DELAYED REPAIR OF SPONTANEOUS RUPTURE OF BOTH THE EXTENSOR POLLICIS LONGUS AND BREVIS: A CASE REPORT

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ABSTRACT

A 73-year-old female suffered spontaneous rupture of the extensor pollicis longus (EPL) and extensor pollicis brevis (EPB) tendons, for which she presented for treatment three to four weeks later. At that time there was no active metacarpophalangeal (MCP) or interphalangeal (IP) extension, leading to severe functional impairment of her hand. Since both the EPL and the EPB tendons were ruptured, transfer of the extensor indicis proprius (EIP) tendon was carried out for the EPL and transfer of the accessory abductor pollicis longus (AAPL) was carried out for the EPB. After a three-month period of follow-up, the thumb motion was restored and the patient was able to resume all activities of daily living. Although concomitant spontaneous rupture of both the EPL and the EPB is rare, transfer of the EIP and the AAPL tendons, respectively, seems to be the treatment of choice for anatomic reconstruction of such injuries.

Keywords: Extensor Pollicis Longus (EPL); Extensor Pollicis Brevis (EPB); Extensor Indicus Proprius (EIP); Accessory Abductor Pollicis Longus (AAPL); Spontaneous Rupture; Tendon Transfer.

INTRODUCTION

There is only one article in the literature that reports on the acute repair of a combined rupture of the extensor pollicis longus (EPL) and the extensor pollicis brevis (EPB) in a patient with concomitant injury to the ulnar collateral ligament of the metacarpophalangeal (MCP) joint of the thumb after severe trauma. To the best of our knowledge there have been no published reports on spontaneous rupture of both the EPL and EPB tendons in the English literature and the way they should be treated in the delayed setting.

Although the need for repair of the EPL is well established, there is controversy whether the EPB needs to be treated, despite the fact that there have been published reports of impairment of the thumb function with solitary rupture of the EPB. For this reason it was our goal to repair both tendons.

CASE

The patient is a 73-years-old female who previously had no functional deficit of the thumb. She reported sudden pain and loss of motion of the thumb after trying to open a bottle lid, three to four weeks prior to seeking medical attention. The thumb was situated inside the palm, impairing all hand functions (Fig. 1). The patient demonstrated active MCP and interphalangeal (IP) flexion; however, no active MCP or IP extension could be elicited (Fig. 1). The thumb was neurovascularly intact, and there was no ulnar or radial collateral...
ligament instability at the MCP joint. Radiographically, there was mild to moderate degeneration of both the MCP and radiocarpal joints, as expected for the patient’s age.

The patient had surgery under regional nerve block. A lazy-S skin incision was performed which extended proximally over the third extensor compartment and distally on the radial border of the thumb. The distal stumps of the EPL and EPB tendons were prepared. The proximal stump of the EPL was also identified however it was significantly retracted and frayed (Fig. 2). The EIP was identified through a separate incision at the level of the second MCP joint, cut and retrieved to the level of the extensor retinaculum. Despite opening the first dorsal compartment, the proximal stump of the EPB was undetectable. The abductor pollicis longus (APL) was identified and the accessory abductor pollicis longus (AAPL) was separated on the radial side and rerouted under the APL (Fig. 3). The EIP was transferred to the EPL and the AAPL to the EPB, in that order (Fig. 4). Proper tendon tension was achieved with the IP joint in 10° flexion, the MCP joint in full extension, and the wrist held in the functional position. Postoperatively, the thumb was immobilized in a position of maximal extension, for four weeks. No formal reeducation program was used. Three months later, the patient demonstrated active IP flexion to 55°, active MCP flexion to 40° and no extension lag at either the IP or MCP joints of the thumb, as well as, full range of motion of her index finger. She had no pain, she could perform all activities of daily living and she was very satisfied with the result.

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

**DISCUSSION**

The majority of extensor tendon ruptures occur spontaneously without a traumatic event, particularly in patients with rheumatoid arthritis. Other frequent causes are early or late rupture secondary to distal radius fractures, local steroid injections, and repetitive use of the tendons. The latter being the most probable cause in our case, since the patient had none of the other predisposing factors. The rupture possibly resulted from a strong muscle contraction on weak and attenuated tendons.
secondary to tenosynovitis caused by repetitive movements of the thumb, after passing a significant part of her time knitting. During the operation the EPB also seemed hypoplastic (Fig. 4).

The most commonly ruptured extensor tendon is the EPL. The gold standard of treatment for delayed repair of the EPL is by transferring the EIP. The EPB tendon is a phylogenetically new muscle found only in humans and gorillas. Numerous anatomic anomalies of the EPB tendon have been reported, including it being thin or absent. Thus, the need for repair may be controversial. However, there was significant impairment of the thumb function in both studies that reported on solitary rupture of the EPB. There was no active extension at the MCP joint, signifying at least some importance of this tendon. The proposed treatment option has also been the transfer of the EIP, which in our case was transferred to the EPL. To overcome this problem we used the AAPL, modifying the technique which was recently published as a new alternative for repairing the EPL.

The advantages of the AAPL tendon are that it does not sacrifice thumb abduction, while offering good results and high patient satisfaction. Although concomitant spontaneous rupture of both the EPL and the EPB is rare, transfer of the EIP and the AAPL tendons, respectively, seems to be the treatment of choice for such injuries, for a reconstruction that will be as anatomic as possible and consequently as functional as possible. The AAPL could also be a useful alternative in the treatment of solitary EPB ruptures, with functional impairment.

The author(s) declare that they have no competing interests.

References


