جامعة الملك سعود
King Saud University

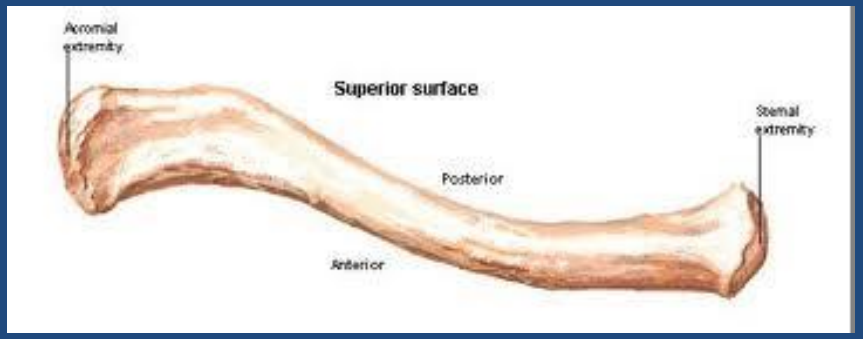
COMMON ADULT'S FRACTURES

OBJECTIVES

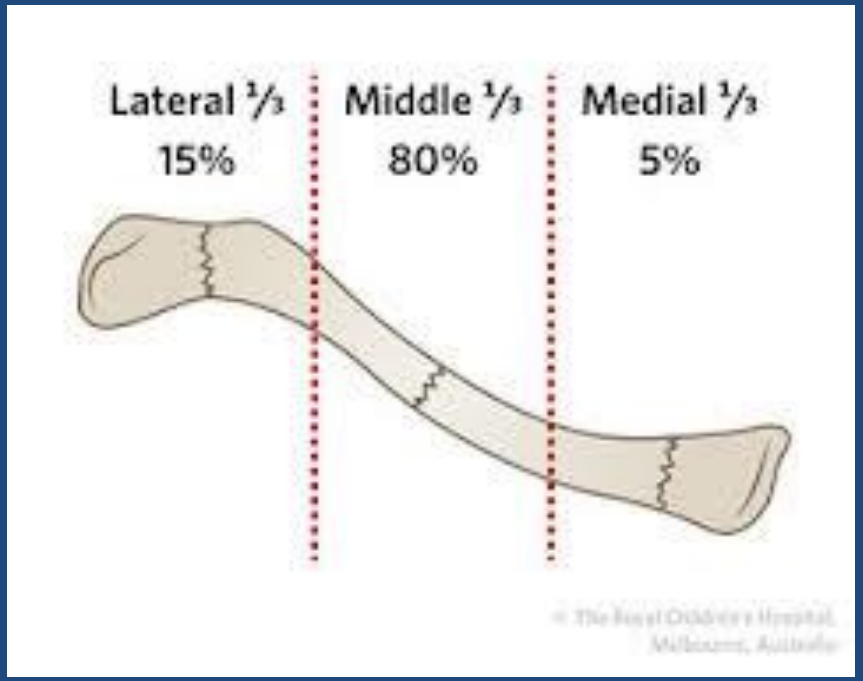
- CLAVICAL FRACTURE
- HUMERUS (PROXIMAL & SHAFT)
- BOTH BONE FOREARM FRACTURS
- DISTAL RADIUS FRACTURE
- HIP FRACTURE
- FEMUR SHAFT FRACTURE
- TIBIAL SHAFT FRACTURE
- ANKLE FRACTURE

CLAVICLE FRACTURE

- Clavicle is S shape bone
- It is anchored to scapula via ACJ.
- It is anchored to trunk via SCJ
- Most of fracture occurs as result from fall onto shoulder.



- Fracture is classified into: proximal, middle and lateral third fractures.
- Most of fractures are of middle third.



- Clinical findings:
  - Check the skin
- Injury to brachial plexus and subclavian artery/vein may be present
- Rarely, Pneumothorax can occur.

- X-rays:
- AP chest and Clavicle special view.

- Treatment:
  - Most of clavicle fractures are treated with a sling.
  - Few fractures should be treated surgically with open reduction and internal fixation
    - Skin is tented
    - Severe displacement

PROXIMAL HUMERUS ANATOMY

- Proximal humerus has four anatomic parts:
  - Head
  - Greater tubrosity
  - Lesser tubrosity
  - Shaft
- Anatomic neck v.s surgical neck.

