

CASE REPORT

Recurrent Dislocation of the Proximal Interphalangeal Joint of the Finger: A Rare Issue in Hand Surgery

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*Research performed at Besat Hospital, Hamadan, Iran**Received: 17 January 2016**Accepted: 12 April 2016***Abstract**

Recurrent dislocation is not common in small joints. This report presents a recurrent dislocation of the proximal interphalangeal joint of the ring finger in a 23-years-old man. Recurrent dislocation was addressed successfully by repairing the avulsed volar plate to the base of the middle phalanx, followed by 6 weeks of splint immobilization.

Keywords: Bone injury, Proximal interphalangeal joint, Recurrent dislocation, Soft tissue injury

Introduction

Recurrent dislocation is commonly seen in large joints such as shoulder. Pathoanatomy of such dislocations includes bone and soft tissue injuries. This report presents a new case of chronic recurrent dislocation of proximal interphalangeal (PIP) joint of ring finger in which soft tissue injury had a role in the dislocation.

Case presentation

The patient was a 23-year-old man who was referred to our clinic because of recurrent dislocation of the PIP of his right ring finger during sports activities. He was a goalkeeper of a local soccer team that sustained dislocation twice prior to the latest visit. He was able to dislocate the joint voluntarily by active extension and relocate it by passive flexion [Figure 1; Video 1].

There was no ligamentous laxity according to Beighton hypermobility score and no other abnormality in any fingers. Radiography was unremarkable in terms of volar articular defect of the base of the middle phalanx [Figure 2] (1).

The surgery was planned and the joint was opened through a volar incision. Avulsion of the volar plate was noticed off the middle phalanx. The volar plate was repaired to the remnants on the middle phalanx while

the PIP was held in 30 degrees of flexion [Figure 3]. After surgery, the hand was placed in an extension block splint blocking the last 30 degrees for three weeks, which was then removed to allow finger extension for 3 more weeks. After six weeks, the splint was removed and full range of motion was started along with physiotherapy. He returned to sports activities after three months. At one-year follow-up, he had full range of motion and could do all his sports activities without any pain or dislocation [Video 2].

Discussion

The PIP joint is hinged in a way that its stability depends on collateral ligaments and the volar plate. The collateral ligament has two components including proper and accessory that both originate from a concave fossa on the lateral condyle of the proximal phalanx. The proper collateral ligament pass volar distal to attach to the volar one-third of the base of the middle phalanx, whereas the accessory collateral ligament attaches to the volar plate (1, 2).

Dorsal dislocations of the proximal interphalangeal joint are the most common dislocation in the hand. The injuries range from a simple sprain or jammed finger to a complex fracture dislocations (3, 4).

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Figure 1. The right ring finger of the patient before (A) and after (B) proximal interphalangeal joint dislocation.

Fracture-dislocation of the PIP may result in a chronic instability. However, some studies stated that there was no relation with a fracture, rather instability occurred after ligamentous and volar plate tear (4, 5).

Palmer and colleagues reported two cases of recurrent dislocation of the PIP in whom no immobilization was given after the initial joint reduction. In one of them, the collateral ligament was reconstructed using one slip of the flexor digitorum superficialis tendon. This tendon was divided proximally and threaded through the hole drilled in the radial condyle of the head of the proximal phalanx, and sutured back on itself. In the second case, the volar plate was repaired by pulling out the remnants, and tied over a button. Their six months follow up showed satisfactory results in both cases (4).

Etadera and colleagues have reported a chronic recurrent dislocation of the distal interphalangeal joint

of a little finger. The finger was not immobilized after reduction. Physical examination showed 45 degrees of passive hyperextension although the range of active extension and flexion was 0 to 90°. Since the volar plate was insufficient to be repaired, the distal ulnar half of the flexor digitorum profundus tendon was transected 1 cm proximal to its insertion to be sutured over the volar plate to correct the radiodorsal instability. The joint was immobilized with a 1.0 mm (0.039-in) K-wire at 10° flexion. Six months after the surgery, the active range of motion was from 10° to 60° with no passive hyperextension (6).

