


# Approaches to the Distal Tibia




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**I (and/or my co-authors) have something to disclose.**

Detailed disclosure information is available via:

"My Academy" app; 

Printed Final Program; or

AAOS Orthopaedic Disclosure Program on the AAOS website at <http://www.aaos.org/disclosure>

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## Considerations

- **Anatomy of the fracture**
  - Not all pilons are the same!
  - Individualized approach
  - Posterior → Anterior → Medial
- **Condition of the skin**
  - Open wounds
  - Swelling
  - Staged fixation




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# Approaches

- **Anterior variants**
  - Antero-medial
  - Direct anterior
  - Antero-lateral
- **Medial**
- **Posterior Options**
  - Postero-lateral
  - Postero-medial




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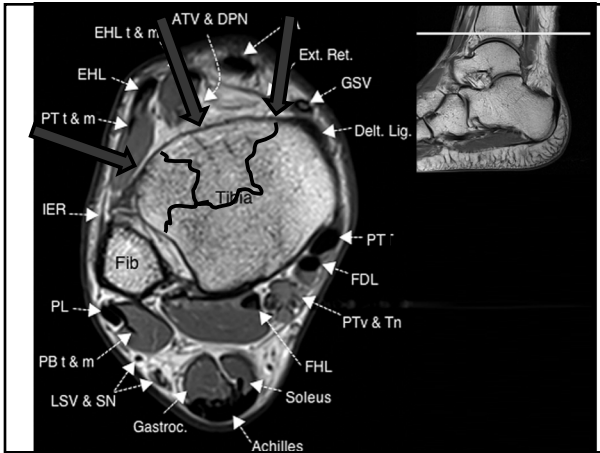
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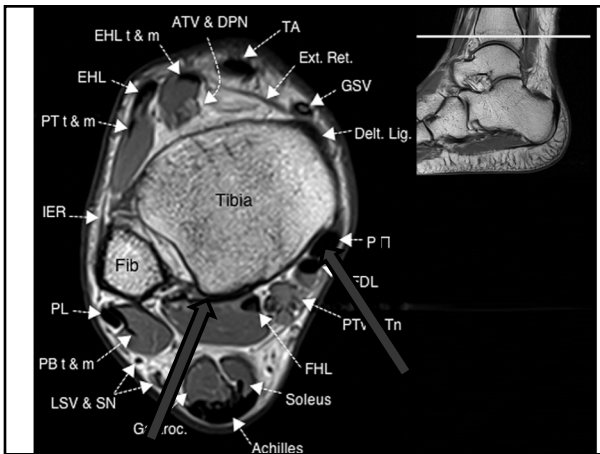
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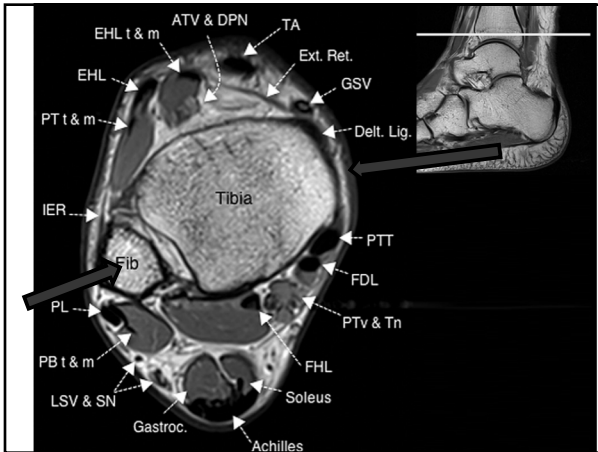
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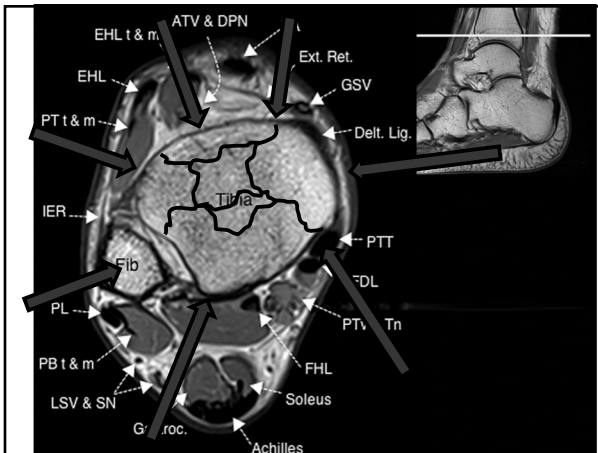
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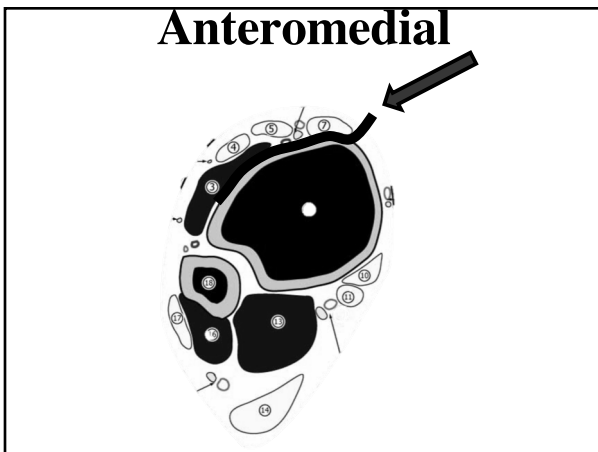
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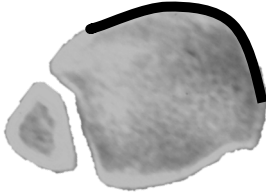
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### Pros - Cons

- Medial to anterior
- Protect the tendon sheath
- Closure over implant?