PROXIMAL HUMERUS FRACTURE

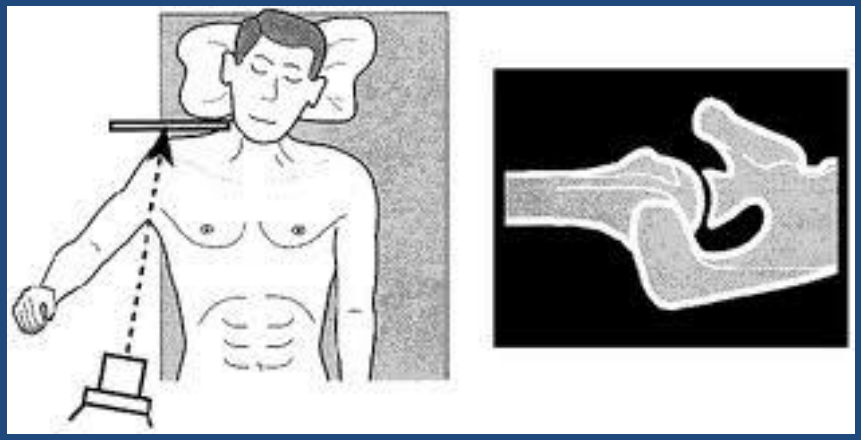
- In younger patients: violent trauma.
- In older patients: minor trauma.
- Most fractures are minimally displaced.

PHYSICAL EXAM

- Expose the shoulder very well.
- Look for fracture signs
- Check the skin.
- Peripheral N/V exam.
- Axillary nerve: lateral skin patch.
- Examine cervical spine.

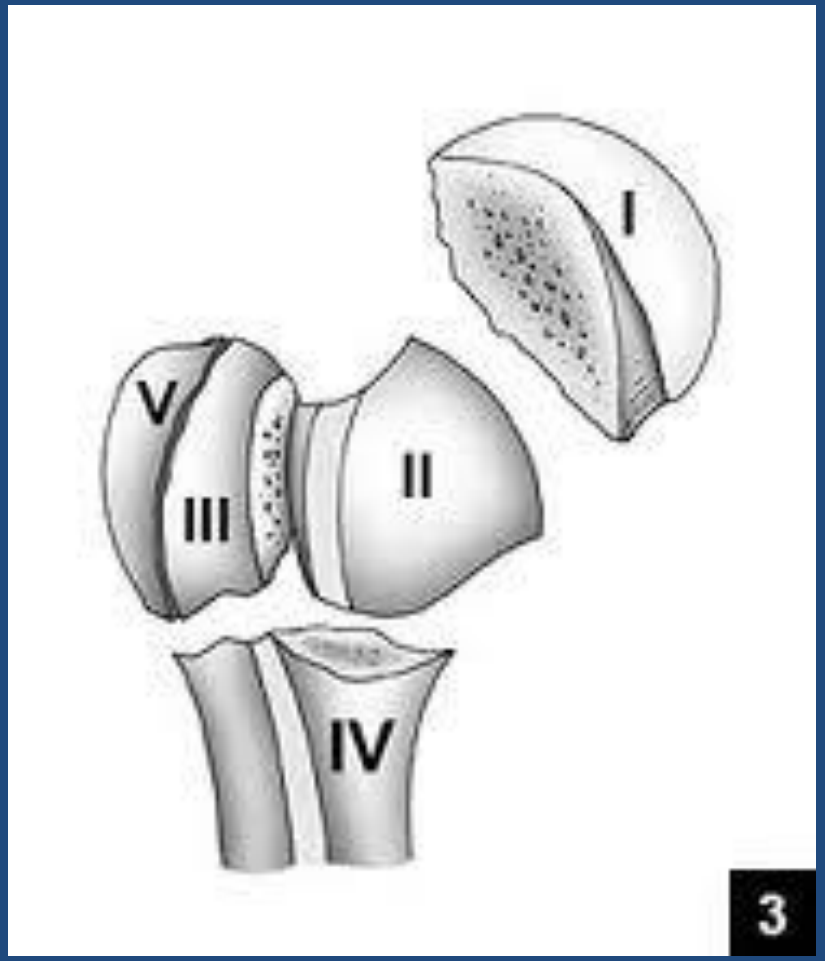
X-rays

- AP, lateral and axillary views.