Some authors addressed PIP instability by tenodesing of the joint using flexor digitorum superficialis tendon. They reported most of their results as excellent and good (7, 8). Others have reported the use of volar plate to resurface the comminuted volar articular surface of

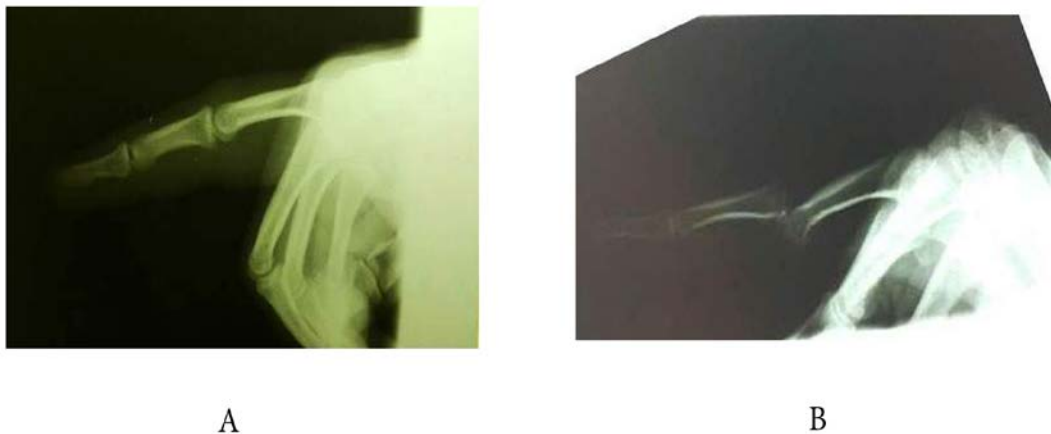


Figure 2. Radiography of the right ring finger before (A) and after (B) proximal interphalangeal joint dislocation.

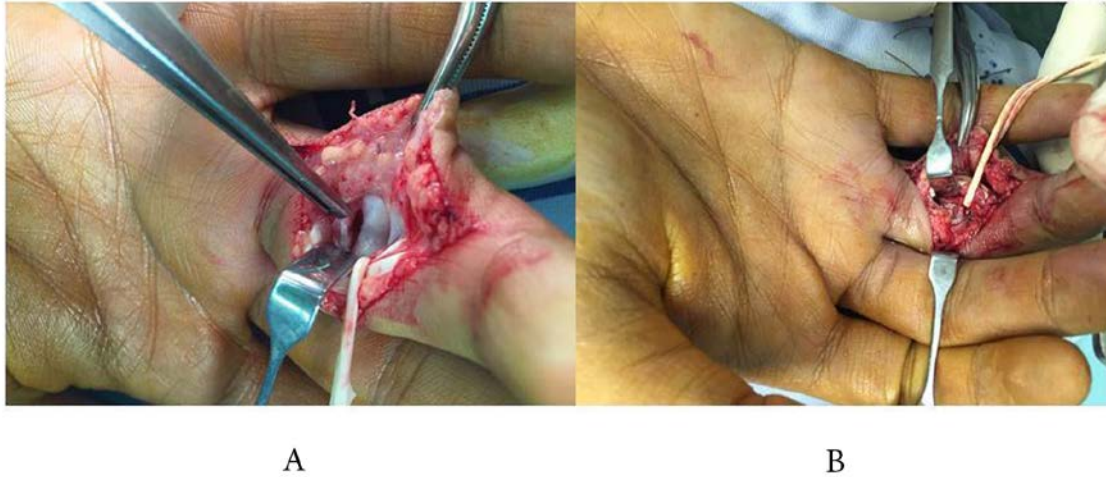


Figure 3. Intraoperative photograph of volar plate rupture before (A) and (B) after volar plate repair.

the middle phalanx in excessively comminuted cases or delayed surgeries (9, 10).

We did not use any tendon for the reconstruction. We only used the remnants of the ruptured volar plate, and splinted the PIP joint in 30 degrees block of extension for six weeks. In one year follow up, the patient had full range of motion and returned to his previous level of sports activity. We suggest using the remnants of the volar plate if it satisfies the repair. Otherwise, flexor digitorum superficialis tendon can be used as an alternative for the reconstruction.

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