* Upper limb fractures heal faster than lower limb fractures (better vascularity)

* Adult upper limb fractures ⇒ 6 wks * Peds, upper limb * ⇒ 3 wks.

* Most Common Mech. ⇒ FOOSH
  - + Bending force ⇒ oblique
  - + Twisting force ⇒ spiral → Lowest healing time
  - + Direct force ⇒ Transverse → High energy trauma → extensive soft tissue injury → Slower healing
    - Lower surface area available for Healing

- spiral < oblique < Transverse

* intra-articular ⇒ Anatomical reduction + Absolute Fixation
  - Complications : joint stiffness and osteoarthritis.
* Extra-articular ⇒ Functional reduction + Relative Fixation

*

Why do Fractures Displace?

1) Energy of Trauma
2) Muscle act around the segment got contracted and push the bone toward its side
3) Position of gravity

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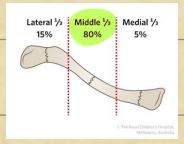
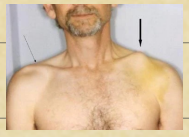
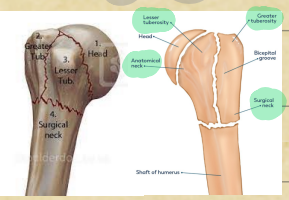
* Clavicular fracture → middle third > Lateral third > medial third.



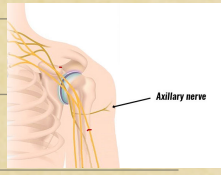


- Displacement in middle third fractures : proximal piece upward ⇝ SCM muscle.
  Distal piece downward ⇝ Shoulder wt / gravity.
- middle third → Conservative Mx (sling or figure of 8 brace)
- lateral third → usually unstable + associated with ligamentous injury ⇒ Surgical Mx

* Proximal Humerus Fracture



- Surgical neck fracture ⇒ most frequent / fragility fracture / Risk of axillary nerve injury
  - motor : deltoid → shoulder abd.
  - Sensory : distal ½ of deltoid

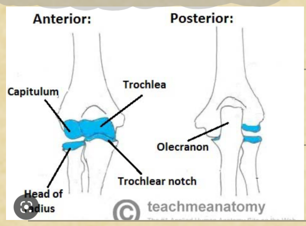


- Anatomical neck fracture ⇒ Risk of humeral head AVN
- greater tubercle fracture ⇒ Avulsion Fracture / pulled by tendon of supraspinatus and infraspinatus
- Lesser tubercle fracture ⇒ Avulsion Fracture Subscapularis tendon
- Mx : Conservative (arm sling) or operative (reduction and fixation or replacement) → according to fracture Comination and bone quality.

**** fragility fractures :
- hip fractures
- Surgical neck fractures of the humerus
- vertebral compression fractures
- distal radius fractures → Colle's fracture

* Humeral shaft fracture
- may result in radial nerve injury → motor : Wrist extension ⇒ if injured wrist drop.
  Sensory : first web space
- pain, swelling, deformity ⇝ Proximal part will be pulled by the deltoid ⇒ varus angulation and shortening
- Mx : Conservative or operative ⇝ Healing : Secondary (callus formation) or primary (compression plate)

* Olecranon fracture



→ intra-articular fracture ⇒ Anatomical reduction + Absolute fixation (3 methods) → example : TBW

→ Mech : usually avulsion fracture caused by forcefull tricepse contraction

* Forearm fractures :

* ulna and radius work as a **functional unit** → supination and pronation / radius moves over the ulna.
  - → Fracture in one is usually associated with fracture or dislocation in the other
  - → managed as intra-articular fractures (Anatomic reduction and absolute stability) exept in children (High remodeling capacity)

A. Monteggia Fracture Dislocation

1. Fracture of the proximal half of the ulna.
2. Dislocation of the proximal radius.
3. Possible injury to the radial nerve as is turns around the radial neck.

If present this would result in finger drop at the MCP joints but not wrist drop as the nerve supply to the extensor carpi radialis longus already originated at a point proximal to the injury site.