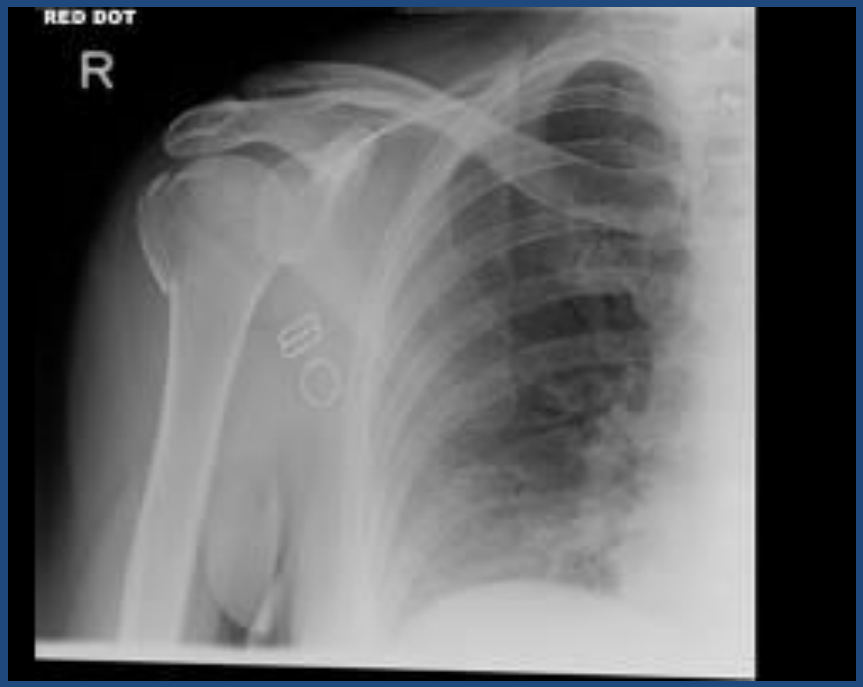


X-rays

- Fracture is defined by the fragments displaced.
- Displacement: more than 1 cm.

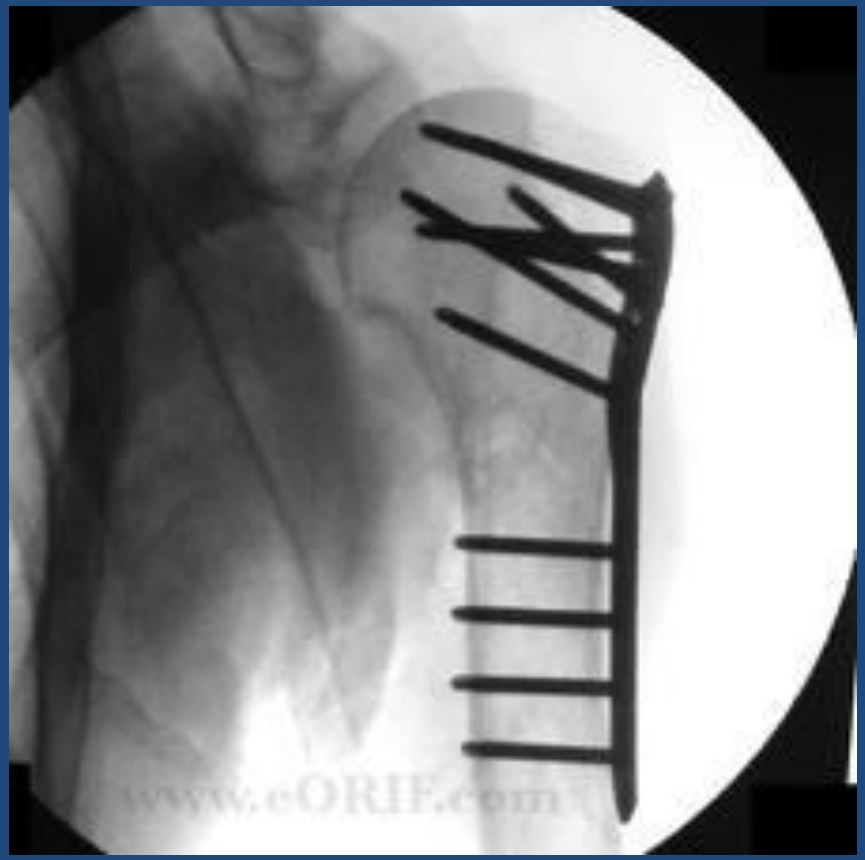



R


RED DOT
R

- If fracture is not displaced:
  - Treatment with sling and NWB of UE for 6-8 weeks.
  - Early ROM exercises after 2-4 weeks.
  - Normal function can be resumed after 3-4 months.

