High-energy traumatic proximal and distal interphalangeal joint dislocation in the same finger

Kevin Clesham , Robert Pearse Piggott, Eoin Sheehan

Trauma and Orthopaedic Surgery, Midland Regional Hospital Tullamore, Tullamore, Offaly, Ireland

Correspondence to
Mr Kevin Clesham;
kevinclesham@gmail.com

Accepted 24 May 2020

DESCRIPTION

A 23-year-old right-hand dominant sportsman presented to the emergency department having sustained a sporting injury. While playing hurling he tackled an opponent who had just struck the ball (sliotar) with his hurley (type of wooden bat), making contact with his left hand at high speed. It caused an axial compression/hyperextension injury to his little finger, resulting in swelling and an obvious closed deformity that was irreducible pitchside. Radiographs demonstrated a proximal and distal dorsal interphalangeal joint dislocation in a stepladder deformity displayed in [figure 1](#). He was given a local anaesthetic in the form of a ring block with 1% lidocaine in the emergency department. Reduction was achieved by first reducing the distal joint using hyperextension, axial traction and volar translation. Following successful reduction, the proximal dislocation was then reduced in the same manner. Postreduction X-rays displayed in [figure 2](#) confirmed successful reduction with no apparent bony avulsion fragments or fractures. His fourth and fifth fingers were neighbour strapped and he was permitted to mobilise as tolerated for 3 weeks.

At 3-week clinical follow-up, he had full extension of both joints with flexion of the distal interphalangeal joint to 45° and the proximal joint to 90°. Both flexor and extensor tendons as well as collateral ligaments were all clinically intact. Indicators of a volar plate injury such as tenderness

Figure 2 Postreduction anteroposterior and lateral radiographs.

over the volar aspect of each joint, pain on passive hyperextension and loss of pinch power were not present.¹ He was referred to hand therapy for a rehabilitation programme and was permitted to return to sport and work as tolerated.

This is a rare injury with a variety of causative factors including workplace injuries, mechanical falls and sporting injuries.^{2–8} The mechanism of injury in this case was a high-energy collision involving a hurl and had a higher potential to cause further soft tissue damage compared with a mechanical fall. We would like to highlight some important considerations in these cases.

First of all the reduction must be carried out with adequate analgesia in the form of a ring block. Opposing traction caused by the extensor tendons can lead to difficulty in reducing either joint. For this reason, we recommend relocating the distal joint first by hyperextending, applying axial traction and dorsal pressure to reduce the phalanx volarly in that order. The proximal joint can then be reduced in similar fashion. Neighbour strapping and early mobilisation is preferred to avoid stiffness.

Second, there must be a strong suspicion for soft tissue sequelae in these high-energy injuries. At first clinical follow-up, a thorough exam must be performed to rule out collateral ligament, volar plate or tendinous injury, which if present will require referral to a hand specialist for further treatment. If there is no evidence of concurrent injuries,

Figure 1 Prereduction anteroposterior and lateral radiographs.

© BMJ Publishing Group Limited 2020. No commercial re-use. See rights and permissions. Published by BMJ.

To cite: Clesham K, Piggott RP, Sheehan E. *BMJ Case Rep* 2020;**13**:e235426. doi:10.1136/bcr-2020-235426

Images in...

Patient's perspective

I was very happy with the management of my injury and returned to sport without issue. One year on I have no problems.

Learning points

- ▶ Provide adequate local anaesthesia prior to reduction—reduce by hyperextension, axial traction and volar translation in that order.
- ▶ Have a high suspicion for soft tissue sequelae in high-energy injuries including volar plate, collateral or tendinous injury.
- ▶ If clinical examination at 3 weeks is satisfactory, return to sport can be recommended.

the patient should be seen by a hand occupational therapist, who will provide a rehabilitation programme to regain full range of motion at both joints. Return to sport at 3 weeks was achieved in this case without difficulty.

Contributors KC collected details about the case, gained consent from the patient and performed background research on the topic. Contributed to the writing and

revising of the final draft. RPP performed background research on the case, and contributed towards the writing of the manuscript. ES provided expertise in writing the manuscript, details about the case and the revising of the final script.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

ORCID iD

Kevin Clesham <http://orcid.org/0000-0002-1568-1043>

REFERENCES

- 1 Pattni A, Jones M, Gujral S. Volar plate avulsion injury. *Eplasty* 2016;16:ic22.
- 2 Espinosa RH, Renart IP. Simultaneous dislocation of the interphalangeal joints in a finger—Case report. *J Hand Surg Am* 1980;5:617–8.
- 3 Hardy I, Russell J, MacFarlane I. Simultaneous dislocation of the interphalangeal joints in a finger. *J Trauma* 1985;25:450–1.
- 4 Takami H, Takahashi S, Ando M. Simultaneous double interphalangeal dislocation in one finger. *Arch Orthop Trauma Surg* 2000;120:361–2.
- 5 Van Ransbeeck H, De Smet L. Double dislocation of both interphalangeal joints in the finger. Case report and literature review. *Acta Orthop Belg* 2004;70:72–5.
- 6 Kim Y-S, Song H-S, Kim H-M, et al. Simultaneous double dislocation of the interphalangeal joint in a finger. *Arch Orthop Trauma Surg* 2009;129:1387–90.
- 7 Jahangiri SA, Mestha P, McNally S. Double dislocation of finger interphalangeal joints. *BMJ Case Rep* 2012;2012:1–3.
- 8 Abdelaal A, Edwards T, Anand S. Simultaneous dislocation of both the proximal and distal interphalangeal joints of a little finger. *BMJ Case Rep* 2016;2016:1–3.

Copyright 2020 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <https://www.bmj.com/company/products-services/rights-and-licensing/permissions/> BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

Customer Service

If you have any further queries about your subscription, please contact our customer services team on +44 (0) 207111 1105 or via email at support@bmj.com.

Visit casereports.bmj.com for more articles like this and to become a Fellow