

TEA for Fractures of the Distal Humerus

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I (and/or my co-authors) have something to disclose.

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TEA - Advantages

- High success rate / low reoperation rate
- Immediate stability
- No bone graft
- Triceps - sparing
- Improved rehabilitation

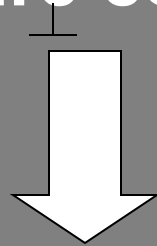




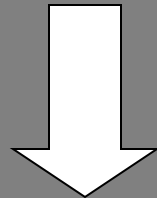


The evolution of TEA for #

Treatment of fracture complications



Treatment of elbow #'s with pre-existing arthritis



Treatment of acute elbow fractures

Total Elbow Arthroplasty as Primary Treatment for Distal Humeral Fractures in Elderly Patients*

BY TYSON K. COBB, M.D.†, AND BERNARD F. MORREY, M.D.†, ROCHESTER, MINNESOTA

Investigation performed at the Mayo Clinic, Rochester

- Cobb, Morrey JBJS(A) 1997
- 21 elbows in 20 patients
- Mean age 72, F/U 3.5 yrs
- 15 excellent, 5 good, 1 ?
- Mean arc 25° to 130°
- 4 complications, 1 revision

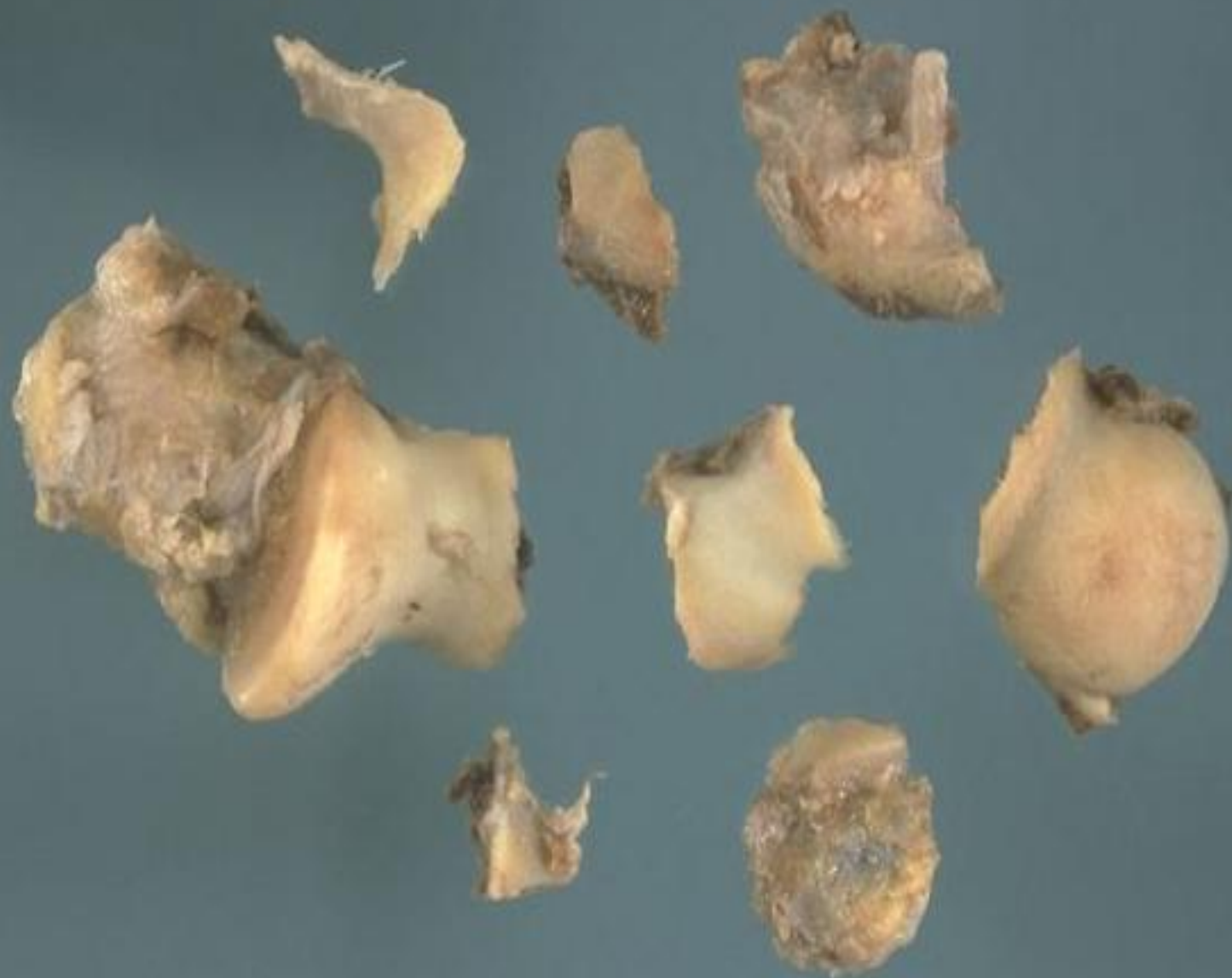


TEA for Distal Humeral Fracture

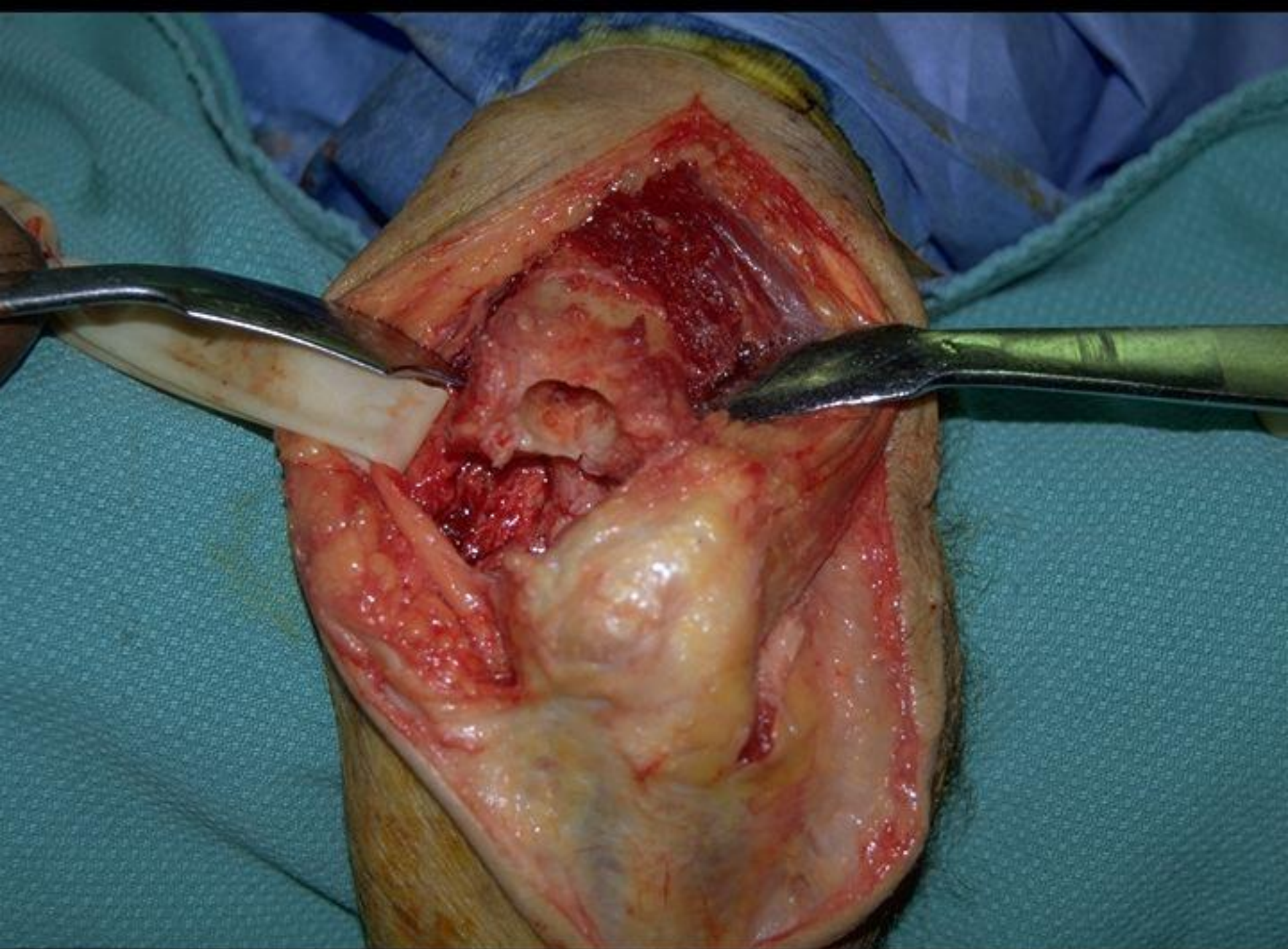
- Frankle M, Sanders R, et al, JOT 2003 “A comparison of ORIF versus 1° TEA in the treatment of Intra-articular fractures of the distal humerus in females greater than 65”
- 12 patients in each group
- TEA - shorter OR time, hospital stay, rehab time
- TEA 11 excellent, 1 good
- ORIF 4 excellent, 4 good 4 poor (3 revisions to TEA)

