



COMMON ADULT'S FRACTURES

OBJECTIVES

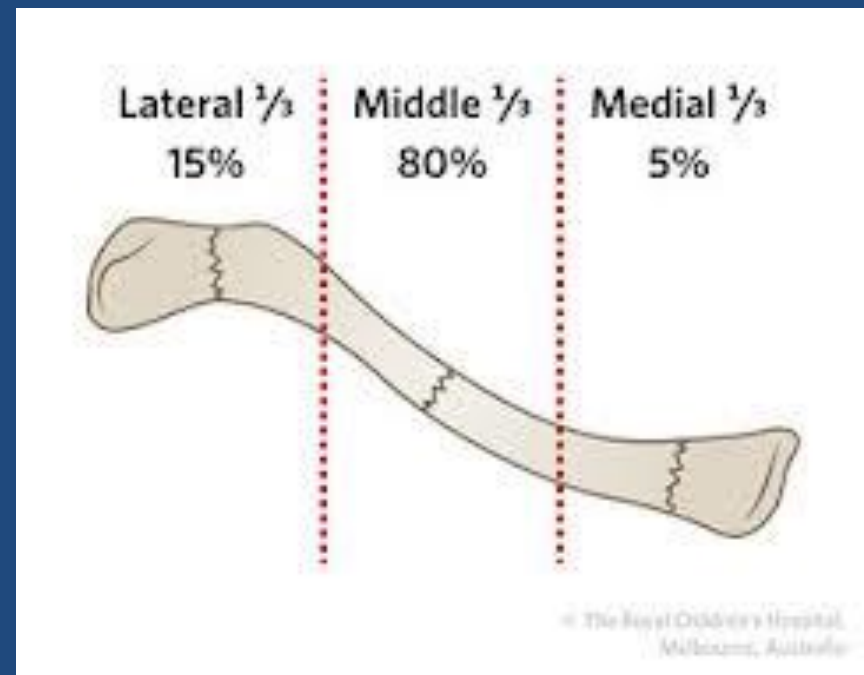
- CLAVICAL FRACTURE
- HUMERUS (PROXIMAL & SHAFT)
- BOTH BONE FOREARM FRACTURES
- DISTAL RADIUS FRACTURE
- HIP FRACTURE
- FEMUR SHAFT FRACTURE
- TIBIAL SHAFT FRACTURE
- ANKLE FRACTURE

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.



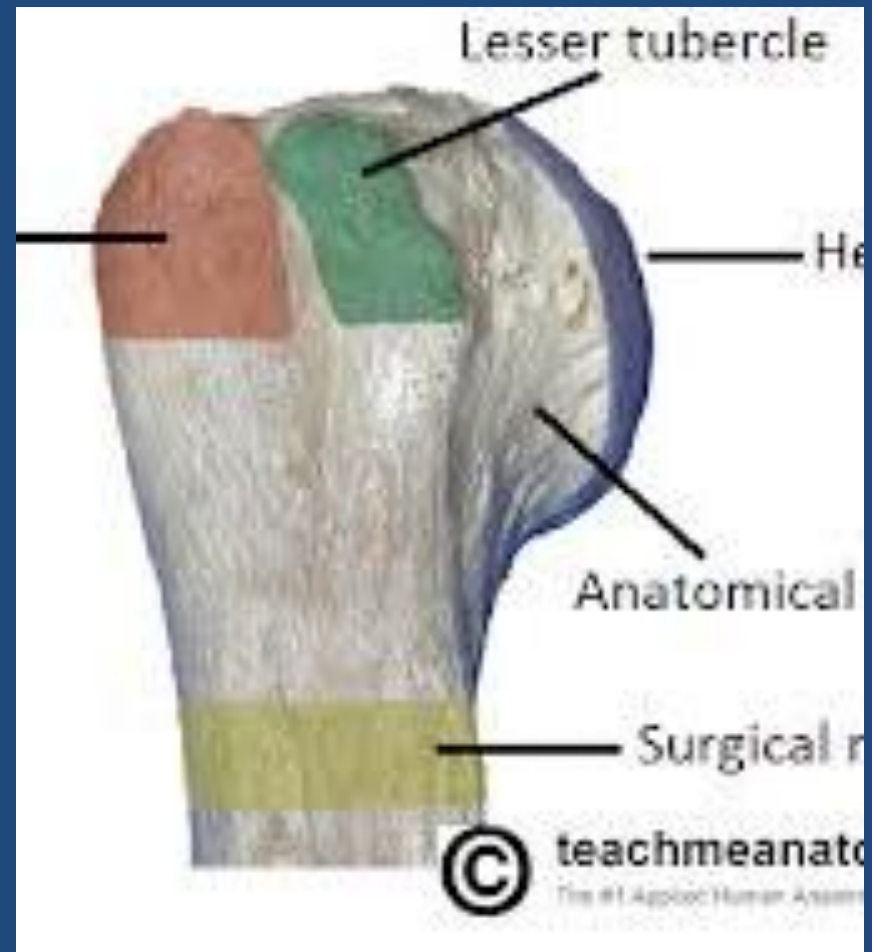
- Treatment:
 - Most of clavicle fractures are treated with a sling.
 - Few fractures should be treated surgically with open reduction and internal fixation
 - Skin is tented
 - Severe displacement