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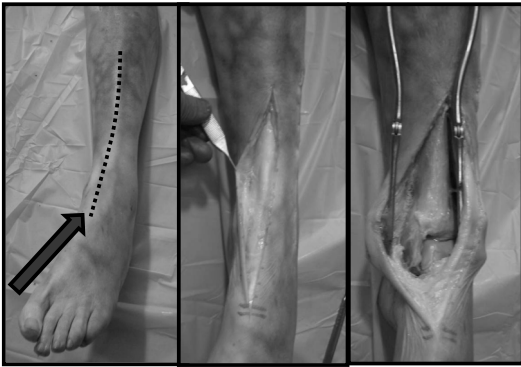
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### Anteromedial



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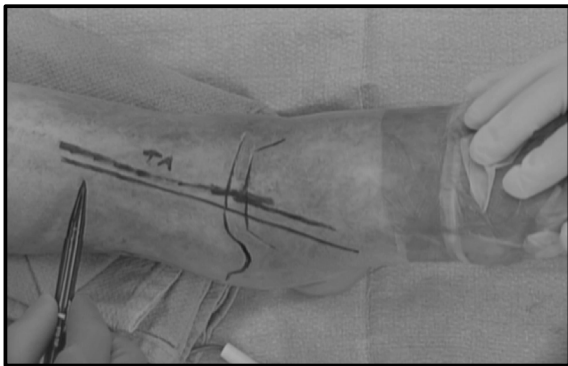
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### Incision



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### **Tibialis Anterior**



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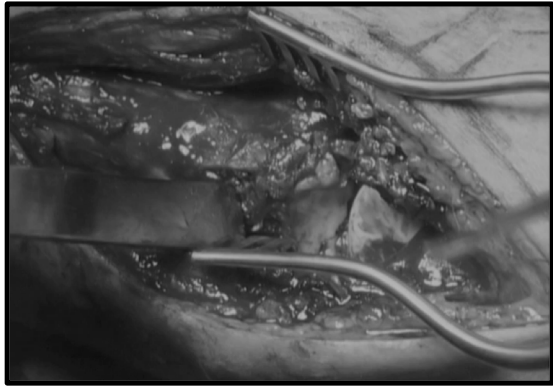
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### **Visualization**



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### **Reduction**



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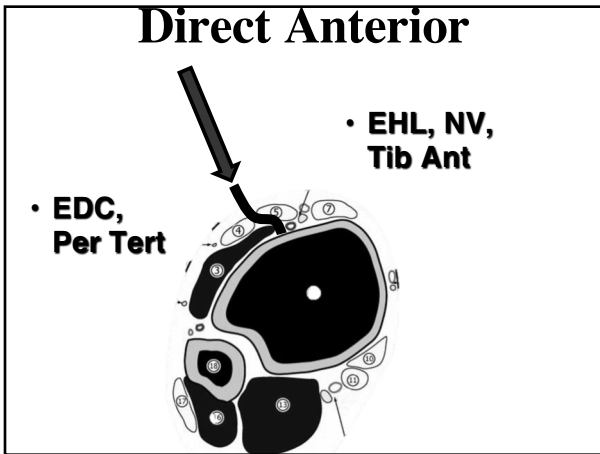
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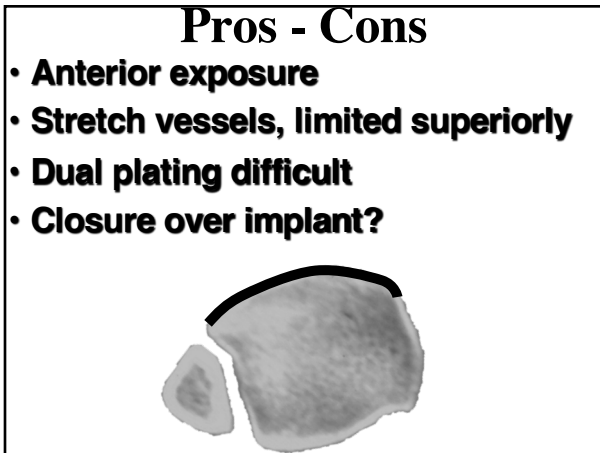
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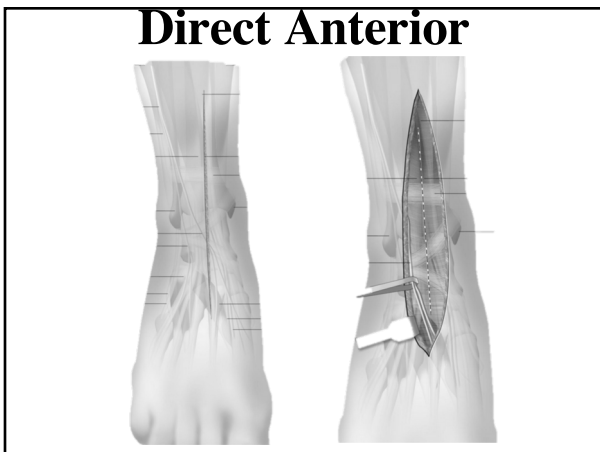
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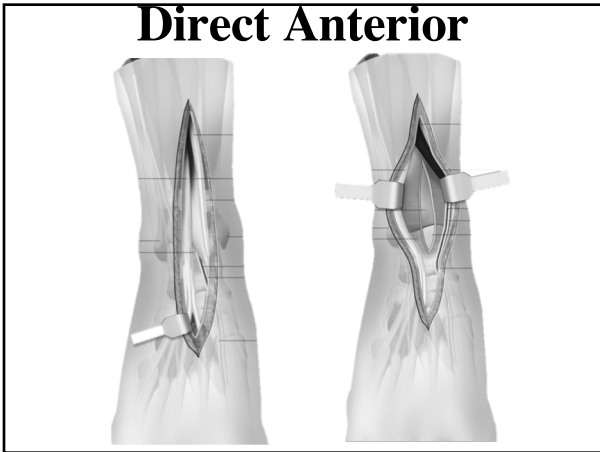
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### Direct Anterior



