Middle Black Sea Journal of Health Science / Mid Blac Sea J Health Sci
June 2024; 10(2): 201-205

CASE REPORT
DOI: 10.19127/mbsjohs.1326732

Dorsal Dislocation of First Metacarpophalangeal Joint: A Case Report

Volkan Ali Ersoy[1(ID)], Abdullah Alper Şahin[1(ID)]

[1]Ordu University, Faculty of Medicine, Department of Orthopaedic and Traumatology, Ordu, Turkiye

Received: 13 July 2023, Accepted: 058 October 2024, Published online: 30 June 2024

Abstract

Dislocations of the first metacarpal joint are less common than many other joint dislocations. In uncomplicated cases, closed reduction may be attempted, whereas in complicated cases, surgery may be required. We report the case of an 89-year-old patient with a first metacarpophalangeal joint dislocation that underwent closed reduction. The patient was treated with a thumb spica splint for 2 weeks. At the 2-week follow-up, the patient had a similar range of motion in the first metacarpophalangeal joint as in the contralateral hand. However, the patient did not return for the subsequent follow-up visits, so long-term outcomes could not be assessed.

Keyword: Dislocation, metacarpophalangeal joint, closed reduction

Suggested Citation: Ersoy va, Şahin AA. Dorsal Dislocation of First Metacarpophalangeal Joint: A Case Report Mid Blac Sea Journal of Health Sci, 2024;10(2):201-205.

Address for correspondence/reprints:

Volkan Ali Ersoy

Telephone number: +90 (535) 715 80 74

E-mail: drvolkanaliersoy@gmail.com

INTRODUCTION

Dorsal dislocation of the first metacarpophalangeal joint is a rare trauma. Success can be achieved with closed reduction under local anesthesia. However, in some complicated cases, open reduction may be required.

CASE

An 89-year-old male patient presented to the emergency department complaining of right hand pain after falling in the bathroom. He had a deformity appearance and pain in the first metacarpophalangeal (MCP) joint of the right hand. He also had 40 degrees of hyperextension and some flexion of the MCP joint. Radiographic examination of the patient revealed that the first MCP joint was dislocated dorsally (Figure 1).

Figure 1. Dislocated radiographs of the patient admitted to the emergency department. A is the AP view, B is the lateral view.

Figure 2. Reduced radiographs of patient. A is AP view, B is lateral view.

Neurovascular examination before reduction was normal. The patient was informed of the procedures to be performed before reduction, and informed consent was obtained. The patient was locally anesthetized. Then, reduction was performed using the technique described by Farabeuf in his cadaver studies (1). It was observed that the deformity improved. Neurovascular examination after reduction was normal. Radiographs were obtained after reduction (Figure 2). When the joint was considered reduced, we applied a thumb spica splint to the patient and were called for follow-up.

When the patient came for follow-up at week 2, the splint was removed, and control radiographs were viewed. It was noted that the range of motion of the patient's 1st MCP joint was similar with the other hand. Although the patient was called for a checkup, he did not come back for a checkup.

DISCUSSION

The thumb is a biomechanical unit composed of resistant ligaments and muscles that can withstand the pinching and grasping movements of the hand and fingers (2). There is an angle of approximately 80 degrees of pronation between the trapezoid and the metacarpal relative to the other fingers (3,4). This angle, together with the metacarpophalangeal joint (MCF), provides extensor, abduction, and rotational movements of the finger. Static stabilizers of the MCP joint are the volar plate and collateral ligaments. Dynamic stabilizers are abductor pollicis brevis, adductor pollicis, flexor pollicis brevis, and extensor pollicis brevis. The volar plate prevents dorsal dislocation of the MCP joint during a pinching action (4).

Injuries may vary depending on the direction of the force applied to the MCP joint (5). Dorsal dislocations of the MCP joint usually occur after a sudden hyperextension force is applied to the joint (6). MCP joint dislocations are rare injuries (7). Dorsal dislocations of the MCP joint are more common than volar dislocations (8).

It is necessary to see AP, lateral and oblique radiographs for diagnosis, but evaluation is more difficult due to the superposition of the other fingers on the lateral radiograph (9).

Closed reduction attempts are usually successful. Closed reduction requires infiltration with local anesthesia in many cases because of muscle laxity, whether or not sedation is used (9). Farabeuf's suggestion for reduction is to press the phalanx at right angles on the metacarpal, press on the sesamoids, and then push the phalanx in a semicircle on the articular surface (1). The most important factor preventing closed reduction is the intervening volar plate structure (10). The use of only straight traction can complicate a simple dislocation (7). In complex dislocations, closed

reduction may lead to complications, requiring open surgery (11).

There is no consensus on immobilization after reduction. Immobilization for more than two weeks is unnecessary and early movement results are better (12).

CONCLUSION

Dorsal dislocation of the MCP joint is less common in the thumb than in the other fingers. In the reduction of such dislocations, a false closed reduction with traction alone should be avoided. The specialist performing the reduction should be familiar with the clinical and radiographic features of the fracture and understand the anatomy, potential complications, and limitations of the various approaches. Otherwise, a simple dislocation may turn into a complicated dislocation. In addition, special attention should be paid to the collateral ligaments after reduction. Early mobilization is important to avoid joint stiffness in these patients. We believe that treatment of this dislocation is effective when closed reduction is performed with appropriate maneuvers.

Ethics Committee Approval: The presented study is qualitative and consent was obtained by giving information about the study by one-toone interviews with the subjects who agreed to participate. The study was carried out by paying attention to the Declaration of Helsinki.

Peer-review: Externally peer-reviewed

Author Contributions: Concept: VAE, AAŞ, Design: VAE, AAŞ; Supervision VAE, AAŞ, Data Collection and/or Processing: VAE, AAŞ, Analysis and/or Interpretation: VAE, AAŞ, Writing: VAE, AAŞ

Conflict of Interest: The author declared no conflict of interest.

Financial Disclosure: The authors declared that this study has not received no financial support.

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