FOREARM FRACTURE AND WRIST INJURIES

ANATOMY

Two bones- radius and ulna

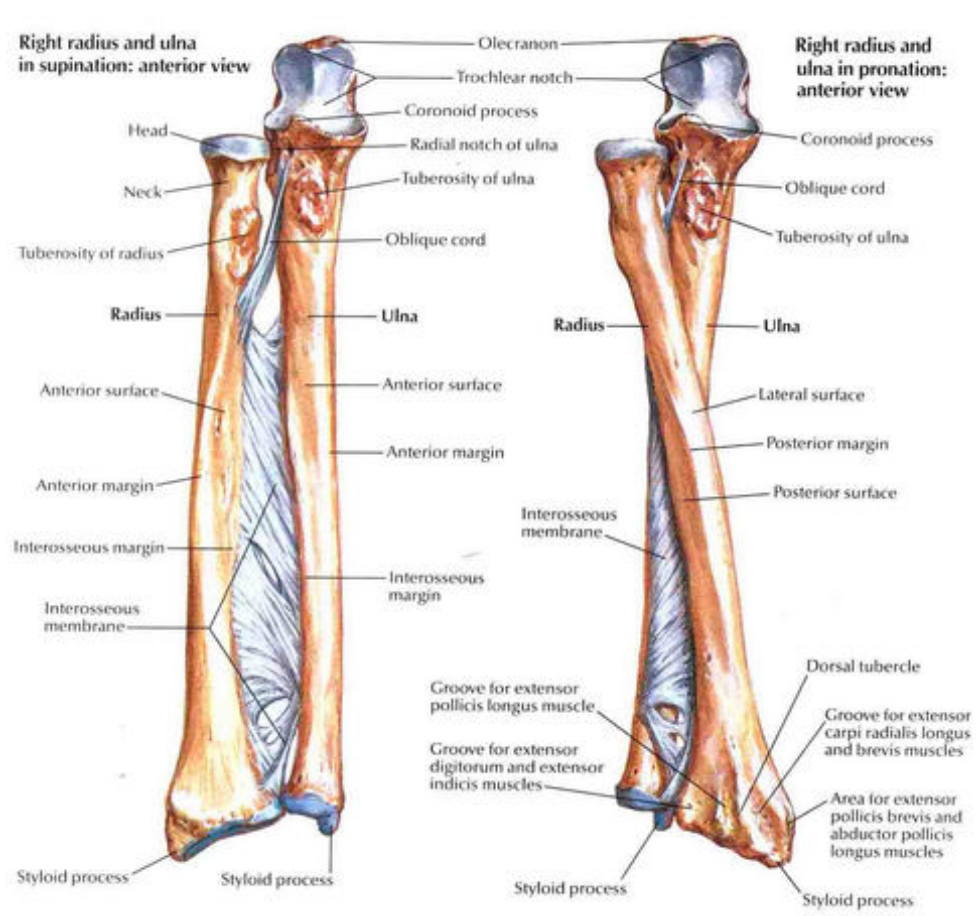
Three joints – superior radio-ulnar joint

inferior radio- ulnar joint

middle radio-ulnar joint
(interosseous memberane)

