

# Simultaneous Double Interphalangeal Joints Dislocation in a Finger in a Teenager

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## ABSTRACT

The English literature reports a mere handful of cases involving simultaneous dislocation of two joints in the same finger. To our knowledge, all cases reported to date have been in skeletally mature individuals. We report a case of simultaneous proximal interphalangeal (PIP) and distal interphalangeal (DIP) joints dislocations in one finger in a 14-year-old rugby player, managed by closed reduction and early mobilization, with excellent outcome.

### Key Words:

*Proximal interphalangeal joint, Distal interphalangeal joint, Dislocation, Skeletally immature*

## INTRODUCTION

Simultaneous dislocation of the proximal and distal interphalangeal joints of the same finger is a rare event. A limited number of cases have been reported in the English literature<sup>1-4</sup>. To our knowledge simultaneous double interphalangeal dislocation in the same finger has not been reported in a skeletally immature patient.

## CASE REPORT

A 14-year-old male injured his right little finger while playing rugby. The ball struck the tip of the finger, immediately resulting in pain and deformity. Examination revealed a stepladder deformity. There were no signs of neurovascular damage. Radiographs showed dorsal dislocation of both the proximal and distal interphalangeal joints (Figure 1). No associated avulsion fractures were identified. Under digital block anaesthesia, reduction of the double dislocation was easily achieved by simple longitudinal traction. Both joints were stable after reduction. The little finger was neighbour-finger strapped to the ring finger and the patient was advised to mobilise the PIP and DIP joints as discomfort allowed. The patient removed the strap a week after reduction as he claimed he was pain-free. Six-weeks later, the patient had a full range of painless active movement.

## DISCUSSION

Dislocations at the proximal or distal interphalangeal joints are common. However, simultaneous dislocations of both proximal and distal interphalangeal joints are rare. Despite this injury being first described more than a decade ago, only a few reports followed in the English literature<sup>1-2</sup>. The common mechanism of injury is a forceful hyperextension<sup>3-4</sup> of the distal phalanx causing rupture of the volar capsule and dorsal dislocation of the DIP. The force is then directed to the middle phalanx causing similar dislocation of the PIP. Most of these dislocations occur during ball games such as baseball, softball, volleyball and football. It usually occurs in male athletes and most commonly affects the ulnar digits of the dominant hand<sup>5</sup>. Radiographs typically show simultaneous dorsal dislocations of the PIP and the DIP joints (stepladder appearance). The dislocations may be associated with phalangeal fractures or volar plate injuries.

In most dislocations closed reduction is easily achieved by longitudinal traction, with or without anaesthesia. Surgery is required only in cases of neglected injuries, open dislocations, volar plate or ligamentous injuries, associated fractures and associated flexor tendon injuries.



Fig. 1: (A) Anteroposterior and (B) lateral views of the little finger showing simultaneous interphalangeal joint posterior dislocations (stepladder).

Traditionally, authors have treated such injuries with immobilisation for 2-4 weeks with padded metal splints or a wrist plaster<sup>3</sup>. Immobilisation of the fingers may cause joint stiffness. In our case, neighbour finger strapping and early mobilisation resulted with a successful outcome, with restoration of normal joints movements and return to full function.

The rarity of this injury in the paediatric age group can be explained by the fact that such a mechanism of injury will primarily cause epiphysiolysis, because the growth plate is the weakest structure in the interphalangeal joints complex. In our patient, a mild joint laxity might have enabled the dislocations.

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