

# Posterior facet talocalcaneal non-osseous coalition: an uncommon but easily missed cause of hindfoot pain

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A 50-year-old female presented with chronic hindfoot pain in July 2015. She was treated for plantar fasciitis but the pain remained unresolved. Radiographs were initially interpreted as degenerative changes only. She was referred for further imaging. Review of the radiographs showed an osseous prominence over the posterosuperior aspect of the calcaneus, constituting the abnormal shape of the posterior facet of the subtalar joint with a humpback appearance on lateral view (Fig 1a). Joint space of the medial posterior facet was irregular and narrowed on Harris view

(Fig 1b). Magnetic resonance imaging (MRI) showed the medial posterior facet of the subtalar joint to be abnormally oblique on sagittal plane, and the involved joint space was narrowed and irregular with adjacent marrow oedema (Fig 2). No bony bridging was seen. The middle facet was not involved. Included tendons appeared unremarkable and plantar fascia was not thickened. Features were suggestive of fibrocartilaginous coalition at the medial aspect of the posterior facet of the subtalar joint, also referred to as posteromedial talocalcaneal coalition. Computed tomography (CT) was also performed for surgical planning, and demonstrated clearly the irregular medial posterior facet, uninvolved middle facet and lateral posterior facet (Fig 3).

Tarsal coalition can be osseous or fibrocartilaginous. Calcaneonavicular and talocalcaneal coalition accounts for 90% of hindfoot coalition,<sup>1,2</sup> of which 50% are bilateral.<sup>1</sup> The talocalcaneal joint, also referred to as the subtalar joint, consists of anterior, middle, and posterior facets. Talocalcaneal coalition usually involves the middle facet at the level of the sustentaculum tali. The incidence of middle facet coalition is less than 1%.<sup>1,3</sup> Involvement of the posterior facet is even rarer, and is an easily missed cause of hindfoot pain. Continuous C sign is the classic sign well described for coalition over the middle facet. For posterior facet coalition, the humpback sign as described above is the radiographic finding to be recognised.<sup>1,3,4</sup> The medial aspect of the posterior facet is more commonly involved, and Harris view can better demonstrate the medial joint that will be irregular and narrowed in non-osseous coalition. These findings are easily misinterpreted as degenerative changes.

Cross-sectional imaging including CT and MRI are valuable to confirm the diagnosis, define the location and extent of the segmentation anomaly, look for associated complications, and aid preoperative planning. In particular, CT is useful in determining the presence of any small bony bridging and is important for surgical planning; MRI is able to provide information about the degree of marrow oedema that may correlate with level of pain. It should be remembered that any unexplained marrow oedema around the subtalar joint, which is an atypical site for simple degenerative changes, should raise the suspicion of coalition. Osseous coalition is less



FIG 1. (a) The osseous prominence over the posterosuperior aspect of the calcaneus showing a humpback appearance on lateral view (arrow) and (b) an irregular medial posterior facet on Harris view (arrowhead)

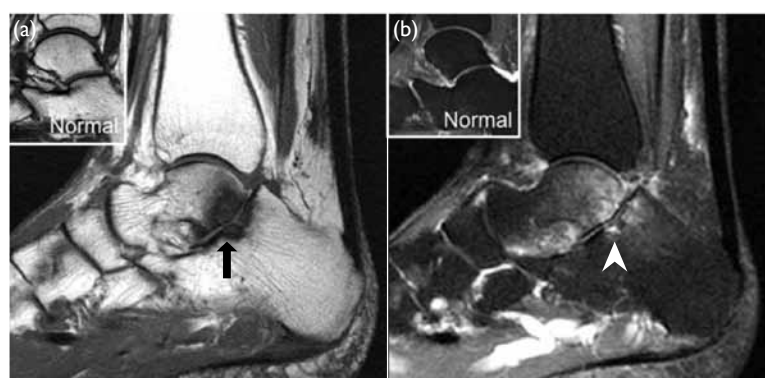


FIG 2. Magnetic resonance imaging showing (a) the abnormally oblique medial posterior facet (arrow), and (b) an irregular and narrowed joint space with adjacent marrow oedema (arrowhead)



FIG 3. Computed tomography showing the irregular medial posterior facet, uninvolved middle facet (arrowhead) and lateral posterior facet (arrow)

likely to be missed on cross-sectional imaging as it will appear grossly abnormal with bony fusion across the involved facet (Fig 4). Potential complications of posterior facet coalition include peroneus muscle spasms, sinus tarsi syndrome, tarsal tunnel compression giving rise to a distended posterior tibial vein, calcaneal stress fracture, and premature osteoarthritis.<sup>1,4</sup> Early recognition of non-osseous posterior facet talocalcaneal coalition is important, particularly in young patients, as surgical treatment can reduce complications later in life.

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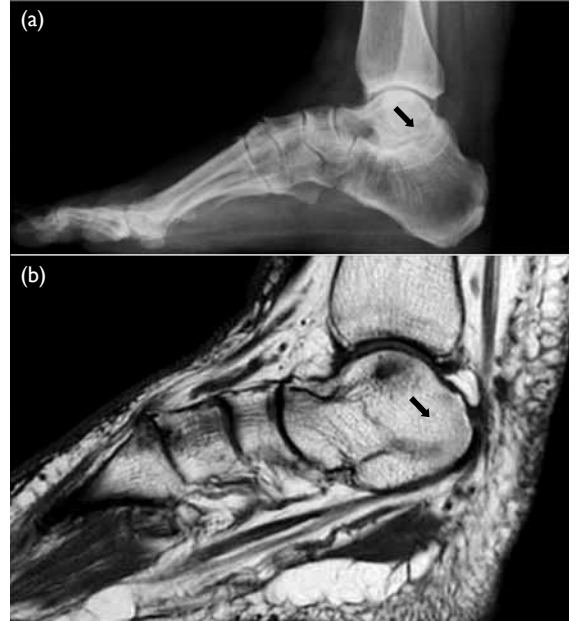


FIG 4. (a) Radiograph and (b) T1-weighted magnetic resonance imaging of another patient in our institution with osseous posterior facet coalition (arrows)

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