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Symptomatic Type II Accessory Navicular Associated with Posterior Tibial and Medial Flexor Tendinopathy in a Young Adult: MRI Findings

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Abstract **Case Report**

Accessory navicular type II is the most frequently symptomatic variant of accessory navicular bones due to its fibrocartilaginous synchondrosis with the native navicular tuberosity and its relationship with the posterior tibial tendon insertion. We report the case of a 28-year-old patient presenting with medial foot pain. MRI demonstrated a type II accessory navicular associated with posterior tibial tendon tendinopathy and associated inflammatory involvement of the flexor hallucis longus and flexor digitorum longus tendons. MRI plays a key role in identifying synchondrosis stress and associated tendon abnormalities guiding therapeutic management.

Keywords: Accessory navicular type II, Posterior tibial tendon, Synchondrosis, Bone marrow edema, Magnetic resonance imaging, Medial foot pain.

INRODUCTION

Accessory navicular is a relatively common accessory ossicle of the foot resulting from a secondary ossification center adjacent to the navicular tuberosity. It is classified into three types, with type II representing the variant most commonly associated with symptoms because of the fibrocartilaginous synchondrosis connecting the accessory bone to the native navicular. Patients typically present with chronic medial foot pain, often exacerbated by physical activity or inversion movements. Owing to its intimate relationship with the posterior tibial tendon insertion, a symptomatic accessory navicular may be associated with posterior tibial tendon dysfunction and adjacent soft tissue inflammatory changes. Magnetic resonance imaging (MRI) is particularly useful for evaluating symptomatic cases by demonstrating bone marrow edema, synchondrosis abnormalities, and associated tendon involvement. We report a case of symptomatic type II accessory navicular associated with posterior tibial and medial flexor tendinopathy in a young adult, highlighting the characteristic MRI findings.

CASE PRESENTATION

A 28-year-old patient presented with progressive medial right midfoot pain without recent trauma. Clinical examination revealed localized tenderness over the medial navicular region with pain during inversion movements. MRI of the ankle demonstrated a medial accessory ossicle adjacent to the navicular tuberosity connected through a fibrocartilaginous synchondrosis, consistent with a type II accessory navicular. Bone marrow edema was observed on both sides of the synchondrosis, suggesting mechanical stress.

Associated findings included thickening and increased intratendinous signal of the posterior tibial tendon, compatible with tendinopathy, as well as inflammatory signal changes involving the flexor hallucis longus and flexor digitorum longus tendons, without evidence of tendon tear. No associated fracture or navicular collapse was identified.

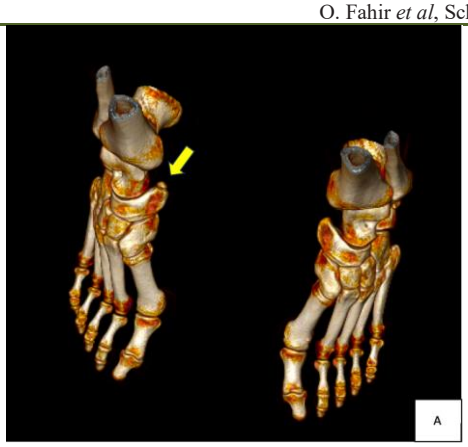
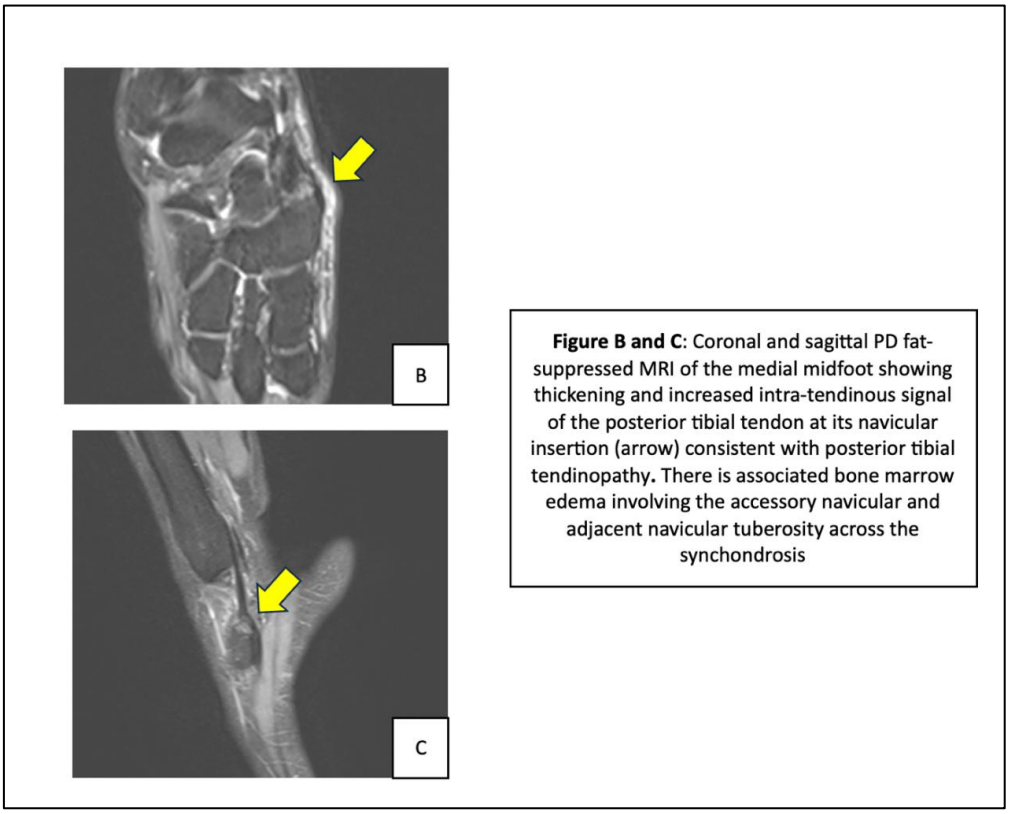


Figure A. Three-dimensional CT volume-rendered reconstruction of both feet demonstrating a right medial accessory navicular bone adjacent to the navicular tuberosity, consistent with a type II accessory navicular



DISCUSSION

Accessory navicular bone represents one of the most frequent accessory ossicles of the foot, with a prevalence reported between 4 % and 21 % [1]. Type II corresponds to a triangular ossicle connected to the navicular tuberosity by a fibrocartilaginous synchondrosis and is the variant most commonly associated with symptoms due to repetitive traction forces from the posterior tibial tendon insertion [2]. MRI is the imaging modality of choice in symptomatic cases, allowing detection of bone marrow edema at the synchondrosis and evaluation of associated tendon abnormalities, particularly posterior tibial tendon dysfunction which may contribute to medial foot pain and progressive biomechanical imbalance [3].

Inflammatory involvement of the flexor hallucis longus and flexor digitorum longus tendons reflects overload of the medial flexor compartment and may be associated with altered biomechanics secondary to posterior tibial tendon dysfunction. Recognition of these associated findings is essential because they influence therapeutic strategy and prognosis [4].

CONCLUSION

Type II accessory navicular should be considered in young adults presenting with medial midfoot pain. MRI allows accurate diagnosis by demonstrating synchondrosis stress and associated

posterior tibial and medial flexor tendinopathy, which are key elements for guiding management [3].

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