PROXIMAL HUMERUS ANATOMY

- Proximal humerus has four anatomic parts:
 - Head
 - Greater tuberosity
 - Lesser tuberosity
 - 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.



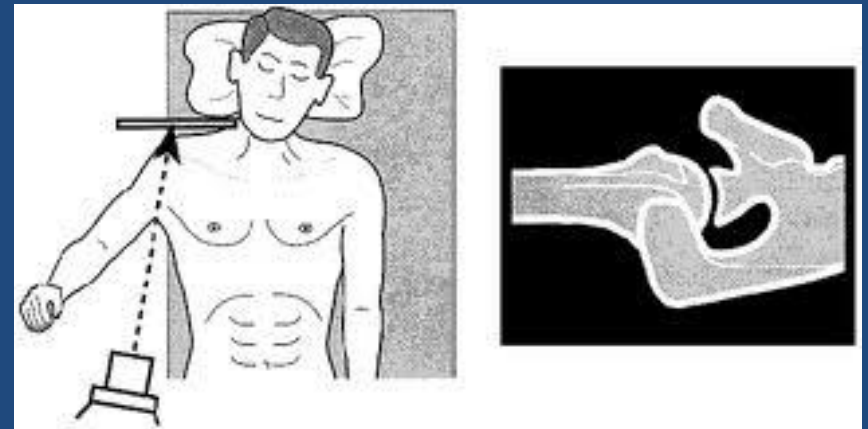
PHYSICAL EXAM

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



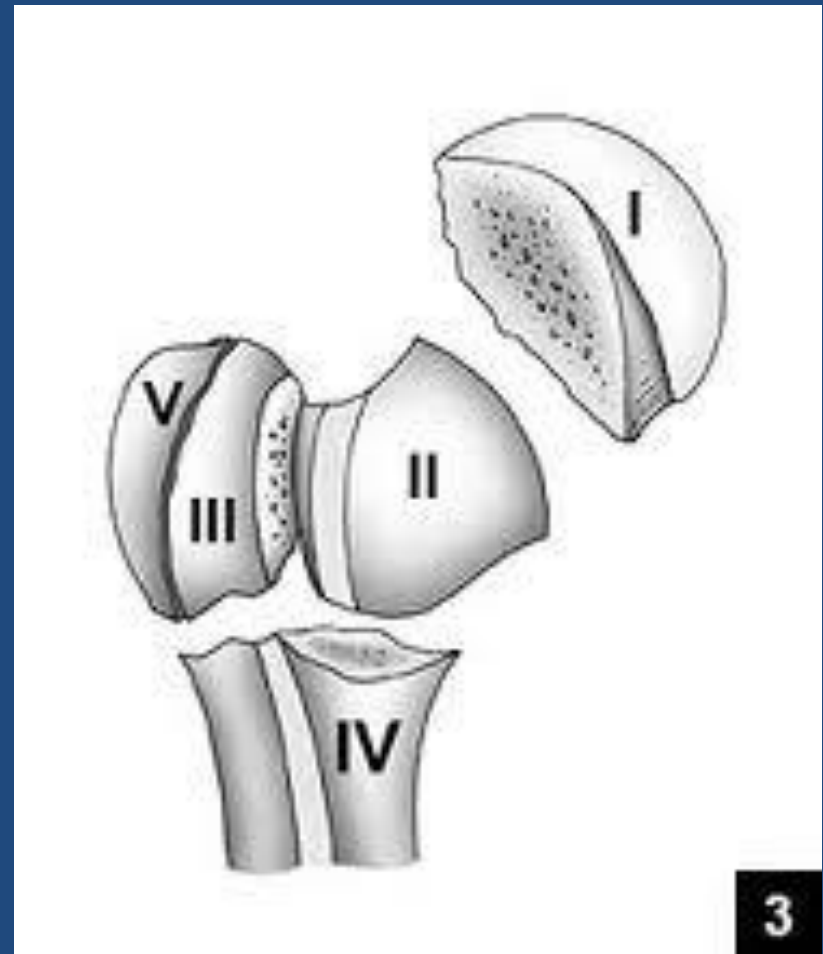
X-rays

- AP, lateral and axillary views.



X-rays

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

