Case Presentation: Distraction Osteogenesis

Dan Hampton, M.D.
20 year old male presents with right hand amputation after meat grinder accident in a commercial meat processing plant.
Hand surgically reattached
POD 6
Distraction Osteogenesis

Gavriil Abramovich Ilizarov
Ilizarov Technique

• Osteotomy created that preserves periosteum as much as possible
• Proximal and distal fixation blocks typically secured with some combination ring fixators, wires, and/or pins
• Distraction is slow, with approximately 0.5mm of separation per day
• Two basic types
Distraction Osteogenesis

**Intercalary Transport**
- A bone fragment is moved from the proximal fixation site to the distal docking site (or vice versa)
- Does not lengthen the soft tissues
- Proximal fixation block and distal fixation block are stationary
- Useful for complex fractures with devitalized bone

**Non-intercalary Transport**
- The distal fixation block is moved relative to the proximal fixation block
- Stretches soft tissue and results in lengthening of the extremity
- Can apply tension in reverse direction to treat non-union
Intercalary Transport
Non-Intercalary Transport
Complications

Tresley J, Schoenleber SJ, Singer AD, Clifford P. Skeletal Radiol Skeletal Radiology 44.2 (2014): 179-95
Complications

Tresley J, Schoenleber SJ, Singer AD, Clifford P. Skeletal Radiol Skeletal Radiology 44.2 (2014): 179-95
Additional Complications

• Infection
• Nonunion at docking site
• Over lengthening
• Soft tissue injury, particularly with lengthening
References
