

Tibial Pilon Fractures: Timing, Treatment, and Approaches

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Associate Professor

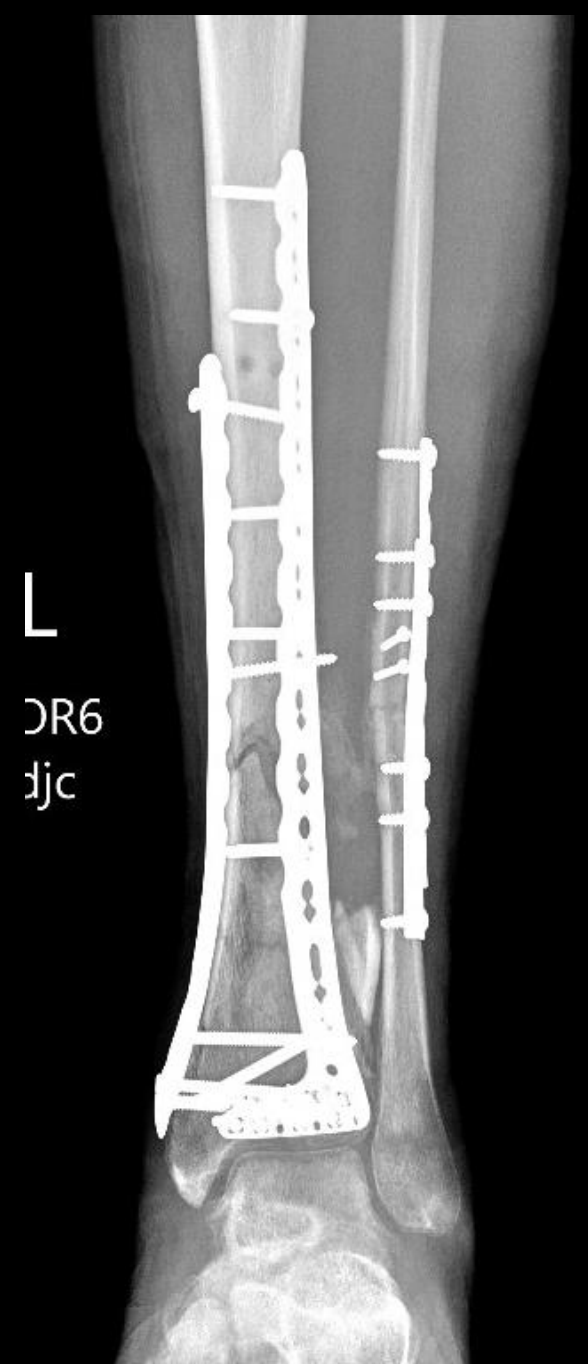
UCSF Department of Orthopaedic Surgery

Disclosures

- None

Learning Objectives

- Staging + Soft-tissue handling
- Careful planning
- Reduction strategy NOT fixation strategy dictates approach
- Review each approach



Case: 28yo M motorcycle crash



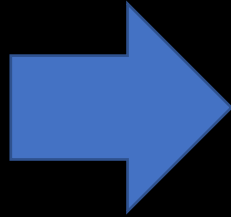
Respect the soft-tissues!

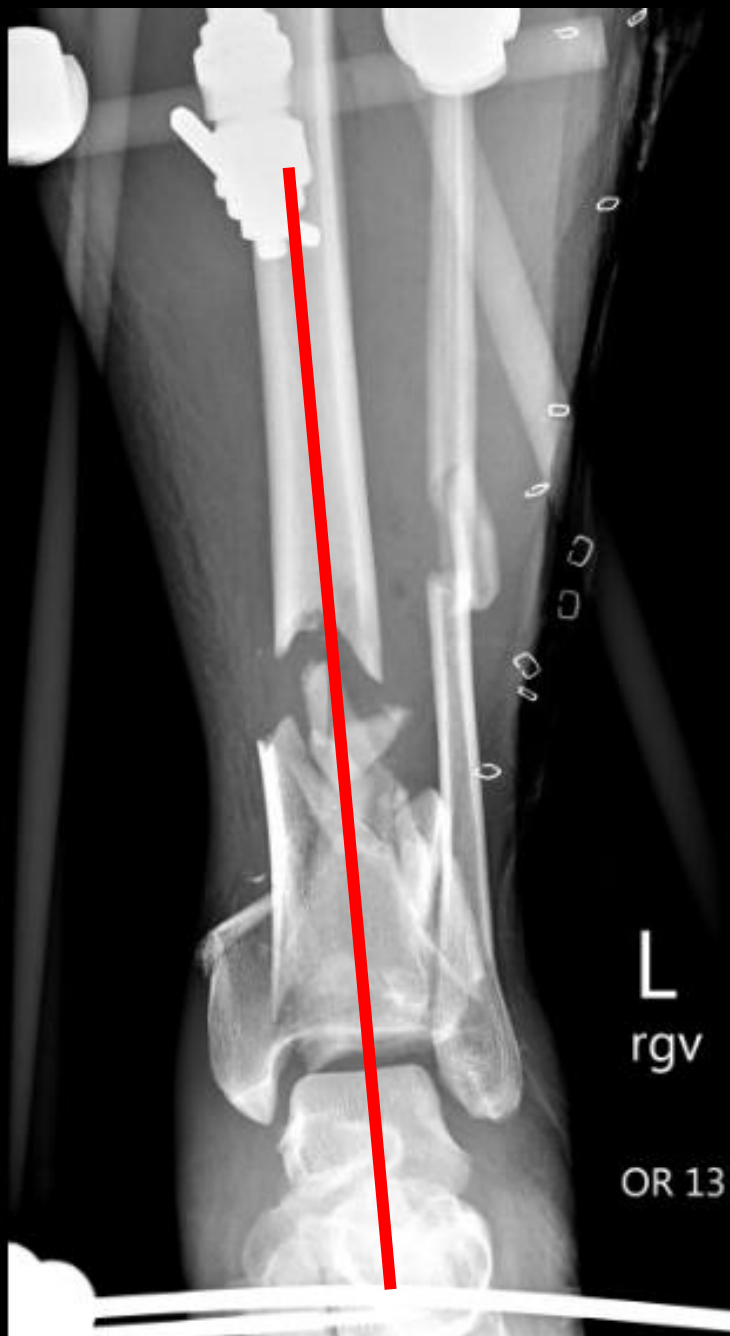


Stage 1: External Fixation

- Functional reduction
 - Length/Rotation/Alignment
 - “Talus Under Tibia”
- Splint soft-tissues
- Wait ~2 weeks for definitive fixation







Frame Configuration: Delta + Cuneiform Pin



Should I fix fibula with ex-fix?

