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Case Report

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Flexor Pollicis Longus Rupture After Scaphoid Fracture Repair: A Case Report

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Abstract

Background: Flexor Pollicis Longus (FPL) tendon attritional rupture is a rare diagnosis. Reported causes include distal radius plates, SNAC wrist, steroid injection and CMC1 arthrodesis hardware. We describe an FPL rupture 1 year after scaphoid waist fracture fixation.

Case description: A 23-year-old male ruptured his FPL when it abraded on a headless compression scaphoid screw. After full union of the fracture hardware was removed and the ruptured FPL tendon was reconstructed with a palmaris longus graft.

Literature review: Attritional rupture of the FPL tendon is usually Iatrogenic and follows volar distal radius plating [1,2]. There are case reports of other culprits such as Trapeziometacarpal arthrodesis hardware [3]. This is the first report, to our knowledge, of scaphoid HCS as a cause of FPL tear.

Clinical relevance: FPL rupture in a rare late post-operative complication but should be sought for and treated in the acute phase.

Introduction

The scaphoid is the most fractured carpal bone, accounting for 80-90% [4] of all carpal injuries and occurring most commonly in young, adult males [5]. Postoperative complication include failure: i.e., nonunion, and symptomatic hardware. No data suggests FPL attritional tear as a complication. FPL attritional tear is relatively uncommon condition. It is associated with repetitive strain, overuse injuries and degenerative changes within the tendon. Typical presentation includes sudden pop sensation, pain, and absence of thumb IPJ flexion.

Case presentation

A 23-year-old patient arrived at the clinic following right hand trauma. A displaced scaphoid waist fracture was diagnosed, and the patient underwent mini-open fracture reduction and fixation with headless compression screw. The post-operative period was unremarkable. 18 months after surgery the patient complained sudden inability to flex the thumb following a strenuous activity. On physical examination he was not able to actively flex his right thumb interphalangeal joint. A computer tomography scan showed a scaphoid screw cut-out (Figure 1-3) with full union of the fracture. Ultrasonography confirmed a complete tear of the

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flexor pollicis longus tendon. The patient underwent a revision procedure with WALANT anesthesia, in which the hardware was removed, and FPL tendon was reconstructed using a palmaris longus autograft. Intraoperatively, a volar capsular tear was noted after opening the carpal tunnel (Figure 5), which was caused by the screw (Figure 4). The proximal and distal stump of the FPL tendon were inspected and after debridement of non-viable substance, a 4-centimeter gap remained and required graft reconstruction (Figure 6). The palmaris longus graft was harvested (Figure 7) and sutured in a pulvertaft weave configuration. Early active post-op rehabilitation protocol was started. At 2 months follow-up our patient still complains of some pain and limitation in range of motion.

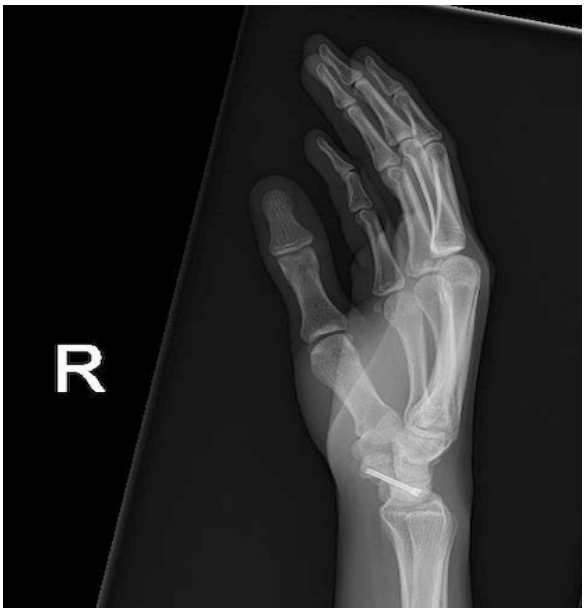

Figure 1: Scaphoid screw cut-out (view 1).

