

Case Report

Closed Rupture of Both Flexor Tendons of the Little Finger in the Palm - A Case Report

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ABSTRACT

Spontaneous rupture of both flexor tendons in the same finger in the palm is rare. Only two cases have been reported in the literature. We report one such case that was treated by primary repair of both tendons.

KEY WORDS: flexor tendons, intratendinous, primary repair, spontaneous rupture

INTRODUCTION

Intratendinous rupture of flexor tendons in the hand in non-rheumatoid patients is rare. Most of the cases in the literature involve the flexor digitorum profundus (FDP) sparing the flexor digitorum superficialis (FDS). Flexor tendons usually do not rupture unless weakened by a pathologic process and would have to be weakened by 50% before rupture can take place. In 1960, Boyes reported a series of 80 flexor tendon ruptures. In only two cases, the ruptures occurred in the palm and in both cases the FDP and FDS were both involved. One of the two cases involved the little finger and the other involved the long finger. We report a third case involving both tendons of the right little finger.

CASE REPORT

A 52-year-old right-handed male manual laborer presented to the emergency room complaining of pain and inability to actively flex the distal interphalangeal and proximal interphalangeal joints of the right little finger (Fig. 1). This happened at work the same day of presentation. He was lifting a heavy object and felt a sudden pain in his right hand. The heavy object may have forcefully and passively extended the finger, which was being actively flexed. He had no cut wounds but had tenderness in the mid-palm along the flexor tendon route. Normal passive range of motion (ROM) in all joints of the involved finger was observed. X-rays of the hand and wrist including carpal tunnel views were normal. The patient was later screened for rheumatoid arthritis, gout and infection with no abnormality detected. A diagnosis of closed rupture of both flexor tendons versus avulsion was made and exploration was performed three days later. A

decision was made to start with an incision in the palm as an intratendinous rupture was more likely than an avulsion because tenderness was present in the palm and absent along the little finger itself. At operation, both FDP and FDS tendons were ruptured and the proximal ends retracted into the carpal tunnel, which was partially opened during surgery to retrieve the tendons (Fig. 2).

The rupture in the FDP tendon was proximal to the lumbrical origin. No evidence of abnormal synovium was found. A primary repair of both tendons was made using modified Kessler technique (Fig. 3). Post operatively the patient was started on passive ROM and advanced to active ROM at four weeks. Full ROM was gained by six weeks and the patient returned to his previous job with no functional deficit (Fig. 4 and 5).

DISCUSSION

Since the first report by Von Zander in 1891 of spontaneous rupture of flexor tendons, several reports of similar cases followed^[1-9]. Eleven cases of both tendon avulsions have been reported so far. Boyes^[1], in 1960, reported eight cases, and Folmar^[5], Lanzetta^[7] and Cheung^[12] reported one case each.

However, only two cases of both tendon intratendinous rupture in the palm have been reported so far, both by Boyes^[1]. One of his cases involved the little finger and the other involved the long finger. The rupture occurred at the lumbrical origin and he reported no evidence of underlying pathology. Other authors reported intratendinous ruptures of FDP or FDS only. Walker and Lesavoy^[9] reported a case involving the long finger FDP proximal to the lumbrical origin. In this case, an operation was performed seven weeks post injury with tendodesis of the FDP stump to the ring finger FDP.

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Fig. 1: Rupture of both flexor tendons of the little finger.



Fig. 2: Proximal and distal ends of both tendons with the proximal ends retracted into the carpal tunnel.



Fig. 3: Flexor digitorum profundus and flexor digitorum superficialis tendons repaired.



Fig. 4: Range of motion, six weeks post-operatively showing full flexion.



Fig. 5: Range of motion, six weeks post-operatively, showing full extension.

Imbreglia and Goldstein^[6] described, in a retrospective report, ten cases of intratendinous rupture of FDP of the small finger. In four patients, the rupture occurred in the palm. Nine of the patients had occupations requiring repetitive movement combined with power grip, on a routine basis. They suggested that occupation may play a

role in the rupture of tendons. Three cases presenting within one week of injury were treated by primary repair, one had excellent and two had good results. The fourth case presented three weeks after injury, treated by tendon graft and had a good result. The etiology of spontaneous rupture of flexor tendons, where no obvious pathology could be detected, seems to be repetitive trauma weakening the tendon and making it vulnerable to rupture by forceful extension with a maximally contracted flexor muscles.

MacMaster showed that the insertion is the weakest point in the musculotendinous unit. He found that at least half the tendon substance had to be disrupted before an immediate rupture would ensue when stress was applied. The blood supply diminishes with age and ischemia could be a contributory factor in trauma cases.

The little finger is involved more frequently than other fingers in intratendinous ruptures. Imbrigilia⁶ mentioned that the contribution of the small finger FDS to power flexion was variable, and in the majority of cases the FDS was weak and added little to flexion power of the proximal interphalangeal joint. In the case we reported, the mechanism seemed to be forced extension in a maximally contracted flexor muscles. The occupation of the patient could have contributed to weakening the FDP and FDS tendons through repetitive movement on a long-term basis. Careful localization of the tenderness along the course of the tendon, if present, could help deciding whether rupture or avulsion is the likely diagnosis. Primary repair of both tendons, if the patient presents early, is the preferred treatment and gives good results as in our case.

CONCLUSION

Rupture of both flexor tendons in the palm is rare. Early detection and using the presence and location of tenderness to guide the surgical approach, can lead to excellent clinical results.

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