



MRI findings of iliotibial band friction syndrome in a swimmer: A case report

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Abstract

Iliotibial band friction syndrome is one of the common cause of lateral knee pain specially seen in people who have intense physical activity like athletes (runners, cyclists, American football players) and also military personnel. Although it is believed to be an overuse syndrome, its exact mechanism of etiology is little known.

In this article MRI findings of a swimmer patient with iliotibial band friction syndrome are presented.

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Key words [iliotibial band friction syndromel [magnetic resonance imaging]

Introduction

Iliotibial band friction syndrome (ITBFS) is one of the common painful condition due to inflammation of distal portion of iliotibial band which presents in lateral side of the knee. Repetitive movements of flexion and extension during exercise as well as excessive friction of distal iliotibial band results in its irritation and inflammation, as it slides over lateral femoral epicondyle causing friction, irritation and lateral femoral pain [1,2]. Combination of overuse and biomechanical factors are being considered in developing ITBFS [3]. It is usually seen in people having intense physical activity such as athletes (runners, cyclists, American football players) and also military personnel [1-3].

It accounts for about 15% of all overuse injuries of the knee region [4], however according to Linenger [5] ITBFS comprises about 22% of lower extremity injuries. Overall in general ITBFS has been accepted to be the most common running injury of the lateral knee region with an incidence of 1.6-12% [6,7].

The diagnosis of ITBFS depends on clinical findings including local tenderness over the lateral knee and reproducible pain during movements of flexion and extension while pressing over the lateral femoral epicondyle [2,8].

Case Report

A 33-year-old female swimmer admitted to the hospital with pain especially located at the lateral side of the left knee with minimal swelling. On physical examination, tenderness of lateral femoral epicondyle was present during pressing over the lateral epicondyle with a 30-degree flexion of the knee. Laboratory blood test was unremarkable. Due to existing pain at lateral side of the left knee, magnetic resonance imaging (MRI) was performed, revealing edematous hyperintense signal changes between lateral femoral condyle, and ITB on PD-Fatsat which represented edematous changes, minimal fluid due to inflammation and irritation of ITB. These signs suggested ITBFS (Figure 1). The patient was observed conservatively for 2 months and the complaints were relieved.

Discussion

ITBFS is one of the common cause of lateral knee pain specially seen in athletes (runners, cyclists) [1-3].

The iliotibial band (ITB) is a thick band of fascia which originates at the lateral iliac crest and extends distally to the level of patella, tibia, and biceps femoris tendon [3]. Although its diagnosis is based on clinical examination, MRI provides rulling out another associated pathology and depicts more useful information about ITFBS including thickening of distal

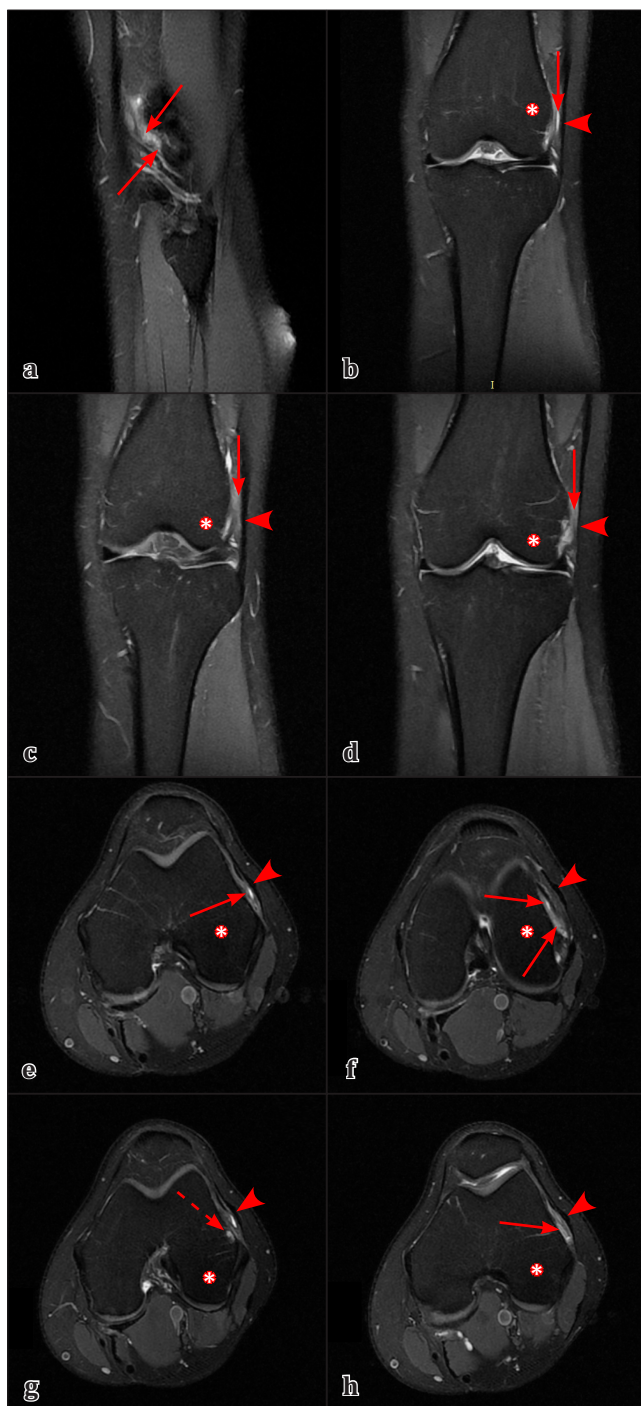


Figure 1. Sagittal (a) coronal (b-d) and axial (e-h) fat-suppressed proton density (PD fat-sat) weighted images show hyperintense signal intensity (arrows) between lateral femoral epicondyle (asterisk) and iliotibial band (arrowheads) represents edematous changes and minimal fluid due to inflammation and irritation of iliotibial band suggesting iliotibial band friction syndrome, hyperintense signal changes at lateral femoral condyle represents degenerative changes (dashed arrow).

iliotibial band and the inflamed and fluid-filled iliotibial band over the lateral femoral epicondyle [2,3]. The typical MRI finding of ITBFS is ill-defined increased T2-WI signal intensity within the fatty soft tissues between the ITB and the lateral femoral epicondyle [9]. Cystic areas which represent primary or secondary (adventitious) bursae may be detected [10]. In chronic cases of ITBFS, thickening of the ITB and increased T2-WI signal intensity superficial to the ITB are not frequent. It is important to identify the lateral synovial recess as a separate structure and should not confuse its joint fluid with soft tissue inflammatory changes. It is possible to understand that the anterior lateral synovial recess is located anterior to the lateral femoral epicondyle whereas the inflammatory changes of ITBFS, mostly overlies and extend posterior to the epicondyle [10]. However, in differential diagnosis lateral meniscal tear, lateral collateral ligament sprain, popliteal tendon strain, lateral hamstring strain should be considered.

In the study done by Lavine [2] described the contributing biomechanical factors causing ITBFS including weak hip abductor muscles, tight iliotibial band, rearfoot eversion, differences in degree of knee flexion and other biomechanical factors (increased landing forces, increased knee internal rotation, low hamstring strength, genu recurvatum).

As summary, ITBFS is a condition of overusing and combined biomechanical factors resulting in irritation and inflammation of distal part of iliotibial band in those having intense physical activities, it should be kept in mind ITBFS may be misdiagnosed with other disorders and MRI is able to differentiate pathologies.

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