

Spontaneous Rupture of the Extensor Pollicis Longus Tendon in a Tailor

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A spontaneous rupture of the extensor pollicis longus (EPL) tendon is associated with rheumatoid arthritis, fractures of the wrist, systemic or local steroids and repetitive, and excessive abnormal motion of the wrist joint. The authors encountered a case of a spontaneous rupture of the EPL tendon. The patient had no predisposing factors including trauma or steroid injection. Although the patient had a positive rheumatoid factor, he did not demonstrate other clinical or radiological findings of rheumatoid arthritis. During surgery, the EPL tendon was found to be ruptured at the extensor retinaculum (third compartment). Reconstruction of the extensor tendon using the palmaris longus tendon was performed. At the 18-month follow-up, the patient showed satisfactory extension of the thumb and 40° extension and flexion at the wrist.

Keywords: *Extensor pollicis longus, Tendon rupture, Spontaneous*

Spontaneous rupture of the extensor pollicis longus (EPL) tendon is not rare and is associated with rheumatoid arthritis, fractures of the wrist, systemic or local steroid injections, and repetitive and excessive abnormal motion of the wrist joint. We recently encountered a case of spontaneous rupture of the EPL tendon in a patient without predisposing factors. The rupture was caused by prolonged repetitive activity at work. We report this case with a review of the relevant literature.

CASE REPORT

A 44-year-old male patient visited our clinic with complaints of right wrist pain and an inability to extend the right thumb when changing his clothes. The pain in the right wrist and thumb started 5 days before the visit. He had no history of trauma or rheumatoid arthritis, wrist pain, or steroid injection. He had been working as a tailor

for 10 years. A physical examination revealed moderate tenderness and swelling on the dorsal aspect of the scaphoid. Flexion of the thumb was possible but active extension was not. The plain radiographs showed neither signs of a fracture nor abnormality at the Lister's tubercle. The rheumatoid factor level was high at 31.2 IU/mL (normal, 0 to 18 IU/mL) whereas the erythrocyte sedimentation rate and C-reactive protein level were in the normal range at 6 mm/hour (normal, 0 to 9 mm/hour) and 0.09 mg/dL (normal, 0 to 0.08 mg/dL), respectively. The clinical findings clearly indicated an acute rupture of the EPL tendon. Accordingly, surgical intervention was planned without an MRI or ultrasound. An incision was made from the base of the thumb to the EPL tendon in the third compartment and a rupture was identified (Fig. 1). The rupture was accompanied by degeneration and atrophy of the tendon fibers within the extensor retinaculum whereas tenosynovitis and synovitis around the Lister's tubercle could not be confirmed. An interposition graft reconstruction using a palmaris longus tendon graft was performed because the injured tendon could not be repaired end-to-end. The atrophic and degenerative areas at the proximal and distal stumps of the ruptured tendon were removed. The graft obtained from the ipsilateral palmaris longus tendon was

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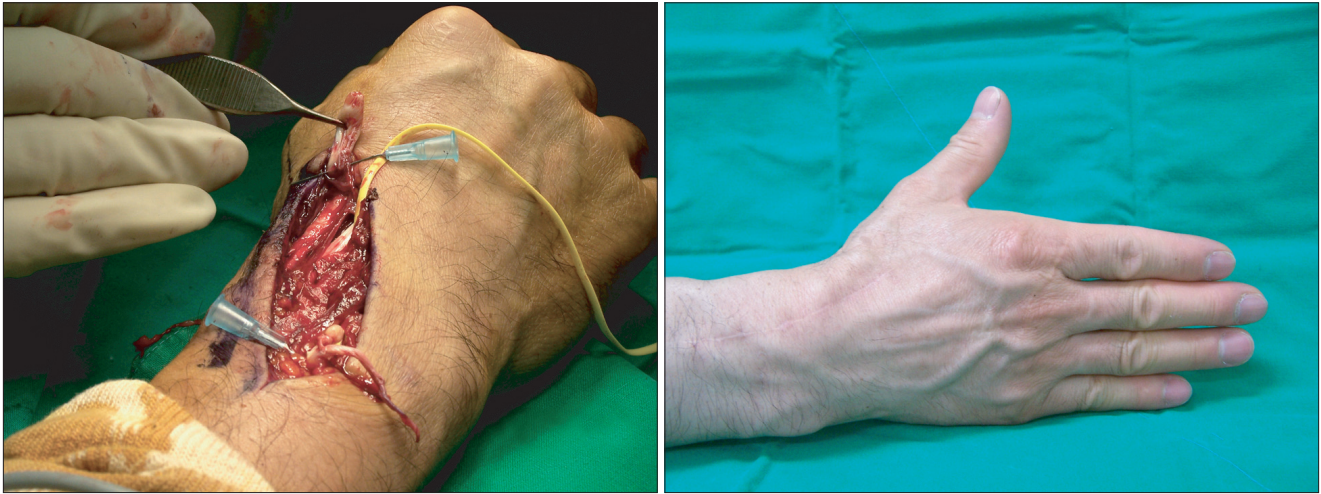


