

Operative Treatment of the Terrible Triad Fracture Dislocation of the Elbow

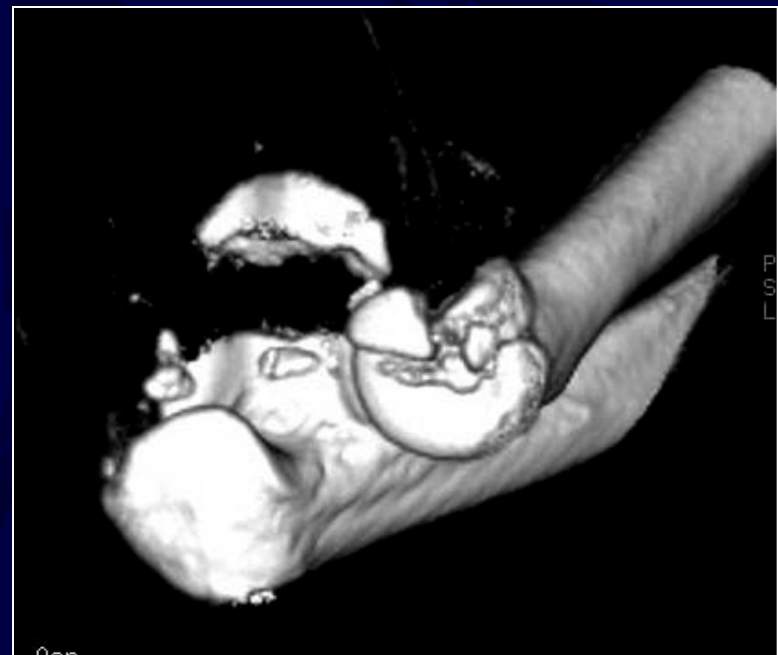
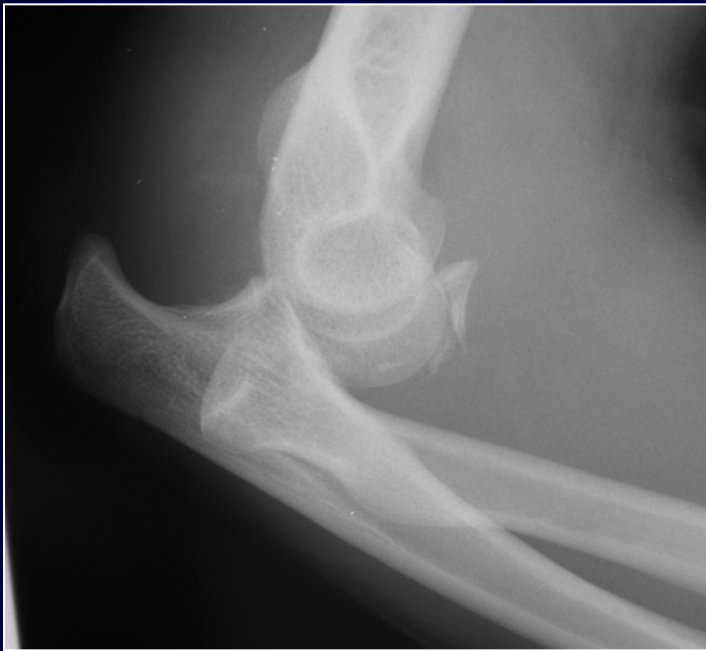
David Ring MD PhD

