



## Ep 06- Pilon Fractures - Dr. Tonya Dixon

### History/Physical

PE's:

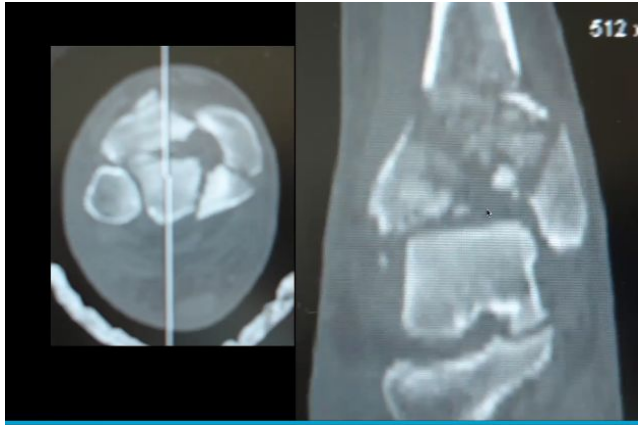
- Be sure appropriate ATLS workup has been performed
- Get a good neurovasc exam. **A pulseless foot may require urgent reduction**
- **Consider ABIs and Vascular consult** if questionable pulse after reduction
- Evaluate for any open wounds; Soft tissue swelling . Wound management is key in successful pilon management

Associated fxs: Spine, distal femur, tibial plateau, calcaneus, talus, midfoot

### Imaging

Radiographs

- Standard AP- demonstrates amount of articular impaction and shortening
- Lateral- demonstrates articular incongruity and useful for determining the position of the posterior articular segment
- Mortise view
- Full length views of the entire tibia and fibula rule out more proximal inj and assess the extent of metadiaphyseal involvement



CT

- assist with identification of fracture fragments, determining the extent of articular comminution, and critical for planning surgery

**Should be done after application of the external fixator and realignment of limb (Ligamentotaxis) for displaced pilon fractures.**

### **Anatomy/Mechanism**

Medial: Tibial lies subcutaneously, with a thin layer of skin and subQ tissue covering the bone

Anterior: Tendons of the anterior compartment as well as the anterior tibial vessels and deep peroneal nerve

Laterally: The fibula sits laterally and relatively posterior to the tibia:

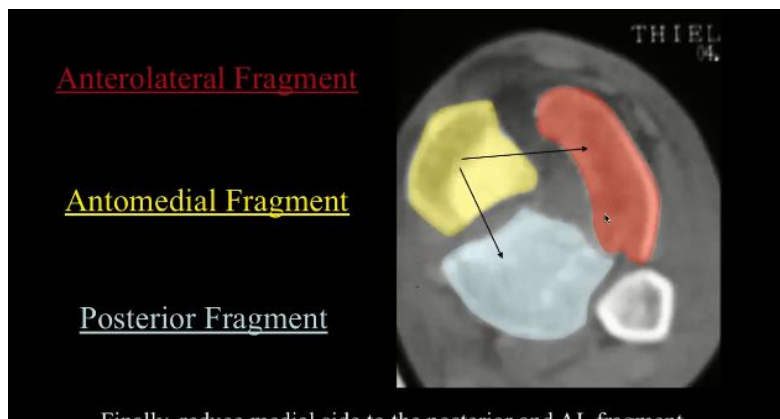
Posterolaterally: Peroneal Tendons

Posterior: Flexor tendons, The achilles tendons, and the posterior tibial artery and nerve



Anterolateral frag= Chaput fragment (AITF lig)

Posterolateral frag= Volkman fragment (PITF lig)



## Classification

**(There is no universally accepted classification of tibial plafond fx)**

Ruedi-Allgower classification (minimal relevance)

a. Type 1- Nondisplaced; B. Type 2 Displaced but minimally comminuted; Type 3 Highly comminuted and displaced (displacement refers to articular surface)

## Treatment

**Care must be taken to watch for soft tissue damage;**



### Nonsurgical

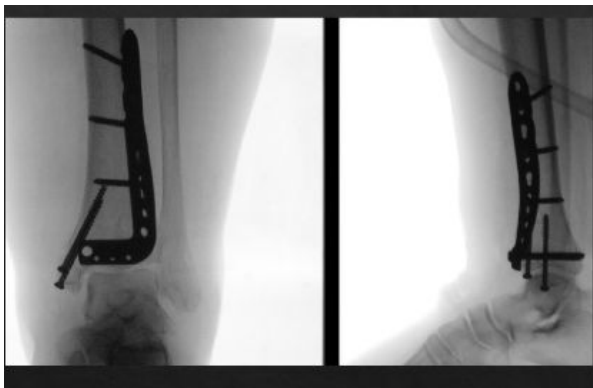
- Indications: Stable fracture patterns w/o displacement of articular surface; Non-ambulatory patients or patients with significant neuropathy
- Long leg cast for 6 weeks; Followed by fracture brace and ROM exercises

Surgical- Goal is to achieve anatomic reduction of distal tibial surface and fixate articular segment to metaphysis w/ appropriate length, alignment, and rotation

May be delayed for several days to weeks to allow for optimization of soft tissue status

- External Fixation- Maintains length, alignment, and rotation of extremity and to protect joint as fracture heals; Pins should avoid future surgical site. Fibula may undergo ORIF during Ex Fix to assist with reduction and stability.
- Internal Fixation- should be achieved after the soft tissues calm down. Usually about 2 weeks after the injury. Mainstay of treatment.
  - May require multiple approaches to appropriately manage fracture
  - Often reconstruction of the articular segment should be done from posterior to anterior.
  - Distraction of the tibiotalar joint with an ex fix or femoral distractor to visualize joint surface for appropriate reduction
  - After reduction of articular segment, compress along the joint surface and fixation with absolute stability principles

Low profile plates, lag screws, bridging constructs, locking and nonlocking plates.





## Complications

1. Malunion
2. nonunion and delayed union
3. Infection and wound breakdown
4. Ankle arthritis

Nailed It Ortho podcast episode 6

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References:

1. Orthobullets.com