



Isolated Carpo-Metacarpal Dislocation of the Thumb

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ABSTRACT

Introduction: Isolated dislocations of the trapezio metacarpal joint without associated fracture has been reported very rarely in the literature. There are reports of associated injuries like fracture of the trapezium, dislocation of the metacarpophalangeal joint and fractures of the base of the thumb metacarpal.

Case Report: Authors report a case of isolated carpo-metacarpal dislocation of the right thumb, in an adult, successfully managed conservatively. At 15 months follow up the patient had full function of the hand without any clinical or radiological evidence of instability or posttraumatic arthritis.

Conclusion: Isolated dislocations can be successfully managed by closed reduction and immobilization in a back slab, with unstable dislocations requiring surgical intervention.

Keywords: Thumb; Carpo-Metacarpal Dislocation

Introduction

Isolated dislocations of the trapezio metacarpal joint [TM] without associated fracture is a very rare injury [1-4], with few reports in the literature. Associated injuries reported include, fractures of the trapezium [5-7], dislocation of the metacarpophalangeal joint (MP) [4,8-10], and associated fracture of the base of the metacarpal [10]. There is

debate over optimal management of the dislocation, with reports suggesting conservative management [1, 9], to aggressive surgery, including ligament reconstruction [11-13]. However, if the joint is stable after a closed reduction, immobilization in a thumb spica can result in a stable joint [1].

Case report

36 year old patient presented in the accident and emergency of a regional referral hospital with pain and deformity of the right thumb, following an alleged road traffic accident. The patient was unable to move the right thumb, and had a prominence over the dorsal aspect of the right hand. Radiographs of the right hand revealed a dorsal dislocation of the carpo-



Figure 1A & B: Frontal radiograph of the hand showing the dorsal dislocation of the TM joint

metacarpal joint of the right thumb without any associated fracture (Fig.1A,B). The patient underwent a closed reduction of the dislocation under intra venous sedation. Following reduction, the TM joint was found stable, and hence it was decided to treat the dislocation in a thumb spica. He was followed up every week for the first 3 weeks with weekly radiographs which confirmed concentric reduction of the TM joint. At 6 weeks the plaster was removed and the patient was referred to the physiotherapist.

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Figure 2: Frontal radiograph at 15 months follow up showing calcification of the ligament [white arrow], and congruent joint.

Patient regained full range of movements of the thumb. Radiograph at 15 months follow up showed well reduced and stable TM joint without any signs of arthritis. However there was a calcified shadow over the radial aspect of the thumb (white arrow), which could be due to calcification in the straight antero lateral ligament (Fig. 2).

Discussion

Thumb has a unique role in the function of the hand, and a normal thumb is essential for digital pinching and for a powerful grip. TM joint plays a vital role in movements of the thumb especially opposition. It is a saddle joint concave in one direction and convex in the other. Both trapezial and metacarpal surfaces have double inverse curvature in the shape of a saddle. Any derangement of the biomechanics of the thumb can lead to defective hand function. An injury which is occasionally reported is carpo-metacarpal dislocation of the thumb, can lead to long standing hand disability if not properly treated.

Isolated carpometacarpal dislocation of the thumb is a very rare injury [1-4], accounting for less than 1% of all hand injuries. Isolated TM dislocations almost always displace dorsally, but there are reports of volar dislocations [14]. Most thumb dislocations are dorsal, and are classified as simple [reduced closed] and complex [irreducible closed and requiring open reduction] [4]. Many associated injuries has been reported along with TM dislocation of the thumb, which includes fracture of the trapezium[5-7,15], dislocation of the metacarpophalangeal joint, also known as floating thumb[4,8,9], injury of the ulnar collateral ligament, fracture of the distal radius[2]and Bennett fracture[10].

Mechanism of injury is axial loading and flexion of the thumb metacarpal [7]. Force causing flexion and axial loading of the metacarpal base result in rupture of the dorsolateral ligament and dorsal subluxation. The dorsal ligament complex is the largest and thickest

and most important ligamentous restraint [10, 13, 16] and if this ligament is cut, the major stabilizer is lost and a carpo-metacarpal dislocation ensues [13, 16]. If the metacarpal is further flexed, the anterior oblique ligament is stripped from the base of the metacarpal resulting in complete dislocation [1, 2].

Optimal treatment method is still debatable [1] varying from closed reduction and casting, percutaneous fixation, ligamentous repair, capsular placcation followed by K wire fixation [1, 2]. Milankov and Miljkovic has named this injury as the "Bennett fracture without a fracture" implying that the injury is unstable after closed reduction as in a Bennett fracture [2]. Closed reduction and a plaster cast with the thumb in abduction, and kept for 4- 6 weeks is the preferred treatment if the joint is stable [1, 4, 8, 9, 13]. If the joint is unstable, it is preferable to hold the reduction with K wires, with or without capsulorrhaphy.

Though many ligamentous reconstructive procedures have been described using the tendons around the wrist, conservative management may still gives equally good results [1, 8]. However recurrent instability is a concern and ligament reconstruction should be considered in unstable cases [12]. Our case was stable after reduction and conservative management with thumb spica gave good functional result. Marcotte and Trzeciak too reported that the isolated dorsal MCP joint dislocation remains stable after closed reduction [8]. Patients with TM dislocation showing no signs of instability after a closed reduction can be managed conservatively [1, 13].

CONCLUSION

We report a rare case of isolated TM joint dislocation. Post reduction the joint was stable and conservative management in spica cast gave good clinical result.

CLINICAL MESSAGE

Isolated TM joint dislocations, if stable after a closed reduction could be managed in a plaster cast with good functional results. Surgery reserved only for dislocations that are unstable after reduction.

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