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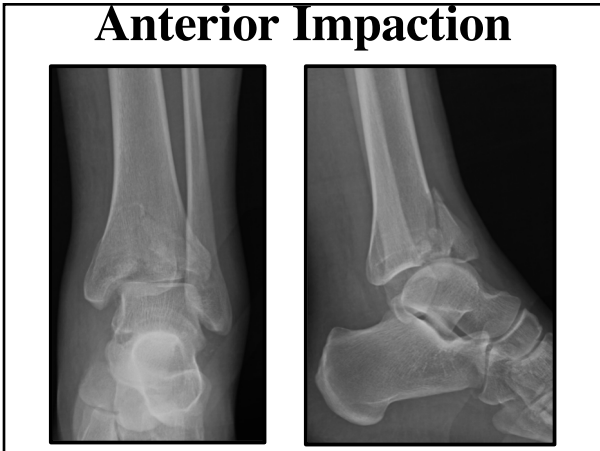
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### Anterior Impaction



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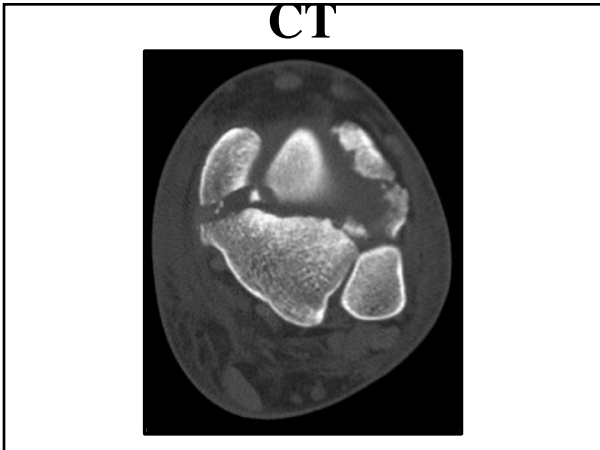
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### CT



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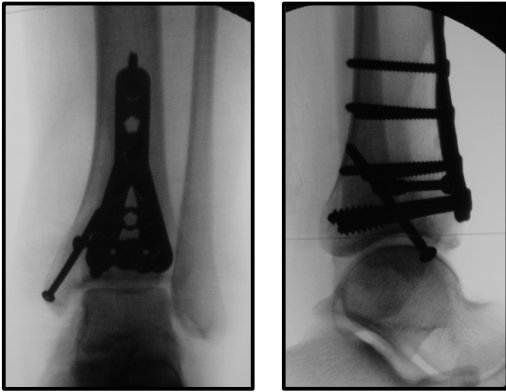
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### Postops



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### Anterolateral



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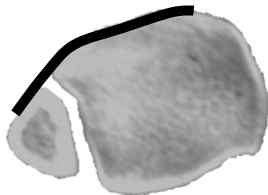
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### Pros - Cons

- Anterolateral exposure
- Poor medial, limited superiorly
- Longer plates need 2<sup>nd</sup> incision
- Metadiaphyseal fractures hard



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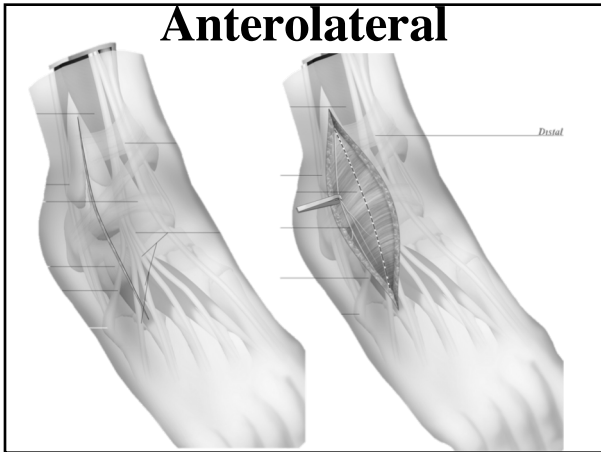
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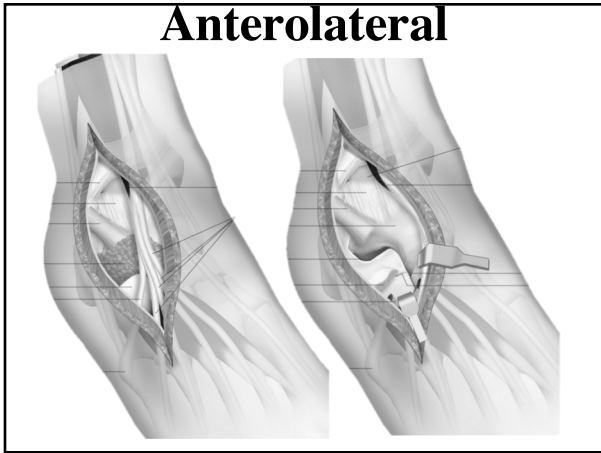
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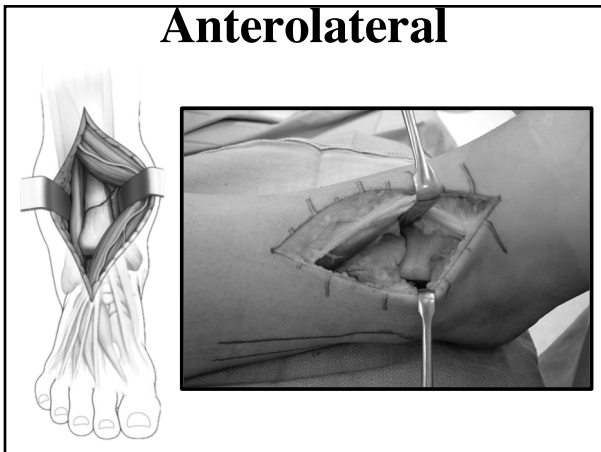
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**Example**



