




**fore** Five Tips: Peritroch Fractures

Atlanta Trauma Symposium  
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Grady Memorial Hospital



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### Five Tips in Peritroch Fractures

- 1) Critically understand fracture stability
- 2) Use of tools in your REDUCTION is critical
- 3) Choose Appropriate Fixation
  - Plate Fixation
  - Nail Fixation
- 4) Starting Point for IMN
- 5) Always lock distally

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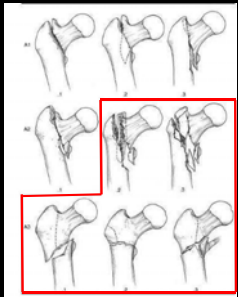
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### What is a peritrochanteric fracture?



AO OTA 31A

- *Inter-trochanteric femur fractures*
- More complex=more unstable
  - Trans-trochanteric
  - Intertroch/Subtroch extension
  - Reverse Obliquity
- Stability guides treatment

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### Factors affecting fracture fixation outcomes

- Surgeon independent
  - Fracture pattern
  - Bone quality
  - Patient comorbidities
- Surgeon dependent
  - Your understanding of the fracture pattern
  - Quality of reduction
  - Implant choice
  - Implant position

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### Understand the Fracture

- Stable Fracture Patterns
  - Simple fracture pattern
  - Standard obliquity
  - Amenable to compression across the fracture (after reduction)

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### Understand the Fracture

- Unstable Fracture Patterns
  - Large/comminuted posteromedial cortex
  - Subtrochanteric extension
  - Reverse obliquity
  - Incompetent lateral cortex

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Understand the Fracture

Stability drives decision making



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Understand the Fracture

- Peritrochanteric Fractures are Biplanar



USE THE LATERAL VIEW!

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Understand the Fracture



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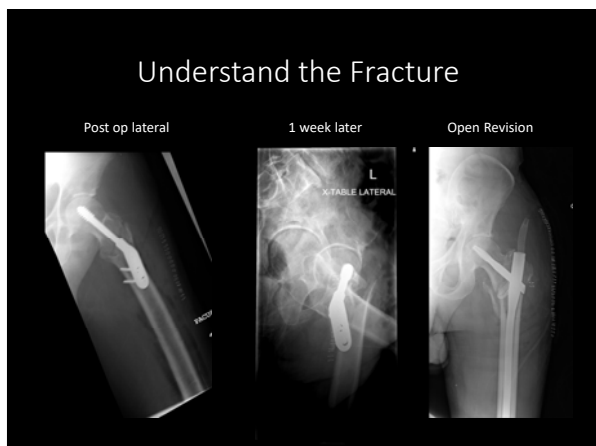
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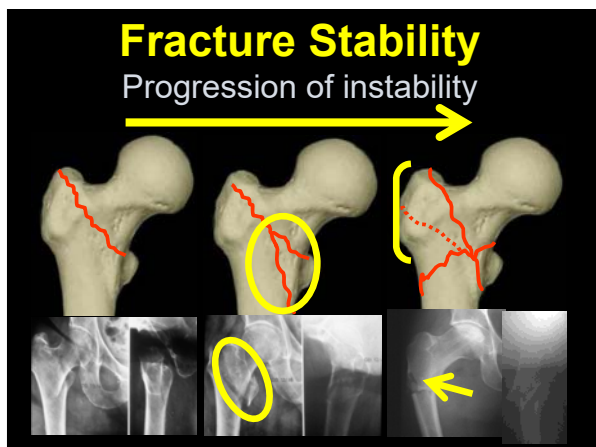
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Integrity of the lateral femoral wall in intertrochanteric hip fractures:  
An important predictor of a reoperation

PaIm, et al; JBJS: 2007

- 214 pts intertrochanteric fracture treated with 135 sliding hip screw
- 3% with lateral wall intact post-op had reoperation
- 22% with fractured lateral wall post-op had reoperation

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## Fracture Pattern

- Obtain a Traction view

- Does the fracture?

