CASE REPORT

Volar dislocation of the thumb carpometacarpal joint: A case report

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Introduction

Traumatic dislocation of the thumb carpometacarpal (CMC) joint is an unusual injury. There are several case reports of dorsal dislocations in the literature but very few cases of volar dislocations have been reported. Our literature search identified three cases of isolated volar dislocation. We describe a case of an isolated traumatic volar dislocation of the thumb CMC joint that was successfully treated with closed reduction and immobilisation.

Case report

A 55-year-old fit and healthy female company director presented to casualty with pain and swelling of the wrist following a simple fall from standing position on her left non-dominant hand. The patient was unable to recall the exact position of the thumb at the time of fall.

On examination, swelling and tenderness over the thumb base with limitation of thumb movement were observed. Radiographs revealed a complete radio-volar dislocation of the thumb CMC joint without associated fractures (Fig. 1A and B). Closed reduction of the dislocation was performed in the casualty department. The hand was immobilised in a thumb spica splint for a period of six weeks. Mobilisation under hand physiotherapist supervision was started after 6 weeks. At 1-year follow-up, the patient had a pain-free thumb and had returned to her previous activities. Full range of movement of the thumb was regained and the patient was able to grip and pinch without limitation. Follow-up radiographs showed congruent joint surfaces with no evidence of degenerative changes (Fig. 2).

Discussion

The thumb CMC joint is a saddle joint. Four main ligaments stabilise the joint; the anterior oblique ligament, the dorsoradial ligament, the posterior oblique ligament and the intermetacarpal ligament. Although there is controversy in the literature regarding the main stabilising ligament, recent anatomic and biomechanical studies have demonstrated that the dorsoradial ligament is the main restraint to dislocation.

The mechanism of injury resulting in dorsal dislocation is axial loading with flexion of the thumb. The dorsal joint capsule is thin compared to the thick and short volar capsule which is also reinforced by the anterior oblique ligament. This might explain why dorsal dislocation is much more common than volar dislocation. In our case, the exact mechanism of injury is unknown but presumably involved axial loading with the thumb in extension resulting in volar dislocation.

A standard treatment method of dislocations of the thumb CMC joint has not been established. Options range from closed reduction and immobilisation with or without percutaneous wiring to ligament reconstruction. The available literature on the treatment of thumb CMC dislocations is limited to studies on dorsal dislocations.

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reduction and pinning for dorsal dislocations. Their data suggested that early ligamentous reconstruction resulted in better outcome but the results were constrained by of the small number of patients (17 patients). Bosmans et al. reviewed the literature on dorsal dislocations and concluded that open reduction and ligament reconstruction is not justified in all cases. Immediate closed reduction and immobilisation can be sufficient if the joint remains congruent and stable.2

There are only sporadic cases of traumatic volar dislocation of the thumb CMC joint reported in the literature. We searched the Medline and PubMed databases and identified three cases. The first case was diagnosed three months after the injury and thus required open reduction and stabilisation with K-wire.4 The other two cases were part of a series of twenty-nine patients and were managed with closed reduction and immobilisation.5

In this case, closed reduction was performed within few hours of the injury and the joint was immobilised for 6 weeks. The joint remained stable and congruent on follow-up and a good outcome was achieved.

Traumatic volar dislocations of the thumb CMC joint can be managed along the same lines of dorsal dislocations. Prompt diagnosis and immediate closed reduction and immobilisation of these injuries can avoid the need for complex operative procedures and prevent possible complications.

References

6. Simonian PT, Trumble TE. Traumatic dislocation of the thumb carpometacarpal joint: early ligamentous reconstruction versus