

# Orthopaedic Observations

*A Matter of Medicine...*

*TM Pending*

## Tarsal Coalition

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Tarsal Coalition is a condition that affects children during the later phases of bone maturation. This condition typically presents earliest at 8 years of age and as late as 16 years.

A coalition is best thought of as a bridge between bones in the hind-foot region. Be-

cause the bridge limits motion or causes abnormal motion, children usually present with pain and stiffness. Coalitions may be made of fibrous, cartilaginous or bony tissue and may be present between two or more tarsal bones. The incidence of tarsal coalition is about 1 to 2% of the general population. It is an autosomal dominant condition that takes place as a result of a failure of differentiation and segmentation of primitive mesenchymal tissue. Talocalcaneal and calcaneonavicular coalitions are the most common.

When symptoms first begin, children demonstrate a restriction of subtalar motion that may be accompanied by progressive hindfoot valgus. Pain typically becomes more of a factor as the coalition matures and becomes more rigid. This usually takes place earlier for calcaneonavicular than talocalcaneal coalitions. The aching pain children experience is usually activity related and located in the lateral aspect of the hindfoot near the sinus tarsi. Complaints of frequent activity related pain are often confused for an ankle sprain. Pain may also be reported in the medial hindfoot area. The hindfoot of the normal child assumes a varus position with toe standing. In children with tarsal coalition, there is hindfoot valgus secondary to peroneal spasm even on toe standing. Examination of passive range of motion of the hindfoot also reveals this rigid hindfoot valgus positioning.

Plain radiographs usually clearly demonstrate the coalition. An oblique radiograph best displays most coalitions. Although plain radiographs show calcaneonavicular

coalitions well, a CT scan should be obtained in all children as there may also be present a talocalcaneal coalition that will best be seen on coronal CT sections. If plain radiographs and CT fail to demonstrate any pathology, children with persistent pain should undergo an MRI scan to look for fibrous coalition that cannot be seen on xray or CT studies. In cases where all of the above studies are normal, yet pain persists, one should obtain a bone scan which will demonstrate other causes of persistent pain such as tumor, infection or stress fracture.

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*Dr. Iorio completed his orthopaedic residency at the University of Medicine and Dentistry of New Jersey where he was appointed Administrative Chief Resident and was responsible for supervising and directing all residents. He subsequently completed a Fellowship in Foot and Ankle Surgery at the Lahey Clinic in Burlington, Massachusetts. He has practiced all aspects of General Orthopaedic Surgery, but has also had extensive experience in Spine Surgery and Surgery of the Foot and Ankle. He has published original research on Ankle Replacement Surgery as well as review articles addressing reconstructive forefoot surgery. Dr. Iorio has also developed expertise in treatment of Occupational Orthopaedic Injuries.*

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