Proximal Humeral Fractures: Innovative Plating Strategies

Michael D McKee, MD, FRCS(C)
Professor, Division of Orthopaedics
Department of Surgery,
St. Michael’s Hospital and the
University of Toronto, Toronto,
Canada

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General Problems

- We still aren't sure who benefits from an operation, especially in the elderly
- Locked plating not as successful as was hoped
- Secondary reconstruction (hemiarthroplasty) not as good as primary intervention
- Few high quality studies to guide treatment
Philos...

• Angular stable
• Locking screws
• Anatomic

Problems

How to Maximize Success with ORIF

• 1. Calcar reduction
• 2. No varus
• 3. Calcar screw
• 4. Suture greater tuberosity
RCT's of Proximal Humeral Fractures
Operative versus Non-operative

- Olerud 2011 – 60 pts, mean age 74, 2 yrs f/u
  - Constant score Non-op 59, OR 61

- Fjalestad 2012 – 50 pts, mean age 73, 1 yr fu
  - Constant score Non-op 33, OR 35

- PROFHER study, JAMA, 2015, 231 patients
  - Oxford scores 39 surgical, 38 non-op

Ontario 2007-2012

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Locking plates: Complications


- 121 patients referred after failure of PHLP
- Mean 3 complications
- 1.5 revision surgeries per patient
- Screw cut out in 57%, glenoid wear in 33%

“Glenoid destruction by locking screws was the most devastating and previous almost unseen complication, which limited the options of treatment”
Trends and variation in incidence, surgical treatment, and repeat surgery of proximal humeral fractures in the elderly.


- Incidence the same but operative intervention increased 25%
- Variation: 0% to 68% treated surgically
- Reoperation rate 1.5 times higher in 2004-2005 compared to 1999-2000

1999-2000 2004-2005

50% higher reoperation rate
Conclusions

- It is difficult to show that fixation is superior to non-operative treatment in displaced proximal humeral fractures in patients over 65 (?) years of age
- Current proximal humeral locking plates are suboptimal with high failure rates
- Older plate designs have some advantages
- We can / need to improve the outcomes of this group of patients – how?