Fig. 1. Extensor pollicis longus tendon rupture was identified at the wrist. The thickness of the ruptured tendon was unaffected at the distal end but decreased at the proximal end. Inflammation was not observed in the adjacent tissues.

attached to the EPL tendon. The distal end of the graft was sutured to the distal stump of the EPL tendon using a modified Kessler technique, and the proximal end of the graft to the proximal stump of the EPL tendon was fixed using Pulvertaft's technique. During the procedure, tension was adjusted so that the thumb was in full flexion and the wrist in full extension, and opposition of the thumb was possible while in full extension when the wrist was in full flexion. Postoperatively, a short-arm cast was applied to the wrist in extension and the thumb in abduction and extension. Kleinert's early passive mobilization was started from the 3rd postoperative day. A thumb spica cast was worn with the thumb in extension for 6 postoperative weeks and physical therapy and a rehabilitation program were started thereafter. The range of extension of the thumb was satisfactory at the 3rd postoperative month, which then increased to a normal level at the last follow-up (18 months after surgery), which led to high patient satisfaction.

DISCUSSION

Spontaneous rupture of the EPL tendon in wrist fractures is relatively common. Although it is mostly an inflammatory response, systemic or local steroid injections are considered one of the major causing factors.¹⁾ The most closely associated inflammatory disease is rheumatoid arthritis. Spontaneous rupture of the EPL tendon can also be caused by tophaceous gout infiltration,²⁾ ankylosing spondylitis, wrist fractures, bone spurs developing after metastatic distal radius or scaphoid fractures, misplaced external fixators or metal plates,¹⁾ nonmetastatic distal radius or scaphoid

fractures,³⁻⁵⁾ prolonged nonunion of the scaphoid, dorsal subluxation of the distal ulna after trauma, and Madelung's deformity.⁶⁾ Prolonged systemic steroid therapy can be attributed to an initial tendon rupture as well as re-rupture after repair.⁷⁾ Accordingly, great care should be taken to prevent fixation failure and early rerupture in patients requiring a long duration of systemic steroid therapy after surgery.⁷⁾

In contrast, there are a paucity of reports concerning EPL tendon ruptures caused by repeated abnormal movements of the wrist joint.⁸⁾ Gelb⁹⁾ reported that a spontaneous rupture of the EPL tendon after wrist fracture was more associated with an interruption of the tendon's vascularity secondary to hemorrhage and pressure after over-extension trauma than attrition. Bonatz et al.³⁾ reported that synovitis of the extensor carpi radialis due to repetitive use might invade the EPL tendon and lead to rupture. On the other hand, Zvijac et al.¹⁰⁾ observed spontaneous rupture of the EPL tendon in patients without severe trauma or inflammatory diseases, Lister's tubercle abnormalities, synovitis and tenosynovitis and they concluded that EPL tendon rupture could occur without trauma due to attrition of the tendon around Lister's tubercle, regardless of age. Their conclusion was supported by other studies on EPL tendon ruptures in sports athletes who were engaged in excessive use of the wrist.⁸⁾ Our patient tested positive for the rheumatoid factor but had no symptoms of rheumatoid arthritis, such as morning stiffness, did not meet the diagnostic standard, and synovitis was not observed during surgery. He had been working as a tailor for 10 years. We have encountered a few patients complaining of pain in the hand or wrist due to repetitive motion of

the hand at work. However, this patient was the first with a spontaneous rupture of an extensor due to repetitive movements at work.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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