Two articulations- elbow in proximal part

wrist in distal part



EPIDEMIOLOGY

Common in men then in women

Second most common after leg – cause of open fracture

Causes- road traffic accidents

fall from height

sports injury

MECHANISM OF INJURY

Direct- protecting oneself from injury or assault

Indirect injury-fall on outstretched hand

APPLIED ANATOMY

Forearm acts as a continuous ring

↓

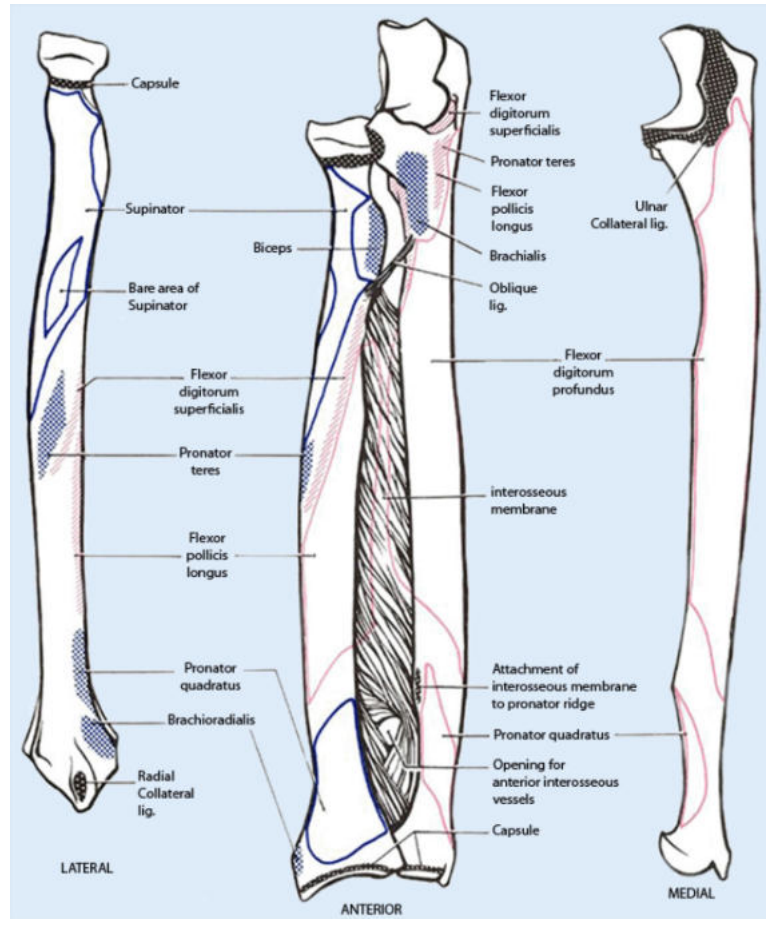
Injury to one bone

↓

Shortening

↓

Fracture or dislocation of other bone



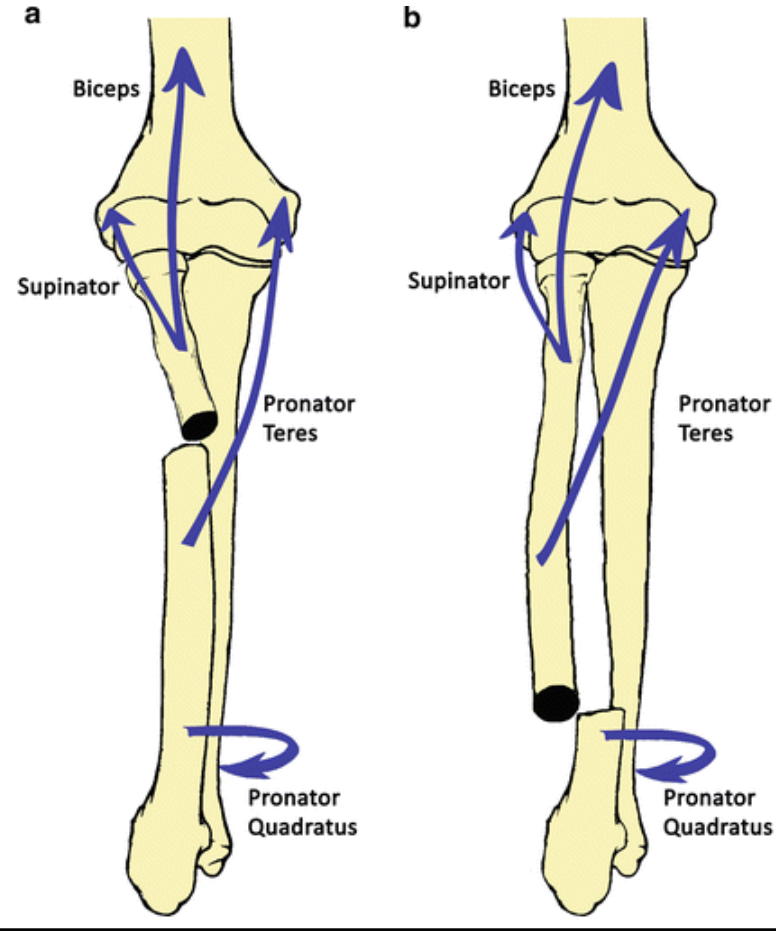
APPLIED ANATOMY

Fracture of radius

Distal to supinator and proximal to pronator teres- proximal segment goes into supination