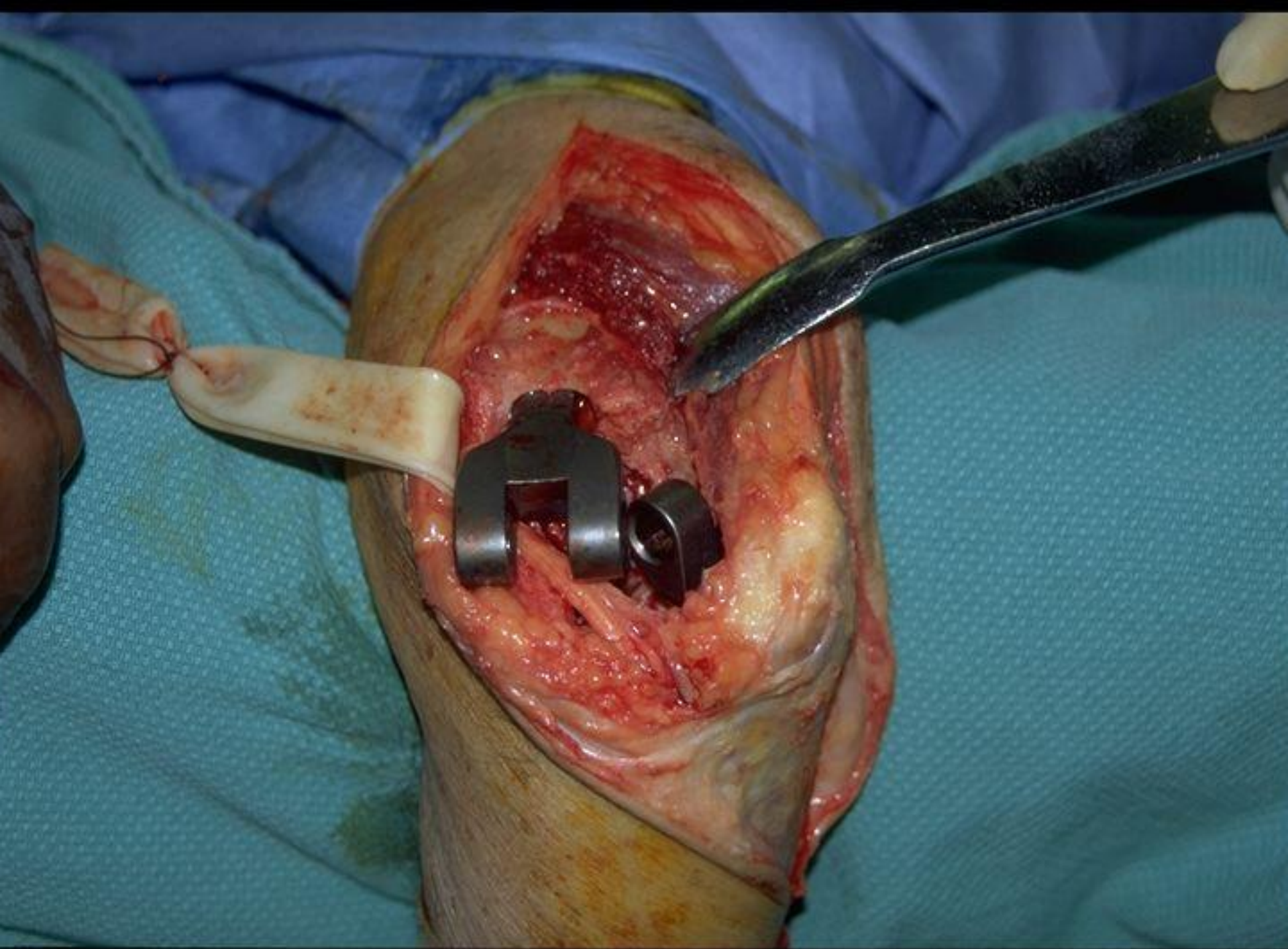


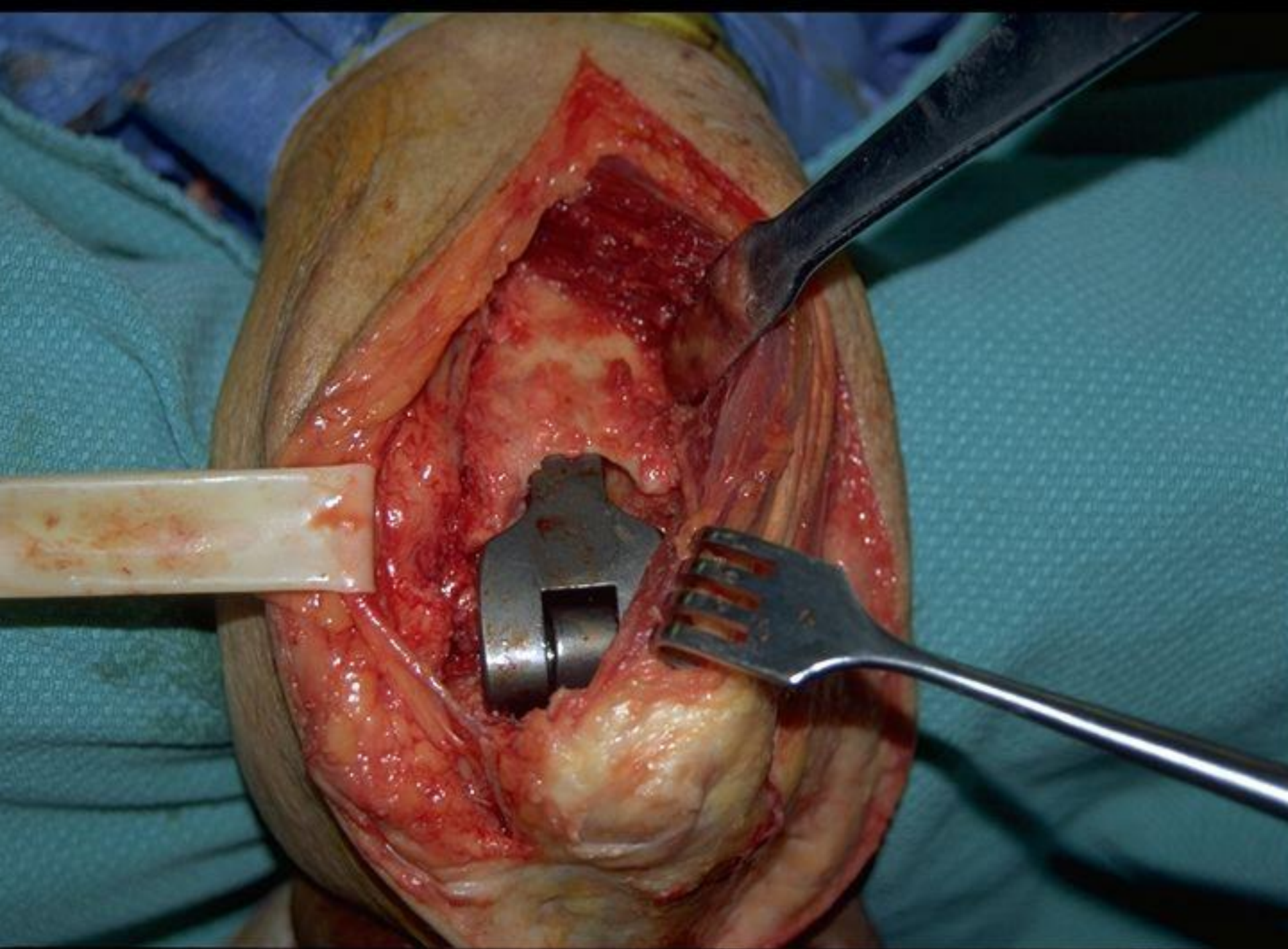




CT M II

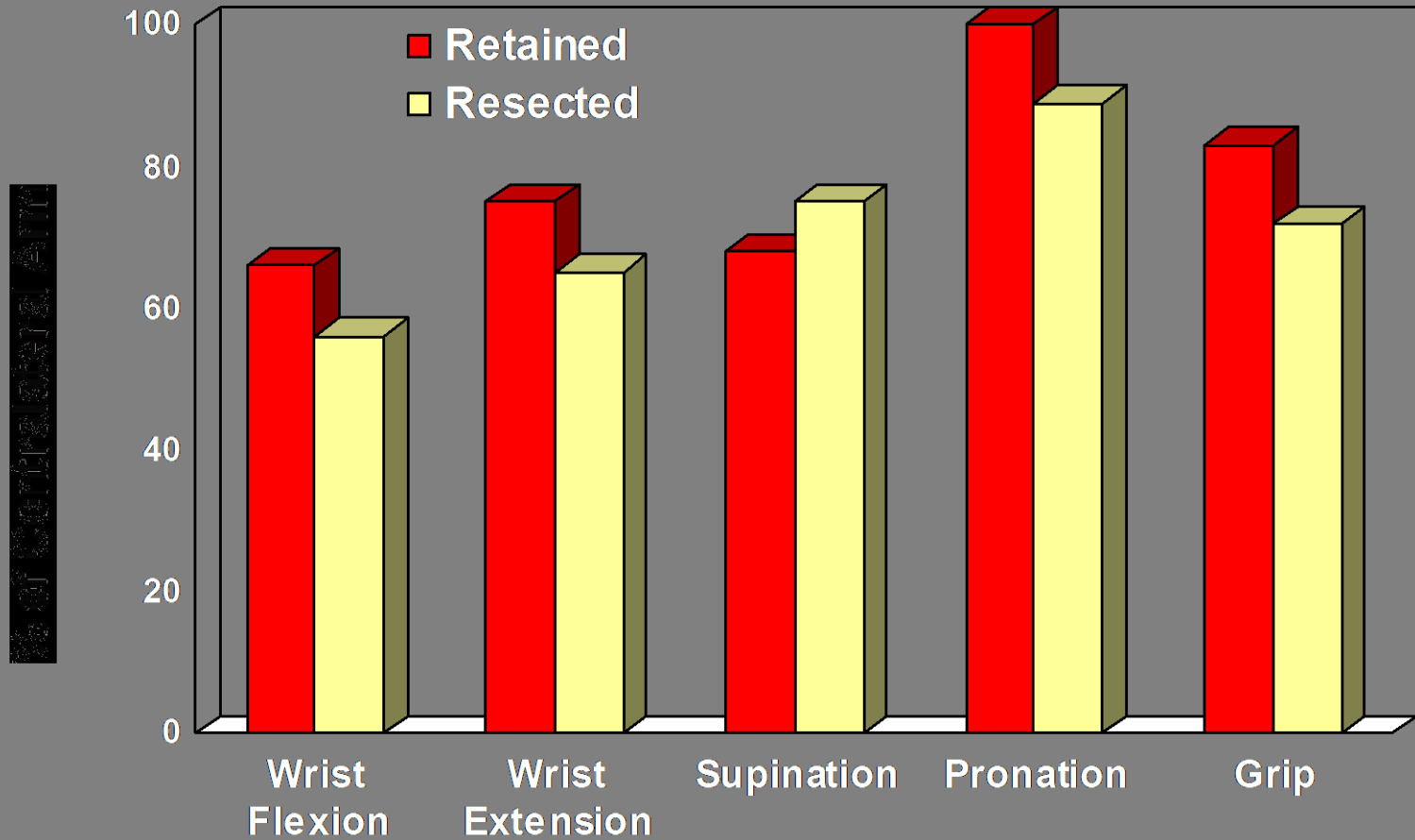








Strength







Evidence Based

- ORIF has complications
- TEA has potential advantages
