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SHORT RESEARCH COMMUNICATION

RADIOLOGY

An Instance of the Supplementary Navicular Bone Syndrome

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Abstract

The accessory navicular bone is a tarsal supernumerary bone whose symptomatic form is uncommon. Delay in diagnosis and misdiagnosis of this syndrome frequently results in ignorance in establishing appropriate treatment. We present the case of a 14-year-old athlete who experienced localized discomfort in the medial face of his left foot. The radiographic examination revealed an auxiliary navicular bone with soft tissue involvement. Clinical improvement was observed with sports rest and nonsteroidal anti-inflammatory medication. We recall the clinical-radiological and therapeutic aspects of the navicular bone syndrome in this study.

Keywords: *Navicular bone syndrome, Non steroidal anti-inflammatory medication*

1 Introduction

There are various causes for foot discomfort among the people of which anatomical intricacy of this area; foot discomfort affects 20% of the population(1). There are various causes of this supplementary navicular bone syndrome which is very rare. It is a tarsal supernumerary bone.

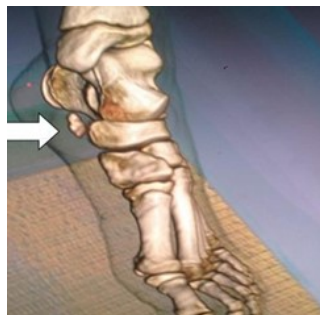


Figure 1: Right foot scanner, 3D reconstruction visualization of a supernumerary bone next to the navicular bone

It develops from a secondary ossification center in the navicular bone's posteromedial tuberosity. The lack of understanding about this illness causes a few months or even years

of delay in diagnosis(1; 2), delaying the introduction of a suitable treatment. We will conduct a literature study on the clinical-radiological and therapeutic aspects of this syndrome as part of our effort.

1.1 Case Presentation

A 14-year-old child was come to the Radiology department with discomfort in the medial portion of his left foot. There was no specific pathological background was seen in the patients.

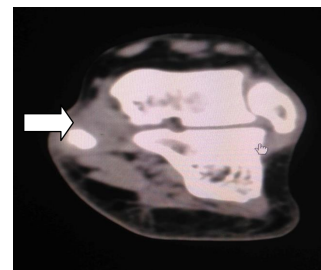


Figure 2: Left foot scanner, in the soft part window: infiltration of the soft tissues next to the accessory navicular bone

The clinical examination indicated swelling at the medial

tuberosity of the navicular bone, which was painful on probing, as well as on inversion and eversion of foot. There was no other deformity in the foot. In comparison to the CT scan, the radiological examination revealed an auxiliary navicular bone coupled with soft tissue thickening Figure 1 and Figure 2, indicating an accessory navicular bone condition. With oral nonsteroidal anti-inflammatory medications and athletic rest, symptoms improved significantly.

2 Discussion

The accessory navicular bone is rare, appearing in 4 to 21% of the general population(3), and is bilateral in 50 to 90% of cases(2; 3; 4). It arises between the ages of 9 and 11 years after the ossification of a fibro cartilaginous sesamoid and is mostly asymptomatic(5). The majority of people with the accessory navicular bone syndrome are young females(2; 6). The clinical manifestations of accessory navicular bone syndrome are increasing discomfort in the medial edge of the foot(7), localized soreness in the medial portion of the navicular bone, and pain with stretching and contraction of the posterior tibial tendon(2). This condition is most common after microtrauma to synchondrosis, especially in athletes(7). It can also occur rapidly following trauma in "ankle eversion"(2), resembling a fracture(4). The auxiliary navicular bone is shown in the conventional X-ray in two faces and 45 degrees oblique. Yet, radiographic imaging of an auxiliary navicular bone is inadequate to link the symptoms to it. In our scenario, the patient was referred for a foot CT scan straight. The right study of a conventional radiograph in conjunction with the clinic, on the other hand, might offer the diagnosis. Magnetic resonance imaging allows for a good diagnosis and is the preferred test for a superior radiological study. It emphasizes synchondrosis, posterior tibial tendinopathy, and thickening of the soft tissues close to the auxiliary navicular bone, which appear hypo in T1 and hyper in T2. Imaging also allows for the classification of three categories(4; 8; 9):

- Type I (30%): little, round, or oval bone sesamoid in the TTP thickness, 3 to 5 mm from the navicular bone.
- Type II (50%): triangular, 8 to 12 mm thick, with a base 1 to 3 mm from the navicular bone, which it connects by a fibro-cartilaginous synchondrosis or a cartilaginous pseudarthrosis.
- Type III (20%): sesamoid fusion with the navicular medial tubercle, resulting in a noticeable navicular tuberosity.

In our case, the clinical background and a CT examination of the foot enabled us to make the diagnosis of an accessory navicular bone and thickening of the soft tissues opposite. The initial medical therapy is rest, analgesic and nonsteroidal anti-inflammatory medicine, and periodic local ice. If oral therapy is ineffective, cortisone infiltration is recommended(5; 8). If medication treatment fails after six months, surgery is suggested: simple removal of the accessory navicular bone with anatomical suture of the posterior tibial tendon if necessary(10). Postoperative complication are uncommon, with more than 90% of patients became asymptomatic by the sixth postoperative month(2; 11).

Conflict of Interest

The authors declare no conflict of interest in this reported communication.

Acknowledgments

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