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# Interposition of the index flexor digitorum superficialis tendon beneath a fragment of the distal radius fracture: a case report

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**ABSTRACT**

High-energy distal radius fractures are characterized by significant displacement of bone fragments, articular surface damage, and ligamentous injury. Tendon interposition between bone fragments occurs very rarely. In this report, we present a case of a complex distal radius fracture in which intraoperative findings revealed interposition of the flexor digitorum superficialis tendon of the index finger beneath one of the fracture fragments. The exceptional rarity of this situation prompted the authors to report this case.

**Keywords**: comminuted distal radius fracture; flexor tendon interposition; surgical treatment.

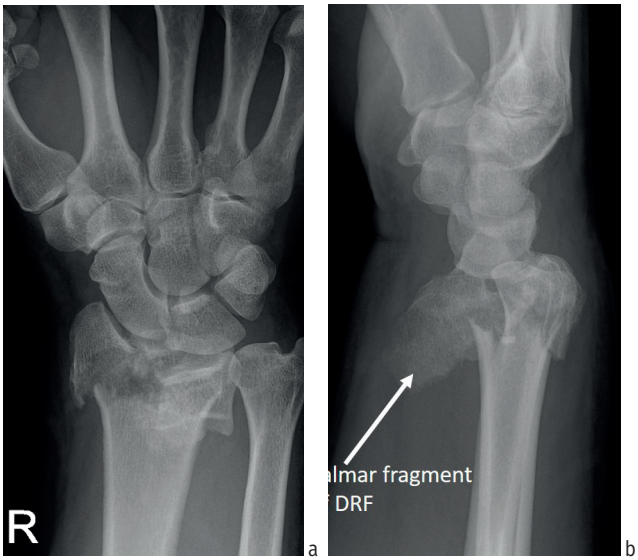
## INTRODUCTION

Distal radius fractures (DRFs) are the most common type of fracture in patients over 50 years of age, particularly among women [1, 2, 3]. Based on the mechanism of injury, these fractures are classified as either low-energy (typically resulting from a fall onto an outstretched hand from standing height) or high-energy injuries, often due to falls from moving vehicles (e.g., bicycles, rollerblades, roller boards, skis) or falls from a height. High-energy fractures are associated with more severe displacement of bone fragments, intra-articular involvement, and injury to intra-articular structures such as ligaments. Tendon rupture or interposition between fracture fragments is extremely rare [3].

In this paper, we present a case of a complex DRF in which interposition of the flexor digitorum superficialis (FDS) tendon of the index finger beneath a palmar fracture fragment was identified intraoperatively. Due to the rarity of such a situation, the authors decided to report this case.

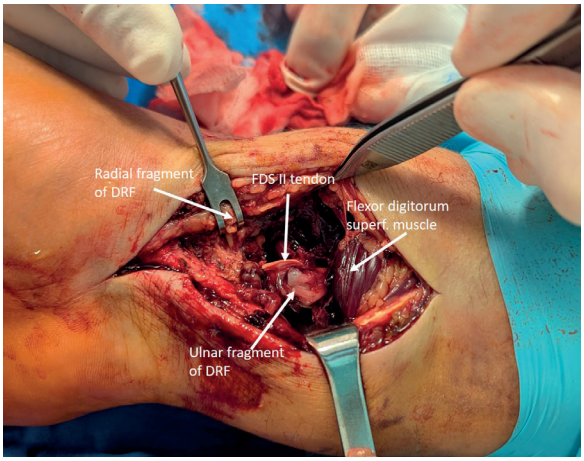
## CASE REPORT

A 43-year-old male patient was admitted to the authors' institution with a DRF sustained 4 days earlier following a fall from a trailer (from a height of approx. 2 m). X-ray revealed a fracture with palmar displacement with comminution of the palmar aspect of the distal radius into 2 distinct fragments, 1 of which was embedded in the surrounding soft tissues (Fig. 1). The dorsal surface of the distal radius remained intact. According to the AO classification, the fracture was categorized as AO C2. The wrist and hand were swollen, and finger movement was limited due to pain. A decision was made to perform surgery on the patient by open reduction and internal fixation. The operation was performed under brachial plexus block anesthesia with a tourniquet inflated on the arm. A standard palmar approach was utilized, along the flexor carpi radialis tendon. After retracting the flexor tendons and dissecting the pronator quadratus muscle, 2 clearly displaced bone fragments were identified, separated by a 2 cm gap. Careful debridement of the ulnar fragment of the fracture revealed interposition of the index finger FDS tendon beneath the bone (Fig. 2). The tendon was released, and after ensuring that it was intact, it was repositioned to its anatomical location. Fracture reduction was achieved using a combined technique: axial traction, manual compression, and the Kapandji technique. Once reduction was obtained, the fragments were fixed with a palmar locking plate. Postoperatively, the wrist was immobilized in a plaster splint for 2 weeks. Follow-up X-ray showed satisfactory alignment of the bone fragments (Fig. 3). The postoperative course was uneventful, and the patient was discharged home on postoperative day 2.