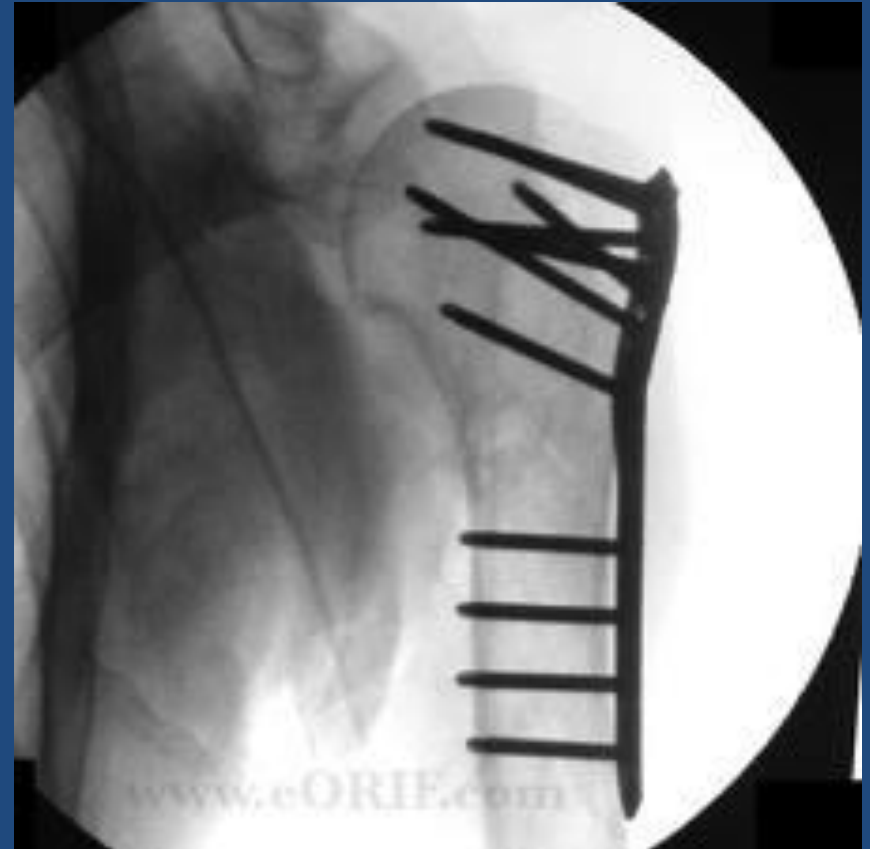






- If fracture is not displaced:
 - Treatment with sling and NWB of UE for 6-8 weeks.
 - Early ROM exercises after 2-4 weeks.
 - Normal function can be resumed after 3-4 months.

- If the fracture is displaced:
 - Surgery is indicated.
 - ORIF is indicated (plate and screws).
 - Shoulder hemiarthroplasty 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.

