Fabella fracture: An uncommon cause of posterolateral knee pain: Case report

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DOI: https://doi.org/10.22271/27078345.2024.v6.i1c.204

Abstract
The fabella is a sesamoid bone located at the femoral insertion of the gastrocnemius' lateral head. Fractures of the fabella are rare and difficult lesions to diagnose and often missed on radiographic assessments. A 27-year-old male was presented to the emergency department with pain and swelling on the posterolateral face of the left knee. A displaced fracture of the fabella was identified on a lateral radiograph. Fabella related conditions, especially fractures, can be easily underdiagnosed and are a possible cause of severe pain in the posterior and posterolateral region of the knee.

Keywords: Fabella, fracture, posterolateral knee pain

Introduction
The fabella is a sesamoid bone located at the femoral insertion of the gastrocnemius muscle lateral head. This bone can articulate directly with the posterior surface of the lateral femoral condyle, playing a role in knee biomechanics \[^{[1]}\]. The fabellofibular ligament originates in the fabella and is inserted in the fibula's head, assisting in the knee stability and extension \[^{[1, 2]}\]. According to the literature, its presence in the population is inconsistent, with reported prevalence rates ranging between 10% to 87% \[^{[1, 3, 4]}\]. Its endochondral ossification is posterior to the development of the patella, around 12-15 years of age, taking the form of a sesamoid bone. Its constitution may be purely fibrocartilaginous, which makes it difficult to visualize on radiography \[^{[6, 5]}\]. Clinical conditions such as fractures, primary osteoarthritis, fabella syndrome, compression of the common fibular nerve or chondromalacia, may be associated with the fabella, which is a differential diagnosis of posterolateral gonalgia \[^{[1, 6, 7]}\]. Fractures of the fabella are rare and difficult to diagnose and often missed on radiographic assessments \[^{[1, 4]}\].

Case Report
In September 2021, a 27-year-old young male was presented to the emergency department at Lisbon’s Santa Maria hospital with complaints of pain and swelling on the posterolateral face of his left knee. He had no previous history of knee disorders, apart from being in a road traffic accident the week before. On clinical examination, the patient was ambulatory and had mild knee effusion. The diagnosis was made in the emergency room using an anteroposterior and lateral radiographs of the knee, where a displaced fabella fracture was noticed [Figure 1]. Further assessment was carried out at an outpatient consultation with repeat clinical examination and radiographs. A magnetic resonance imaging (MRI) of the affected joint was performed four months later, confirming an isolated fabella fracture, without involvement of any other knee ligament injuries. Conservative treatment was elected and the patient underwent a 3-month physiotherapy program focused on the rehabilitation of his left knee injury. At 10 months of follow-up, the patient reported lack of strength and pain, predominantly in the morning, grade 3 on the visual analogue pain scale (minimum value of 0 and maximum 10) in the posterolateral region of the left knee. Nevertheless, he resumed his regular sports activities, with similar intensity of the pre-fracture period.
Fig 1: Diagnostic radiograph of the fabella fracture (lateral view of the left knee)

Discussion

The inconsistent prevalence of the fabella in the population may contribute to a misinterpretation of this sesamoid bone as a fracture, an intra-articular free body or an osteophyte [1]. It lies in a zone of intersection of tensile forces between the tendon of the lateral gastrocnemius muscle, the arcuate ligament and the popliteal ligament that crosses the fabellofibular ligament. The latter, in turn, contributes to the stabilisation of the knee in extension, parallel and externally to the popliteofibular ligament [3, 4, 8]. Its presence is usually asymptomatic [9]. In spite of that, it can be associated with several conditions, such as fabella syndrome which results in intermittent pain in the posteroslateral region of the knee [1-3, 10]; chondromalacia [10, 11]; common fibular nerve compression [6, 12] and fabella fractures. There are few cases of fabella fractures reported in the literature, and it is often underdiagnosed. They usually result from direct trauma to the posteroslateral region of the knee [4, 5, 13] or as a complication of total knee arthroplasty due to chronic microtrauma [4, 14]. As shown in this particular case, in acute trauma and first assessment in the emergency department, the fabella fracture can be easily missed. The diagnosis can be accomplished using a lateral knee view in a radiograph. However, computed tomography (CT) or MRI can help confirm the diagnosis and exclude associated lesions [8]. In most instances, treatment for conditions related to the fabella is conservative, involving rest, physical therapy, and pain management. However, if these methods do not provide relief, surgical removal of the fabella, known as a fabellectomy, may be considered. This procedure can be done either through open surgery or arthroscopically, depending on the specific case and the surgeon’s approach [5, 7, 9]. Although, fabella fractures are rarely mentioned in the literature, should not be ignored on lateral knee radiography where severe pain in the posterior and posteroslateral region of the knee is reported. There are no conflicts of interest declared by the authors regarding the publication of this article. Written consent was given by the patient to share his personal data, including images and video.

References


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