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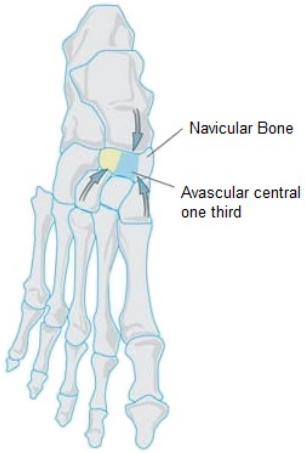
Kohler Disease

What is Kohler Disease?

Kohler disease is a rare bone disorder that affects the navicular bone of the foot. This disorder usually occurs in children, usually between the ages of three and seven. It occurs more commonly in boys than in girls, and is often unilateral, affecting one foot. It is described as an avascular necrosis, in which bone tissue deteriorates due to an interruption of blood supply. Bone affected by avascular necrosis can break into tiny fragments before healing and hardening. As a result, the foot becomes swollen and painful, and the arch of the foot is tender.

What causes Kohler Disease?

What causes avascular necrosis of the navicular bone is unclear, but a delayed ossification, or hardening of bone, may be partially responsible. In a child who is developing normally, the navicular bone is the last tarsal bone to ossify (harden). As the child gains weight, there is more pressure on the bones of the foot, and a not fully ossified navicular bone can become compressed between adjacent bones—namely the talus and cuneiforms. Compression of the navicular bone's blood vessels may result in the avascular necrosis of Kohler disease.



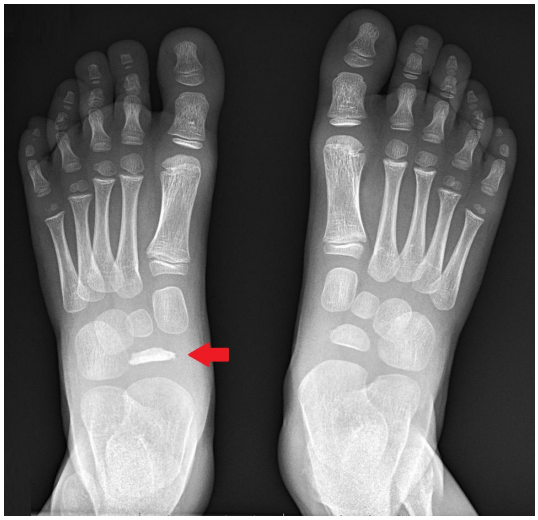
Signs and Symptoms:

Symptoms of Kohler disease are usually mild and may include:

- Swelling
- Pain and tenderness
- Limping

The pain may be intermittent and may worsen after activity. Children may refuse to put weight on the foot. The arch of the foot may be tender to the touch. Some children may have foot swelling accompanied by warmth and redness. These symptoms are sometimes mistaken for signs of infection, and Kohler disease is often misdiagnosed for this reason. The disease can also be asymptomatic, and may be discovered incidentally during radiographic examination of the foot for another reason.

Diagnosis:



An examination will reveal pain and tenderness over the dorsomedial midfoot (mid-arch), with or without local skin changes. Affected children typically walk with a limp or antalgic gait, with weight bearing on the lateral side of the foot.

The diagnosis can be confirmed with radiologic tests, such as a simple radiograph that shows a collapsed, flat, and radiodense navicular bone. Radiologic findings may show patchy areas of navicular bone with increased density, which represents sclerosis (hardening of tissue), and rarefaction (thinning of bony tissue) with loss of normal trabecular pattern.

Treatment:

The child with Kohler disease may be treated with a short course of non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, for pain control and with soft arch supports and possibly intermittent use of casts or boots. A well-structured shoe with good arch support may also play a role in preventing additional problems. Children with worse symptoms, such as pain with activities, may benefit from wearing a walking cast/boot (well molded under the length of the arch of the foot) for four to six weeks. Surgery is not indicated for this disease.

Prognosis:

Kohler disease is self-limiting, meaning that it usually resolves on its own, without any long-term consequences. In children who are treated with rest and NSAIDs, and who avoid putting excessive weight on the affected foot, the disease rarely lasts more than two years. Almost all patients eventually recover excellent function.