Objectives

1. Describe the natural history of tarsal coalition in the child, including time and character of onset of symptoms
2. Describe physical findings in examination of the patient with tarsal coalition
3. Describe the genesis of symptoms in patients with tarsal coalition
4. Describe indications for surgery, and effective procedure(s) for treatment of tarsal coalition
5. Discuss results of surgery for symptomatic coalition

Discussion

Tarsal coalition is a relatively common pediatric orthopaedic disorder, although its estimated incidence is < 1% of the population. There are two distinct types of tarsal coalitions; patients with paraxial shortening of the lower limb (fibular hemimelia) typically have dense coalitions of the hindfoot. These children form a ball and socket ankle joint during early childhood, and seldom seek relief of symptoms. The second, more common variety is typically asymptomatic until about age 10. At about that age, it is surmised that the ossifying foot becomes more rigid and can no longer compensate elastically for the congenital tarsal coalition which is essentially a failure of segmentation of the tarsal bones; thus the actual coalition was present from the time of embryonic life. Classic presenting symptoms are that the peroneal spastic flat foot, with the hindfoot held in eversion and spasm of the peroneals noted on attempts to invert the foot. While often present, the symptom pattern is by no means consistent, some coalitions may even present as cavovarus feet. The incidence of individuals with tarsal coalition who remain asymptomatic throughout life is unknown. The actual coalition may be bony, cartilaginous, fibrous, or a mixture. Symptoms are thought to be a result of microfractures of the coalition and inflammation of the surrounding soft tissue. The most common coalition is the calcaneonavicular, with the middle talocalcaneal facet second, and others follow far behind. Talonavicular coalitions are rarely, if ever. Symptomatic. Radiographically, the calcaneonavicular coalition is generally evident on the oblique view, other coalitions can be identified by CT scan. MR imaging is said to be better able to identify fibrous coalitions, but is less specific. A case report of a bone scan being helpful has been reported. Conservative treatment consists of immobilizing the foot in a neutral position, it is unclear how often this is of lasting benefit. Operative treatment consists of generous excision of the coalition, and placement of and interposition material, usually local muscle or a fat graft. Results of resections of calcaneonavicular coalitions are quite good, those of resections of talocalcaneal are good enough to warrant the procedure, but not as good as calcaneonavicular. Arthrodesis is available as a salvage procedure.
References