LONGITUDINAL TEAR OF THE PERONEUS BREVIS TENDON – A VERY RARE COMPLICATION AFTER AN ANKLE SPRAIN

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ABSTRACT

Longitudinal peroneus brevis tendon tears are very uncommon. Bassett and Speer hypothesized that the cause of a longitudinal peroneus brevis tear is likely an extrinsic phenomenon, with the tendon injured by a portion of the distal fibula after inversion trauma of the ankle. The typical patient describes the pain localized posterior to the lateral malleolus and a palpable swelling behind the lateral malleolus can raise the suspicion of a tear. There is no specific diagnostic and treatment algorithm. Operative treatments include repair of the tendon, resection of the tear, debridement of the tendon, or tenodesis of the peroneus brevis to the peroneus longus.

This manuscript presents two surgically documented longitudinal peroneus brevis tendon tears.

Keywords: ankle sprain, peroneus brevis tendon (PBT), peroneus longus tendon (PLT), longitudinal tear

INTRODUCTION

Ankle sprain is the most common injury in sport activities and in everyday life. It comprises almost 40% of all athletic traumas and more than 10% of all human injuries. In some cases acute or chronic ankle instability occurs. In others, complications such as osteochondral fracture of the talus, sinus tarsi syndrome, impingement syndrome, tendon injuries, etc. occur. A longitudinal tear of the peroneus brevis tendon is a very rare complication and approximately 200 cases have been reported in the literature.

After acute or severe ankle sprain, the peroneus brevis tendon was wedged against the sharp posteri-

or edge of the fibula and the retrofibular groove was the place of the tear.

This injury is frequently overlooked or misdiagnosed and the most reliable diagnostic sign is a persistent pain and swelling along the peroneal tendon sheath. Although standard radiographs are obtained to evaluate the painful ankle, they usually do not demonstrate an abnormality with a peroneus brevis injury (2). Sonography and MRI are useful for this conditions.

Sobel (5) separated the peroneus brevis tear into four grades (Table 1).

In most cases of peroneal tendonitis, initial nonoperative management is appropriate. This treat-

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Table 1. Sobel classification of the longitudinal peroneus brevis tears

Grade I	splayed or flattened out
Grade II	Partial – thickness tear, less than 1 cm in length
Grade III	Full – thickness tear, 1 to 2 cm in length
Grade IV	Full – thickness split, greater than 2 cm in length

ment includes physiotherapy, local ointments and NSAIDs, but Brodsky and Krause (3) noted that conservative treatment failed in 20 out of 24 patients (83%) with an average of 8 months of nonsurgical care. For refractory cases that are not relieved by conservative measures surgical intervention is warranted. Operative treatment include suture of the tendon, resection of a major tear or defect, debridement of up to one half of the tendon, turn – down of the tendon proximally to bridge a gap or augment a tendon that has less than 50% remaining or tenodesis of the peroneus brevis to the peroneus longus (4).

We report here two cases of peroneus brevis tendon tear with no subluxation of the tendons.

CASE PRESENTATION

Case 1

A 27-year-old man practicing amateur football complained of persistent swelling and pain on the posterolateral aspect of his right ankle. He reported an ankle sprain 6 weeks earlier. Retrofibular tenderness and palpable popping with dorsiflexion eversion stress was found on physical examination, but without peroneal luxation or subluxation. Peroneal compression test (1) was positive. The standard radiograph showed no abnormalities and stress x-rays for lateral ligament injuries were negative. An MRI showed longitudinal tear and thickening of the right peroneus brevis tendon with increased fluid in the peroneal sheath.

Conservative treatments such as physiotherapy and steroid injections were not effective. Therefore the patient consented to an exploration of the peroneal tendon complex.

Case 2

A 22-year-old waiter in a night club complained of persistent pain in the lateral aspect of the right foot despite the lack of any recent history of trauma. He had a history of ankle sprains of his right ankle 6 months prior to this. The patient's x-rays were unremarkable. The patient underwent physical therapy including manipulations and steroid injections. He was also advised to use an ankle brace. None of these measures relieved his symptoms to any significant degree and the patient continued to have pain, not only with load but with daily activities. An MRI

showed longitudinal tear of the peroneus brevis tendon and the patient consented to surgical exploration.

METHODS

The patient is placed in a lateral decubitus position. A thigh tourniquet is used. A longitudinal incision is centered over the course of the peroneal tendons, beginning above the ankle 1 cm posterior and proximal to the tip of the fibula and then extending distally to the base of the fifth metatarsal, depending upon the location of the tear, based on MRI and ultrasound.

Fig. 1. MRI of longitudinal tear of PBT

Fig. 2. Ultrasound of the peroneal tendons. Split PBT (white arrows), PLT (yellow arrow), LM – Lateral malleolus

We identified the superior peroneal retinaculum and it was noted to be uninjured in both cases. After that we incised the retinaculum and the peroneal tendons were carefully examined. We found longitudinal tear of the peroneus brevis tendon about 5 cm long in the first case and 4 cm long in second case, but with more expansion of the synovium.

Fig. 3. Longitudinal tear of the PBT (white arrow). PLT (yellow arrow)

In the first case we did a suture with 3-0 polypropylene and in the second, an effusion was noted in the synovial sheath, and after debridement we made a side-to-side suture of the tendon with 4 – 0 polypropylene.

Fig. 4. Tubularization of the peroneus brevis and reduction of the two tendons behind the fibula

Postoperatively, we applied a plaster cast for 3 weeks for both patients. After two months the pa-

tients had no pain, and they evaluated surgery as very good. They returned to full activity about three months after the operation.

DISCUSSION

PBT longitudinal tears are present in almost all cases with lateral ankle sprains. Symptoms are similar to those demonstrated with peroneal tendon tenosynovitis. The injury may be combined with ruptures of the lateral ankle ligaments. MRI and sonography are the best examinations for visualizing the peroneal tendon.

In our two cases the pain was localized to the posterolateral aspect of the lateral malleolus and the patients had stable ankles. MRI and sonography showed longitudinal tear of the PBT. The operative treatment was successful and the recovery was within the normal time.

Patients with persistent posteriolateral foot or ankle pain with a history of an ankle sprain or injury should be considered susceptible to a peroneus brevis tendon injury. However, it should be used to evaluate other associated disorders, which can then be dealt with at the time of the peroneal tendon repair.

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