



## DISTAL BICEPS FEMORIS TENDON ENTHESOPATHY IN A PROFESSIONAL RUNNER

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### ABSTRACT

**Background:** We present a clinical case of distal biceps femoris tendon enthesopathy (DBFTE) in a professional runner.

**Objective:** to describe the diagnostic and treatment strategies for this uncommon disorder.

**Methods:** The diagnosis was based on clinical and complementary studies. The surgical technique, postoperative management and assessment, are described.

**Results:** Histological study confirmed the diagnosis and the clinical outcome was satisfactory, with complete recovery after surgical management.

**Conclusions:** there is only one published study assessing distal biceps femoris tendon enthesopathy. The possible involvement of the peroneal nerve (PN) has not been previously considered. If conservative treatment only provides temporary relief of symptoms, then surgery must be undergone.

**KEYWORDS :** Knee; enthesopathy; biceps femoris tendon; peroneal nerve.

### CASE REPORT

A 38 year old male, professional runner consulted for right knee pain that prevented him to run. He didn't remember injuries or modifications in his routines. He did not notice giving way, knee effusion, or joint blockage.

#### Physical examination

The gait was fluid. Lower limbs alignment showed genu varum with internal tibial torsion. No inflammation was present and range of motion was complete. Instability and meniscal maneuvers were negative. Selective pain at the posterolateral corner of the knee, on the palpable biceps femoris tendon (DBFT) insertion at the fibular tip, was noticeable.

#### Imaging studies

X-ray discarded fractures and limb differences. An ultrasound ruled out knee effusion or biceps tendon instability.

MRI showed an increase in signal intensity of the DBFT, supporting the diagnosis of enthesopathy (Figure 1).

#### Clinical course

The patient was initially treated with an ultrasound guided triamcinolone injection followed by a physical therapy program, and after improving, he went back to his activity with only slight discomfort.

After recurrence of symptoms, unresponsive to conservative measures, a new MRI was taken. It showed a signal increase and thickness of distal biceps femoris tendon insertion, suggestive of interstitial break.

A second triamcinolone ultrasound guided injection was undertaken, but a new recurrence happens 5 weeks later, so surgical treatment was suggested.

#### Surgical management

The procedure was performed under spinal anesthesia and left lateral decubitus position, with tourniquet at the root of the right thigh under 300 mm. Hg. pressure. Sterile drapes were applied allowing the limb to be moved freely. A straight incision was made along the DBFT and extended distally 2 cm. below the proximal fibular.

The PN was found in close relation to DBFT, and an "hourglass" compression zone (change in colour and morphology) was observed. The nerve was released, until no compression was detected during knee motion.

Tendon appearance at fibular insertion shows a degenerative area of 28 x 12 mm. (Figure 2). After removal, it was sent for histology study. Then, longitudinal tenotomies, followed by repair with stiches using resorbable suture were performed. Autologous platelet-rich plasma (PRP) was injected both in the body and in the insertional area. After verifying tendon fixation, the wound was irrigated followed by layers closure.

#### Histological Analysis

Samples were processed for light microscopy hematoxylin-eosin study, showing myxoid degeneration and loss of the normal collagen pattern, but no signs of acute inflammation.

#### Aftercare

We kept the patient's knee with a hinged brace locked at 60° during the first 7 days, progressing to 90° and then to free movement, from the second week. Weight bearing with canes was authorized, and isometric quadriceps exercises were started.

#### Clinical assessment

We have measured pain with visual analogue scale (VAS), range of motion with a goniometer, and muscle power with the Medical Research Council (MRC) scale.

The mobility of the knee after brace removal was complete; muscle power was 5/5 and VAS value increased from 7 preoperatively to 0 in the last visit.

At the end of the follow-up, one year after the operation, the patient is completely free of symptoms, and has reassumed his career.

#### DISCUSSION

Isolated lesions of DBFT are rarely reported —(110). Studies enrolled very few patients and methodological quality is generally poor. We have only found one published case of DBFTE (7), so no definitive conclusions should be drawn.

The assessment of posterolateral knee pain is complicated by the complexity of the structures present and it is necessary to confirm suspicion with complementary tests. DBFTE differential diagnosis includes: lateral meniscus injuries, iliotibial band, lateral collateral ligament (LCL) sprains, biceps tendon bursitis, popliteal tendinitis, proximal tibiofibular joint pathology, sciatic neuropathy and posterolateral corner injuries.

MRI is the preferred test for DBFTE diagnosis, recognized as a tendon signal intensity on T2-weighted sequences increase (7). In tears,

hemorrhage and edema can be seen, as well as tendon stump retraction(9)(10).

There is no scientific evidence to use perilesional corticosteroids injections, assuming DBFTE degenerative nature, but for us, it was effective, although only temporarily. Recurrences and function restriction, despite of conservative therapies tested, was what determined the will of our patient to undergo surgery.

Our delay to surgery was nearly a year, because there were periods in which the patient remained free of pain. There is not consensus about how long to wait for taking this decision, nor the procedure to be performed (6,7). Longo proposed tenolysis, longitudinal tenotomies and repair with absorbable sutures after pathological areas resection; while reinsertion after tunneling the head of the fibula was recommended for complete tears (6). Riboh makes a longitudinal incision of 4 cm. centered at the fibular head, exposes DBFT, LCL and PN, resects pathologic tendon fragment and uses a hinged brace(7).

Histological examination serves to confirm preoperative diagnosis Riboh communicated no inflammatory but degenerative changes (7), as we observed in our case.

We have not found any reference of the PN participation in DBFTE, but the anatomical vicinity, and the observation of macroscopic changes that we describe, can explain painful manifestations and lack of response to nonsurgical management. The neurological involvement, has to be kept in mind not only as part of the clinical presentation but also during the surgical procedure.

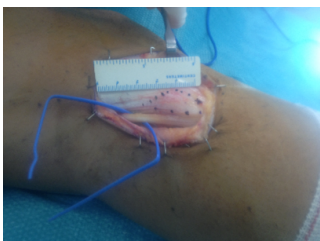
In the follow up, we did not use any functional knee scale, as there isn't any published for DBFTE and because our sample size lacks of statistical significance. We have measured pain with visual analogue scale, and range of motion using a goniometer. Muscle power was assessed with the Medical Research Council scale (MRC) that is simple and widely used.

At the end of the follow-up, one year after the operation, the patient is completely free of symptoms, and has reassumed his career, he had a 5/5-muscle power (which is normal strength), complete knee mobility, and VAS value increased from 7 preoperatively to 0.

**Figure 1. MRI, distal biceps femoris tendon enthesopathy, is diagnosed as an increase in signal intensity tendon on T2-weighted sequences.**



**Figure 2. The peroneal nerve was found in close relation to the biceps tendon, and a compression zone was evident. In the tendon fibular insertion, there was an area of degenerative tissue, which was labeled with permanent marker and measured 28x12 mm.**



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