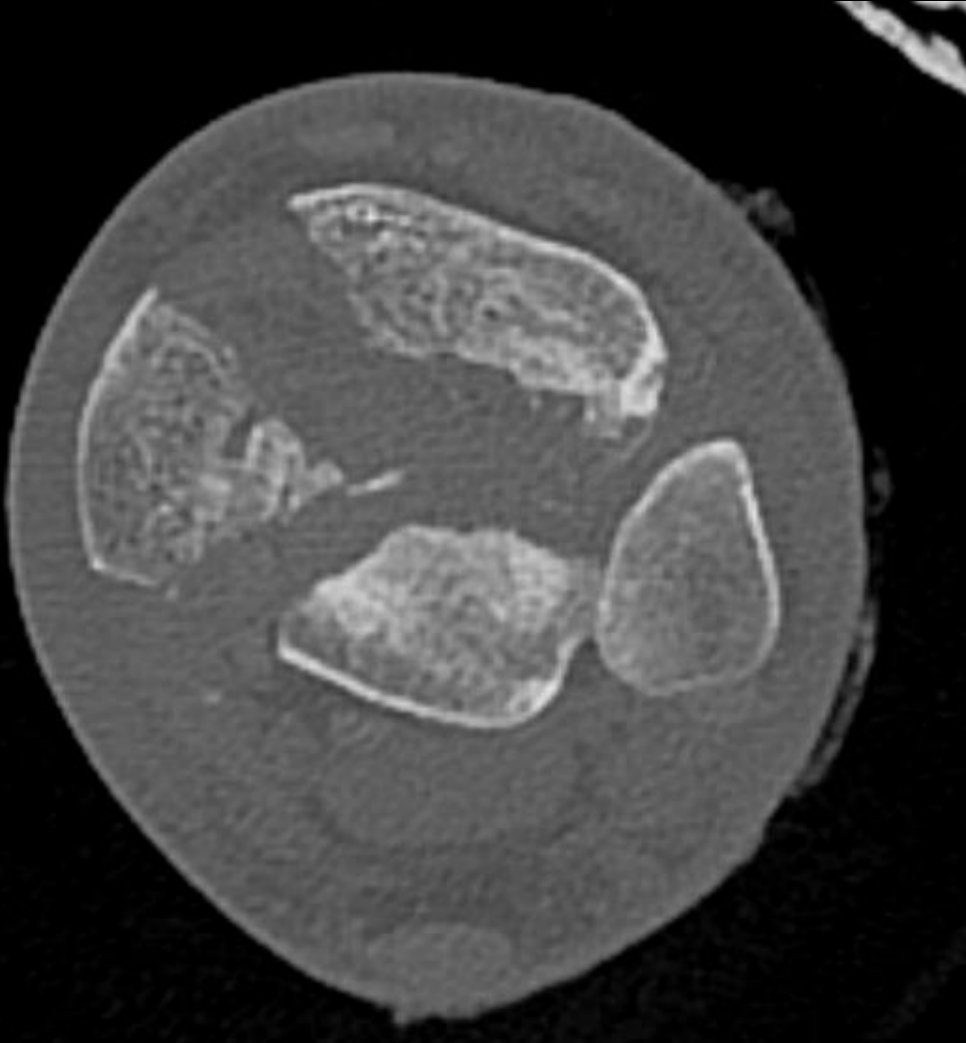
- ONLY IF:
 1. You will do the definitive fixation
 2. You can ANATOMICALLY reduce the fibula
- Use Posterolateral Approach!



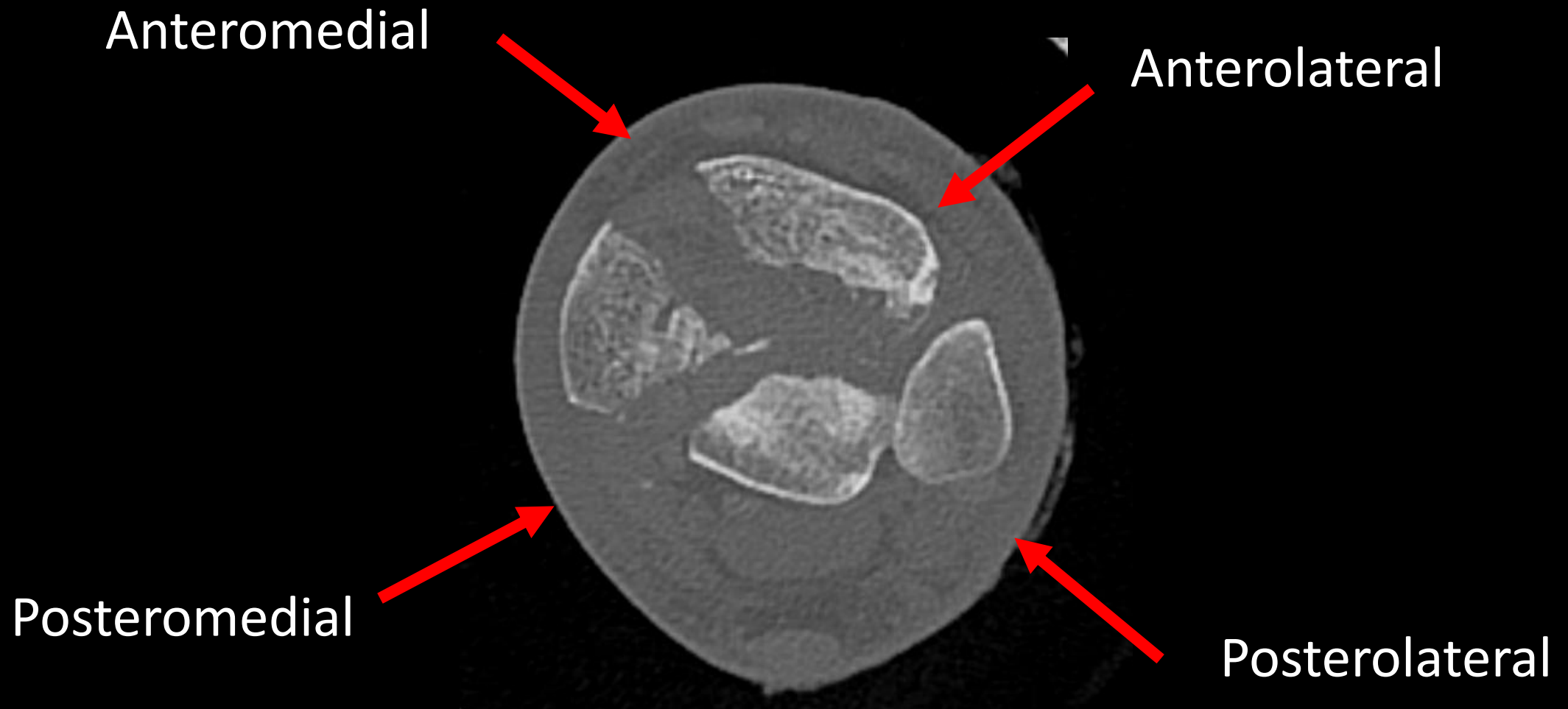
Length?



