

Flexor Pollicis Longus Tendon Rupture After Volar Radius Plating: Reconstruction with Brachioradialis (BR) Tendon Transfer



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Abstract

Flexor pollicis longus (FPL) tendon rupture is a severe complication after volar plating of the radius fractures. FPL reconstruction with brachioradialis (BR) tendon transfer is a valuable treatment option that can provide good functional recovery of hand function. The purpose of this study was to present a case of rupture and adhesion of the flexor pollicis longus tendon treated by reconstruction with brachioradialis (BR) tendon transfer.

Keywords: Volar Radius Plating; Brachioradialis; tip-to-tip pinch; IP joint flexion; Surgical treatment

Abbreviations: FPL: Flexor pollicis longus; BR: Brachioradialis; FDS: Flexor Digitorum Superficialis; IP: Inter Phalangeal

Introduction

Spontaneous ruptures of the flexor pollicis longus (FPL) tendon are rare. In the past it was typically described in patients with rheumatoid arthritis (Mannerfelt lesion) [1] and when a scaphoid osteophyte erodes through the volar wrist capsule it can cause an attritional rupture of the FPL-tendon [2]. The introduction of angular stable volar plating to treat distal radius fractures in 2000 [3] has been associated with an increasing incidence of FPL-tendon ruptures [4-6]. The main contributing factor is flexor tendon wear over the distal edge of a plate if this is placed superficial or distal to the watershed line [7].

Although brachioradialis tendon transfer is thought to offer limited tendon excursion and finger motion, it was used to restore active thumb and digital function. The brachioradialis was transferred to the flexor pollicis longus (FPL), to the flexor digitorum profundus or to the common digital extensors [8]. Primary repair of chronic FPL tendon ruptures is difficult due to tendon abrasion and retraction. Treatment options are interposition tendon graft, tendon transfer of the 3rd or 4th flexor digitorum superficialis (FDS) to the thumb [9], tendon advancement or IP joint fusion [10]. Preferred management for chronic FPL tendon ruptures has not been determined yet as only

a few reports present the outcome of their surgical treatment in detail [11].

The purpose of this study was to present a case of rupture and adhesion of the flexor pollicis longus tendon treated by reconstruction with brachioradialis (BR) tendon transfer.

Case Presentation

After an open reduction and osteosynthesis of the radius and ulna was performed, an adhesion of the flexor pollicis longus tendon developed, producing passive flexion of the thumb when actively extending the wrist due to a tenodesis effect (Figure 1). After confirming the consolidation of the radius fracture, the plate was removed, finding that the tendon of the flexor pollicis longus was ruptured and included in the bone callus, which was released, and it was decided to transfer the tendon of the supinator longus (brachioradialis) towards the flexor pollicis longus tendon (Figure 2). Although interphalangeal (IP) flexion of the thumb did not return to normal after surgery, the patient reported excellent functional result (Figure 3). The primary function of the FPL tendon is to position and to stabilize the thumb for tip-to-tip pinch and fingernail pickup [12]. This function requires 20° to 30° of IP joint flexion and can be expected after PL tendon interposition.

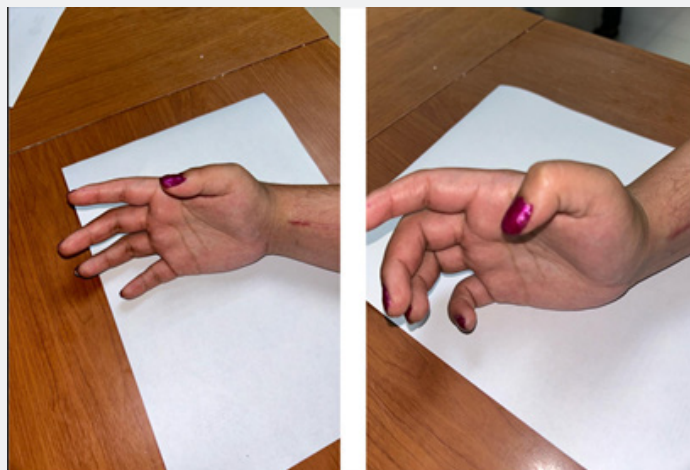


Figure 1

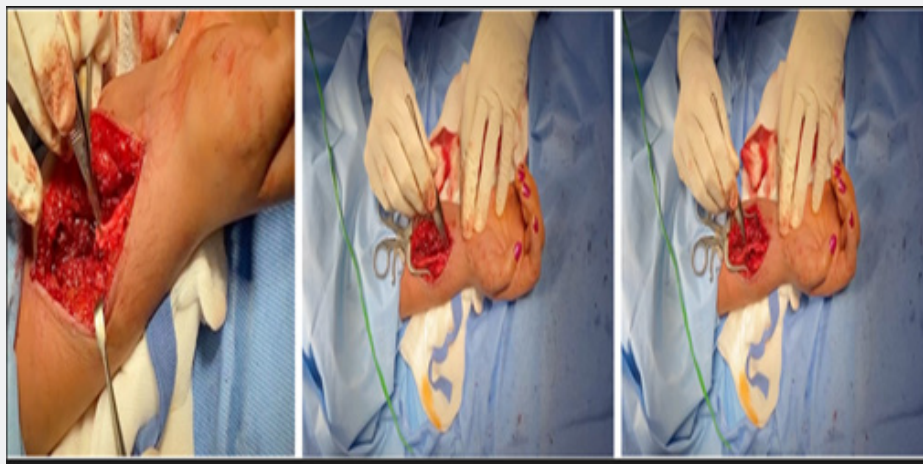


Figure 2



Figure 3

FPL tendon rupture is a severe complication after volar plating of the radius fractures. Preferred treatment of FPL rupture in this indication has not been determined yet and not much is known about outcome of eventual surgical treatment. FPL reconstruction with brachioradialis (BR) tendon transfer is a valuable treatment option that can provide good functional recovery of hand function.

Conclusion

TG is a rare but not exceptional benign tumor that is often misunderstood. The diagnosis is mainly clinical and the treatment is exclusively surgical, the histopathological examination confirms the diagnosis.

Recurrence is exceptional if the excision is complete.

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