Middle one-third– neutral position

Distal to pronator quadratus- proximal fragment goes into pronation

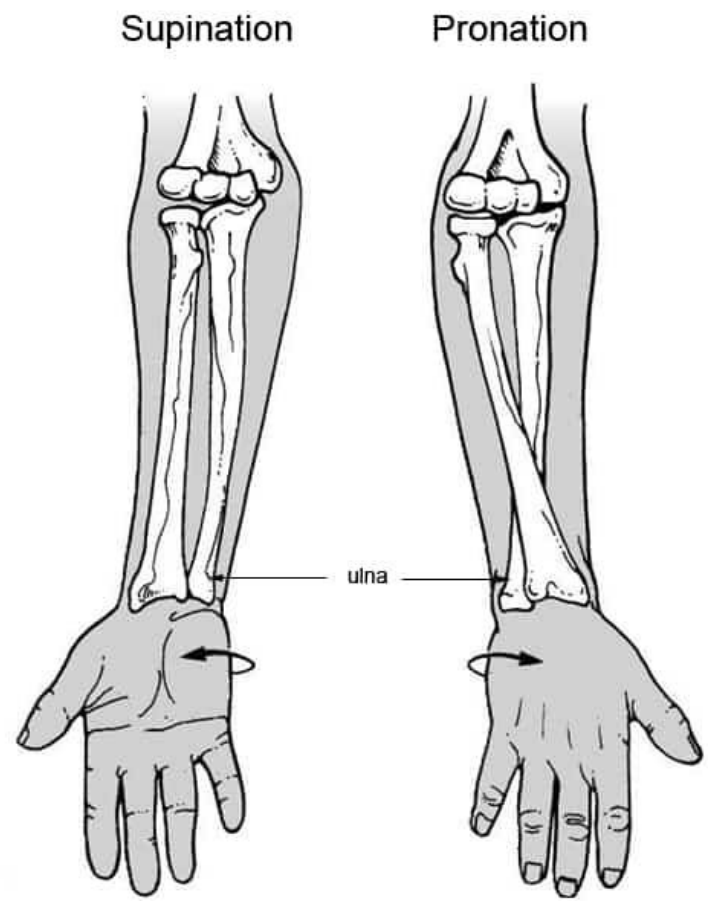


APPLIED ANATOMY

Ulna provide an axis around which laterally bowed radius rotates

↓

Supination and pronation



CLINICAL FEATURES

Pain

Swelling

Deformity

Loss of hand and forearm function

Associated ulnar/ radial artery injury

Associated median/ ulnar/ radial nerve injury

Associated compartment syndrome

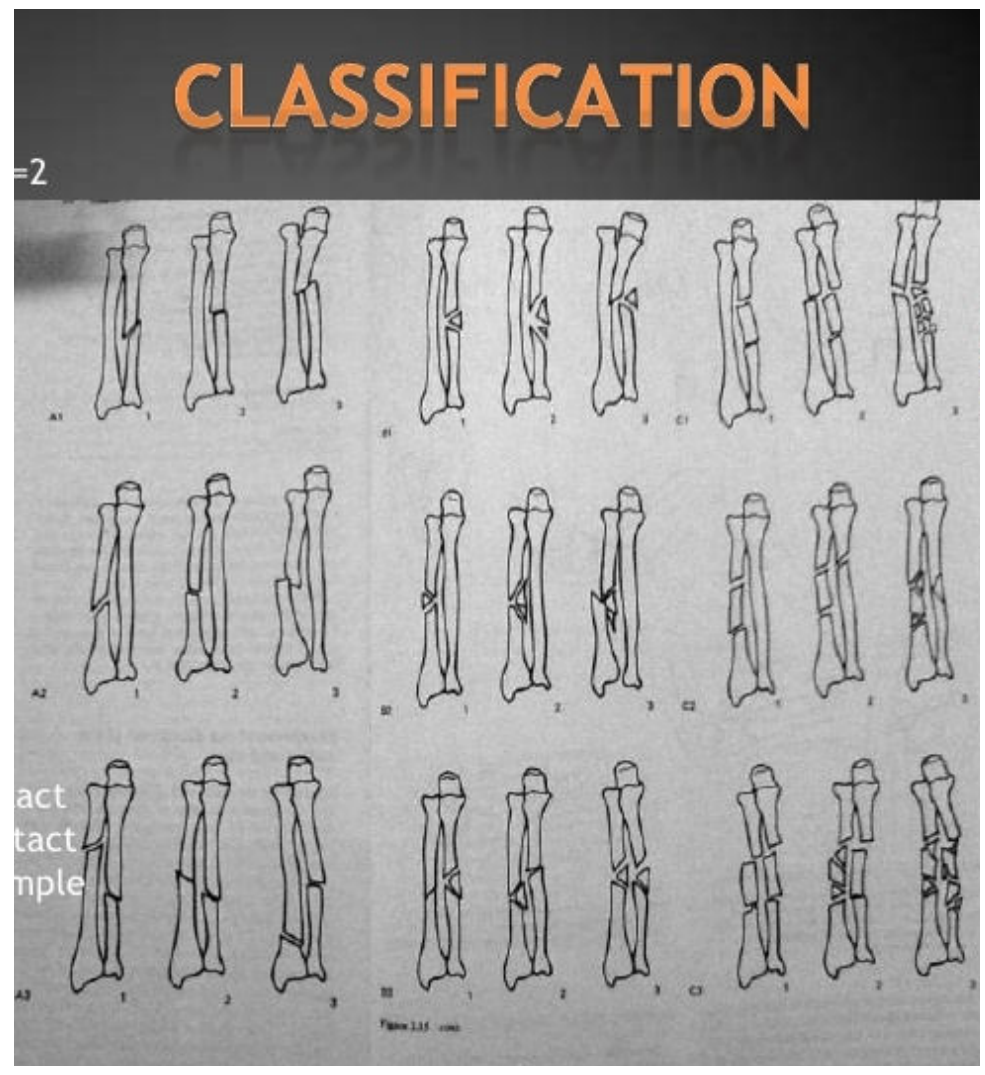
RADIOGRAPHS

Standard AP and lateral views to be taken including wrist and elbow

CLASSIFICATION

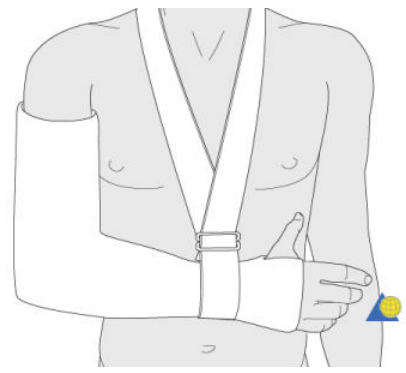
It can be in terms of

- Closed or open
- According to location- proximal third
  Middle third
  Distal third
- Anatomical- transverse, oblique, segmental or comminuted



TREATMENT

Non operative treatment in the form of above elbow cast with elbow at 90^0.



Position of the forearm depended on whether the fracture is in proximal , middle or distal part.