- Involve the greater troch
- Violate the lateral wall
- Have medial comminution
- Have subtroch extension
- Have neck extension



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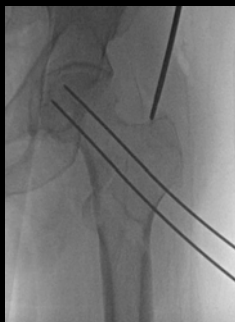
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## Reduction **more** important than choice of implant!

- Correct varus, flexion, external rotation
- The fracture table doesn't always do it
- An open reduction is better than no reduction



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## Deforming Forces

- Flexed
- Abducted
- Externally rotated



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This still occurs in 2017



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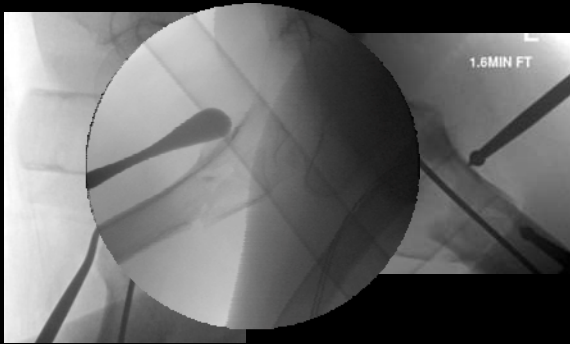
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Reduction, Reduction, Reduction



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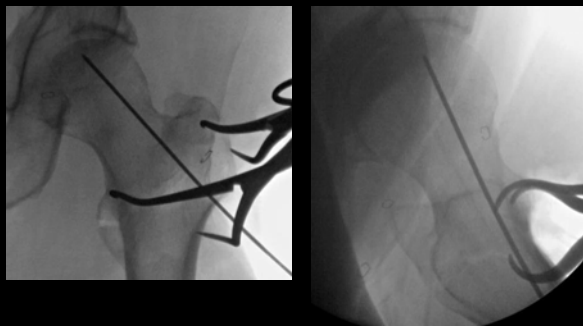
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Reduction, Reduction, Reduction



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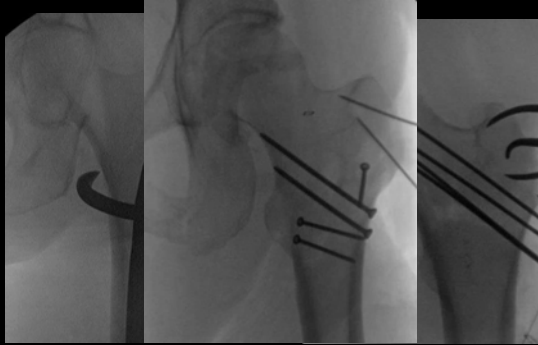
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Reduction, Reduction, Reduction



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Reduction, Reduction, Reduction



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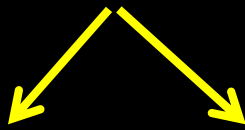
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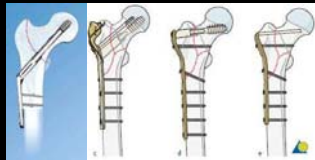
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IMPLANTS



EXTRAMEDULLARY

INTRAMEDULLARY



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## NAIL VS PLATE?

### • Why the trend toward nails?

- Advantages:
  - Biomechanical advantage
  - Percutaneous technique
  - Decreased OR time
  - Protects the shaft
- Disadvantages
  - Abductor mechanism
  - Reaming
  - Expensive
  - Iatrogenic fxs



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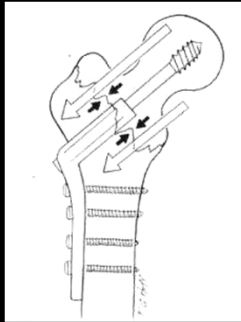
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## SLIDING HIP SCREW: NEED A BACKSTOP