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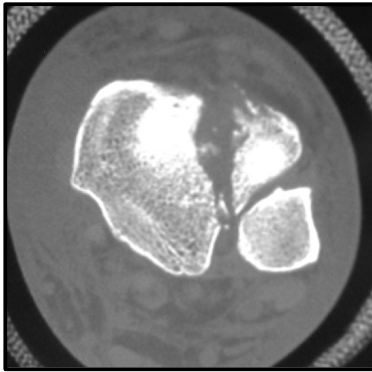
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**CT**



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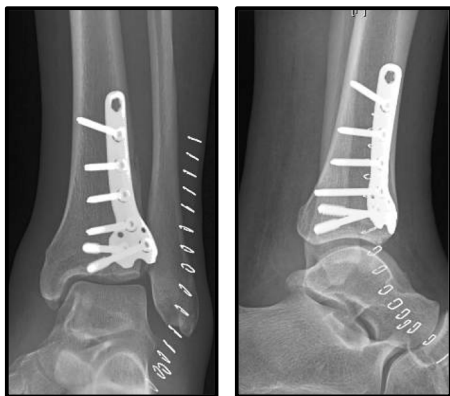
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**Anterolateral**



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## Trends

### • Incisions

- Different locations
- Multiple

### • Staged approaches

- Fibula → frame → tibia
- Posterior → anterior




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## Multiple Incisions

### • Fasciocutaneous flaps!

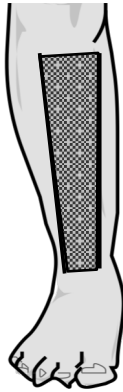
- Bipedicle = 1.5:1 survival

### • 7cm rule...silly

- Shape, not distance!

### • Sliding plates

- Smaller incisions
- Mini-incisions proximally




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## Multiple Incisions

### • Fasciocutaneous flaps!

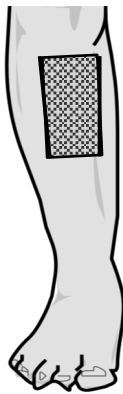
- Bipedicle = 1.5:1 survival

### • 7cm rule...silly

- Shape, not distance!

### • Sliding plates

- Smaller incisions
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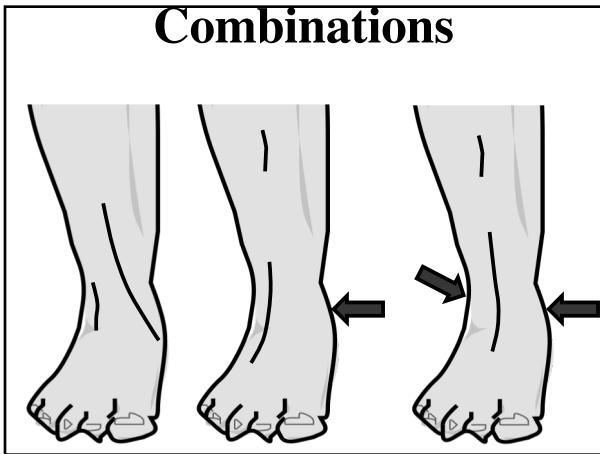
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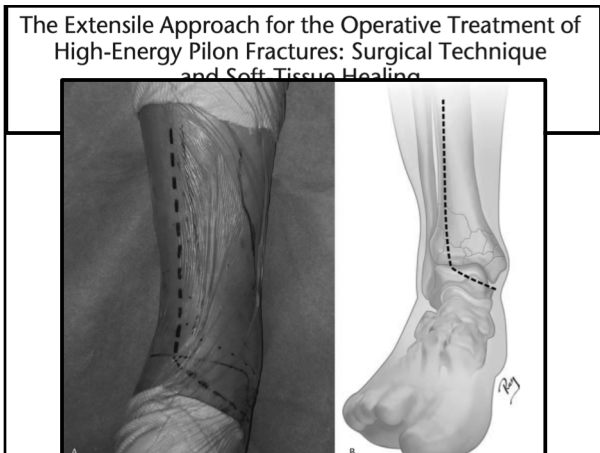
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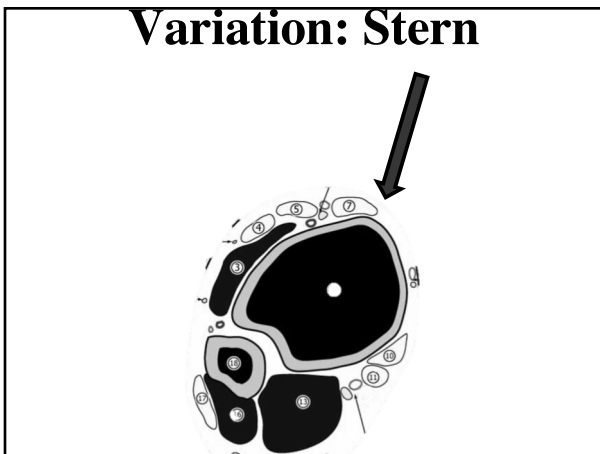
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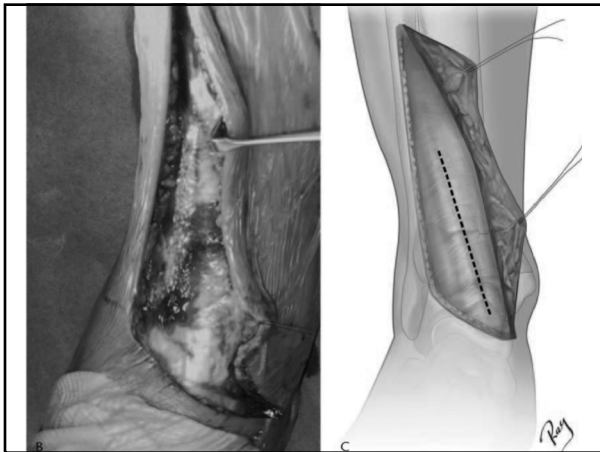
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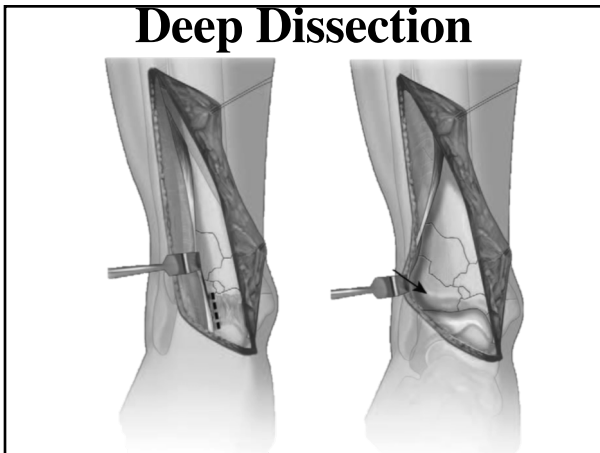
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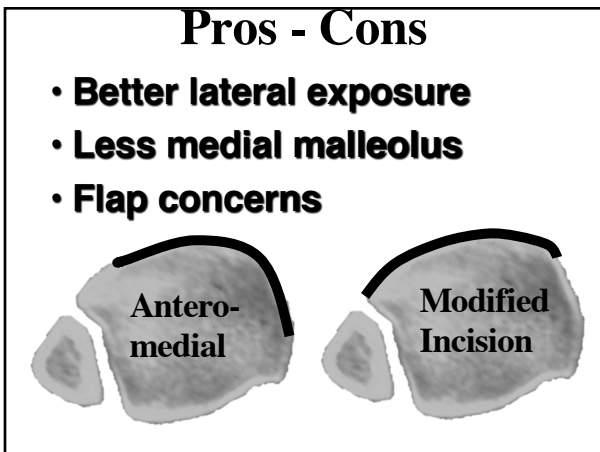
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### Modified Approach



