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Midfoot Fusion

For arthritis of the midfoot, in cases where the use of supportive shoewear and activity modification is not providing sufficient relief a fusion of the joints that are causing the pain can be considered. Many patients have a prominent bump (osteophyte/spur) on the top of the foot that is causing problems. Unfortunately, the bump cannot simply be removed as this will destabilize the joint and in many cases the pain in the foot becomes worse. In order to provide relief in this part of the foot – the bump is removed and the involved joints are fused ("glued" together) – so that the two bones grow together, minimizing the pain.

A fusion is where the cartilage that is normally between the two bones is removed and the bone prepared so that two different bones will grow together to become one bone. One or two incisions are used to expose the joints and the cartilage that is remaining is removed. The bones are prepared to allow for bleeding so the a fusion can occur. In many cases bone graft is added to promote a fusion. The joints/bones are realigned and plates, screws, and/or surgical staples are used to hold the bones together until they heal together. A fusion can take up to 6 months to heal solidly. Verification of a fusion is commonly confirmed with both xrays and a weightbearing CT prior to allowing more impact activity. The term fusion has come with bad connotations secondary to the limitation of motion, however, the functional impact of a fusion is very dependent on the function of the joints that are fused. The middle of the foot is primarily designed for stability – to allow force transfer from the front of the foot to the back of the foot. There is very little mobility in the midfoot and therefore a fusion for this injury can provide significant improvement in pain and function without a significant compromise of the up and down or side to motion.

Secondary to the slight increase in the stiffness of the midfoot, many patients may note increased pressure along the ball of the foot and stiffness of the joints of the toes. The hardware that is used can be symptomatic because of the thin skin in this area of the body and the location of the tendons. If the hardware is painful or irritating with shoewear – it can be removed after 6 months as long as a solid fusion is noted on CT. Once the bones have healed together the hardware can be removed without any negative mechanical consequence, however given the need for a surgery to take out the hardware, we do not routinely remove hardware unless it is a problem.

There are multiple joints in the middle of the foot, and the increasing number of joints that are involved increase the difficulty and risks of the surgery. The rate of nonunion (chance that the bones do not heal) varies from 2%-5% per joint. Therefore, the increasing number of joints that need to be fused does increase the risk that a fusion may not occur across one joint. This is termed a non-union and in some cases results in continued pain and swelling and may require a revision surgery. In order to minimize this risk, we use rigid fixation, bone graft and advocate for a period of 6 weeks of no pressure on the foot. Pressure is allowed in a CAM boot from weeks 6-12. Further protection in a specialized gym shoe with what is called a midfoot rocker is advised for another 6 months. Although some surgeons propose a more aggressive weight-bearing strategy, our goal is to minimize the risk of persistent pain and promote fusion on the first surgery, which is why we have developed this protocol.