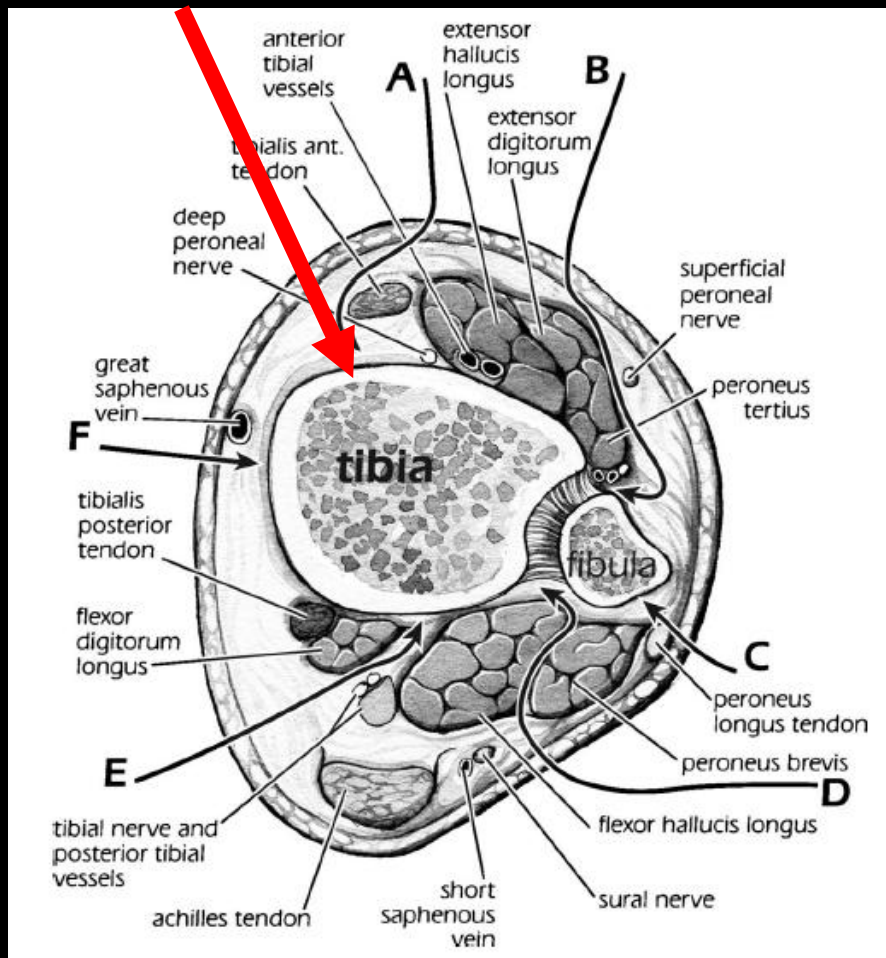
Span, Scan, and Plan!