Radial nerve supplies the muscle before reaching it

Any injury to the radial nerve from the elbow and distal will not result in wrist drop only finger drop

B. Galeazzi Fracture Dislocation

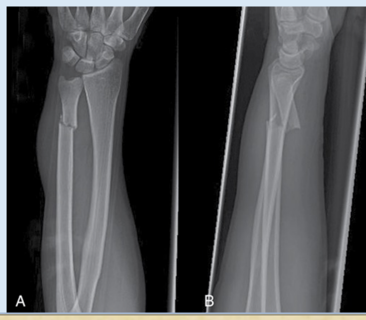
1. Fracture of the distal half of the radius.
2. Dislocation of the distal ulna.
3. Possible injury to the ulnar nerve.

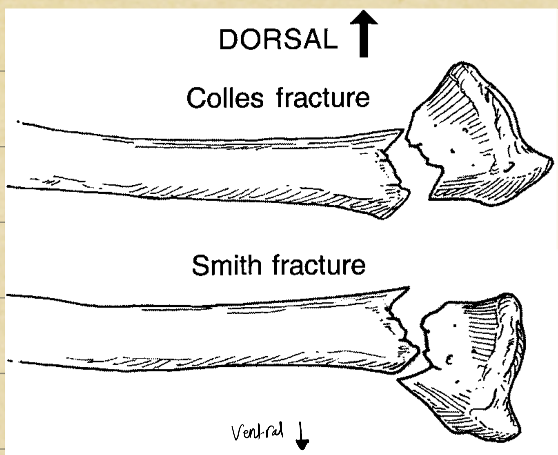
If present, this would result in
① weak interossi: weakness of finger abduction/adduction, and positive Froment's sign. → أعطيه ورقة وقله ما تفلتيني أحبها

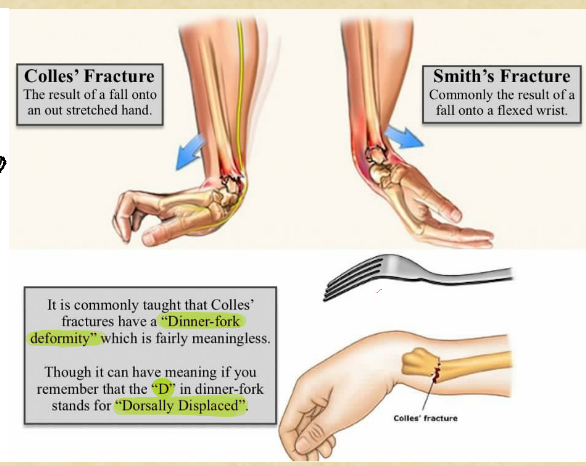
② ulnar claw → caused by weakness in the medial 2 lumbricals

C. Isolated Ulna Fracture

- Also called nightstick injury. (→ used to be induced by police officers when hitting criminals by their sticks)
- Results from a direct trauma to the ulna (you can sea the transverse fracture pattern).
- The radius is intact.
- Has a risk of non-union, so surgical fixation is considered if conservative management fails.







Colles' Fracture

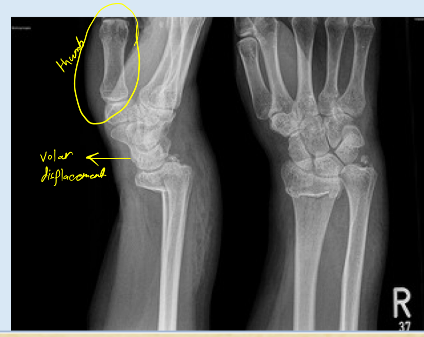
- Distal radius
- extra-articular
- Dorsally displaced
- osteoporotic bone

- A distal radius extra-articular fracture. Due to hyperextension
- Occurs in the elderly after a simple trauma (fragility fracture).
- Dorsally displaced (see the lateral view on the x-ray).
- Presents with wrist swelling called dinner fork deformity.
- Treatment usually closed reduction and casting for 6 weeks.

Smith's Fracture

- Distal radius
- extra-articular
- ventrally displaced

- Also called reverse Colles' as it has the same features but with volar angulation.
- Caused by falling down with the wrist in flexion (in Colles' the wrist is in extension.
- Treatment is closed reduction and casting for 6 weeks.



Barton's Fracture

Colles or smith's with intra-articular involvment = Barton's

- Intra-articular fracture.
- Best seen on the lateral view.
- Resembles a triangle (articular surface, fracture, cortex).
- Treatment is anatomical reduction and fixation.
- Can be volar or dorsal.

Radial Styloid fracture

- Also called chauffeur fracture.
- Caused by sudden forceful radial deviation of the wrist.
- Intra-articular fracture.
- Treatment is anatomical reduction and fixation.