- If the fracture is displaced:
  - Surgery is indicated.
  - ORIF is indicated (plate and screws).
  - Shoulder hemi-arthroplasty is indicated in some cases.



HUMERUS SHAFT FRACTURE

- It can be classified based on location of fracture. (proximal, middle and distal)
- Fracture symptoms.
- On exam:
  - Skin
  - N/V
  - Compartment
- Watch for radial nerve palsy.

X-rays

- Almost all humerus shaft fracture can be treated non-surgically.
  - Close reduction
  - Functional brace x 4-6 weeks + NWB
  - Early ROM of elbow and shoulder.

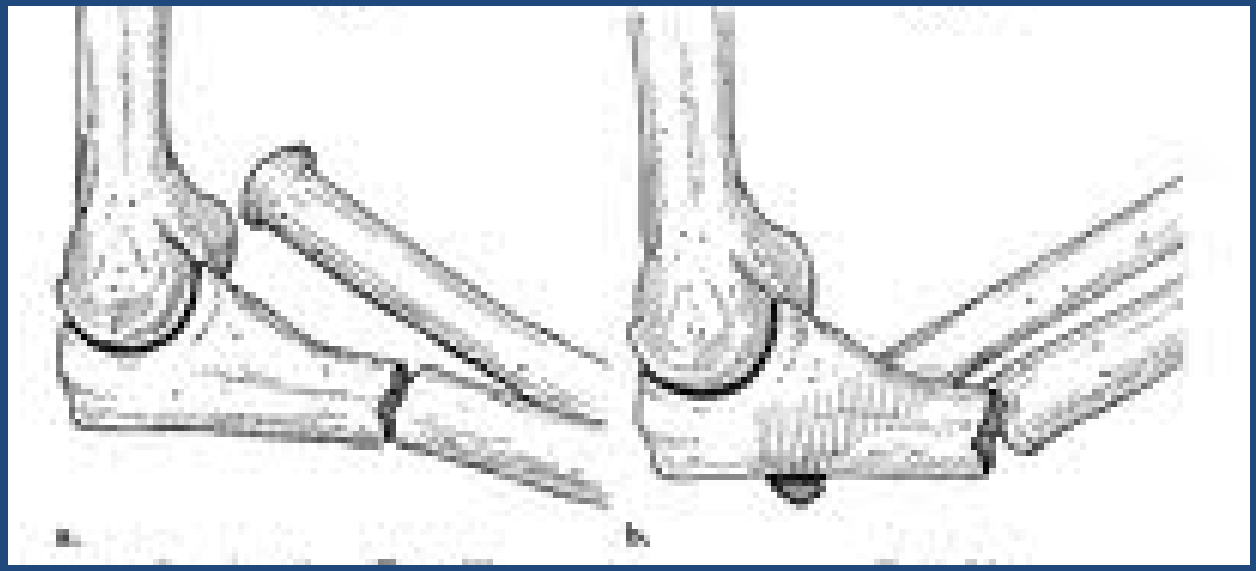
- Surgery is indicated for specific conditions like:
  - Segmental fracture
  - Open fracture
  - Obese patient
  - Bilateral fracture
  - Floating elbow (forearm and humerus)
- Surgery: ORIF with plate and screws.

BOTH BONES FOREARM FRACTURE

- Forearm is complex with two mobile parallel bones.
- Radius and ulna articulate proximally and distally.
- It very unlikely to fracture only one bone without disruption of their articulation:
  - Both bone fracture
  - Monteggia fracture
  - Galeazzi fracture.