Approach Options

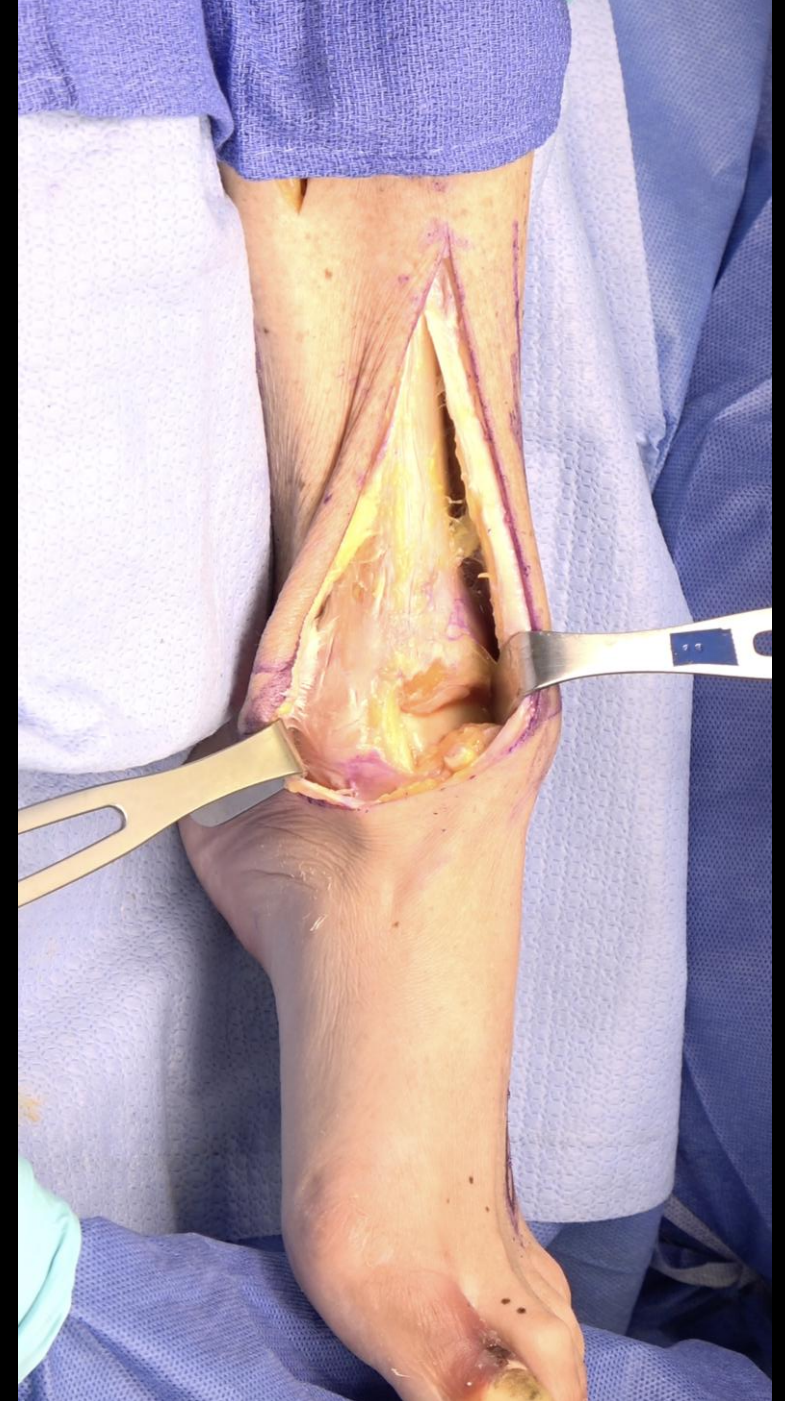


Anteromedial approach



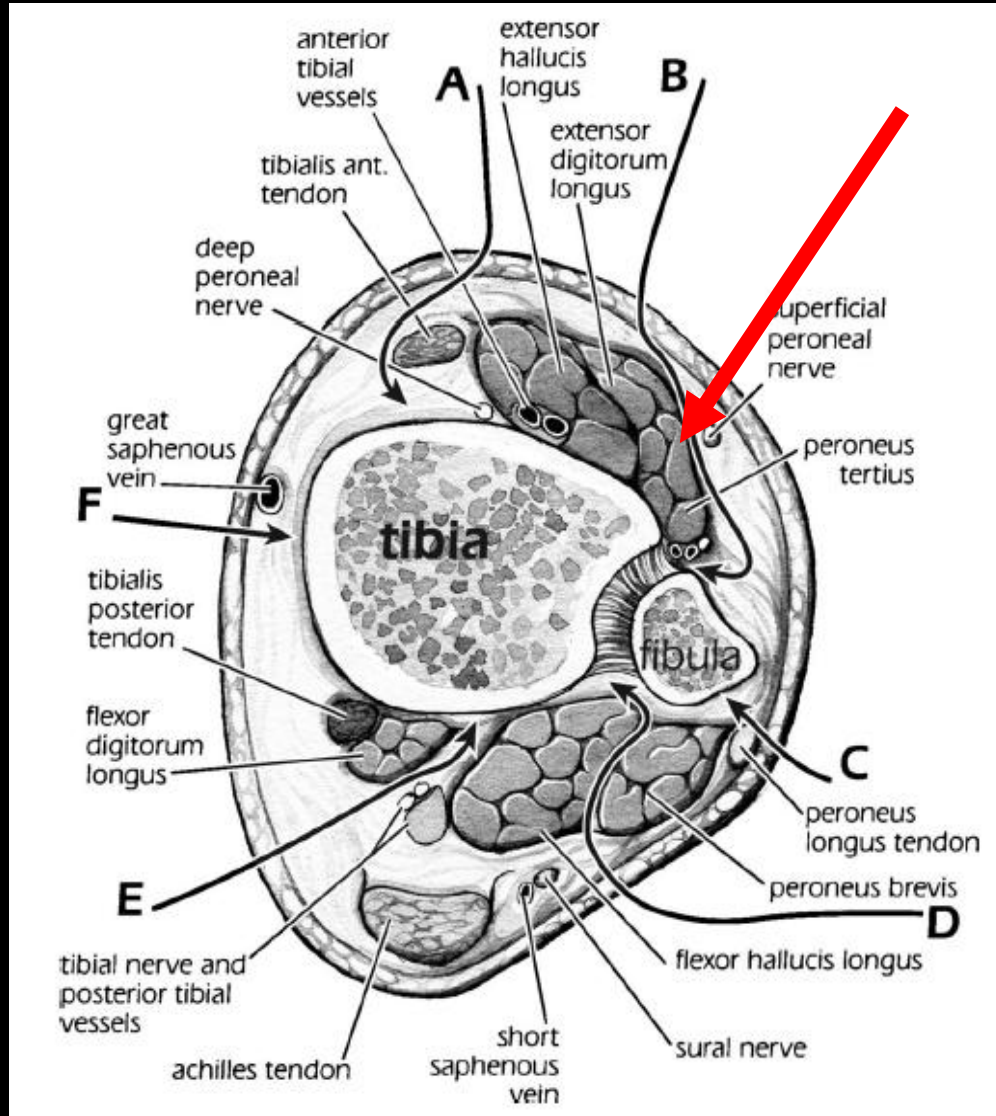
Anteromedial approach

- Pros
 - Extensile exposure
 - Access to medial and anterior tibia
 - Straightforward approach
- Cons
 - High risk for wound healing issues
 - Limited access to lateral fracture exit