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### CT



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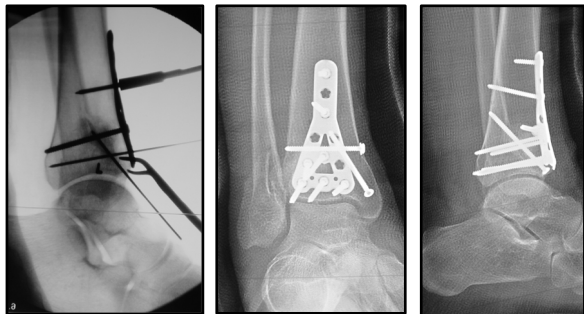
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### Postops



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### Anterior Approaches



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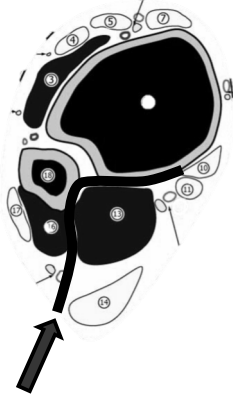
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### Posterolateral Tibia



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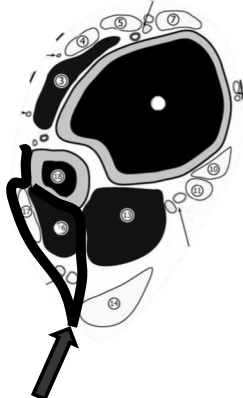
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### Posterolateral Fibula



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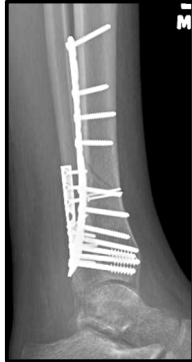
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### Pros - Cons

- **Posterior exposure**
- **Fibula, too**
- **Extensile to tibia**
- **No Medial access**



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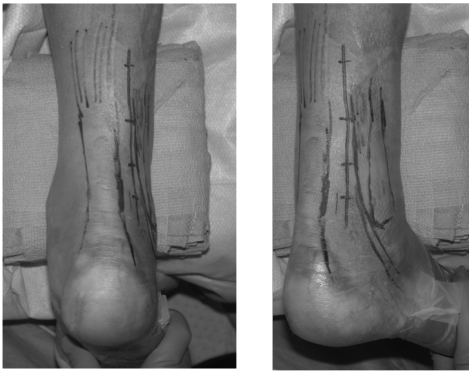
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### Posterolateral



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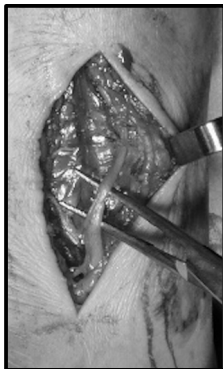
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### Sural Nerve