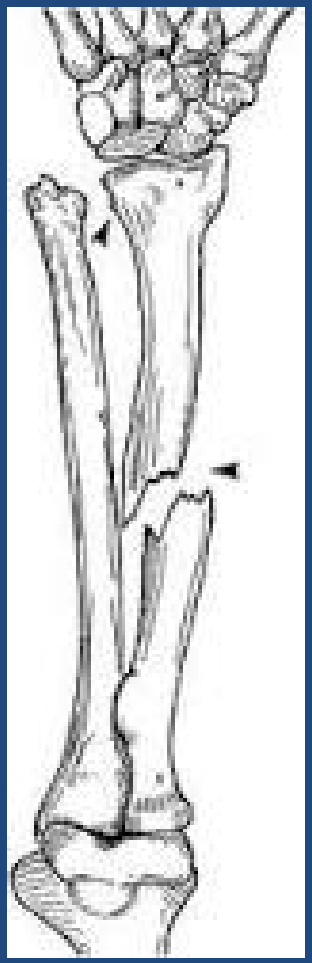
- Fractures are often from fall or direct blow.
- Both bones fracture:
  - Means radius and ulna are broken.
- Monteggia fracture:
  - Means proximal or middle third ulna shaft fracture with dislocation of radius proximally (at elbow)
- Galeazzi fracture:
  - Means distal third shaft radius fracture with disruption of DRUJ.

Monteggia




LT

Galeazzi



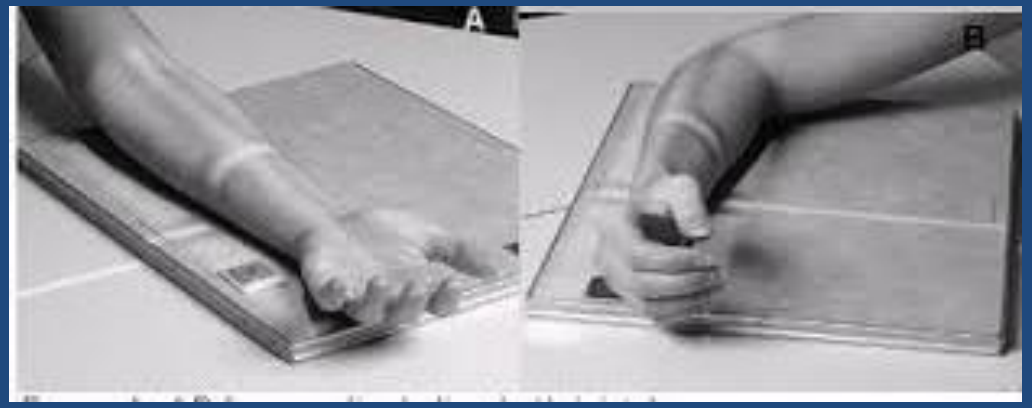
Galeazzi

CLINICAL

- Symptoms and signs of fracture
- Check the skin
- Check the compartments of forearm
- Check Ulnar, median and radial nerve (PIN,AIN)
- Check vascularity: color, temperature, capillary refill and pulse.

Images

- 2 orthogonal views



Treatment

- Both bone fracture:
  - Reduce and splint at ER/clinic (temporary)
  - Are treated almost always with ORIF: (plate and screws)
- Monteggia fracture:
  - ORIF ulna and close reduction of radial head
- Galeazzi fracture:
  - ORIF radius and close reduction of DRUJ.

DISTAL RADIUS FRACTURE

- Most common fracture of upper extremity.
- Most frequently are seen in older women.
- Young adults fractures are most commonly secondary to high energy trauma.