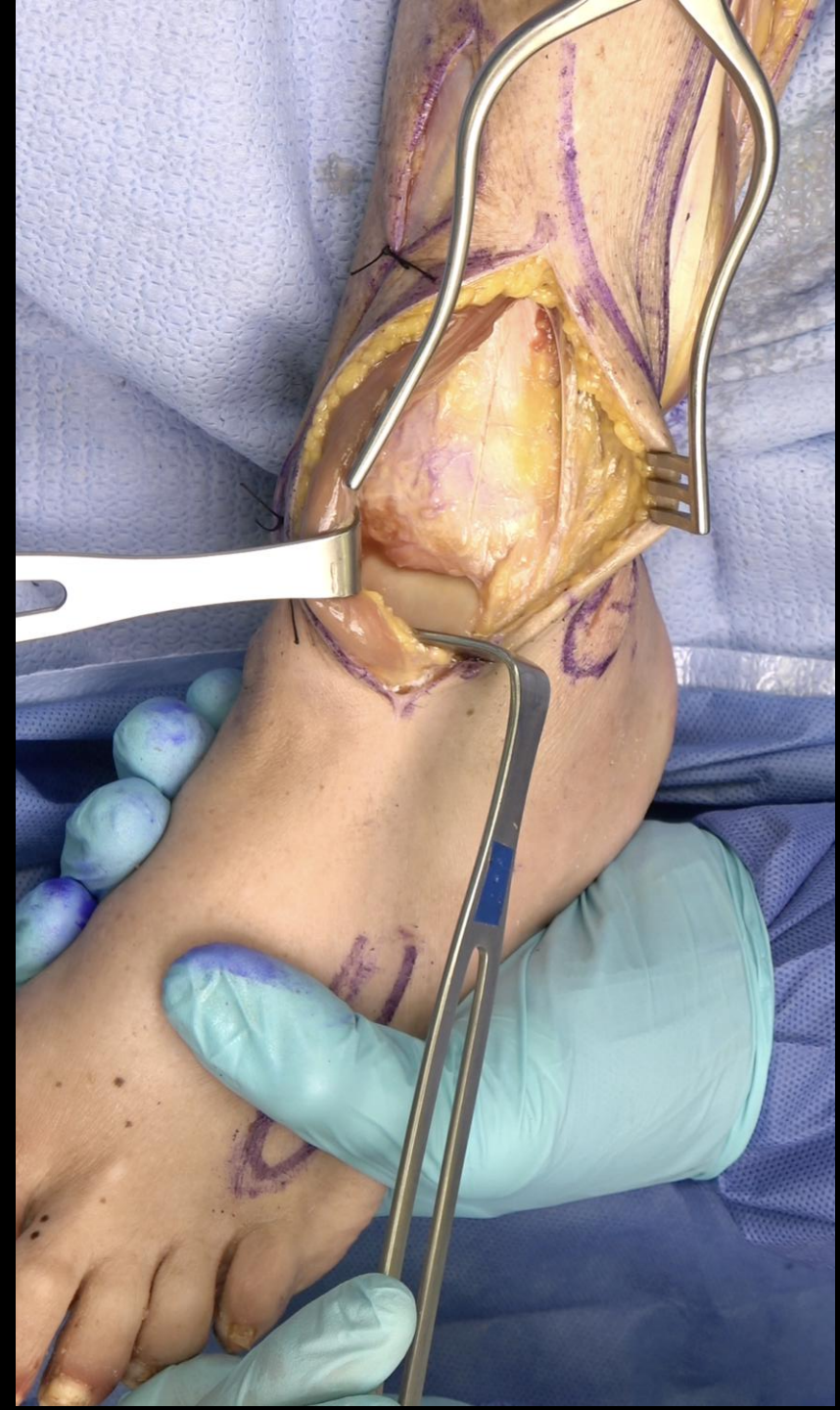


Anterolateral approach

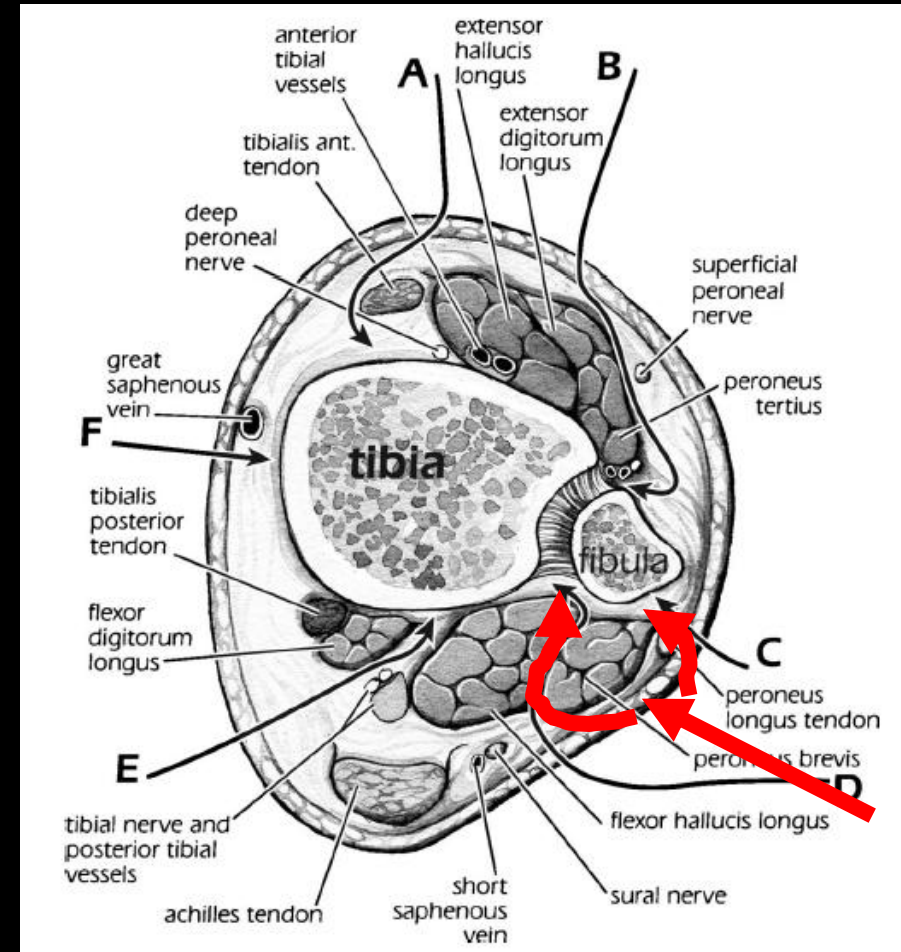


Anterolateral approach

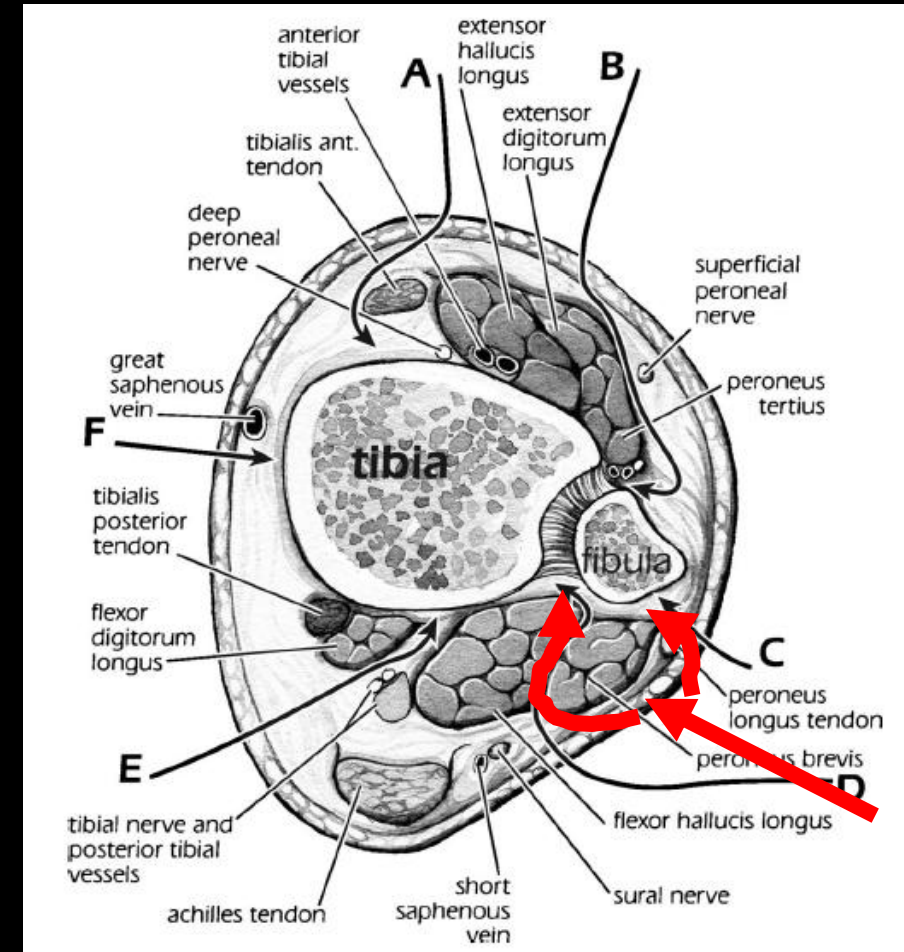
- Pros
 - Soft-tissue friendly (relatively)
 - Access to AL fracture exit
- Cons
 - Technically more difficult (non-extensile)
 - Risk to SPN
 - Limited access to anteromedial fracture