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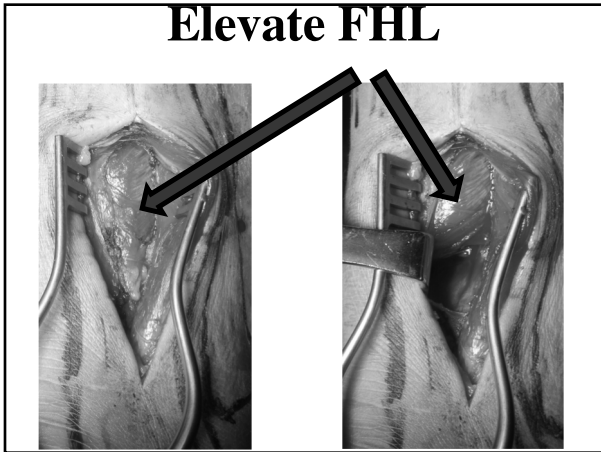
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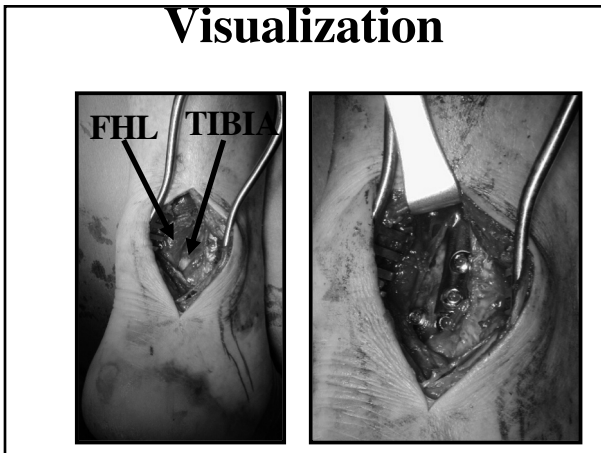
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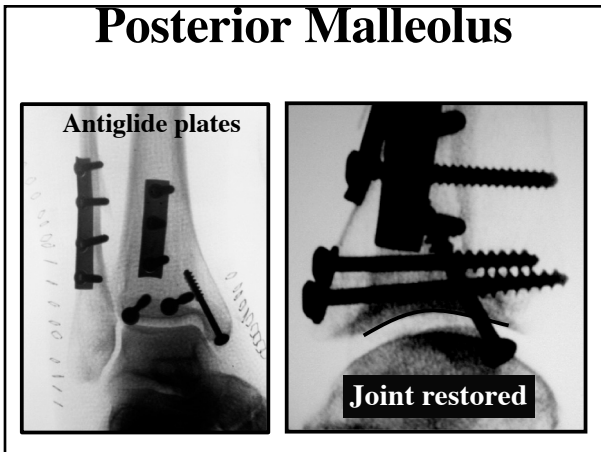
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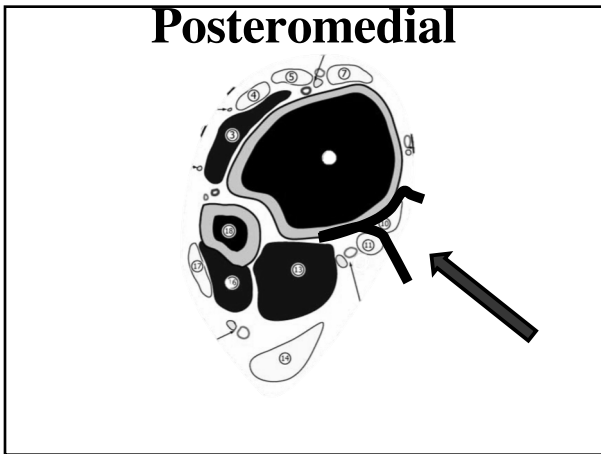
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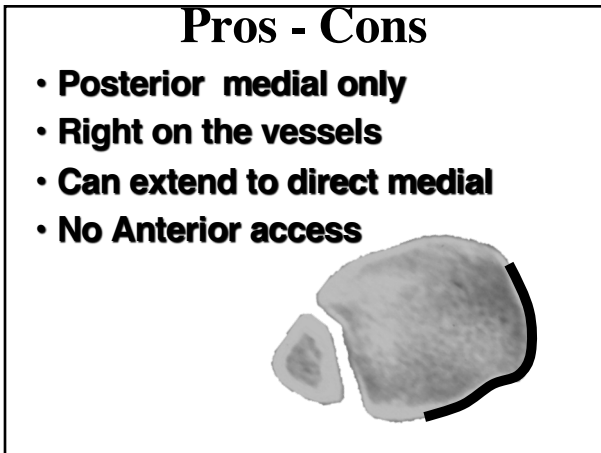
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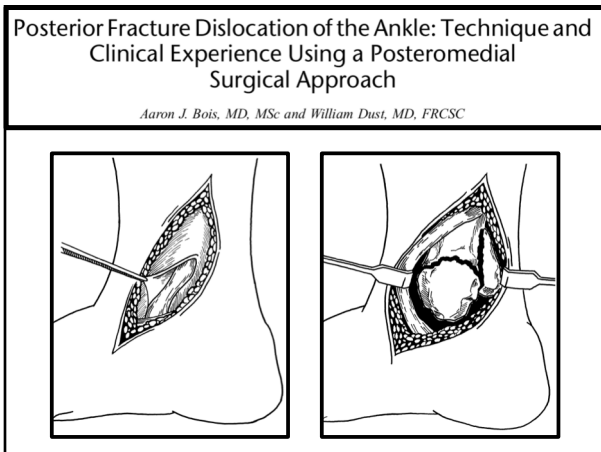
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### Different Plane



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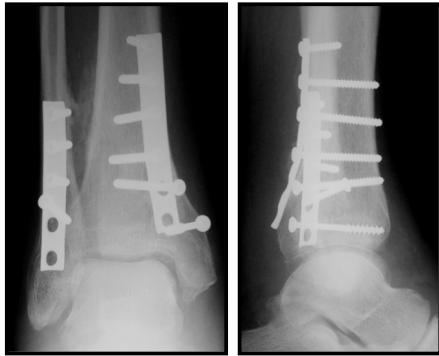
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### Union



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### Minipilon



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### Posterolateral Plate



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### Ankle → Mini-Pilon

- When is it a pilon?
- Real instability
- Impaction
- C-type fracture



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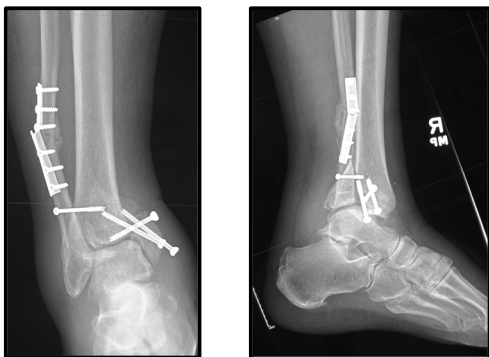
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### 67 yo Man @ 14 weeks



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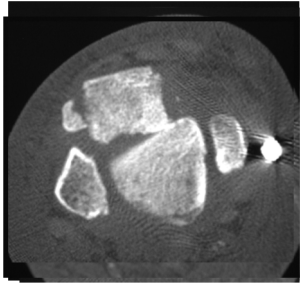
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**CT's**