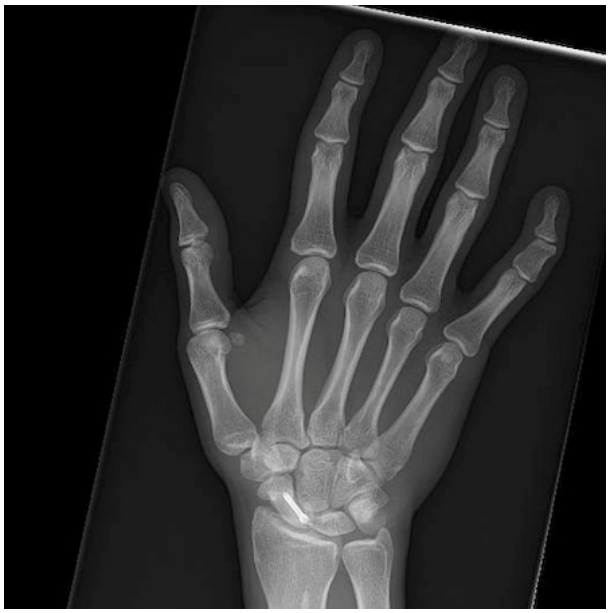

Figure 2: Scaphoid screw cut-out (view 2).

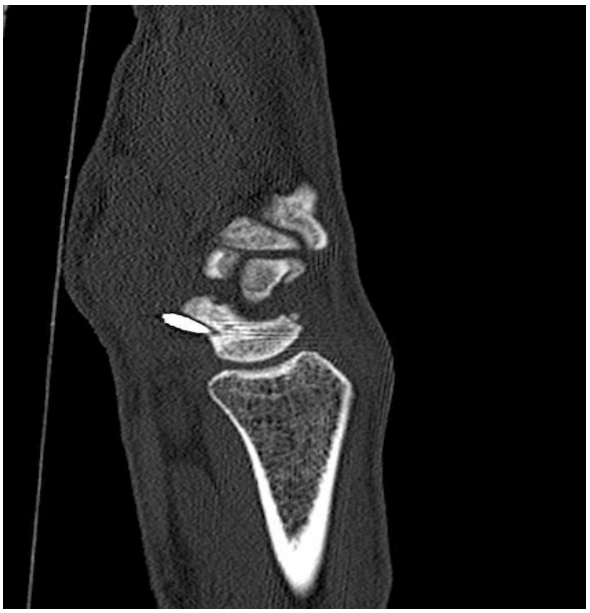

Figure 3: scaphoid screw cut-out (view 3).

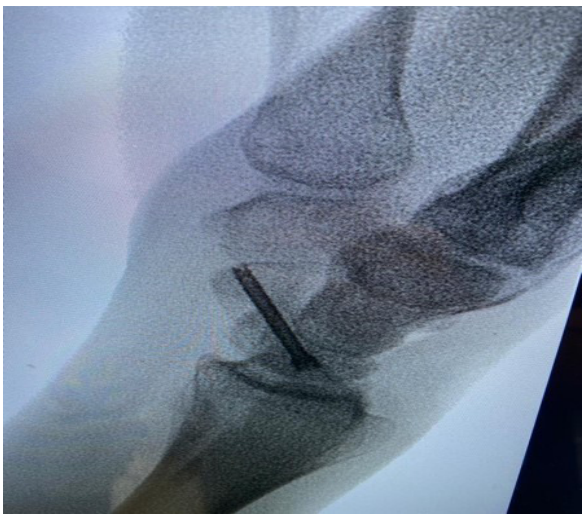

Figure 4: Carpal tunnel.

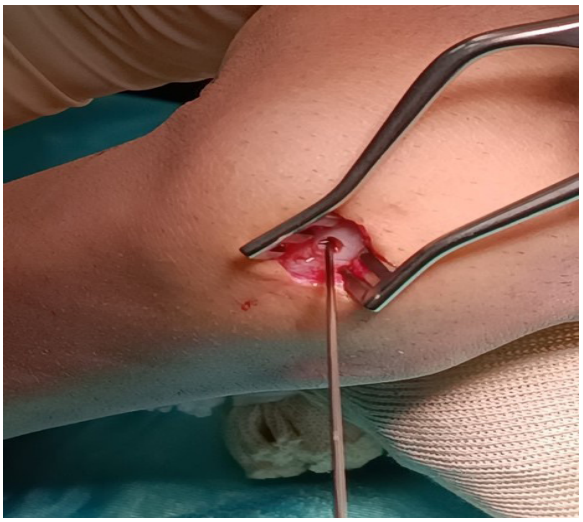

Figure 5: Volar capsular tear.

