COMPREHENSIVE ORTHOPAEDICS

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Calcaneus Fracture
Non-Operative Protocol

Adapted from South Bend Orthopaedics

Fractures of the calcaneus are a complex group of injuries with highly variable outcomes. They most commonly occur as a result of axial loading. A single twisting injury may cause a non-displaced fracture. The vast majority usually occurs as a result of a fall or motor vehicle accident. Approximately 75% of these injuries involve displacement of the subtalar joint. Associated injuries: 10% spine, 25% other extremity, 10% bilateral, <5% open.

Type I fractures are non-displaced, type II are displaced 2-part fractures, type III are displaced 3-part fractures and type IV are displaced, comminuted 4-part fractures. Types II and III calcaneal fractures are usually treated with ORIF to create anatomic reduction and restore the overall shape and height of the calcaneus, as well as restoring congruency to the posterior articular facet.

There are a number of reasons calcaneus fractures are treated non-operatively. Type I (non-displaced) and some type II fractures up to 2 mm of displacement have good outcomes with non-operative treatment. Six weeks of splinting, elevation NWB or TTWB and early motion yield results good. Also, poor soft tissue (swelling/fracture blisters/ecchymosis/open injury), age, activity level, social history (tobacco) and the patient health must be considered and may preclude operative treatment.

Complications: arthritis, peroneal impingement (10-20%) subtalar stiffness, FHL scarring, widening of heel, decreased dorsiflexion, weak plantar flexion, leg length discrepancy, wound dehiscence, infection and sural nerve injury.

Outcome: 65% of patients limited in vigorous or sports activities, 50% able to ambulate over any surface, and 40% unable to return to previous employment.

Rehabilitation Guidelines

GOALS

- Immobilize (splint, boot, or cast) for 6 weeks
- Elevation, ice, and medication to control pain and swelling
- Non weight bearing (NWB) x 6 weeks
- Hip and knee AROM, hip strengthening
- Core and upper extremity strengthening

Phase I: Protection (Weeks 0-6)

Weeks 0-2

- Non weight bearing in splint or boot
- Elevate the leg above the heart to minimize swelling 23 hours/day
- Ice behind the knee 30 min on/30 min off
- Minimize activity and focus on rest

Weeks 3-4

- AROM/AAROM, circumduction (alphabets)
- Soft tissue mobilization to peroneal tendons and FHL
- Edema Control

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Weeks 4-6

- PROM/AROM
- Joint mobilization to subtalar joint/posterior ankle mobilities
- Heel cord stretching
- Soft tissue mobilization to peroneals and FHL
- Gait training
- Open chain strengthening—theraband, ankle machine

Phase II: Weight Bearing and Early Strengthening (Weeks 6-12)

Weeks 6-10

- Orthotics
- Closed chain strengthening: weight machine, weight shifts, seated BAPS, Sportscord, lunges, heel raises
- Proprioception—SLS balance static/dynamic, mini-tramp, rocker board, balance pad, dynadisc

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PHYSICAL THERAPY: start between 4-6 weeks post injury, focus on motion and swelling at first, then gait training and strengthening

- Focus on hip/knee/core for first 6-10 weeks
- Patient specific desires on gait training with/without therapist
- DO NOT attempt to gait motion in the subtalar joint; focus only on dorsiflexion/plantarflexion (DO NOT ATTEMPT side to side motion until 6-8 weeks and fracture healed per MD)

DRIVING: Prior to driving, you must be able to weight bear on your right foot without crutches if right side injured. In addition, you may begin driving at 9 weeks if underwent surgery on right foot. If left foot, may drive automatic transmission car when off narcotic pain medication.

FULL ACTIVITY: This may take 6-18 months. Nonoperative calcaneus fractures do have high risk for long term stiffness and pain that may require subtalar fusion in the future.

STOOL SOFTENERS: While on narcotic pain medication (e.g. Norco/hydrocodone or Percocet/oxycodone), you should take stool softener (e.g. Miralax, docusate, senna). Discontinue if you develop stool or diarrhea.

Revised 10/2021