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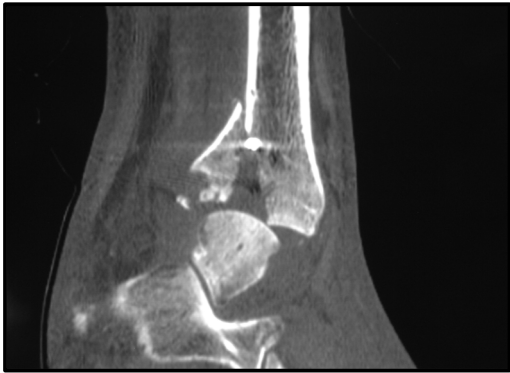
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**CT**



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**Intraop**



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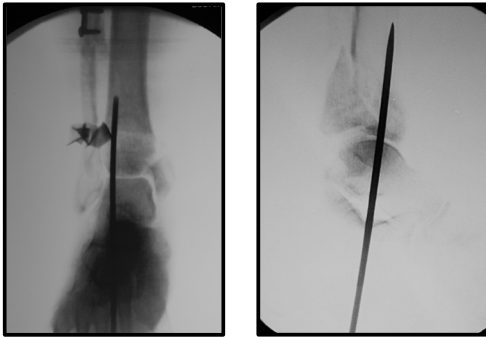
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### Transfixion Pin



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### Posterior Support



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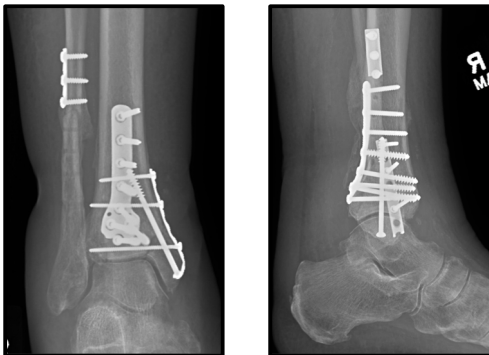
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### 6 Months



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### Staged Approaches

- C-Type
- Posterior subluxation
- No posterior support
- Hard to get to the back
- Rotated out
- Short and tilted backwards



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### 61 Year Old Male



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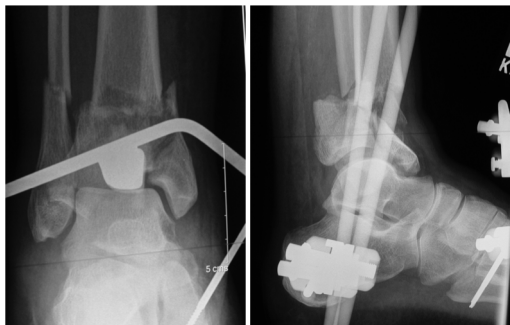
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### Frame Then CT



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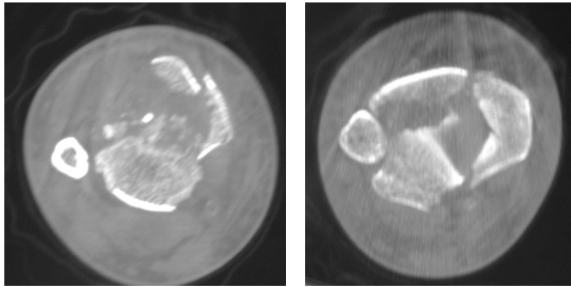
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### CT



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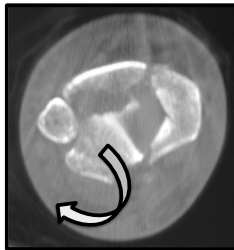
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### Factors??

- Fragments?
- Anterolateral?
- Medial?
- Posterior?
- Amount of displacement
- Direction of displacement



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### Options

- Anteromedial + lateral ?
- Anteromedial + PL ?
- Stern + PL ?
- Direct anterior ?
- Posterior + anterior ?



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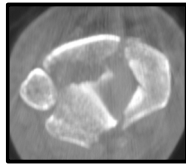
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## Approach

### • Posterior

- ORIF posterior malleolus
- ORIF fibula
- Concerned about getting the PM
- Rotationally difficult!
- BUT...can't box out the front!!



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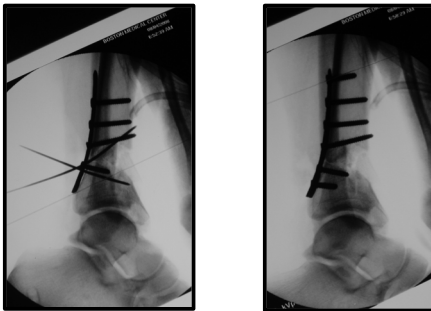
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## Intraop..Stage 1

### • At 2 Weeks



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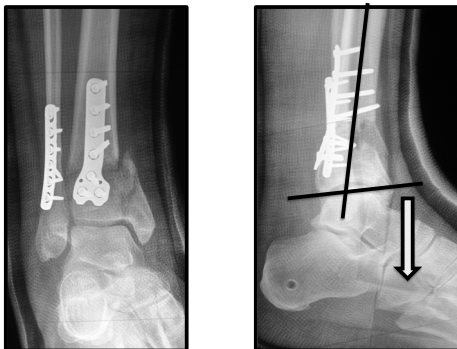
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## After Stage 1



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## Stage 2

- **3 Weeks out**
- **Antero-medial approach**
- **Skin Bridge large**
- **Allows for fixation of the MM**
  - **Anterior buttress**
  - **Medial buttress (multifragmentary)**

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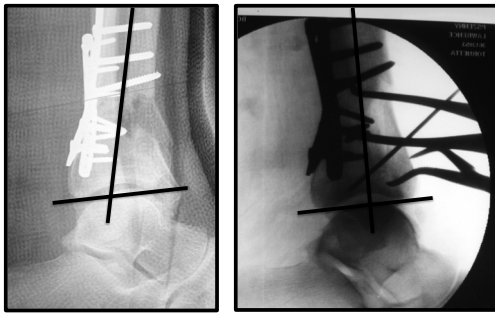
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## Intraop



