



Acute Traumatic Rupture of the Extensor Hallucis Longus about a Case in a 67-Year-Old Patient with Repair in the First 24 Hours. Literature review.

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Abstract

Extensor hallucis longus tendon ruptures of the foot represent about 1% of all tendon injuries [1]. The Extensor Hallucis Longus muscle originates from the front portion anteromedial of the perone on the leg. The main function of this muscle is to assist in extension of the big toe of the foot, where is important to control the forefoot during the swing phase of gait.

This article aims to assess the acute repair in a 67-year-old patient after traumatic rupture of the extensor hallucis longus at the level of the dorsum of the foot. The surgical technique, postoperative management and the results.

Keywords: Extensor Hallucis Longus Tendon; Rupture; Elderly Patient

Introduction

Extensor hallucis longus tendon ruptures of the foot represent about 1% of all tendon injuries [1].

It has been described as an injury caused by wounds caused by sharp objects dropped on the dorsum of the foot or unusually secondary to indirect trauma [2]. The traumatic rupture of this tendon is mainly due to its subcutaneous location on the dorsum of the foot. this injury is associated with diabetes, rheumatoid arthritis, local steroid injections, and iatrogenic errors during ankle arthroscopy [3].

The function of the hallucis longus extensor muscle is the extension of the big toe during the foot swing phase during stepping, which would limit walking, being a risk of falls for the elderly patient during walking, due to dragging of the toe.

The patient gave her informed written consent for publication of the report and accompanying images.

Case Report

A 67-year-old woman who came to the emergency department due to a wound in the tarsal region of the back of her right foot after a kitchen knife fell on her (Figure 1). The wound is sutured and assessed by the Orthopedic Surgery and Traumatology service due to the loss of extension of the big toe of the right foot. Surgical treatment is decided, which is performed in the first 24 hours after the traumatic incident. The patient has a personal history of high blood pressure, dizziness and Ca breast surgery 4 months before prior treatment with chemotherapy. Usual treatment: bisoprolol 5mg, Ecardil D 10/25mg, Betahistine 16mg.



Figure 1

Physical examination

On physical examination, a sutured wound was observed in the back of a hallux with a plantar flexion attitude of the interphalangeal joint with loss of active extension of the distal phalanx and decreased extensor power of the metatarsophalangeal joint (Figure 2,3). Complete interphalangeal and metatarsophalangeal mobility on passive mobilization.



Figure 2



Figure 3

An ultrasound of the right foot is performed as a complementary diagnostic test, where a rupture of the extensor hallucis longus is observed very close to the wound with a gap of approximately 2 cm.

Given the clinical findings and complementary tests, early surgical treatment was decided.

Surgical technique

Under general anesthesia, the patient was placed in supine position, a dorsal incision was made with enlargement of the traumatic zigzag wound along the EHL to both broken ends, locating the distal end at the level of the synovial pulley in the distal third of the metatarsal and proximal end is located at the level of the fibrous sheath of the inferior retinaculum of the ankle, observing a gap of approximately 7 cm.

After locating both ends, the finger is kept in forced dorsiflexion and ankle flexion with the ends approaching, even maintaining a gap of 1 cm separation (Figure 4), a Kessler-type suture is performed using 3/0 non-absorbable suture and coronal suture associated with 3/0 non-absorbable material. Subsequently, immobilization was placed with a surgical plaster splint for 2 weeks and prophylactic antibiotic treatment was prescribed for 7 days. Immobilization with a short Walker boot is maintained for 2 weeks.

Three months after surgery, the patient was performing full dorsiflexion without pain, and she returned to her usual activities.

Postoperative care and outcomes.



Figure 4

Discussion

In the anterior region of the ankle or talocrural in the subfascial plane, the tendons are arranged from medial to lateral (anterior tibialis muscle, extensor hallucis longus, tendons of the extensor digitorum longus muscle and the peroneus tertius muscle) [3]. The EHL is a single-penniform complex of muscle and tendon that arises from the middle half of the interosseous membrane and the fibula, to insert on the dorso basal aspect of the distal phalanx of the hallux. EHL contraction causes extension of the hallux, dorsiflexion of the ankle, and inversion of the foot.

The human gait is a form of bipodal locomotion, which is carried out in what we call the gait cycle, which consists of two major phases, such as the support phase (60%) and the swing phase (40%), the latter being the that is affected by an EHL tear, so it is our responsibility to rebuild it again, to restore hallux alignment and dorsiflexion.

A small literature review on the treatment of lacerations affecting the long hallux extensor reveals that acute treatment is non-surgical, but end-to-end tenorrhaphy is also proposed [2].

Other authors state that primary suture is possible if the condition is acute, but not when it is chronic [3]. The decision of what treatment to carry out is controversial before in elderly patient, conservative treatment is recommended. In an older adult patient, faced with the risks of falls due to gait impairment due to the de-

velopment of hallux flexus, early surgical treatment should be assessed to avoid disability and the risks of late repair. In our case, acute repair was chosen and, although only 24 hours had passed, there was already a 7-centimeter gap in the tendon, but as there was no scar tissue, the tissue had more elasticity, making repair more comfortable.

Success in this type of injury is due to early diagnosis and immediate surgical intervention [4].

In cases of chronic EHL tendon ruptures (≥ 6 weeks), reconstructive surgery using a tendon graft or tendon transfer [5-7] has been commonly used. And there is a description of repair with scar tissue [4].

There is a paucity of information on extensor hallucis longus tendon injuries, and published studies often provide conflicting treatment recommendations and results. Since they are, as in our case, individualization of treatment according to the case.

Regarding postoperative management, the patient should be immobilized at 0 degrees of plantar flexion; in fact, the position of the tendon after repair should be neutral, leaving it without tension. Passive assisted dorsiflexion may be allowed, facilitating tendon remodeling and joint movement, and avoiding stress on the repair site [1]. In our patient, a suropedic splint was maintained for 2 weeks in unloading and later ambulation with ROM-walker until completing 4 weeks. With active mobility of the finger without pain.

Conclusions

In the elderly patient who has autonomy for their activities of daily living, acute repair should be prioritized to avoid excessive retraction of the tendon stumps. In all patients who have autonomy, an anatomical reconstruction and an adequate postoperative management and rehabilitation protocol are essential. In our case, the patient recovered hallux dorsiflexion and returned to her activities three months after surgery.

Conflict of Interest

The author declares that she has no commercial associations (e.g., consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article.

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