The immobilization was done for 6-8 weeks

TREATMENT

Surgical treatment-

Open/closed reduction and internal fixation with

Nailing

Plating

www.FirstRanker.com

TREATMENT

For open fractures

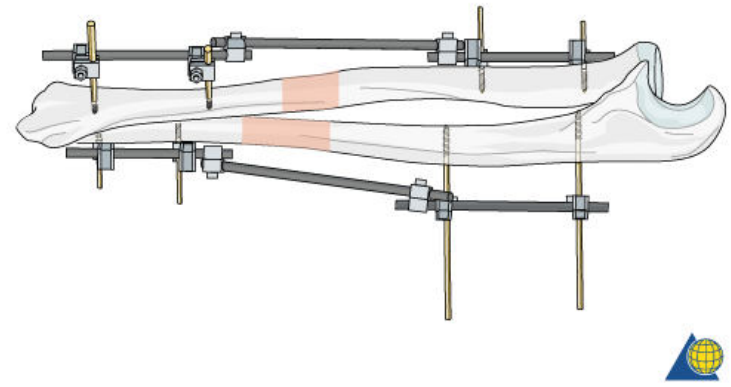
Follow the principle of open injuries

Thorough wash

Debridement

Wound toileting

External fixation/ internal fixation



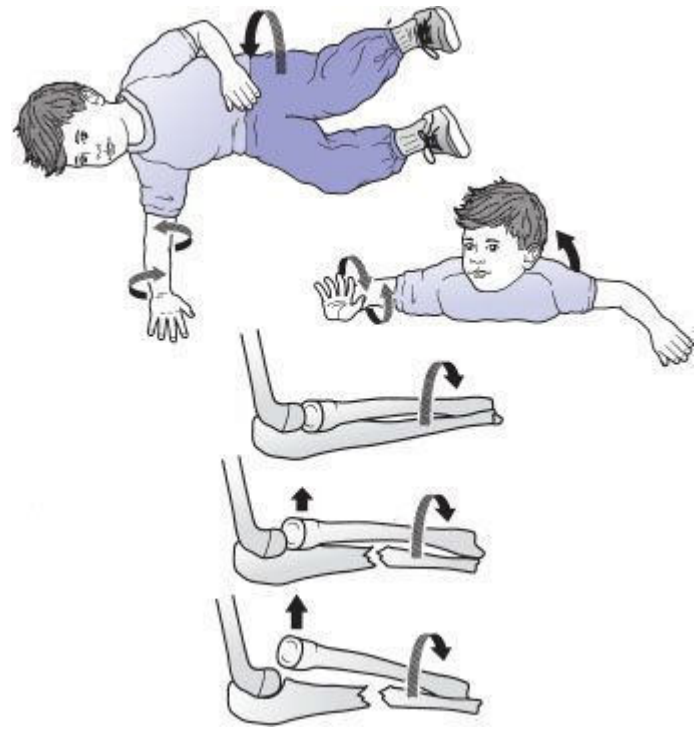
COMPLICATIONS

- Infection
- Non union
- Mal-union
- Neuro-vascular injury
- Volkmann ischemia
- Re-fracture if plates removed early
- Post traumatic radio-ulnar synostosis

"Whew! Five surgeries in one day! Well, let's try to make this last one end on a happy note!"

MONTEGGIA FRACTURE DISLOCATION

Injury to proximal one-third of ulna with radial head dislocation



Mechanism of injury- as a result of fall on outstretched hand with forearm in hyper pronation.

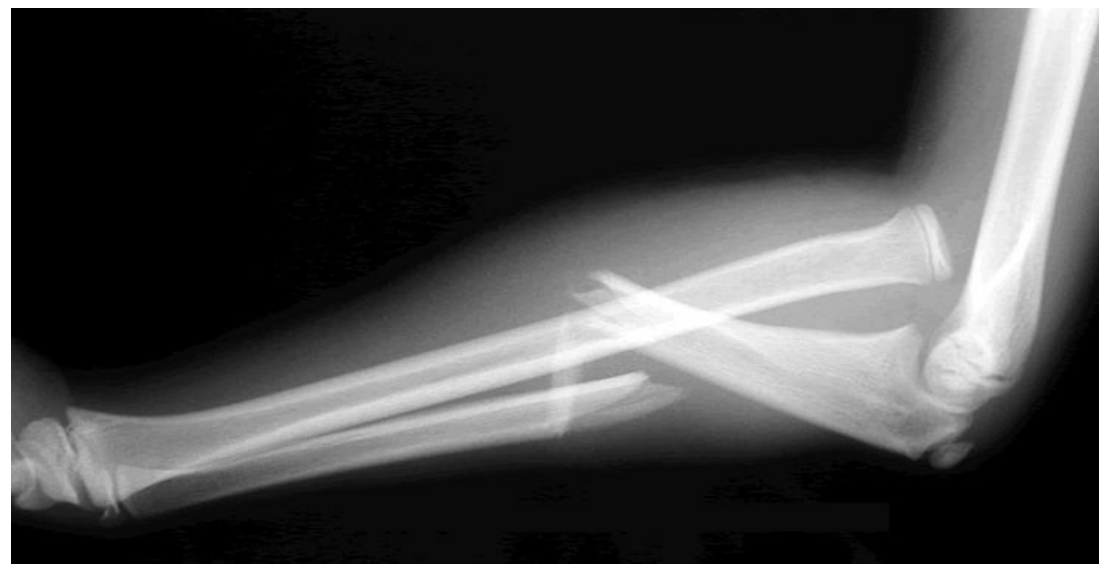
Fracture of ulna and pushing radial head out of the ligament sleeve