Colles Fracture
Fracture of Scaphoid
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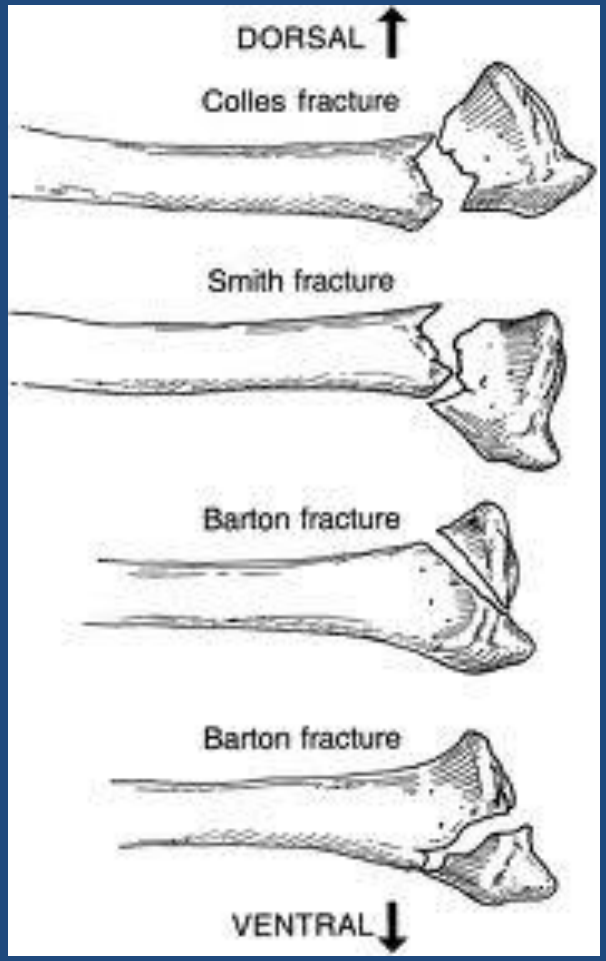
- Extra-articular:
  - Colles' Fracture: dorsal angulation, shortening and radial deviation
  - Smith's fracture: shortening and volar angulation. (reverse Colles')
- Intra-articular:
  - Barton's fracture: volar or dorsal
  - others

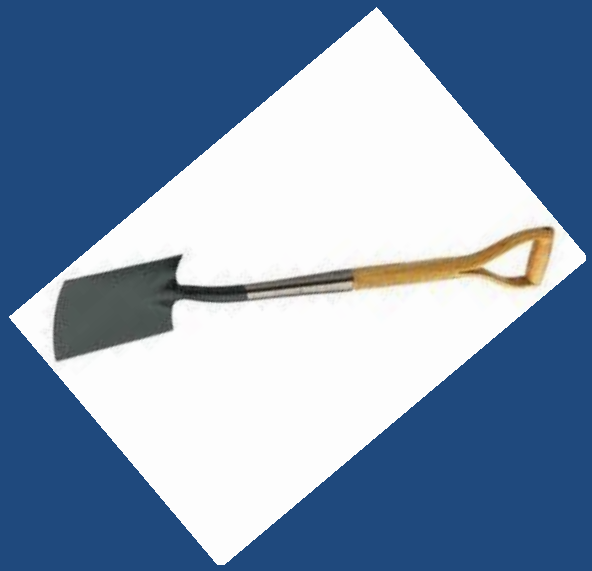
Colles’

Smith’s


Volar
Dorsal
RS


DORSAL
Colles fracture
Smith fracture
Barton fracture
Barton fracture
VENTRAL

Clinical



X-rays

Colles’

