

A Rare Case of Os Supranaviculare or Pirie's Bone in the Pediatric Patient: A Case Report

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Accessory bones of the foot are the variations of the skeletal system. The os supranaviculare (Pirie's bone) is an accessory bone on the dorsal aspect of the navicular bone located at its midpoint. The patient in this case report has supranaviculare ossicles of the right and left foot. The right foot is symptomatic. This report will alert clinicians concerning atypical and rare dorsal foot pain.

Key Words: Foot pain, accessory bone, os supranaviculare, Pirie's bone

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Accessory bones are developmental ossicles and appear as secondary ossification centers fused with the main bone or separated.¹ Most accessory bones do not cause any pain and remain asymptomatic. The incidence is very low. The prevalence of this rare skeletal variation is 1%.²

It could be rarely symptomatic and this condition should not be misdiagnosed as a cortical avulsion fracture of the navicular or talar head.¹ Tendinitis or tumors of soft and bone tissue and peripheral neuropathic pain can be considered as a differential diagnosis. Treatment includes both surgical and non-surgical options.

We present a very rare case of a symptomatic os supranaviculare pedis in an 8 year-old school football player. The clinical presentation is described. We declare that differential diagnosis of this condition needs radiographic evaluation as well as clinical history.

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Figure 1A and 1B Radiographic imaging of the right foot (A) and left foot (B).

Case Report

An 8 year-old school football player presented with dorsal foot pain on the right. The pain had been present for approximately 6 months, but was increasing while he was playing football and was particularly painful when he kicked the ball. With the exception of playing football, there was no remarkable trauma to this region. Palpation of the talonavicular joint and supranavicular area was painful. Forced plantarflexion also caused pain on the dorsal region. There were no signs of inflammation on the dorsum of the foot. Radiologic studies revealed a symptomatic supranavicular accessory bone. The radiographs and the computed tomography (CT) demonstrated an accessory ossicle on the superior part of the navicular bone next to the talonavicular joint. Radiographs of the contralateral foot also revealed an asymptomatic accessory bone on the left. (Fig. 1A and 1B, Figs. 2A and 2B)

Conservative treatment including immobilization of the foot by taping, physical therapy and anti-inflammatory medication and target point steroid injection were undertaken. We advised the patient to stop any football activities for a determined period. A significant relief of the pain was observed after conservative treatment. After 2 months follow-up, there were no clinical findings. The patient was offered custom made football shoes for the protection of repeated trauma during football matches.

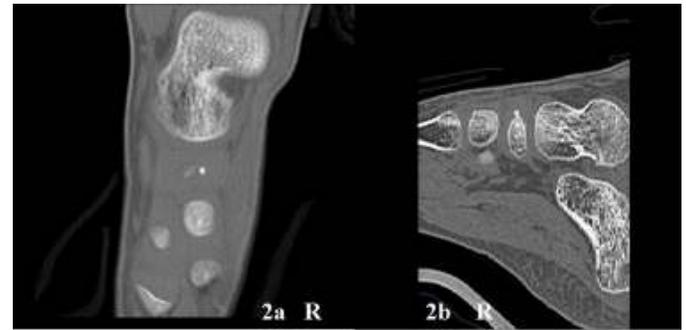


Figure 2A and 2B Computed tomography images of right foot. The supranavicular ossicle is seen on the transverse plane (A) and on the sagittal plane (B).

Discussion

The most common accessory ossicles were accessory navicular (11.7%), os peroneum (4.7%), os trigonum (2.3%), os supranavicular (1.6%), os vesalianum (0.4%), os supratolare (0.2%), and os intermetatarsium (0.2%).³ The supranavicular, called the os talonavicular dorsale, talonavicular ossicle or Pirie's bone, is located on the dorsal aspect of the talonavicular joint about the midpoint region of the bone. It has a prevalence of 1% and is a rare skeletal variant.¹ After a trauma of the foot, the normal anatomic variants of accessory bones are often confused with avulsion fractures as an incorrect diagnosis.¹

In the clinical examination, localization of the pain along this region can indicate the presence of accessory bones. It's important for the clinician to have knowledge of anatomy about the localization of accessory bones.⁴ The important pitfalls in the differential diagnoses between accessory bones and avulsion fractures are the localizations, radiologic imaging of the contralateral foot, cortical continuity, callus formation and regular shapes of the lesion.⁴ Kicking the ball with the dorsum of the right foot possibly would make the supranavicular accessory bone symptomatic and aggravated the pain in this case.

Although there was the same anatomic variant on the left side, the pain was absent on the left foot. There was no positive finding of peripheral nerve sensitization differentiated from peripheral neuropathic pain. Also the patient did not give a history of overuse syndromes.

Immobilization of the foot with bandage or tape, anti-inflammatory medication physical therapy should be the first step in treatment. If the pain persists, the second step is to gain more stable immobilization with a cast or splint. Steroid injection on the localized area could be alternative treatment option. Nuclear scintigraphy could help for the symptomatic normal variants.⁵ Before radionuclide imaging, magnetic resonance imaging (MRI) or CT can be useful for the correct diagnosis. Surgical excision is a less preferable way of treatment after all other conservative treatments. Surgery may have the best outcome for young patients, although conservative management may be the best way for less active patients.⁶ In our case, because of skeletal immature patient we preferred conservative treatment and not surgery.

Conclusion

Symptomatic os supranaviculare is a rare reason for dorsal foot pain in pediatric patient. Differential diagnose is needed. Radiologic imaging is helpful to correctly determine the diagnosis.

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