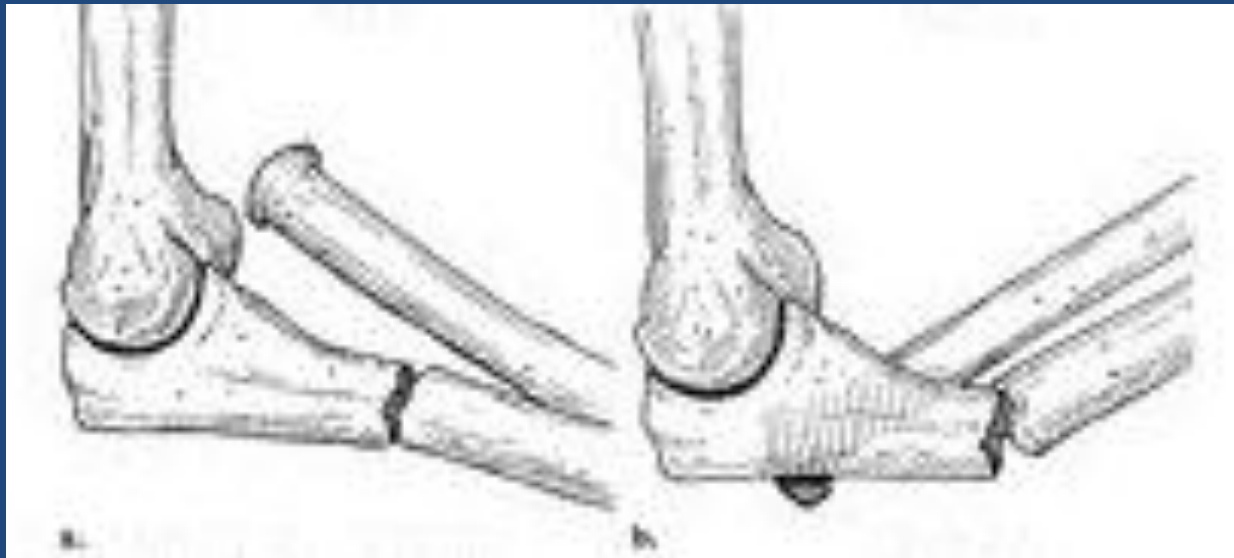


BOTH BONES FOREARM FRACTURE

- 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.

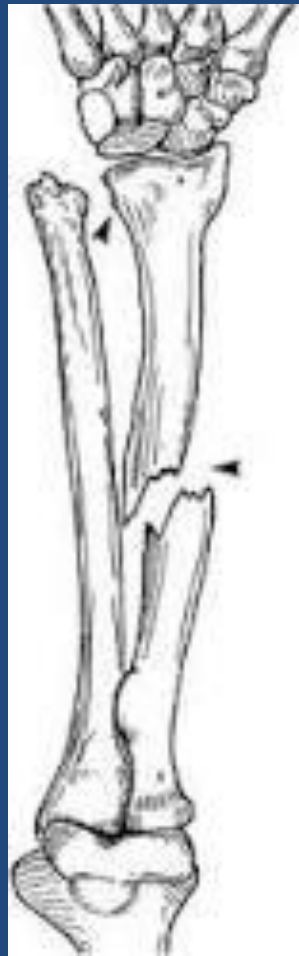
- Fractures are often from fall or direct blow.
- Both bones fracture:
 - Means radius and ulna are broken.
- Monteggia fracture:
 - Means proximal or middle third ulna shaft fracture with dislocation of radius proximally (at elbow)
- Galeazzi fracture:
 - Means distal third shaft radius fracture with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

Monteggia





Galeazzi



Galeazzi

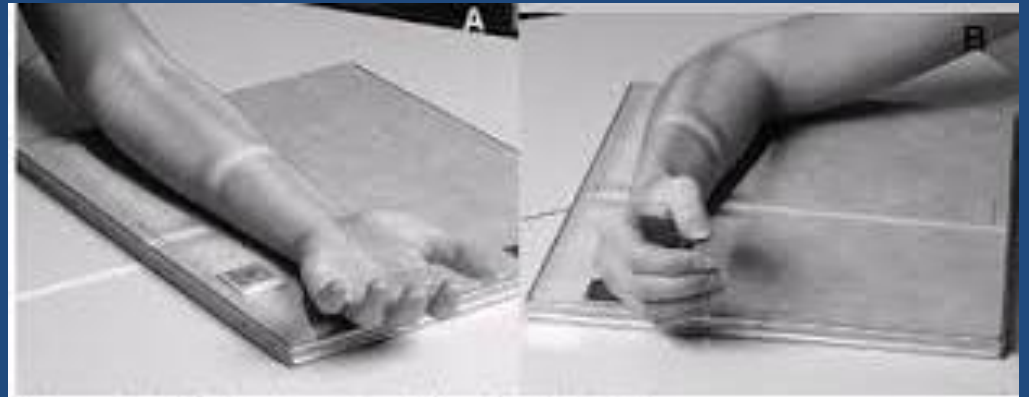


CLINICAL

- 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.



