

Review and Update on Tarsal Coalition of the Foot

The causes and effects of tarsal coalition are presented in this article from The Children's University Hospital in Dublin, Ireland. Some of the information comes from CT scans of patients being treated for this condition. Other insights come from cadaver studies (after death).

What exactly is tarsal coalition? It is the failure of the developing bones in the foot to properly form all the distinct, individual bones in the midfoot (between the ankles and toes). Instead, two or more bones can form a bridge of bone between them or fuse together. Males are affected more often than females though the reason for this remains unknown.

What causes tarsal coalition? This condition is usually congenital (present at birth) and there are inherited factors involved. Tarsal coalition can also develop after birth as a result of trauma, infection, or inflammation (e.g., arthritis). In some cases, tarsal coalition is part of a larger problem with other bony malformations.

How is the problem diagnosed? The most obvious symptom of tarsal coalition is a rigid flatfoot. An X-ray or other imaging study provides a look inside the foot to confirm the diagnosis. CT scans are especially helpful to see exactly what's going on. This information helps the surgeon know how to best treat the problem.

Symptoms such as pain and stiffness don't develop in children until the connecting tissue between the bones hardens or ossifies forming a bony bridge. Increased activity (e.g., sports or dance) involving the feet may aggravate the child, teen, or young adult. Sometimes it's weight gain or repeated ankle sprains that bring on symptoms of pain, foot fatigue, or limping. Muscles in the foot may spasm in an effort to protect the foot adding to the discomfort.

What can be done to treat this problem? If there are no symptoms, treatment may not be necessary. Conservative (nonoperative) care is the first line of treatment. This can include orthotics (molded shoe inserts), nonsteroidal antiinflammatory medications, or steroid injections. Changes in activity can also provide some relief from symptoms.

Surgery is another treatment possibility but this is usually reserved for patients with foot pain that is intolerable and doesn't go away otherwise. Usually, the bar of bone is removed and body fat or muscle is used to fill in the space. Packing the space left by bone excision (removal) is necessary so the bone doesn't grow back in.

In some cases fusion of the surrounding bones to the bony bridge is the best approach. This procedure is called an arthrodesis. This type of surgery is recommended when more than half the joint is involved. The fusion procedure may fuse two, three, or more bones together. The goals of all treatment are to reduce (eliminate if possible) pain and other symptoms, to correct ankle and foot alignment, and to restore full function of the foot and ankle complex.

What can the patient expect after treatment? The prognosis for this condition is considered good-to-excellent. Delayed diagnosis or failure to recognize the full extent of the problem may affect final outcomes. Likewise, complications from surgical treatment can compromise outcomes. With multiple bone coalitions (connectors), several surgeries may be needed to complete the treatment process.

Reference: Katharine Thomason, and Michael M. Stephens, MSc, FRCSI. Tarsal Coalition. In Current