Posterolateral approach



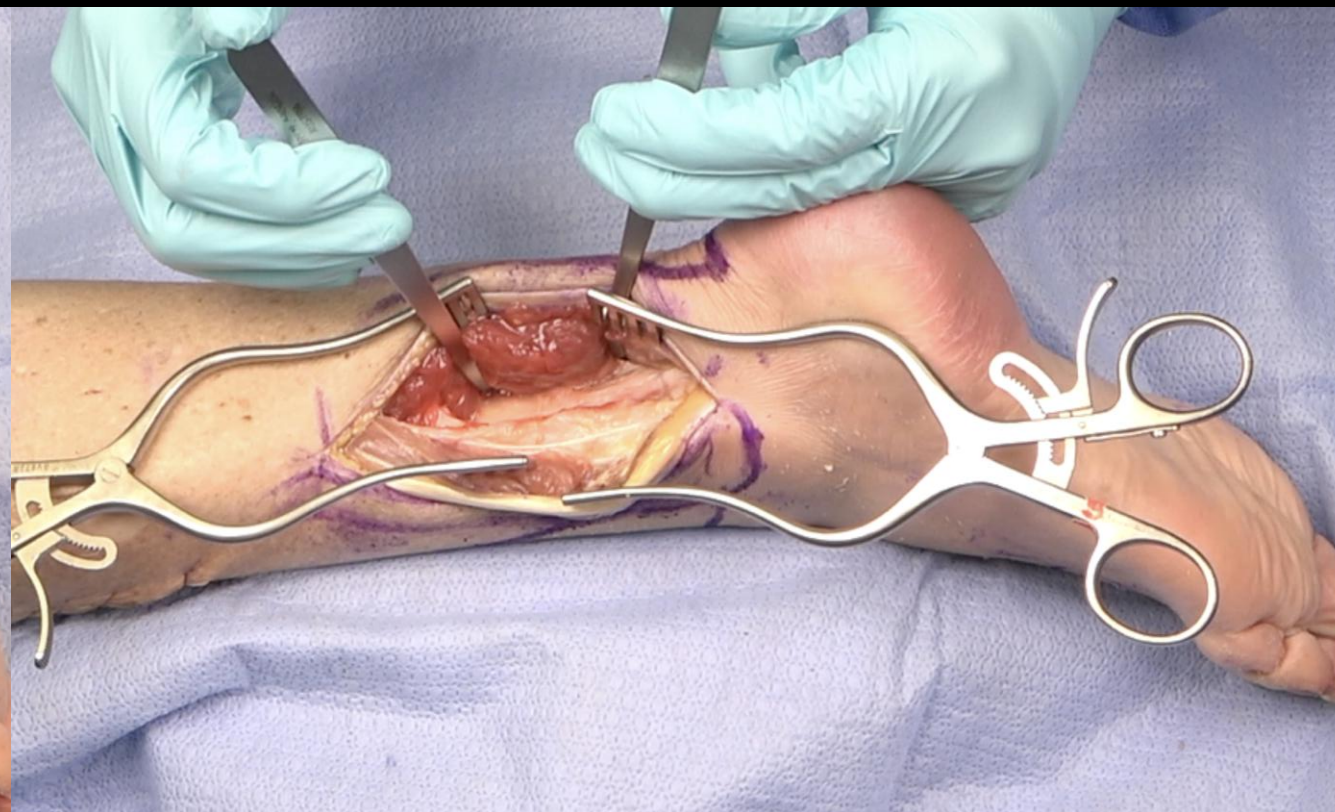
Posterolateral approach



Fibula



Posterior Tibia



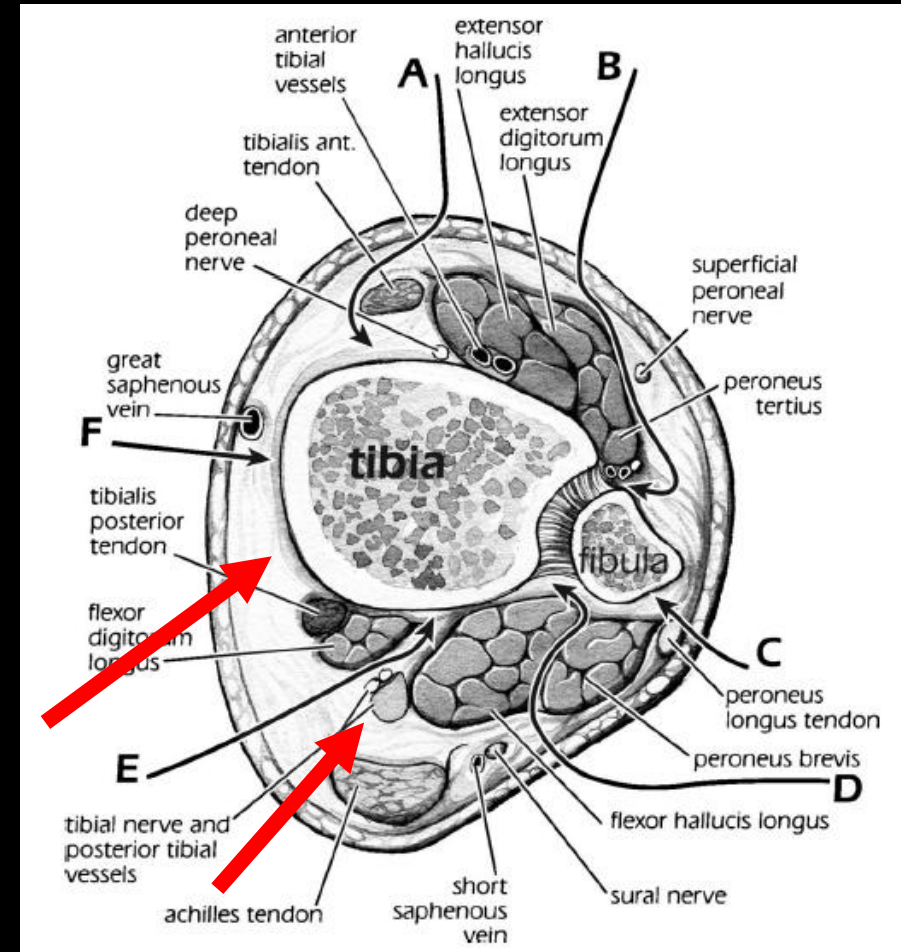
Fibula



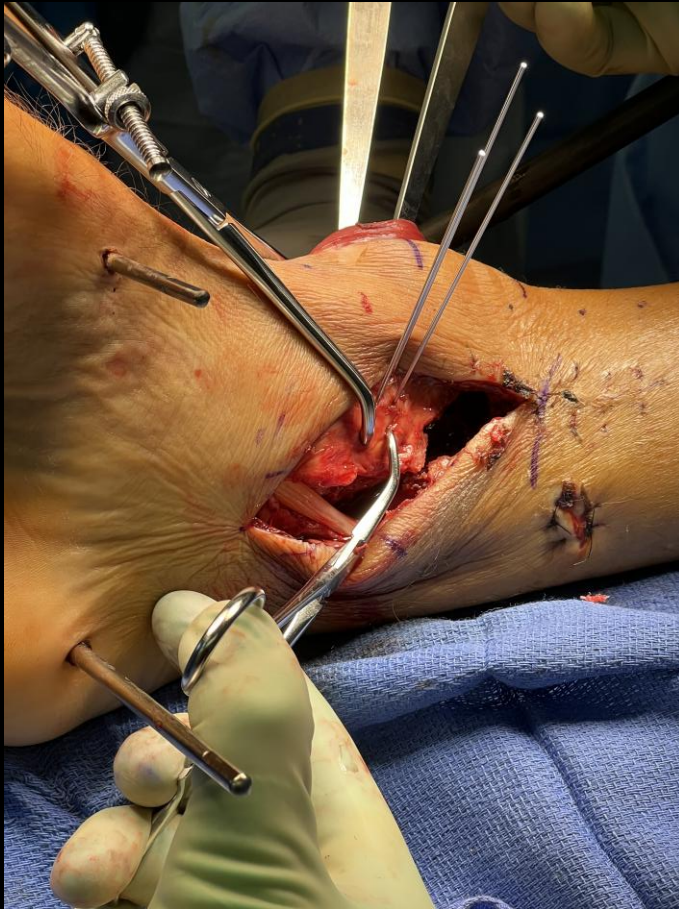
Posterior Tibia



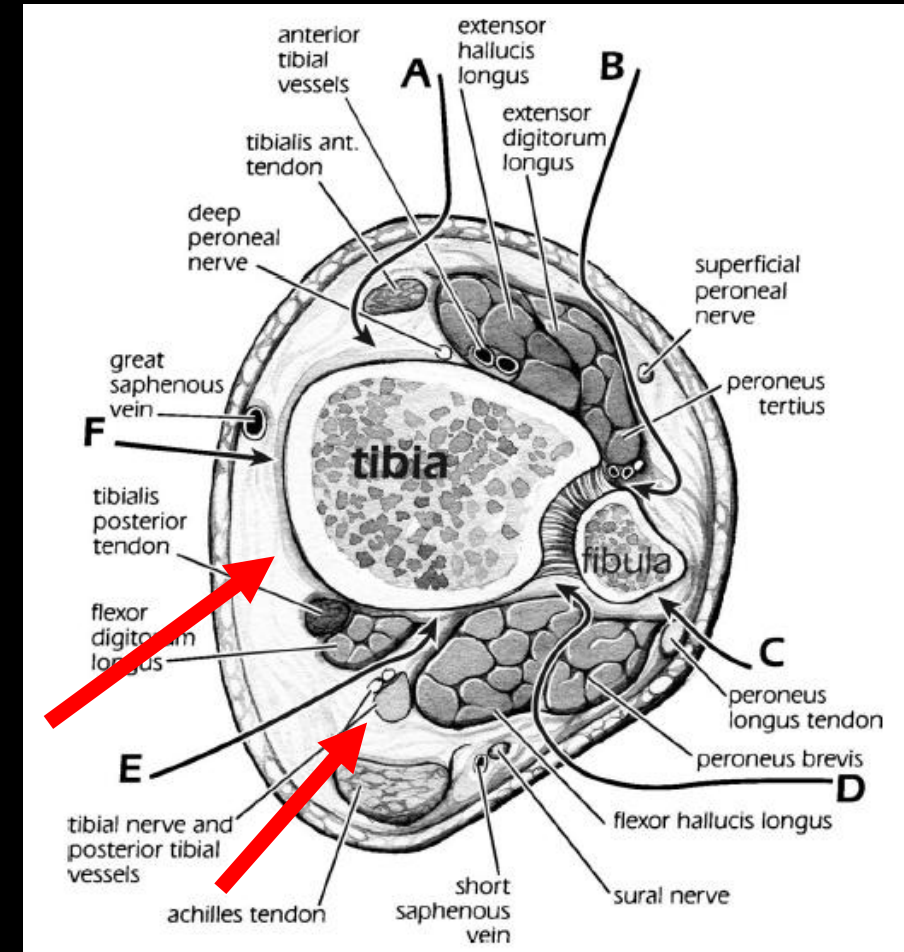
Posteromedial Approach (Extensile)