- Retrospective review suggests TEA > ORIF
- We need a direct unbiased comparison (RCT)

Methods

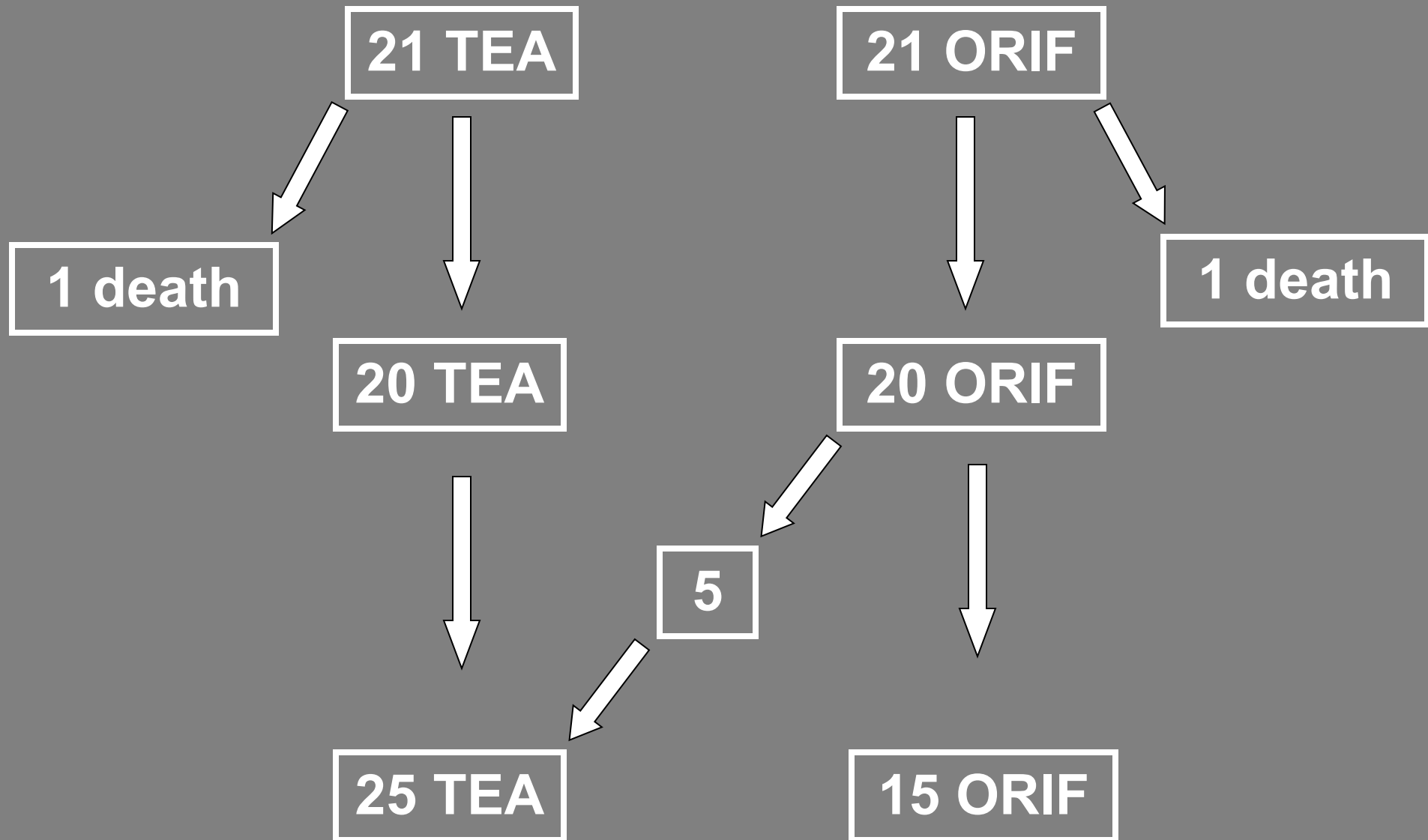
- **Multicenter prospective randomized trial**
- **Inclusion criteria**
 - **Age 65 +**
 - **Displaced, multi-fragmentary intra-articular fractures of the distal humerus (OTA 13 C)**
 - **Closed or Grade I open fractures**
 - **No neurovascular compromise**
 - **No dementia**
 - **Medically well**

