

Concomitant Dislocation of Proximal and Distal Interphalangeal Joints of Small Finger: A Case Report

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Abstract

A 24 old man sustained an injury to his right hand when playing soccer as goalkeeper, most probably from a direct strike for the ball or offender foot. On physical examination the injury was limited to the right middle finger, which was swollen, tender an essentially no active motion could be observed in none of the interphalangeal joints. The injury was a close one and no wound or nerve injury was present. No evidence of compartment syndrome was observed. The neurovascular examination was normal. Radiograms were taken immediately which revealed double dislocation of both interphalangeal joints in the right fifth finger. Closed reduction under general anaesthesia was performed and early active and passive range of motion was began as soon as possible. In follow up full range of motion of the joints was retained. The case emphasizes the necessity of whole finger radiologic examination in distal interphalangeal dislocations in the hand.

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Introduction

Floating bones, or simultaneous dislocation of both joints at the end of a single bone, are unusual, if not rare injuries. In this study, one case with one of such injuries to the hand was reported. Informed consent was taken from the patient for reporting the condition.

Case report

The case was a 24-year-old right-handed man with a sustained trauma to his right hand during soccer. Though he could not exactly remember the mechanism of trauma, it had

involved a shoot from another player missing the ball and strikingly directly to his finger or the ball itself had stroke his hand. Injury was limited to the small finger, which was swollen and had essentially no motion in the interphalangeal joints. The neurovascular examination was normal and there was no evidence of compartment syndrome or wound. X-ray showed dislocation of both proximal and distal interphalangeal joints of the finger (Figure 1). Closed reduction under sedation was easily achieved by longitudinal traction and the joints were stable in full range of motion, including collateral ligaments. Postoperative radiogram

showed congruent reduction of both joints (Figure 2). The patient was discharged on the same day and active range of motion in both joints was begun immediately while the small and ring fingers were buddy taped. The patient had no

complaints and showed a normal appearing finger and full range of motion in both joints at a 2-year follow-up (Figures 3).



Figure 1. Preoperative radiographs.



Figure 2. Postoperative radiograms.



Figure 3. Final follow up range of motion

Discussion

Double dislocations of the interphalangeal joints in the same finger are rare injuries, reported occasionally, though they were reported more than 140 years ago (1). It seems that the dislocations are not simultaneous, and a hyperextension force causes a dislocation in distal interphalangeal (DIP) joint and as the force continues, the proximal interphalangeal (PIP) dislocation will also occur, so double dislocation would be a more accurate term than simultaneous (2). It is very likely that this has been the mechanism of injury in our patient too. The

shoot of the other player has forced the finger joints into hyperextension, dislocating one after another.

Herein, we reported a young man who sustained this injury in his fifth finger during a ball sport activity, and closed reduction was successful easily with a very good result in follow up. In fact, most of these cases have been reported during ball sports, such as volleyball or soccer. Again the small finger was involved, which has been in most previously reported cases (3). Though local anesthesia has been successful for closed reduction of the dislocations in most

cases (4), we preferred sedation and general anesthesia for treating any dislocation in the hand, because it is less stressful to the patient and induces muscle relaxation, therefore, easier reduction and examination will be achieved, but one must consider that active range of motion can not be examined accurately in this scenario. In the rare case where closed reduction proves not to be successful, general anesthesia would be necessary.

Surgery rarely has been necessary in this injury. In a review of all reported cases in literature, during a period more than 110 years, which included 62 patients, 4 had undergone surgery (3). An irreducible dislocation was reported later (5). In this case, the patient had presented late and 20 days after the injury, but the interposed tendon of flexor digitorum profundus (FDP) was the cause of irreducibility of the PIP. Kim et al. reported five patients with this injury, 3 of whom underwent surgery (6), two radial collateral ligament and a volar plate repair. Again an open injury was reported by Jahangiri et al (7). The dislocations were reduced by closed methods, but the wound necessitated surgery.

Our patient achieved full range of motion and a painless finger in follow up. Generally, the prognosis of this injury has been good, except in late cases or when surgery has been

performed (6). As the joints were stable, we encouraged early active range of motion. We performed buddy taping despite the fact that the joints were stable in varus/valgus stress tests, as this would provide a support for the injured finger and cause passive motion in it with active motions of the uninjured one. In the past, a period of immobilisation in functional position was advocated, but the trend has been toward earlier active motion (4), which led to a good result in our case as well. The fact that surgery was not necessary for our patient must have contributed to a good result, in addition to the early diagnosis, prompt management and early active range of motion.

Although it is highly unlikely for the injury to be missed because of the typical “step ladder deformity” (8), double dislocations emphasise the necessity of taking radiograms of the full length of the finger in the DIP dislocations, so that a joint proximal to the injury can be visualised.

Conclusion

Double dislocations of the DIP and PIP are rare injuries, generally easy to manage and with a good prognosis. They most often occur in small finger and during ball sports.

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