Posteromedial Approach (Limited)



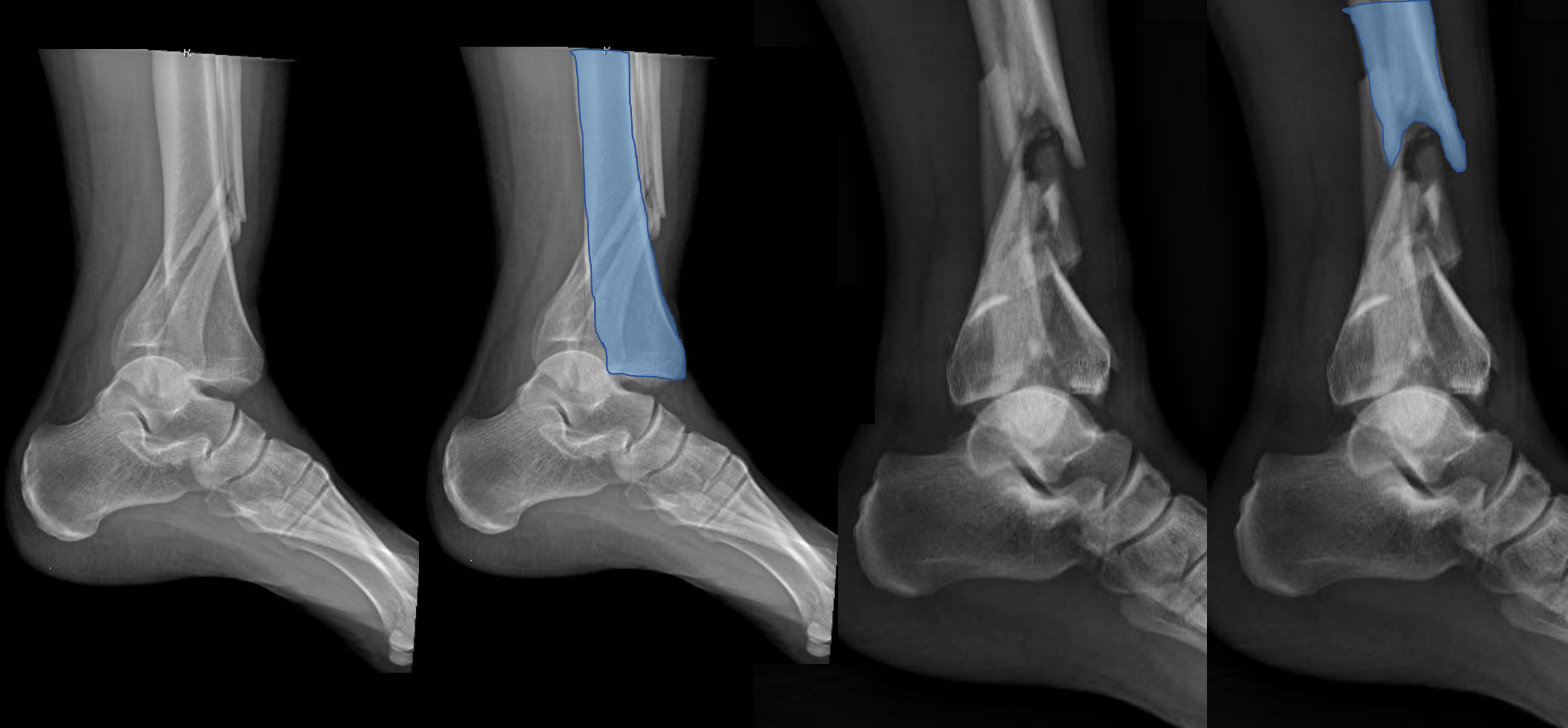
Limited Posteromedial



Algorithm for Approach

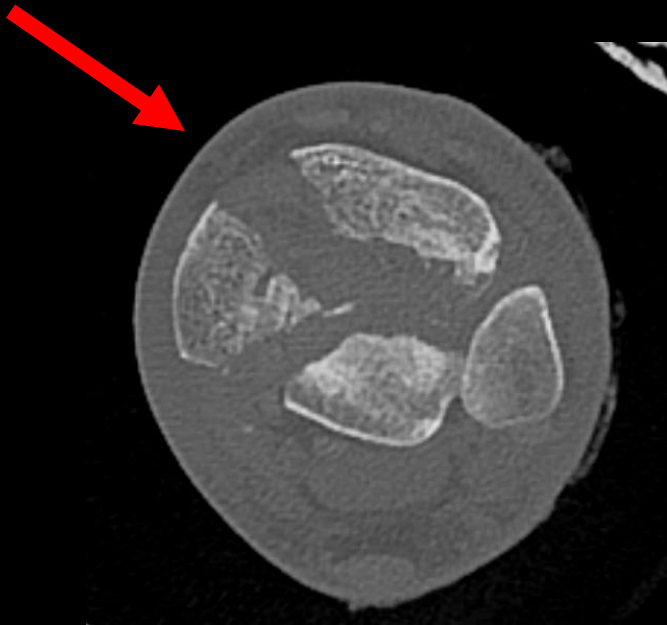
- **Fibula** → Always posterolateral
 - Access to fibula AND posterior tibia
 - Anterolateral to tibia remains safe
- **B-Type Pilon (Partial Articular)**
 - “B = Buttress” → Approach directed toward the apex
- **C-Type Pilon (Complete Articular)**
 - Anteromedial vs. anterolateral
 - Posterior approach IF NEEDED for PL fragment

B-Type vs C-type



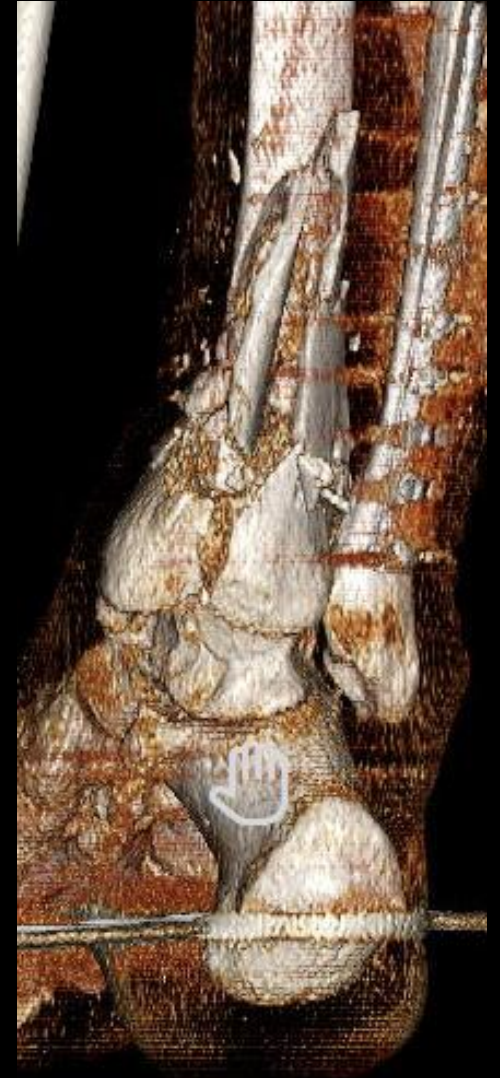
C-type: Anteromedial or Anterolateral?

