Reverse Obliquity Fractures

Michael J. Gardner, MD
Washington University
St. Louis, MO

Hip Fractures

• Most hip fracture surgery goes well

We can still improve
• ORIF failure ~12-37% in unstable fractures

Failure is costly!
Hip Fractures: Outcomes

- 25% dead at 1 year
- Only 25% return to prior function
- The only place in the body where **MALUNION** is deemed acceptable!
- Some MALUNIONS are expected to have poor outcomes!

**Classification**

AO / OTA 31

- Stable
- Unstable

**Classification**

Reverse obliquity & transverse fractures

AO / OTA 31.A3
### Sliding Hip Screw

- Guided collapse and impaction of fragments
- Screw slides distal-lateral to reach new area bony support
- Reduces stress on implant

![Load-bearing vs load-sharing](image)

### Defining the Injury Pattern

**Reverse obliquity / transverse fractures**

- Relatively uncommon
- “Highly unstable”

### Reverse Obliquity IT Fractures


**Mayo Clinic Experience**

- 55 patients with reverse obliquity IT fracture
- 2% of hip fractures
- Treated with a variety of implants

**32% failed fixation**

- Quality of reduction
  - Anatomic 17%, Non-anatomic 46% (P <0.05)
Conclusions

• “…the quality of reduction and implant selection are important factors determining clinical results for reverse obliquity IT fractures.”
Alternative mechanics

- No bony compression
- Continued sliding

Fixation Principles

Clinical failures

- Deformity & cutout
- Nonunion & failure
- Deformity & nonunion

Fixation Principles

CHS is not the implant for the “reverse obliquity” fracture

- 39 elderly patients with 31-A3 IT fractures
- Randomized study by implant choice
- 95° DCS vs. Proximal Femoral Nail
- Comparable demographic and injury variables

**Results**

- Implant failure and nonunion
  - 5% nails vs. 37% 95° DCS (P<0.05)
- Nails had shorter operative times, less transfusions, & shorter hospital stays vs. DCS

**Conclusions**

- "...IM nails performed significantly better than a 95° fixed angle plate in reverse obliquity fractures in the elderly."
Implant Selection

Nails for reverse obliquity IT fractures

Outcomes

Irgit et al, JOT 2015

"Long cephalomedullary nails remain the preferred treatment option for the treatment of 31-A3 intertrochanteric fractures, demonstrating acceptable complication rates, low reoperation rates, and high rates of healing."

1 yr mortality = 10%

Lateral Wall Fracture

Variant of 31.A3
- Lateral buttress lost
- Instability
- Often occult
- Iatrogenic?
- STAY TUNED
Summary

Beware of reverse obliquity fractures
• Unstable patterns
• High failure rate

• Optimally treated with IM nails
• Poorly treated with a sliding device

Thank You