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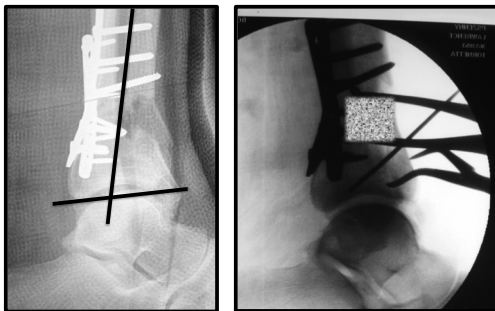
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## Intraop



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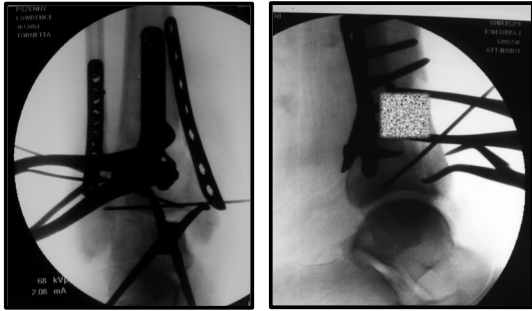
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### Intraop



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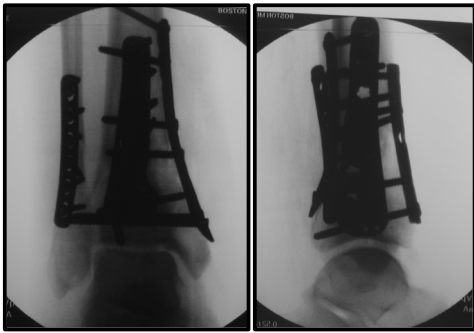
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### Medial and Anterior



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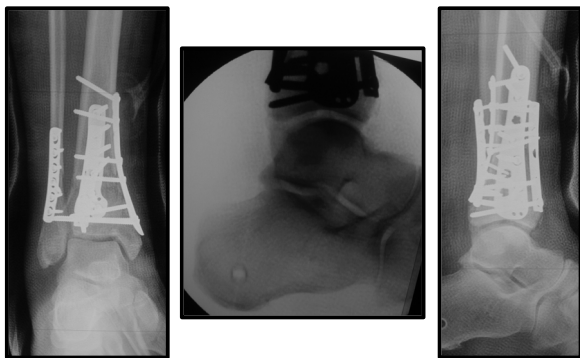
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### Final Joint



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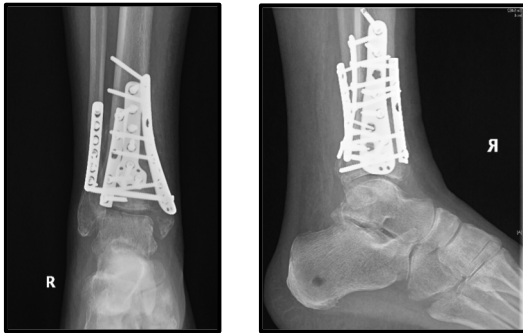
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### One Year



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### Another Example



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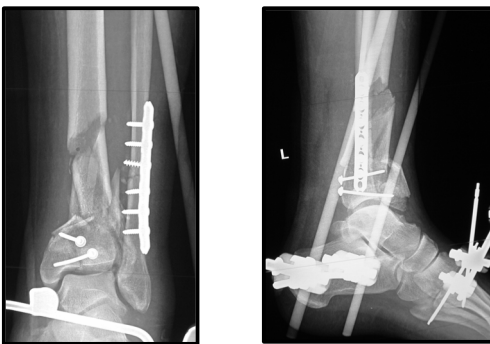
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### Posterior First



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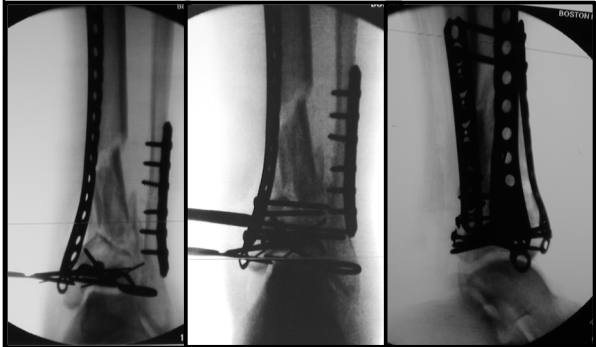
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### Then the Front



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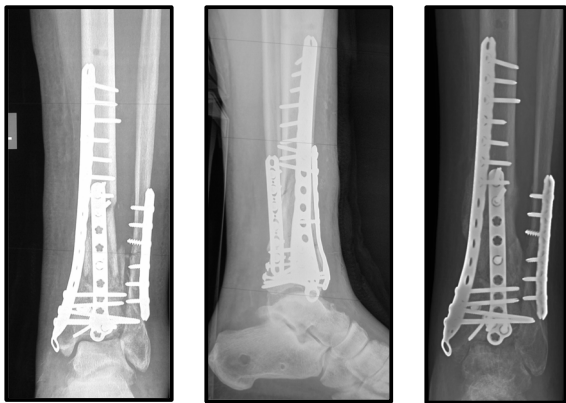
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### Posts...



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### Trends

- ⬆ Anterolateral use
- ⬆ Multiple smaller incisions
- ⬆ Posterior approaches
  - C → A
  - Don't block yourself out!
- Percutaneous longer plates

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## Controversies

- **Not fixing the fibula**

- Multiple plates
- Locked fixation

- **Anterior approaches**

- Modifications

- **Plate location**

- ↑ Anterior and anterolateral



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*Boston Medical Center*

***Thank You***



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