Smith’s

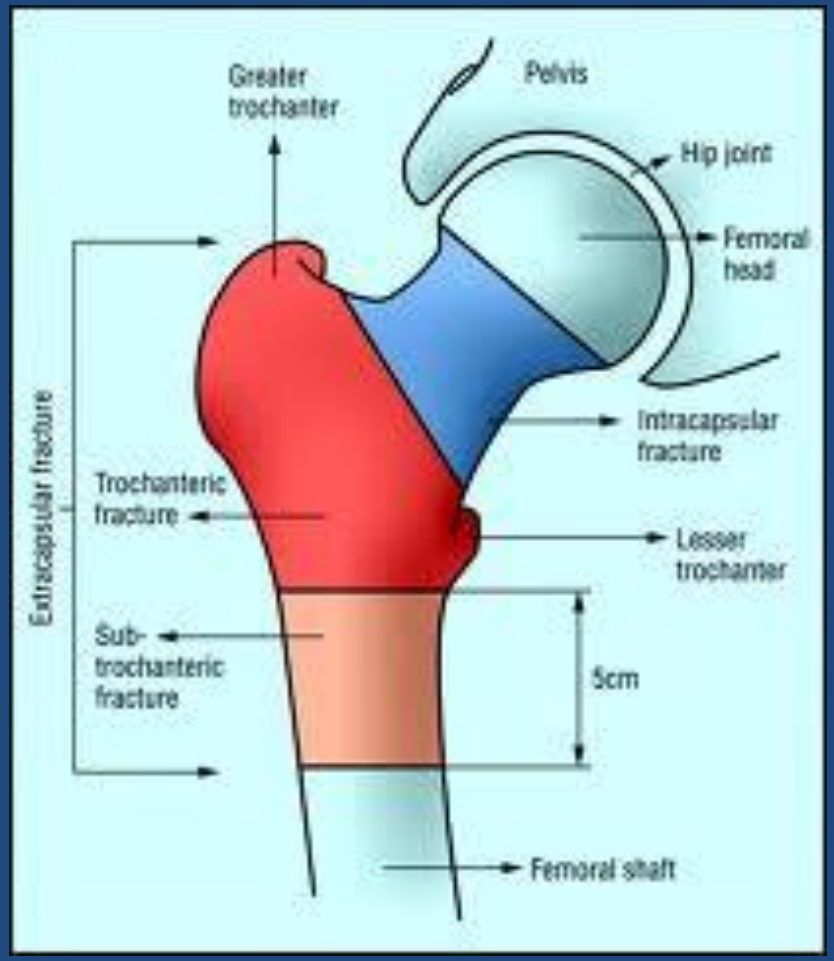
- Extra-articular fractures:
  - Close reduction and cast application.
  - Immobilization for 6-8 weeks.
  - ROM exercises after cast removal.
  - Surgery: if reduction is not accepted
- Intra-articular fracture:
  - a step more than 2 mm is an indication for surgery.
  - ORIF with plate and screws.

LOWER EXTREMITY

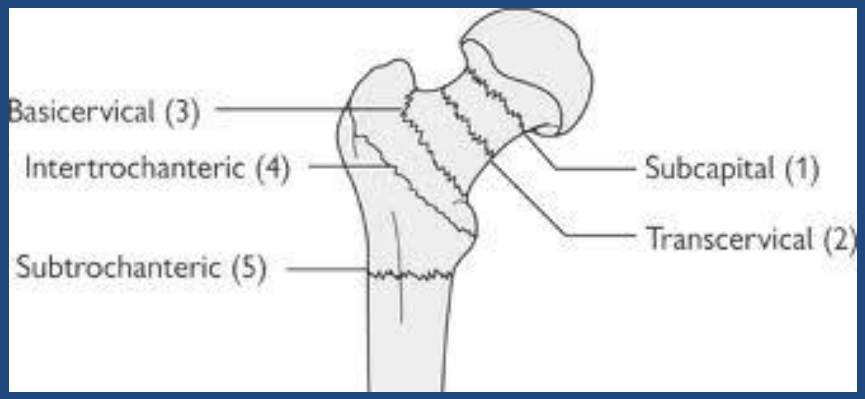
HIP FRACTURE (old patients)

- It is the most common fracture of LL.
- It is associated with osteoporosis.
- Most common mechanism is a fall from standing height.
- Other causes of fall (stroke, MI) should be rolled out during clinical evaluation.
- It is a life changing event.

- Fractures can be classified
  - Intra-capsular
  - Extra-capsular
  - Displaced vs not displaced



- Intra-capsular:
  - Subcapital
  - Trans-cervical
- Extra-capsular:
  - Basicervical
  - Intertrochanteric
- AVN risk is higher with intra-capsular fracture.



Clinical

- Full detailed history of mechanism of injury.
- R/O syncope, chest pain, weakness etc.
- A detailed systemic review.
- Deformity: Abduction, External rotation and shortening.
- Assess distal N/V status

- 3 views are needed:
  - AP pelvis
  - AP hip
  - Lateral hip


LT

Treatment

- No close reduction is needed.
- No traction is needed.
- Patient needs surgery ideally within 48 hrs.
- The goal is to ambulate patient as soon as possible.
- Be sure that DVT prophylaxis is started.
- Be sure that patient will be evaluated for osteoporosis after discharge.

Treatment

- If fracture is intra-capsular:
  - Displaced: hemiarthroplasty
  - Not displaced: close reduction and Screw fixation.
- If fracture is Extra-capsular:
  - Close reduction and DHS or IM nail fixation

DHS

IM nail


L

HIP FRACTURE (young patients)

- It is a completely different entity from similar fractures in elders (>60 years).
- High energy mechanism.
- Patient should be taken to operative room for ORIF within 6 hours.