a b

**FIGURE 1.** Distal radial fracture at presentation: (a) p-a view; (b) lateral view. Note significant displacement of the palmar-ulnar fragment (marked with an arrow)




DRF – distal radius fracture; FDS – flexor digitorum superficialis

**FIGURE 2.** Intraoperative view of the fracture showing interposition of the FDS II tendon

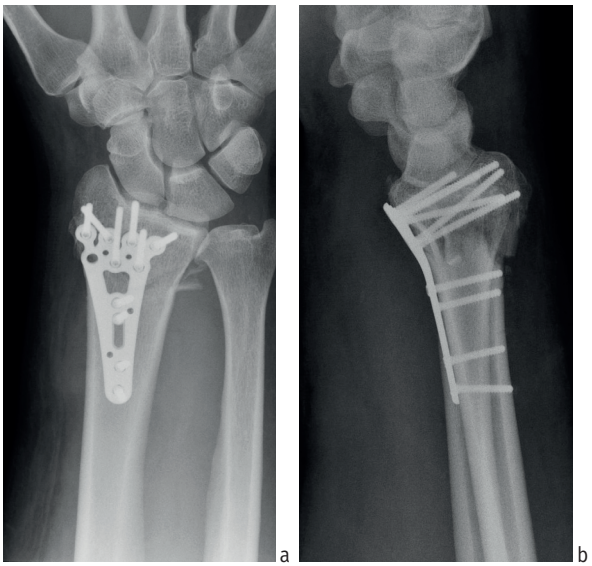


**FIGURE 3.** Post-operative X-ray of the fracture: (a) p-a view. Note almost anatomical reduction of the fracture; (b) lateral view

## DISCUSSION

Tendon interposition between fracture fragments in DRFs is extremely rare. In our institution, this is the second such case observed in over 30 years. In 2015, we treated a patient with entrapment of the extensor indicis tendon in a callus on the dorsal side of the distal radius [4]. A literature search using PubMed and Scopus databases revealed only 4 reported cases of flexor tendon entrapment between fracture fragments of the radius and/or ulna in the proximal or middle part of the forearm, all in children or adolescents [5, 6, 7, 8]. Treatment was conservative in 2 patients and surgical (by K-wire fixation) in the remaining 2. In all cases, tendon entrapment was diagnosed several months post-injury based on clinical signs, such as incomplete flexion of the affected finger. Surgical release of the entrapped tendons resulted in complete recovery. The authors of these studies emphasized that anatomical reduction of forearm fractures in pediatric patients may prevent such complications [7].

To the best of our knowledge, no previously published reports have described intraoperative identification of flexor tendon interposition beneath a DRF fragment, which prompted the authors to submit this case.

## REFERENCES

1. Rundgren J, Bojan A, Mellstrand Navarro C, Enocson A. Epidemiology, classification, treatment and mortality of distal radius fractures in adults: an observational study of 23,394 fractures from the national Swedish fracture register. BMC Musculoskelet Disord 2020;21(1):88. doi: 10.1186/s12891-020-3097-8.
2. Nellans KW, Kowalski E, Chung KC. The epidemiology of distal radius fractures. Hand Clin 2012;28(2):113-25.
3. Żyluk A. Złamania dalszego końca kości promieniowej. Warszawa: Medipage; 2020.
4. Piotuch B, Puchalski P, Żyluk A. Entrapment of the extensor indicis proprius tendon in the callus after a distal radial fracture. J Hand Surg Eur Vol 2015;40(5):541-2.
5. Watson PA, Blair W. Entrapment of the index flexor digitorum profundus tendon after fracture of both forearm bones in a child. Iowa Orthop J 1999;19:127-8.
6. Akita S, Kawai H. Entrapment of the flexor digitorum superficial in the radius fracture site. J Hand Surg Am 2005;30(2):308-11. doi: 10.1016/j.jhsa.2004.09.011.
7. Thione A, Cavadas PC, Rubi CG. Entrapment of the flexor digitorum profundus in the callus after a closed distal radial fracture. Plast Reconstr Surg Glob Open 2016;4(4):e687. doi: 10.1097/GOX.0000000000000674.
8. Toga A, Balaji A, Matsumoto T, Fujimaru A, Murakami H, Katoh S. Flexor tendon entrapment of the index finger after Monteggia fracture in a pediatric patient. Orthop Res Rev 2020;12:189-93.