- **Anterior fracture line exit**
- Posteromedial approach needed
- Soft-tissue considerations



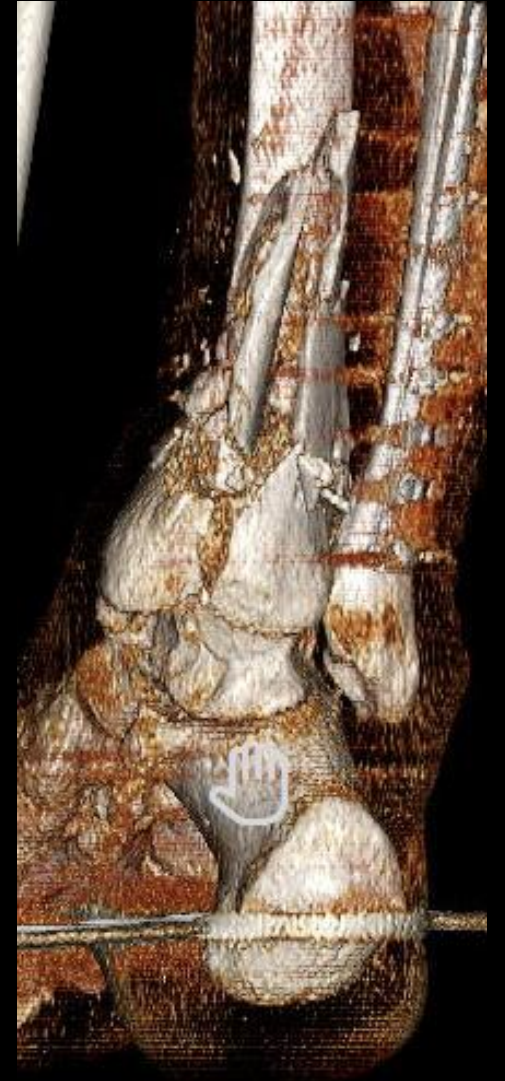
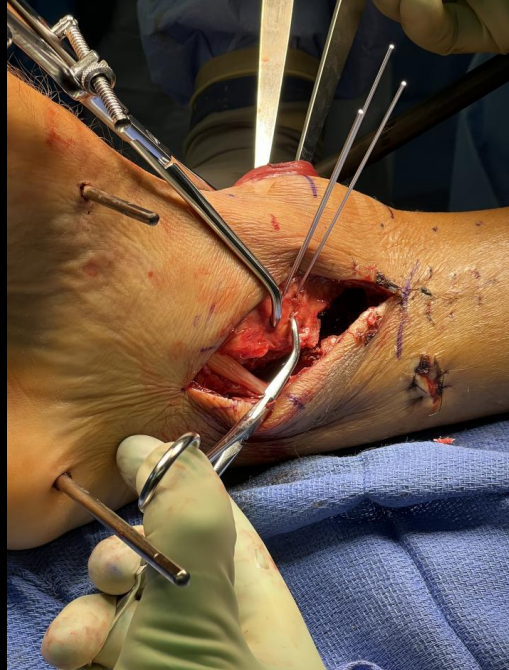
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- **Soft-tissue considerations**



Definitive Fixation

- Secure articular fragments
(Create block)
- Secure articular block to shaft
- Medial buttress



Definitive Fixation

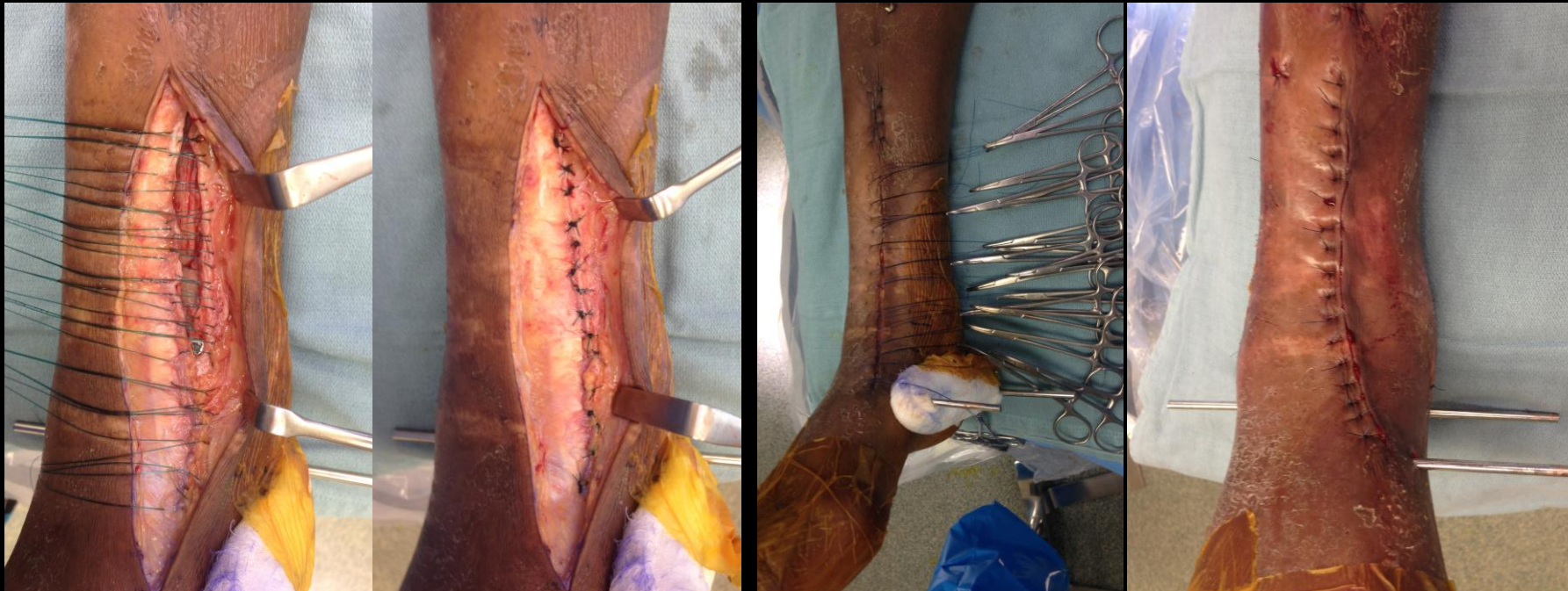
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- Secure articular block to shaft
- Medial buttress

*Not based on approach!



Soft-tissue management

- Full thickness flaps
- Minimize self-retainers
- Meticulous layered closure



Take Home Messages

- **Staged treatment and soft-tissue handling** to prevent infection
- **Posterolateral for fibula**
- **B-type: Buttress the apex**
- **C-type: AM or AL based +/- posterior for PL fragment**

Thank you!

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