Methods

- Randomization by sealed envelope
- ORIF -small fragment plates/screws
- TEA -Coonrad-Morrey cemented
- Intra-operative “bail-out”
 - ORIF → TEA allowed
- MEPS, DASH scores collected
 - 6 weeks, 3, 6, 12 months, 2 years



Treatment Allocation



Results

TEA Group

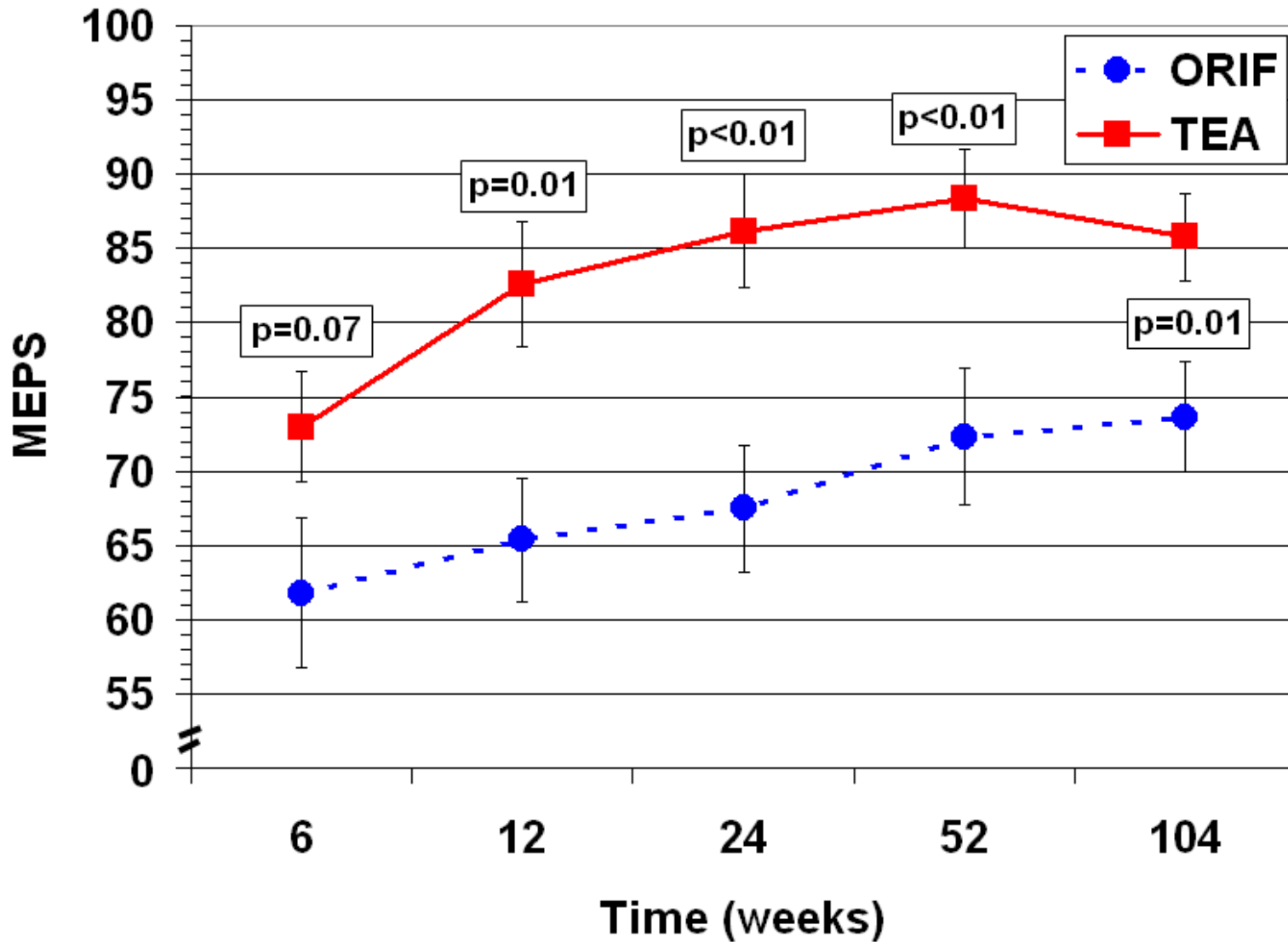
- 25 patients
- 2 male, 23 female
- Mean age 78 years