- 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

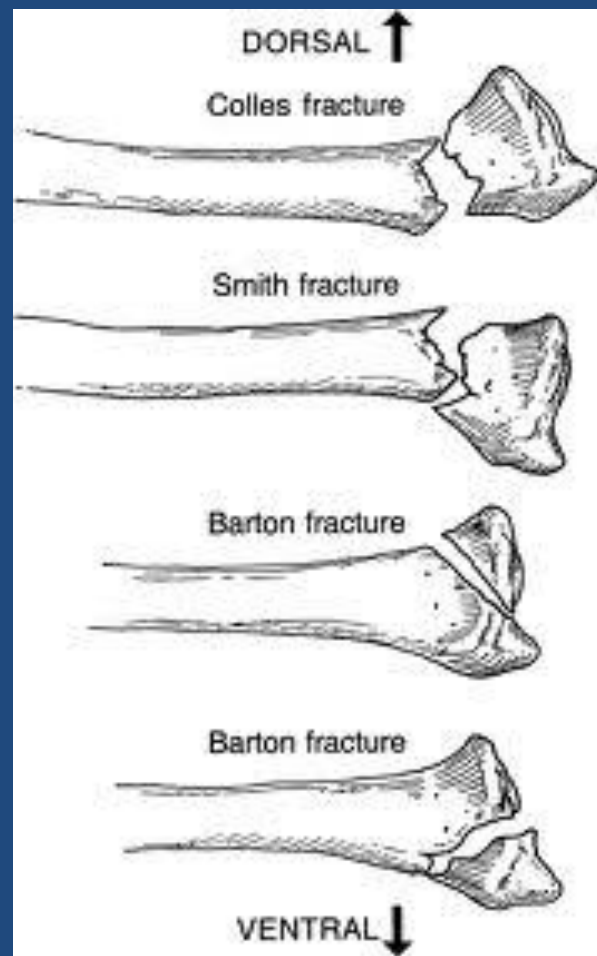


Volar

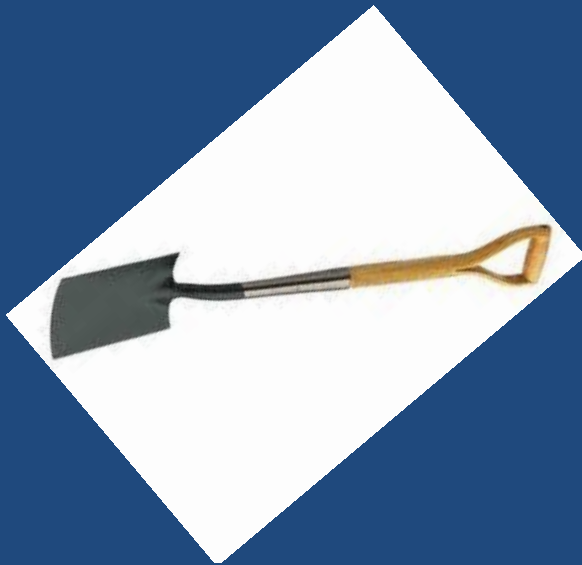
Dorsal

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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.

