Talus Fractures

OVERVIEW

The talus is the most proximal bone in the hindfoot and is the link between the leg and the foot. It is a key component to normal ambulation and therefore a poor outcome after a talus fracture can be detrimental to the quality of life. Fractures of the talus are rare injuries and typically occur from high-energy trauma.

ANATOMY

The talus is a unique bone in that 60% of it is covered in cartilage and there are no muscular attachments. The talus is divided into distinct anatomic regions, mainly the body, neck, and head. The vascular supply to the talus is tenuous and often disrupted in cases of talar neck fractures.

CLINICAL PRESENTATION

Patients typically present after a traumatic accident including a motor vehicle collision or a fall from a great height. The main complaint is exquisite pain in the involved ankle and hindfoot. Observation will demonstrate swelling and bruising about the hindfoot.

EXAM

Often the patient will not tolerate a detailed foot and ankle exam. If there is an associated dislocation of the joints surrounding the talus, there is often an obvious deformity. It is very important to check the foot for pulses as a pulseless foot should undergo an emergent reduction in the emergency room or operating room. Additionally, because this injury commonly occurs from high energy trauma, a complete assessment of the patient should be performed and when appropriate a full advanced trauma life support (ATLS) protocol needs to be performed.

IMAGING STUDIES

Anteroposterior (AP), oblique, and lateral radiographs of the foot should be obtained at the initial assessment, typically in the emergency room setting. It is also imperative to image the ankle with AP, mortise, and lateral views as well to look for associated injuries. Once a talus fracture is diagnosed, more detailed imaging is required. A CT scan of the foot should be obtained to adequately assess the talus fracture pattern. A CT scan should be performed after reduction in cases of peritalar dislocation. A Canale radiographic view is often discussed with regard to talus fractures. It is difficult to obtain in the emergency room setting and is typically reserved for the operating room. Magnetic resonance imaging (MRI) is rarely obtained in occult fractures but may demonstrate utility in cases where a talus stress fracture is suspected.

TREATMENT

Any associated joint dislocation should undergo emergent reduction in either the emergency room or operating room followed by open reduction and internal fixation based on the quality of the surrounding soft tissues and the comfort level of the surgeon. A peritalar dislocation that is reduced in the emergency room should be placed in a splint. A peritalar dislocation reduced in the operating room can either be placed in a temporary external fixator or placed in a splint. Assuming no dislocation, the patient is placed in a splint until a definitive treatment plan is obtained. Operative treatment is dictated by displacement. Truly non displaced fractures can be treated in a cast after swelling subsides. In general, if there is any displacement, open reduction and internal fixation (ORIF) should be performed. Traditionally, with talar neck fractures, it was thought that emergent ORIF should be performed. However, more recent studies do not show a correlation with timing of surgery and the development of avascular necrosis of the talus. ORIF is performed with either screws or a plate(s) and screws depending on the fracture pattern. A medial incision, lateral incision or multiple incisions may be needed to gain access to the fracture. After surgery, the patient is placed in a splint/cast for 6 weeks and remains nonweightbearing. Depending on fracture stability and strength of fixation, weight bearing in a boot brace can begin once there are signs of healing.

CONCLUSION

The majority of talus fractures are the result of high-energy trauma and therefore patient must be examined for associated injuries. The majority of fractures are treated operatively followed by a period of nonweightbearing. Unfortunately, complications are common including malunion, arthritis of the ankle and subtalar joint, and, avascular necrosis.

Written by Samuel Adams, MD
Reviewed by Steven Neufeld, MD
Last reviewed June 2015