CLINICAL FEATURES

Increase ulnar bow with sign of fracture

Radial head dislocated from is usual position

May be associated with PIN injury showing absent finger and thumb extension.



RADIOLOGICAL EVALUATION

Standard AP and Lateral view to be taken

CLASSIFICATION

Bado classification

Types depend on the displacement of radial head

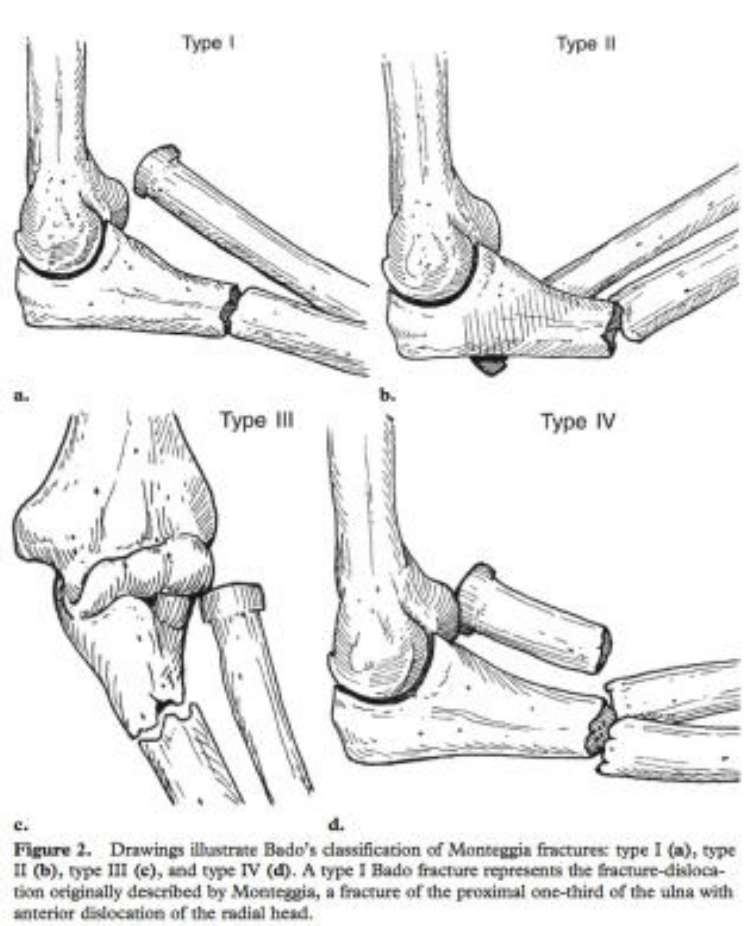


Figure 2. Drawings illustrate Bado's classification of Monteggia fractures: type I **(a)**, type II **(b)**, type III **(c)**, and type IV **(d)**. A type I Bado fracture represents the fracture-dislocation originally described by Monteggia, a fracture of the proximal one-third of the ulna with anterior dislocation of the radial head.

TREATMENT

Non operative treatment can be tried in children

Above elbow cast in supination

Check x-ray need to be done for seeing the stability of radial head in its place