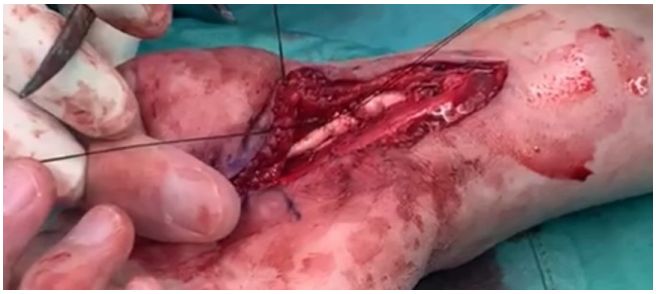

Figure 6: FPL tendon.

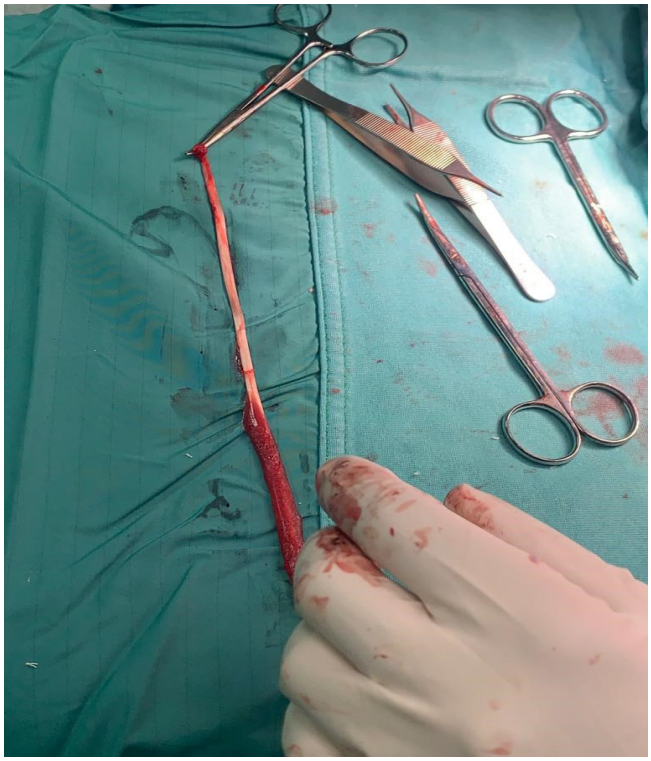

Figure 7: Palmaris longus graft.

Discussion

FPL tendon rupture due to distal radius plating is a known complication. To our knowledge, this is the first reported FPL tear after scaphoid fracture fixation. Graf and Dorn reported a case of scaphoid waist pseud arthrosis leading to attrition rupture of the FPL tendon, tenosynovitis, and hemorrhage into the carpal tunnel, causing symptoms of CTS [6]. In previous reports the palmaris longus grafting was most often utilized, followed by tendon transfer (about 37%). Primary end-to-end repair, digital joint arthrodesis, FPL tenodesis, and alternative grafting options were also reported [7].

Our patient was diagnosed in the acute phase and so, we chose to reconstruct the tendon, assuming the motor unit is still viable. The Soong classification offers guidance for distal radius volar plates with intention to prevent post-operative tendon ruptures.

When placing a scaphoid screw, 4 views are utilized to ensure proper placement: PA, Lateral, Pronated oblique, Supinated oblique. In our case, all intraoperative views confirmed a satisfactory screw position. It is possible that the RF underestimate the true position or that the screw migrated afterwards. Interestingly, a follow-up CT scan 2 months after surgery showed union with proper screw placement.

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