Case 5

History
38 year old male with hindfoot pain, stiffness, and flat foot.

Diagnosis?

Diagnosis
Talocalcaneal Coalition.

Findings
Figure 1: Sagittal T 1 demonstrates osseous coalition of the talocalcaneal joint, middle facet, and a talar beak. Pes planus deformity is suggested. Incidental note is made of cystic changes in the tarsal navicular, which may be secondary to prior trauma or altered biomechanics.

Figure 2: Oblique axial image shows bone marrow across the expected site of the middle talocalcaneal facet.

Discussion
Tarsal coalition is an abnormal osseous, fibrous, or cartilaginous articulation between tarsal bones. Congenital tarsal coalitions are believed to represent a failure in fetal mesenchymal differentiation, rather than fusion of a normal developed joint. Although most coalitions are congenital, they can be acquired by degenerative, inflammatory, or infectious joint disease. Although relatively rare with a reported incidence of two percent, it is a major cause of painful rigid flat foot in children. Over 90 percent of tarsal coalitions involve calcaneonavicular or talocalcaneal joints. These are bilateral in approximately 50 percent of the cases.

The majority of cases of talocalcaneal coalition involve the middle facet at the level of the sustentaculum tali. This is often difficult to visualize on standard radiographs, and CT or MRI may be indicated for further evaluation. Osseous coalition will appear as bone marrow crossing the fused joint. In nonosseous coalition, there is joint space narrowing with intervening cartilaginous or fibrous signal on MRI. Associated findings include reactive bone edema and degenerative cystic changes. In addition, there is often alteration in the normal orientation of the sustentaculum and middle facet with an abnormal downslope medially or horizontal orientation of the articulation.

An indirect sign of talocalcaneal coalition is talar beaking. A talar beak is a bony spur off the anterior superior aspect of the talus. This is thought to form as consequence of limited subtalar motion resulting in the navicular overriding the talus. This is not specific for coalition and can be seen in a variety of conditions that cause abnormal talonavicular motion.

References

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