Olecranon Fractures: Fixation Strategies

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Olecranon Fracture Fixation: Options

- Tension band wiring
- Locked plating
- Intramedullary device
  - Screw
  - Nail

Tension Band Wiring: Pros

- Traditional approach to olecranon fixation
- Most surgeons familiar with technique
- In certain fracture patterns, may be only option
- Low cost of implants
Tension Band Wiring: Cons

- Technically demanding to do well
- Risk of nerve injury if placed bicortically
- Inadvertent PRUJ fixation
- ? Efficacy of tension band concept
- Hardware migration
- High rate of symptomatic hardware, removal

Tension Band Wiring

Case courtesy of Ray Pensy, M.D.
Tension Band Wiring: Tips

- Directed into anterior cortex rather than intramedullary decreases risk of migration
- Check multiple views, intraop rotation to avoid impinging on PRUJ
- Insert to depth, back up, bend, cut, re-insert with needle driver/tamp
- Figure of 8 wire, good tensioning technique
- Wire may be used to “gather up” posterior comminuted fragments

Locked Plating: Pros

- Very stable fixation
- Improved anatomic contour with new implants

Locked Plating: Cons

- Poor soft-tissue envelope frequently leads to complications
  - Prominent hardware, removal
  - Wound breakdown
- Limited screw/fixation options
- Hardware “traffic”
- Expensive
Locked Plating

Case courtesy of W. Andrew Egleseder, M.D.

Locked Plating

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Locked Plating: Tips

- Use with caution
- Prepare patient for likely hardware removal
- Consider costs
Intramedullary Nail: Pros

- Theoretically, very stable fixation
- Should have low incidence of symptomatic hardware
- Certain designs provide for coronoid fixation if needed
- May be combined with other fixation strategies (unicortical mini-frag plating)

Intramedullary Nail: Cons

- Technically difficult
- Lack of surgeon familiarity
- Expensive
- Limited indications

Intramedullary Nail Case courtesy of W. Andrew Egleseder, M.D.
Intramedullary Nail

Case courtesy of W. Andrew Egleseder, M.D.

Intramedullary Nail: Tips

• Pick indications carefully
• Know implant system
• Consider costs

Intramedullary Screw: Pros

• Preferred technique at STC
• Versatile, applicable to all but the most comminuted patterns
• Can provide raft support of articular impaction
• Low incidence of hardware prominence/removal
• Excellent compressive capacity
• May be combined with other techniques (tension band wire, unicortical mini-frag plates)
• Very inexpensive
Intramedullary Screw: Cons

- Technically demanding
- Frequently requires unicortical mini-frag plating to prevent malrotation
- Bad rap in the literature
  – Based upon bad data (short screws)

Intramedullary Screw

Case courtesy of W. Andrew Egleseder, M.D.

Intramedullary Screw

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Intramedullary Screw: Tips

• Go long or go home! Intramedullary purchase key for compression, success of technique
• Use unicortical mini-fragment plates to control rotation, buttress medial/lateral comminution
• Remember anatomic bow of ulna
• Use washer!

Intramedullary Screw: Tips (cont’d)

• Drill with 4.5 mm drill
• Tap with calibrated 6.5 mm tap. Also acts as depth gauge for screw length. High resistance to tap indicates adequate length, purchase with intramedullary cortex.
• Have 7.3 cannulated screws available for larger ulnae, patulous canals
Olecranon Fracture?

Just Screw It!