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Abstract

We report a case of an extra-articular talocalcaneal coalition located anterolateral to the sinus tarsi. As non-osseous coalitions can be difficult to diagnose, physicians should keep this variant in mind in cases of a symptomatic hind foot with apparently equivocal radiological findings.
ABSTRACT

We report a case of an extra-articular talocalcaneal coalition located anterolateral to the sinus tarsi. As non-osseous coalitions can be difficult to diagnose, physicians should keep this variant in mind in cases of a symptomatic hind foot with apparently equivocal radiological findings.

Key words: calcaneus; talus

INTRODUCTION

Tarsal coalitions are defined as a non-osseous (fibrous, cartilaginous) or osseous union of at least 2 tarsal bones. The most common types of tarsal coalition are either extra-articular calcaneonavicular or intra-articular talocalcaneal. The latter shows, usually, a medial talocalcaneal bridge or, rarely, a posterior talocalcaneal coalition. Computed tomography (CT) is the most commonly used diagnostic imaging tool, but it sometimes fails to detect non-osseous coalitions. Magnetic resonance imaging is recognised as the best means of diagnosing and describing non-osseous coalition.

We report specific dissection and CT findings of the first published case of fibrocartilaginous talocalcaneal coalition in an extra-articular anterolateral location.

CASE REPORT

Among a large sample of cadaver feet (n=114; from Adelaide, South Australia) examined as part of an ongoing imagistic and dissection study of the diagnosis of tarsal coalitions, a male specimen, aged 78 years at death, was noted to show signs of a possible non-osseous talocalcaneal coalition (Fig. 1) on coronal
and axial spiral CT scans (1 mm slices width). The specimen was dissected after scanning and demonstrated no gross morphological abnormalities or previous surgical scars. Dissection revealed a large anterolateral fibrocartilaginous talocalcaneal coalition. The coalition, which had a sectional surface of 10x10 mm, was located entirely extra-articularly, anterior to the posterior talocalcaneal joint and just lateral to the talar neck and the middle and anterior talocalcaneal joints at the external end of the sinus tarsi (Fig. 2). An osseous extension of the talus was united with a lesser one of the calcaneus (Fig. 3). The 2 bony extensions had a fibrocartilaginous union between them.

**DISCUSSION**

McNally described 3 cases of posteromedial subtalar coalition as a pseudarthrosis between a bony overgrowth of the middle tubercle of the talus and a bony exostosis of the calcaneus lying between the posterior and middle subtalar facets. Surgical treatment was performed and the mass confirmed in only one of these cases. In all cases, CT demonstrated an irregular bony mass lying posterior to the sustentaculum and narrowing of the middle and posterior subtalar joints. Apart from the difference in anatomical location, our case has a description of the coalition and CT appearance very similar to the ones described by McNally. No dissection or CT findings suggested a secondary coalition in our case. Whether this coalition was symptomatic is unknown.

The aetiology in our case of extra-articular talocalcaneal coalition is probably as unclear as with coalitions in general. Although it is impossible to
demonstrate, an ‘extra’ ossification centre in the talus could be responsible. Turhan et al.\textsuperscript{8} described a new accessory ossification centre in the calcaneus associated with talonavicular and second metatarsocuneiform coalitions. To our knowledge, no accessory tarsal bones have been described with this location.

Physicians should be aware that talocalcaneal coalition can have this rare anatomical location, especially as non-osseous coalitions are a diagnostic pitfall on CT examination,\textsuperscript{7,9} and their incidence has been reported to be up to 13\% higher than previously thought.\textsuperscript{9}

REFERENCES

1. Kulik SA Jr, Clanton TO. Tarsal coalition. Foot Ankle Int 1996;17:286–96.
2. Mosier KM, Asher M. Tarsal coalition and peroneal spastic flat foot. A review. J Bone Joint Surg Am 1984;66:976–84.
3. Sakellariou A, Claridge RJ. Tarsal coalition. Orthopaedics 1999;22:1066–74.
4. Harris RI. Retrospect--peroneal spastic flat foot (rigid valgus foot). J Bone Joint Surg Am 1965;47:1657–67.
5. Newman JS, Newberg AH. Congenital tarsal coalition: multimodality evaluation with emphasis on CT and MR imaging. Radiographics 2000;20:321–32.
6. McNally EG. Posteromedial subtalar coalition: imaging appearances in three cases. Skeletal Radiol 1999;28:691–5.
7. Wechsler RJ, Schweitzer ME, Deely DM, Horn BD, Pizzutillo PD. Tarsal coalition: depiction and characterization with CT and MR imaging. Radiology 1994;193:447–52.
8. Turhan AU, Dinc H, Aydin H, Aynaci O. An accessory ossification centre in the calcaneus with talonavicular and second metatarsocuneiform coalitions. Eur Radiol 1999;9:481–2.
9. Solomon LB, Ruhli FJ, Taylor J, Ferris L, Pope R, Henneberg M. A dissection and computer tomograph study of tarsal coalitions in 100 cadaver feet. J Orthop Res 2003;21:352–8.