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# Talus Fracture Repair (Open Reduction Internal Fixation)

The talus is the bone that connects leg to the foot and is involved in both the up and down motion of the ankle as well as the side to side motion of the foot. Fractures of this bone are more commonly from a high energy accident such as a car accident or fall from height. Subtle fractures can occur from a simple fall from standing height as well. There are three main types of talus fractures, called the neck, the body and the lateral process. Although there are other variants that can occur, it is helpful to break it down into these categories for discussion. In almost all cases of a talus fracture, surgery is recommended given the importance of the bone for ankle and foot function. Fractures that do not typically require surgery are avulsion fractures (where a tiny fleck of bone is pulled off – more akin to a sprain vs. a true fracture).

Prior to performing surgery for this fracture, the swelling that is associated needs to decrease so that the soft tissue/skin has a better chance of healing. In many cases this will require 1-2 weeks of elevation in order to minimize the swelling, however, it will not normalize. Surgical planning typically requires a CT scan to determine the extent of the fracture and to help plan for the surgical approach and fixation.

For fractures of the lateral process (the outside aspect of the talus), one incision is used to expose the injured bone. If the bone is of sufficient size to allow for fixation, then the bone is put back in place and held with screws. In some cases, the fracture and trauma results in multiple small fragments that cannot be put back and in this case, these small pieces of bone are removed. The goal of surgery is to avoid arthritis of the subtalar joint – the joint below the talus that involves the side to side motion of the foot. Despite appropriate surgery, stiffness of the joint below may result in and some cases, progressive arthritis may occur requiring a fusion of the joints (where the two bones – the talus and calcaneus are "glued" together).

Fractures of the talar neck are more common from car accidents or high energy trauma and in most cases, the patient will have been initially treated in the emergency room and may have required urgent surgery for placement of an external fixator. Once the swelling has improved, surgery to perform internal fixation (plates and/or screws) for the fracture can be considered. Most commonly two incisions are required to expose the bone and put the fragments into a more anatomic alignment. These fractures are very complex and fixation is individualized based on the anatomy of the fracture and may require isolated screw fixation or the need for a combination of plates and screws on both sides of the bone. The blood flow to this bone is compromised heavily in this type of fracture and therefore to maximize the chance of healing, we advise that patients do not place pressure on the foot for 3 months. Despite appropriate fixation and timely surgery, the risk of arthritis of the subtalar joint is quite high and a fair number of patients will have stiffness of the joint and develop painful arthritis that requires a fusion. The quality of the surgery is still important to ensure that the alignment of the foot is as anatomic as possible and to minimize the risk of arthritis.

Talar body fractures involve the portion of the bone that forms the ankle joint and the subtalar joint. This fracture location is the most severe when considering talus fractures. Surgery is universally required for this fracture pattern and may involve an osteotomy (break) of the tibia (ankle bone) in order to access the fractured bone. We have developed surgical approaches to minimize the need for this additional osteotomy for this fracture pattern to minimize the trauma to bones that were not involved in the fracture itself. A combination of screws and plates may be required to put the bones back into place and stabilize them. Similar to talar neck fractures, weightbearing is not advised until 3 months from the surgery. This fracture pattern is devastating with arthritis occurring commonly to both the ankle joint and the subtalar joint. Appropriate surgical technique and fixation is important to maintain the alignment of the ankle and minimize the risk of deformity and arthritis.

Some historical data suggested that these fracture must be fixed surgically within 24 hours from the injury. However, there is very good data to show that there is no harm in delaying the surgery for all talus fractures until the swelling has improved, allowing for the surgery to be performed by someone who is a specialist in treating this injury. Temporary fixation with an external fixator and reduction of any dislocation is appropriate emergently, however, final fixation of the fractures can be deferred until specialist care is sought. If you are interested in seeking care at our institution, please ensure that the communication emphasizes that you have a talus fracture and we will expedite your appointment ASAP, so we can provide appropriate care.