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## Case Report

# Proximal iliotibial band syndrome: case report<sup>★</sup>

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### A B S T R A C T

**Objective:** The overuse injuries in the hip joint occur commonly in sports practitioners and currently due to technical advances in diagnostic imaging, especially magnetic resonance imaging (MRI), are often misdiagnosed. Recently, a group of people were reported, all female, with pain and swelling in the pelvic region. T2-weighted MRI showed increased signal in the enthesis of the iliotibial band (ITB) along the lower border of the iliac tubercle. We report a case of a 34 year old woman, non-professional runner, with pain at the iliac crest with no history of trauma and whose MRI was compatible with the proximal iliotibial band syndrome.

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## Síndrome da banda iliotibial proximal: relato de caso

### R E S U M O

#### Palavras-chave:

Dor

Ílio

Imagem por ressonância magnética

Quadril

Síndrome da banda iliotibial

As lesões por sobrecarga na articulação do quadril ocorrem comumente em praticantes de esporte e atualmente, por causa do avanço das técnicas de diagnóstico por imagem, especialmente a ressonância magnética (RM), são frequentemente diagnosticadas. Recentemente, foi estudado um grupo de pacientes, todos do sexo feminino, com quadro de dor e edema na região do tubérculo ilíaco. A RM ponderada em T2 demonstrava aumento de sinal na êntese da banda iliotibial (BIT) ao longo da margem inferior do tubérculo ilíaco. Relatamos um caso de uma mulher de 34 anos, corredora não profissional, com quadro de dor na crista ilíaca sem história de trauma e cuja RM era compatível com a síndrome da banda iliotibial proximal.

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### Introduction

Overload injuries to the hip joint occur commonly among sports practitioners and are now frequently diagnosed because of technical advances in imaging diagnostics, especially magnetic resonance imaging (MRI). Among these injuries, tendinopathy, rupture of the gluteus medius and gluteus minimus, peritrochanteric bursitis, stress fractures and adductor injuries can be highlighted.

Recently, Sher et al.<sup>1</sup> studied a group of patients (all female) with pain and edema in the region of the iliac tubercle was assessed. T2-weighted MRI showed higher signal in the enthesitis of the iliotibial band (ITB) along the lower border of the iliac tubercle.

The present study had the aims of reviewing the anatomy of the ITB and raising the possibility of diagnosing proximal ITB injuries in women with hip pain.

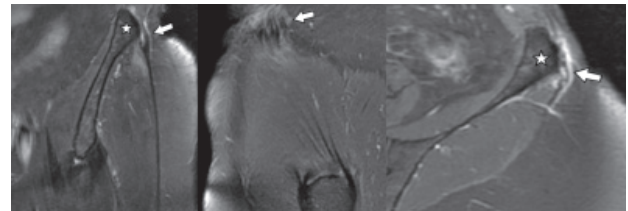
### Case report

A 34-year-old female patient who was a non-professional 10-kilometer runner, was evaluated at the hip outpatient clinic of EPM/UNIFESP. She had had a complaint of pain in the region of the left ilium for four months, initially at low intensity that did not impede her training, but which progressively intensified and made her running activities impossible two months later. She had sought other services and had been treated as a case of bursitis of the hip.

In the physical examination, there were no abnormalities in either static or dynamic inspection of the left hip. However, there was pain on palpation of the iliac tubercle, and also in Ober's maneuver and in a test performed in dorsal decubitus with the contralateral hip and knee flexed and the hip of interest in passive external rotation and adduction.

Radiographic examination did not demonstrate any abnormalities and MRI was then requested (Fig. 1).

Enthesitis of the origin of the iliotibial band was diagnosed and this, together with the fact that it was in a woman with the clinical examination described above, was named proximal iliotibial band syndrome.



