophalangeal joint; OA, osteoarthritis.

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