ORIF Group

- 15 patients
- 3 male, 12 female
- Mean age 77 years

Baseline demographics the same
(i.e. activity, mechanism, # type etc.)

Mayo Elbow Performance Score

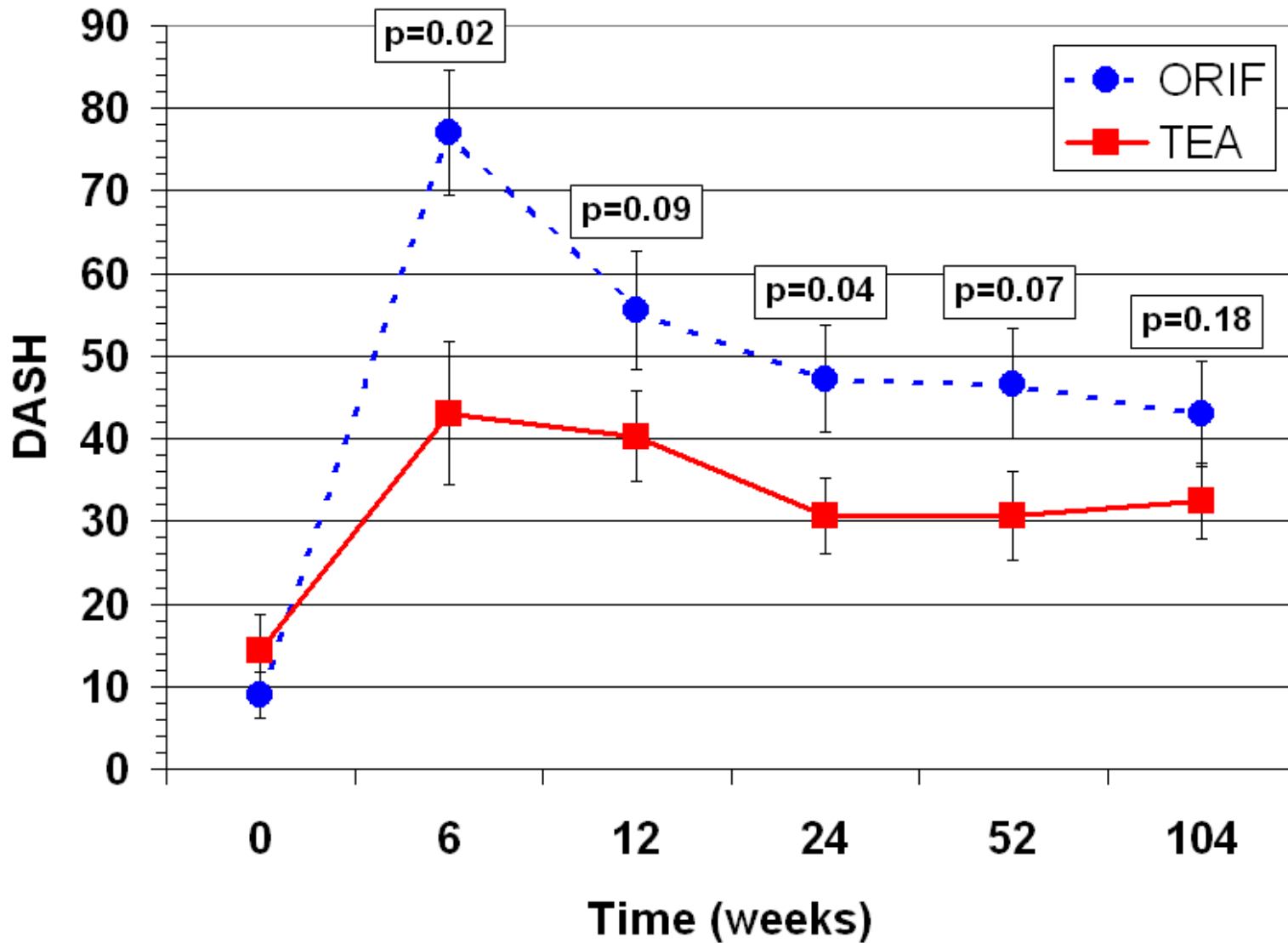


Mayo Elbow Performance Score

	Excellent (≥ 90)	Good (75-89)	Fair (60-74)	Poor (<60)
ORIF	1	7	6	1
TEA	12	9	3	1

P=0.03

DASH



Re-operations

- TEA group (3/25, 12%):
 - 1 elbow release
 - 1 HO excision and neurolysis
 - 1 infection - two stage exchange
- ORIF group (4/15, 27%):
 - 1 revision to TEA (nonunion)
 - 2 hardware removal & release
 - 1 hardware removal & neurolysis

Treatment allocation

21 TEA

21 ORIF

1 death

1 death

20 TEA

20 ORIF

Intra-op crossover

5

25 TEA

15 ORIF