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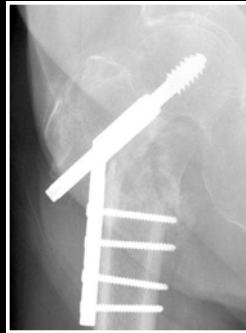
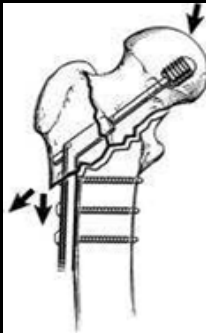
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## CONTROLLED COLLAPSE: WHY IT FAILS



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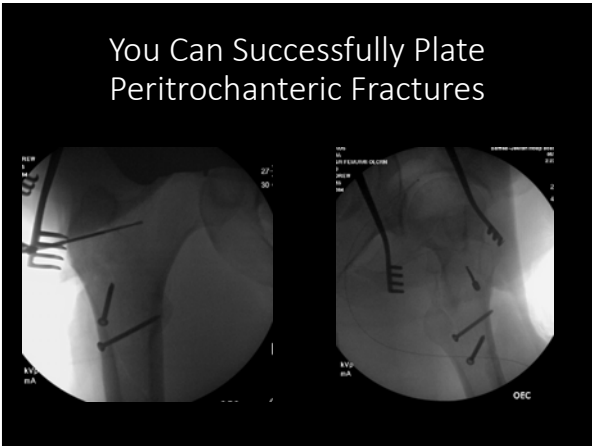
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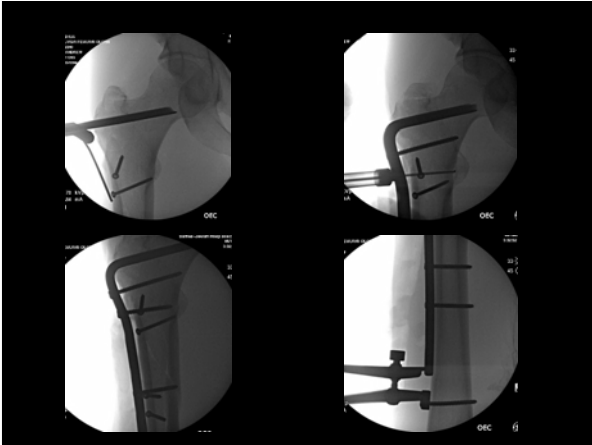
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### WHY IS A NAIL BETTER FOR MORE UNSTABLE PATTERNS?

- Shorter lever arm
  - Decreased strain on implant
  - Decreased bending moment on lag screw
- Load sharing
- Can span zone of injury
- Cortical substitution

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## Reduction Remains Key

- No Varus
- Do not accept poor reduction
- Remember deforming forces




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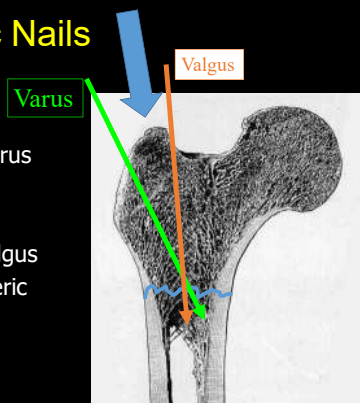
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## Trochanteric Nails

- Lateral start → Varus
- Medial start → Valgus  
Medial Trochanteric Starting Point  
• Toney Russell




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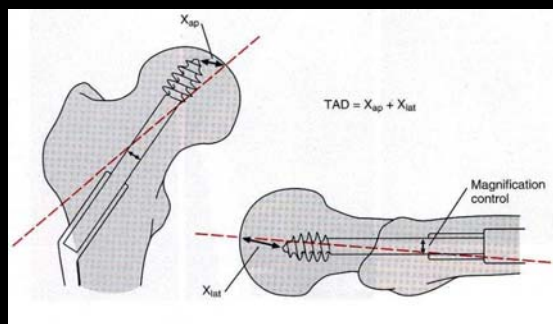
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## Implant application



Tip-Apex Distance (TAD) < 25mm

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