Terrible Triad

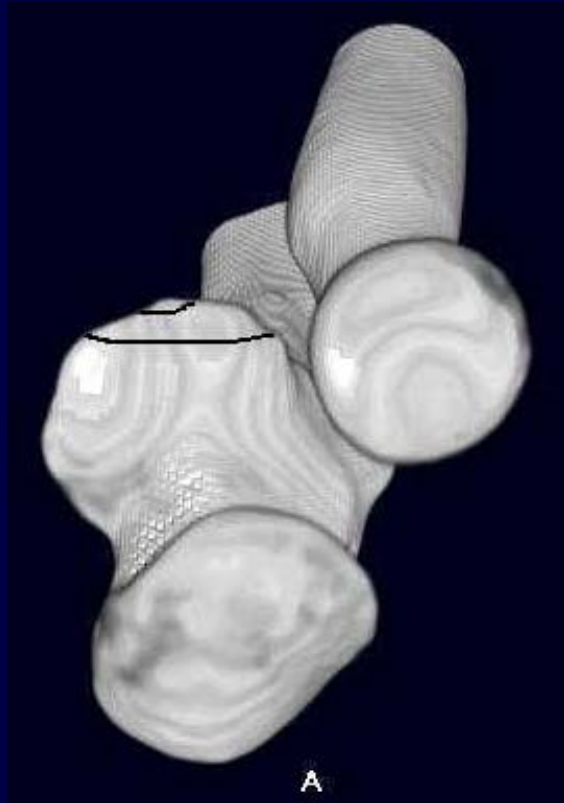
Posterior elbow dislocation

Radial head fracture

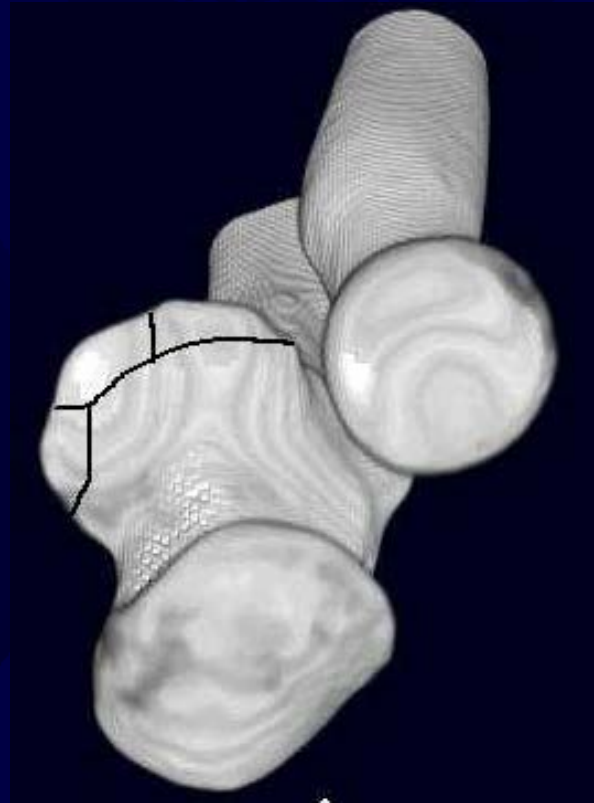
Coronoid fracture



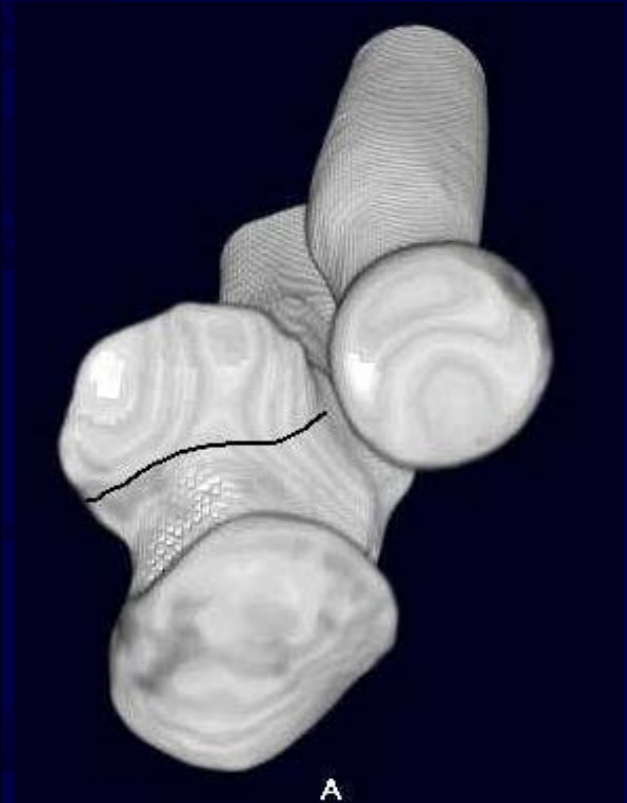
Coronoid Fx: Type 1 by Mayo (O'Driscoll) Classification



1



2



3

Elbow Dislocation with Fracture of the Radial Head

- Repeat dislocation and subluxation are uncommon
- The ligaments heal as long as the joint stays in place
- Results determined by:
 - Elbow motion
 - Forearm motion
 - Can be restricted by malunited radial head fracture

Results of Treatment of Fracture-Dislocations of the Elbow

MARK A. BROBERG, M.D.,* AND BERNARD F. MORREY, M.D.**

- 24 patients
- Elbow dislocation + radial head fracture
- Casted 1 month
- With or without radial head resection
- “Results better than generally thought”
- Secondary procedures for radial head malunion
- No dislocation or subluxation

Dislocations of the Elbow and Intraarticular Fractures

PER OLOF JOSEFSSON, M.D., CARL FREDRIK GENTZ, M.D.,
OLOF JOHNELL, M.D., AND BO WENDEBERG, M.D.

- 23 patients with elbow dislocation
 - 19 with fracture of the radial head alone
 - 4 with radial head and coronoid (terrible triad)
- Excision of radial head and cast
- Radiolocation in all 4 patients with coronoid fractures

That's why it's call the terrible triad

Ring, Jupiter, Zilberfarb JBJS 2002

11 patients with terrible triad

- All Regan and Morrey Type 2 coronoid fractures
 - Anterior capsule attached to fragment
- 7 redislocated in splint or cast
- 5 redislocated after surgery
 - Radial head resection, etc. rather than replacement or ORIF
 - We didn't repair the coronoid or the LCL back then
- Only 4 patients with satisfactory results

Pugh DM, Wild LM, Schemitsch EH, King GJ, McKee MD JBJS 2004

Standard surgical protocol to treat elbow dislocations
with radial head and coronoid fractures

36 Patients

- Routine fixation of coronoid
- Routine fixation or replacement of radial head
- Routine reattachment of LCL to lateral epicondyle

One subluxation



Exercises During Recovery

- Avoid varus stress (shoulder abduction) for 3-4 weeks. Overhead exercises can be helpful.
- Active, self-assisted elbow flexion and extension and forearm rotation are the key. Patients are taught how to stretch themselves. No one should push on them.
- Key: Encourage patients to get into a “healthy stretch” mindset. It hurts, but it helps.

Slight Subluxation

“Drop Sign”

- This is like pseudo-subluxation in the shoulder.
- The combination of extensive muscle and ligament injury and guarding due to pain create a slight sag.
- **IMPORTANT:** distinguish from subluxation that will cause articular damage



Slight Subluxation

“Drop Sign”

Management:

- Avoid varus stress (shoulder abduction)
- Active flexion
- Overhead exercises



Redislocation

Options for treating more severe subluxation or complete redislocation:

- Reattach MCL to medial epicondyle
- Cross pin the joint for 2-3 weeks
- Static or hinged external fixator
- Internal hinged fixator

Example: Cross Pinning



Pearls

- If the elbow was dislocated more than about 10 days be prepared to stabilize the elbow with pinning, external fixation, or an internal hinge.
- Consider HO prophylaxis with NSAIDs

Review Articles for Reference

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Review Articles for Reference

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