Courtesy of *www.footeducation.com*

Calcaneal (Heel) Fractures

How and What?

Fractures of the heel bone (calcaneus) can occur when significant loading or force is applied directly or indirectly to the heel bone. (ex. a fall from a height landing on the heel or a car crash where the heel is driven into the floorboard).

The most common type of calcaneal fracture results in depression and crushing of the calcaneus. Think of the calcaneus as hard on the outside and soft on the inside like a funny shaped egg. The bone often breaks in a similar manner –into many small fragments. The fracture line can extend into the joint between the calcaneus and talus, called the "subtalar joint". These issues can make fixing calcaneal fractures technically challenging.

Other types of calcaneal fractures include:

- Pulling off (Avulsion) the back part of the calcaneus by the Achilles tendon
- Chip fractures off the front of the calcaneus

These "calcaneal" fractures are less common and may be easier to treat in some cases.

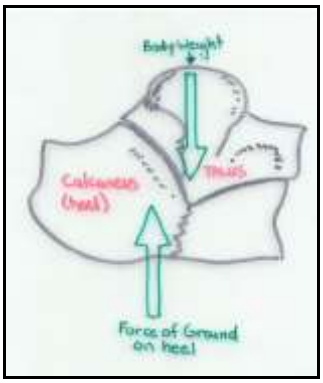

Figure 1: Side View Mechanism of Injury

Symptoms

A depressed calcaneal fracture produces marked pain and swelling. Patients are usually unable to weight-bear through the heel because of the patient. Patients may develop fracture blisters due to the extensive swelling.

X-Rays and CT Scan: X-rays of the foot from the side will usually demonstrate the fracture. If surgery is contemplated it may be necessary to obtain a CT scan as this will give a more detailed view of the fracture pattern.

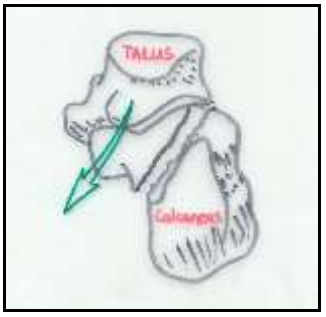

Figure 2:
View from Behind Mechanism of Injury

Treatment

Studies suggest that when all calcaneal fractures are reviewed there is no clear difference in results when non-operative treatment is compared to surgically fixing the calcaneal fracture. On closer analysis better results are obtained with surgical treatment in "low-risk" patients. A higher complication rate (with inferior results) is seen in "high risk"patients. This assumes that the surgeon performing the surgery has a great deal of experience fixing calcaneal fractures.

"Low-Risk" patients: young, female, non-smokers, non-worker's compensation

"High-Risk" patients: older, male. Smokers, diabetics, vascular disease, Workers compensation


Figure 3:
Post surgery

Non-Operative Treatment

Rest, Ice, Elevation, Pain medication, Early motion, Non-weight-bearing for 8-12 weeks

Operative Treatment

Bone fragments are systematically reduced to their original position and then fixed with screws and plates. The subtalar joint is also reconstructed to its previous state.

Ice, Elevation, Pain medication, Early motion, Non-weight-bearing for 8-12 weeks after surgery

Potential Complications of Surgery

Serious infection: The may even involve the bone due to the limited skin and soft-tissue covering the outside of the heel

Wound healing problems: The wound may breakdown leading to an infection.

Nerve Injury: The sural nerve runs past the outside part of the heel and can be injured.

Long-term hindfoot arthritis: The subtalar joint is often significantly injured. This may lead to some chronic hindfoot stiffness and pain and in some patients the subtalar joint may need to be fused.

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