

International Trauma Care Forum
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Radial head replacement: When and how?

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I. Radial Head

- Important 2 degree stabilizer
- Valgus instability
- Proximal migration
- Posterior translation

II. Assessment of Radial Head Fractures

- Type of fracture
 - Mason I – undisplaced
 - Mason II – displaced partial articular
 - Mason III – displaced complete articular
 - Mason IV – with elbow dislocation
- Associated injuries
 - elbow ligaments
 - interosseous membrane and DRUJ
 - other fractures

III. Mason Type I

- Commonest type
- Splint for comfort for 5-7 days
- Early motion (Holdsworth *Injury*, 1987)
- Longer immobilization means worse results

Notes:

- ORIF not indicated
-

IV. **Mason Type II**

- Partial articular, displaced fractures
- Operative Indications
- Displaced >2-3 mm
- Block to motion
- Can be treated nonoperatively

V. **Mason Type III / IV**

- Fixation is an attractive option

VI. **ORIF Radial Head – results**

- Bunker Td, *Injury*, 1985 – Use of Herbert screw for radial head fractures
- Odenheimer K, *JBJS(A)*, 1979
- Schumeli G, *JBJS(B)*, 1981
- King G, Evans D, Kellam J, *JOT*
- “Experience with open reduction and internal fixation is satisfactory in over 90 percent” *Morrey*, 1993

VII. **ORIF Radial Head – results**

- Carefully selected series performed by experts
- Operative indications obscure
- In 35% of patients (on average), ORIF was abandoned when unexpected comminution encountered intra-operatively.
- Results poor if more than 2 head fragments

VIII. **Fixation – Results**

- Ring, *JBJS(A)*, 2002
- 56 patients with type II or III radial head fractures
- Good results in 15/15 patients with non-comminuted type II fractures
- 11/12 good results in type III fractures with three fragments or less
- 13/14 comminuted type III fractures had a bad result
- 4/15 comminuted type II fractures had a bad result

Notes:

- Associated fracture dislocation compromised results

IX. ORIF of the Radial Head

- Poor results when comminuted or in association with elbow instability

X. Radial Head Replacement

- Moro et al., *JBJS(A)*, 25 pts.
- MEPS score mean 81
- Patient satisfaction 9.2/10
- No implant related comps
- Mean rotation 150 degrees

XII. Radial Head Replacement

- Moro et al., *JBJS(A)*
- MEPS score mean 81
- Harrington et al, *J Trauma*
- Long term results excellent
- Should be metal
- Should be modular
- Vastly improved prosthetic designs/implants available

XIII. Conclusions – ORIF

- ORIF is not indicated for the commonest type of fracture, Mason Type I
- ORIF results poor in comminuted type III fractures
- ORIF results poor with associated dislocations
- ORIF results marginal in comminuted type II fractures
- ORIF not reliable in revision cases or those with late presentation

XIV. Conclusions – Prosthetic Replacement

- Replacement is treatment of choice in revision cases and those with delayed presentation
- Replacement has good results in all type II, type III and type IV fractures
- Replacement has good results with associated dislocations
- Rapid improvement in available prostheses

Notes:

- Optimal design (anatomic / circular / bi-polar) and optimal fixation method (cemented / press-fit / “loose” fit) still unclear
 - Most popular is loose-fit non-anatomic circular design
 - Worse clinical results with press-fit rough stems that loosen (“sandpaper” effect)
 - More research is needed

Notes:
