

June 2011 Radiology Case Study: Calcaneonavicular Coalition

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History of Present Illness: The patient is a 13 year-old female with complaints of left foot pain. The pain has been present for approximately 2 years. There is no specific history of a traumatic fall or injury. The pain is primarily at the lateral aspect of the foot and is much worse at the end of the day especially if she has done a lot of walking. She states that her foot pain is worsened when walking on uneven surfaces/terrain such as sand. The pain is somewhat relieved by rest. No night pain, no swelling, no fevers, no recent illness. AP/Lat/Oblique x-rays of the left foot were obtained for further evaluation.



Oblique x-ray of Left Foot shows Calcaneonavicular Coalition

Physical Examination: The left foot is without swelling. She has mild tenderness in the anterolateral aspect of the foot. Ankle motion is normal. Good dorsiflexion and plantarflexion, good inversion and eversion of ankle. Subtalar motion of the foot is significantly limited on the left side. It is minimal, 10 degrees at most, and is very painful. There is a pes planus or flat foot deformity that is rather rigid on the left side (spastic flatfoot deformity). The right foot has normal ankle and subtalar motion. She walks with a minimally antalgic gait on the left. She is neurovascularly intact bilateral lower extremities, normal sensation, normal pulses.



CT scan confirms the calcaneonavicular coalition

Diagnosis: Symptomatic Calcaneonavicular Coalition

Impression/Plan: Tarsal coalition represents abnormal fusion between two or more tarsal bones and is a relatively frequent cause of foot and ankle pain in adolescents and young adults. Approximately 85-90% of tarsal coalitions involve the talocalcaneal or calcaneonavicular joints. The onset of symptoms related to tarsal coalition is quite variable, most patients present with pain in early adolescence. Symptoms become more pronounced with progressive ossification of the coalition. Calcaneonavicular coalitions typically ossify sooner than do talocalcaneal coalitions, therefore manifesting earlier in childhood. In many patients, however, diagnosis may not occur until early adulthood. Most patients present with hindfoot or tarsal pain or stiffness, which is often first noted after antecedent trauma, weight gain, or an increase in athletic activity. Tarsal coalition is a common cause of a peroneal spastic flatfoot or rigid flatfoot. The condition does not represent true spasticity, but rather peroneal spasm or adaptive peroneal shortening to adjust for the heel valgus and to maintain the subtalar joint in the least painful position. Physical examination often reveals decreased hindfoot motion with pes planus and calcaneus valgus. In some patients, tarsal coalition may be completely asymptomatic and will not require any treatment. Initially, all patients with tarsal coalition are treated conservatively with orthotics, casting, nonsteroidal anti-inflammatory medications (NSAIDS), steroid injections, or physical therapy. Many patients will fail conservative therapy and are then treated operatively. Calcaneonavicular coalitions may be treated with resection. Regrowth of the bony bridge may be with extensor digitorum brevis interposition. If excision fails or if significant talonavicular degenerative joint disease is present, a triple arthrodesis may be performed.