Nonunion of the Posteromedial Tubercle of the Talus: Interest of SPECT/CT

Delcroix Olivier1, Garrigues Florent2, Robin Philippe1, Abgral Ronan1 and Querellou Solène1*

1Department of Nuclear Medicine, Brest University Hospital, 2 Avenue FOCH, 26609, Brest Cedex, France
2Radiology Department, Cavale Blanche Hospital, boulevard Tanguy-Prigent, 29609 Brest, France
*Corresponding author: Solene Q, Department of Nuclear Medicine, Brest University Hospital, 2 Avenue FOCH, 26609, Brest Cedex, France, Tel: 0033298223327; E-mail: solene.querellou@chu-brest.fr

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Abstract

We report the case of an isolated fracture of the posteromedial tubercle of the talar process caused by a posterior tackle in a football player, which is an unusual and misdiagnosed fracture leading to a nonunion causing a chronic ankle pain. To our knowledge, this is the first reported case demonstrating the major interest of SPECT/CT to diagnose an unusual nonunion of the posteromedial tubercle of the talus.

Keywords: Cedell’s fracture; SPECT/CT; Posteromedial tubercle; Talus, Nonunion; Scintigraphy

Case Blog

The below mentioned case of talar fractures are very rare [1] and first case was described by Cedell in 1974 [2]. Rogosic et al. [3] found 26 cases available in 17 reports through PubMed. Misdiagnosing can lead to complications in early phase: there is a risk of interposition of the tendon of the flexor hallucis longus. (FHL (+)) running in the groove of the posterior process when the bone fragment involved is large, preventing closed reduction [4]. There is also a risk of future subtalar joint arthritis because undersurface of posterior process constitutes around 25% of the posterior articular facet of the subtalar joint [5]. Moreover, no appropriate treatment goes on to develop painful nonunion for several years [6].

Figure 1: The posterior process of the talus is composed of two tubercles (a): posterolateral tubercle (++) and posteromedial tubercle (**), where inserts the posterior talotibial ligament (*) (b): Talar fractures are unusual and fractures of the medial tubercle are even rarer. (c): (FHL (+)) running in the groove of the posterior process when the bone fragment involved is large, preventing closed reduction.

A 18-year-old man was directed to our nuclear department for SPECT/CT 99mTc-MDP imaging to explore a chronic right ankle and rearfoot pain subsequent to a posterior tackle while playing football 13 months earlier. Radiographs performed after trauma did not reveal fracture. Van Tongel et al. [7] had previously described the same fracture in planar bone scan ans Kanbe et al. [8] on computed tomography.

To our knowledge, this is the first reported case demonstrating the major interest of SPECT/CT to diagnose an unusual nonunion of the posteromedial tubercle of the talus.
Figure 2: Bone scan showed uptake on an interface (a) with irregular ossification (b) separating the internal side of the posterior process of the talus from a well mineralized nondisplaced hypertrophic bone fragment (c) measuring 15 × 13 × 18 mm, revealing hypertrophic nonunion evolution of a fracture of posteromedial tubercle of the talus (d) in SPECT/CT expresses very active bone remodeling, even long after the trauma, reflecting an unfavorable evolution of an unrecognized fracture and explaining the pain.

References