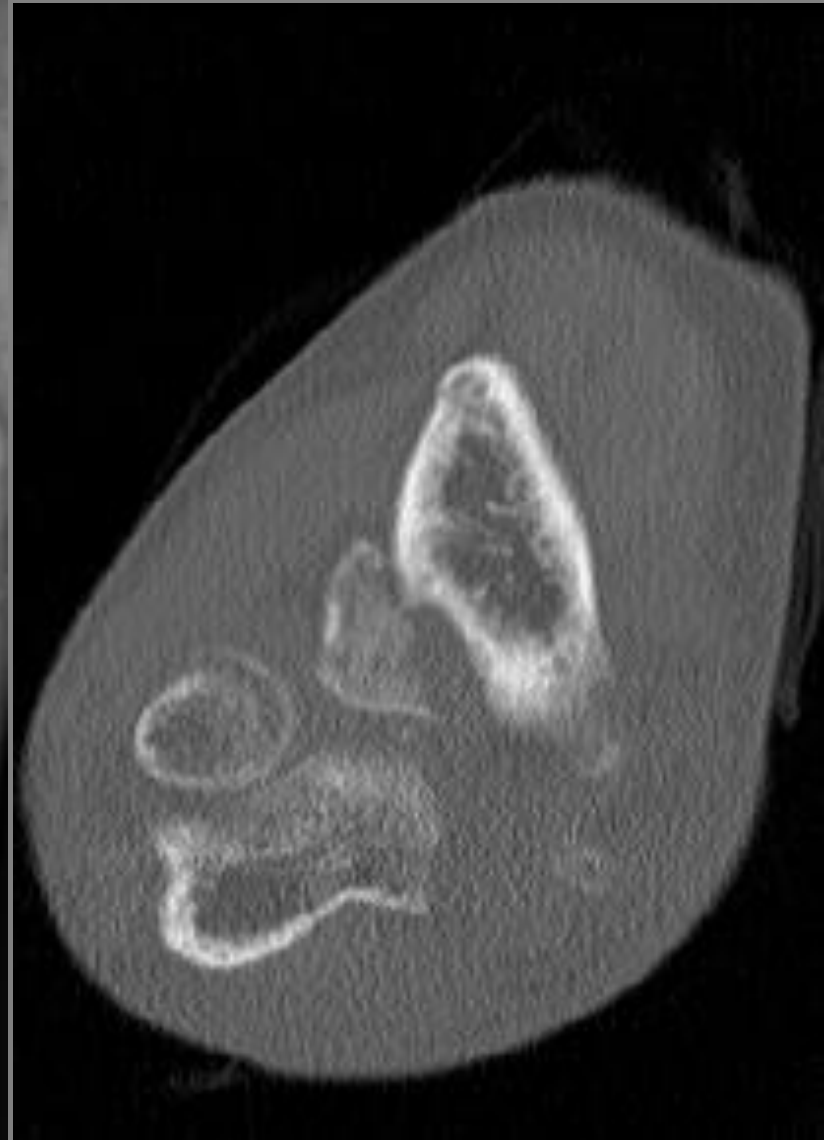
6 lost to long-term f/u (1 revised)

11 died
No revisions

8 alive
No revisions

Long term outcomes @ 9 yrs

92 year old female
Lives by self, active
3 weeks post-injury
Closed, NV intact





Conclusions

- TEA significantly improved surgeon based and patient oriented outcomes
- TEA effective salvage in 25% of cases not amenable to ORIF
- Elderly patients have high DASH scores but seem to accommodate to objective functional limitations

Details – TEA for Fracture

- **Technical skill to do the operation**
- **Displaced, comminuted intra-articular #'s**
- **Patient with some rehab potential**
- **Mean age 78 years – 90% women**
- **Permanent restrictions in activity**