**Figure 1 - Enthesitis at the origin of the ITB. Magnetic resonance imaging in the coronal plane (left) and sagittal plane (center) with T2 weighting and fat saturation, and in the axial plane after contrast administration (right), which demonstrates focal thickening of the ITB (arrows) at its origin at the iliac crest, adjacent to the iliac tubercle (asterisk), with a small intrasubstance rupture/delamination and surrounding inflammatory alterations, which also involve the underlying fibers of the gluteus medius, at its origin in the external plate of the ilium. Note the evident post-contrast highlighting on the right side, suggestive of an inflammatory component.**

Treatment with systemic hormonal anti-inflammatory agents was started, given that there was no response to the non-hormonal type, and the treatment was administered in association with specific motor physiotherapy, with analgesic measures and, especially, exercises to stretch the iliotibial band and strengthen the stabilizers of the pelvis and the abdominal and lumbar musculature. This controlled the symptoms and allowed the patient to gradually return to training activities three months after the treatment.

### Discussion

There is a discussion in the literature regarding the proximal anatomy of the ITB. There is a description of a proximal insertion in the iliac crest,<sup>2,3</sup> formed by fusion of the tendon fibers of the gluteus maximus and tensor fasciae latae muscles at the level of the greater trochanter.<sup>4,5</sup> Other reports have described the ITB

as a broad fascia with its main insertion in the iliac tubercle and other secondary insertions in the iliac crest.<sup>6,7</sup>

Sher et al.<sup>1</sup> demonstrated that the fascia lata has an insertion along the entire lower border of the iliac crest. At the iliac tubercle, thickening of the fascia lata occurs, with formation of the ITB. This is a fibrous structure of longitudinal orientation that receives contributions from the tendons of the gluteus maximus and tensor fasciae latae muscles at the



**Figure 2 - Anatomical specimen that demonstrates the origin (wide arrow) and insertion (narrow arrow) of the iliotibial tract.**

greater trochanter. In the distal region, the ITB is inserted into the Gerdy tubercle (Fig. 2).

The symptom most frequently related to the ITB is the friction syndrome of its distal insertion. This presents as a condition of pain in the lateral region of the knee, relating to friction between the ITB and the lateral femoral condyle.<sup>1</sup> It commonly occurs in long-distance runners, cyclists and soccer players and is the commonest cause of lateral knee pain in runners.<sup>8-11</sup> It can be identified on MRI as T2 hypersignal in the lateral synovial recess, interposed between the ITB and the lateral femoral condyle.<sup>12,13</sup>

There is little discussion of the involvement of the region proximal to the ITB in the current literature. The great majority of the cases reported affect female patients, especially runners or obese elderly women.<sup>1</sup> Biomechanical studies have indicated that the greater ratio between pelvic width and femoral length that occurs in women generates greater hip adductor movement and generates overload in the lateral musculature with the purpose of maintaining pelvic balance.<sup>14</sup> While running, women present greater activity of the adductor musculature and a higher degree of internal rotation of the hip, which also leads to overloading of the ITB.<sup>15</sup>

These patients generally complain of pain at the proximal insertion of the ITB (i.e. the iliac tubercle, which is located posteroinferiorly to the anterosuperior iliac spine), which is exacerbated by local palpation and by Ober's maneuver.<sup>16</sup>

In our case, there was pain when the maneuver was performed with the patient in dorsal decubitus and the contralateral hip flexed so as to rectify the lumbar lordosis. From this point, adduction and external rotation can be performed passively, which tensions the iliotibial band and provokes pain (test suggested by the present authors).

MRI is mandatory for the diagnosis, given that the clinical condition can be confounded with several other diseases, i.e. both intra and extra-articular conditions of the hip. However, it needs to be emphasized here that MRI should be requested not only to

investigate the hip but also to cover the entire ilium. If not, the proximal portion of the ITB will not be correctly evaluated.

There has been little discussion about the treatment. All the patients reported in the literature responded to rest and physiotherapeutic treatment for stretching and strengthening the muscles of the ITB.<sup>1</sup>

The proximal iliotibial band syndrome is a painful hip condition that, although infrequent, needs to be correctly dealt with by general orthopedists. Its diagnosis should be suspected from the clinical picture, especially among women who are runners or obese elderly women, and should be confirmed by means of properly requested MRI.

## Conflicts of interest

The authors declare no conflicts of interest.

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