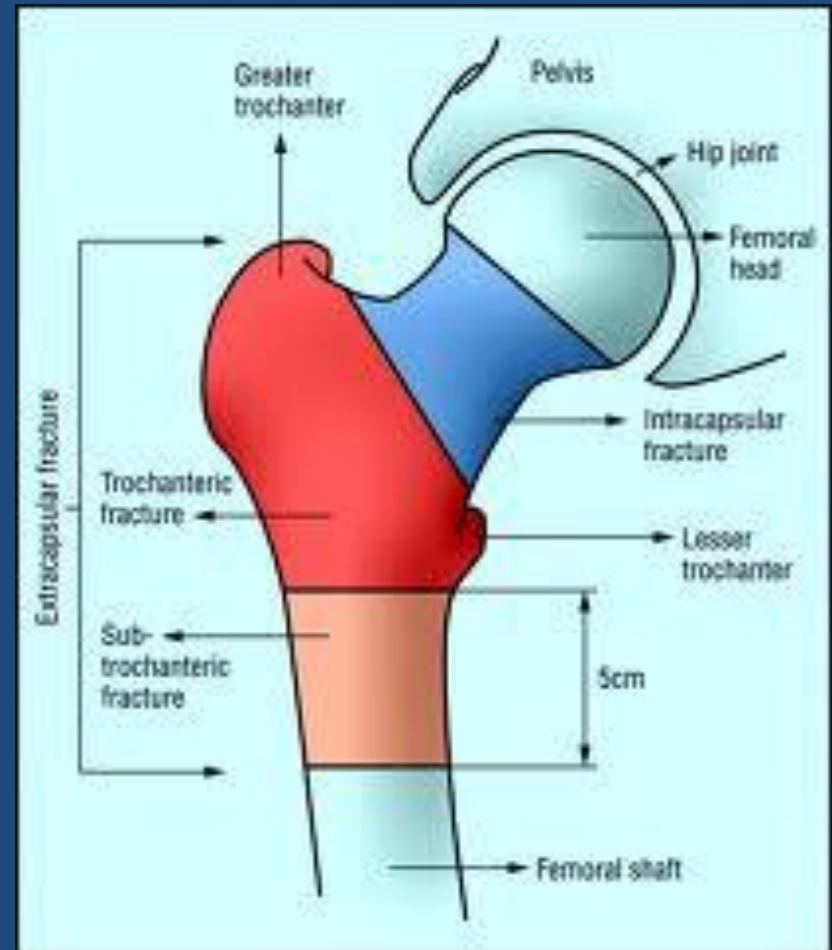


LOWER EXTREMITY

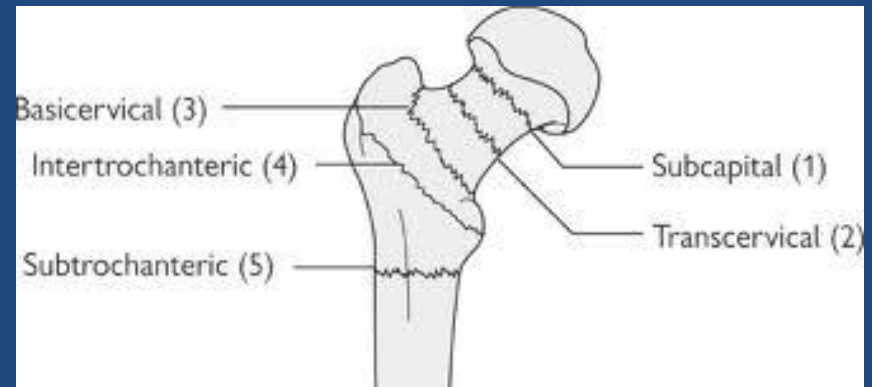
HIP FRACTURE (old patients)

- 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





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





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.

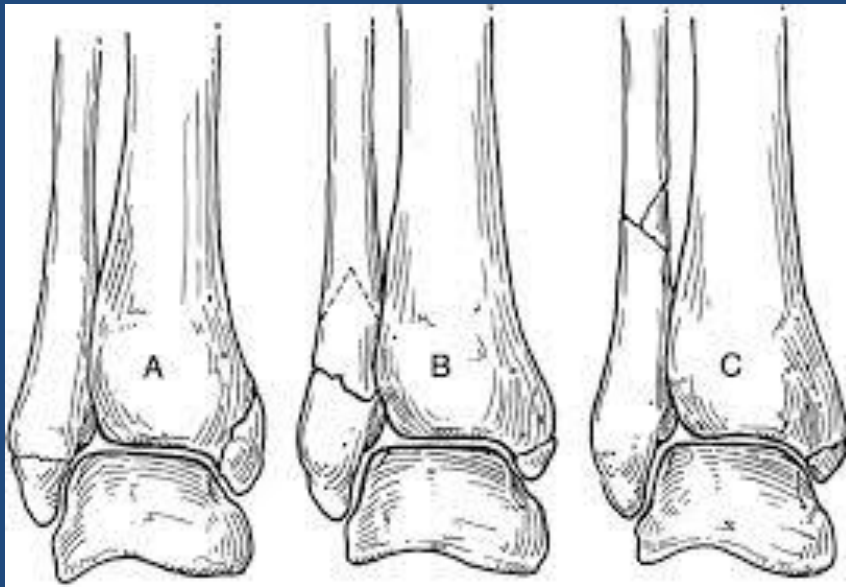


TIBIA SHAFT FRACTURE

- 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