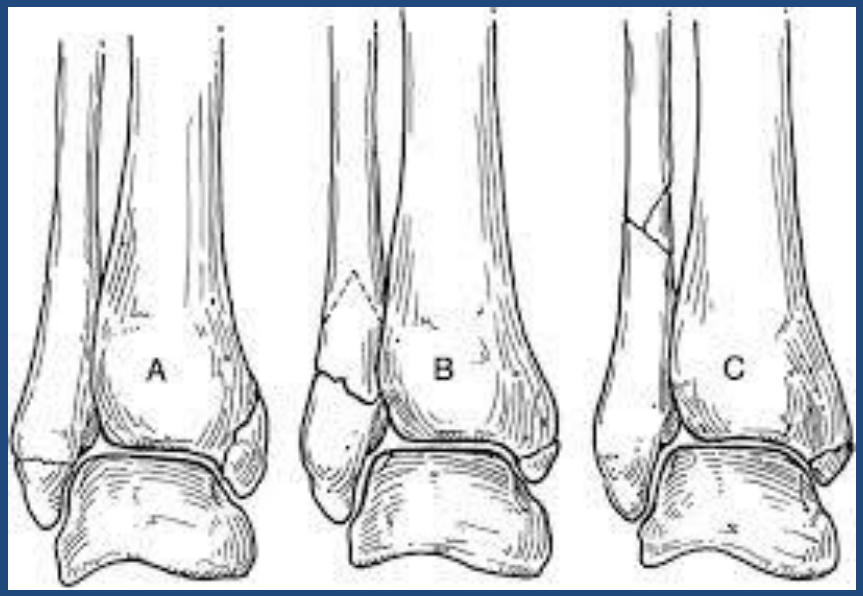
FEMUR SHAFT FRACTURE

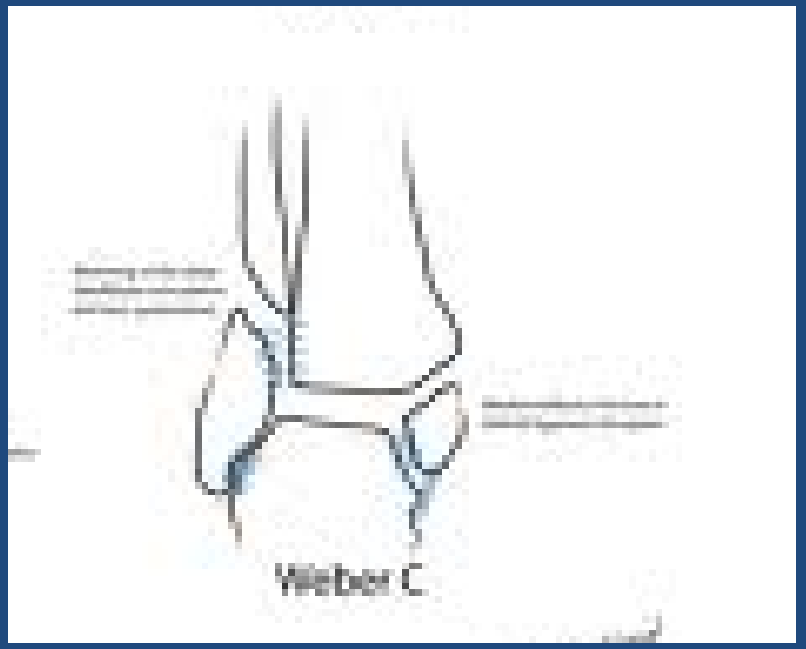
- High energy.
- Associated injuries.
- Early fixation to avoid pulmonary complications.
- Skin/ skeletal traction while waiting,
- IM nail within 6-12 hrs.

TIBIA SHAFT FRACTURE

- High energy mechanism
- It carries the highest risk of compartment syndrome.
- Carefully examine the skin.
- Splint patient after reduction.
- IM nail fixation unless it is not displaced

ANKLE FRACTURE





- Intact medial malleolus:
  - Weber A:
    - splint + NWB X 6 weeks.
    - Early ROM.
  - Weber B/C:
    - If medial joint line widen: ORIF.
    - If not: ?
  - If both malleoli are broken:
    - ORIF

THANKS