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## Common Adult Fractures

### Objectives:

- ★ Clavicle fracture
  - ★ Humerus (Proximal & Shaft)
  - ★ Both bones forearm fractures
    - ★ Distal radius fracture
    - ★ Hip fracture
    - ★ Femur shaft fracture
    - ★ Tibial shaft fracture
    - ★ Ankle fracture
- You need to know the principles about these fractures because It is impossible to cover all details in 1 H.
  - You can check your references but I guarantee that **the questions will come from the lecture however most of them are not written on the slides** (so notes are important).  
remember to apply the principles of: reduction, immobilization, definitive treatment

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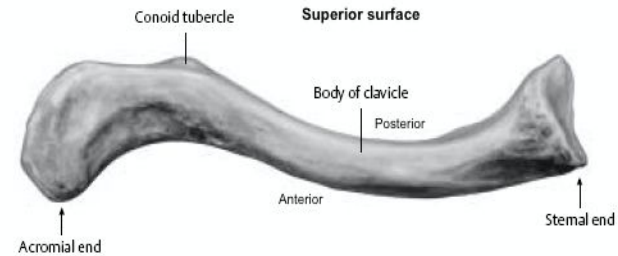
**References:** 435 Lectures And Notes, Apley, Toronto Notes

# Clavicle fracture

It is a common fracture in both children (unites rapidly without complications) and adults (much more troublesome in jury), you see it in young active people, who are engaged in contact sports and sometimes in RTA too.

## Anatomy

- Clavicle is S shape bone
- It is anchored to scapula via ACJ (Acromioclavicular joint)
- It is anchored to trunk via SCJ (Sternoclavicular Joint)

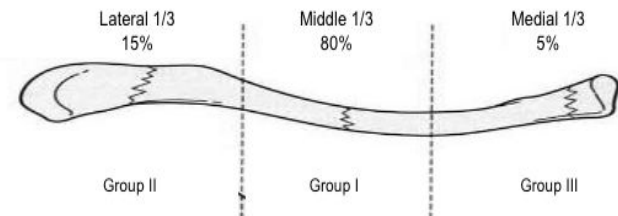


## Mechanism<sup>1</sup>

- Most of fracture occurs as result from fall onto shoulder.
- Direct trauma to clavicle or FOOSH (fall on an outstretched hand)

## Classification

- Fracture is classified on the basis of their location into: proximal, middle and lateral third fractures.
- Most of fractures are of middle third.



Why do we classify things?

To determine management, prognosis and it is helpful for **communication**, like if someone calls you at midnight and tells you that there is a clavicle fracture, I would like to hear the classification. However for this classification it does not describe any of the prognostic indicators such as comminution, shortening or displacement.

## Clinical findings

- Arm is clasped to chest to splint shoulder and prevent movement
- Check the skin: looking for any **skin tenting**, because it will affect your management. The skin is tented by the bony fragments, sometimes it is sharp like a knife which threatens the skin so you have to make sure that the skin is intact.
- Injury to brachial plexus and subclavian artery/vein may be present (**uncommon**), so you have to keep in mind to evaluate the neurovascular status distal to the clavicle (entire upper limb)
- Rarely, Pneumothorax can occur.



### Associated Injuries with Clavicle Fractures

- Up to 9% of clavicle fractures are associated with other fractures (most commonly rib fractures)
- Majority of brachial plexus injuries are associated with proximal third fractures

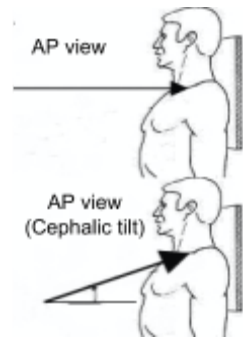


<sup>1</sup> In the common midshaft fracture, the lateral fragment is pulled down by the weight of the arm and the inner, medial half is held up by the sternomastoid muscle. In fractures of the lateral end, if the ligaments are intact, there is little displacement; but if the coracoclavicular ligaments are torn, or if the fracture is just medial to these ligaments, displacement may be more severe and closed reduction impossible. The clavicle is also a reasonably common site for pathological fractures.

## Imaging<sup>2</sup>

### ○ X-Ray:

- ↗ AP chest and Clavicle special view (30° cephalic tilt)
- ↗ This X-Ray shows Middle third clavicle fracture with minimal displacement.



## Treatment

Will you reduce clavicle fracture? **No**, we will not reduce the fracture, we use the gravity to reduce it. we use a sling as a type of immobilization

- **Most of clavicle fractures are treated with a sling (nonoperative management).**
- Few fractures should be treated surgically with **open reduction and internal fixation.**
  - ↗ Skin is tented, why? because of concern for an **impending open fracture** (if you leave it like this eventually may break through and become an open fracture).
  - ↗ Severe displacement, as a rule: any fracture with **more than 1 cm shortening** or with **more than 100% displacement** requires ORIF (a definitive treatment) .
- What is the difference between open and closed reduction?
  - **Closed reduction:** you can open the skin and everything but **away from the fracture**, and you do the surgery but you do not expose the fracture site (away from it).
  - **Open reduction:** if the **fractured bone is exposed** and you can see the bone fragments by your eyes and **manipulated by your hands and you reduce the fragments.**
- The indications of surgical treatment are **based on the functional outcomes results**, clavicle fracture heals **regardless** of the position but the problem is people with recurrent clavicle fracture can have problem with **overhead activities if it's malunited.**<sup>3</sup>
  - If the fracture malunited, people may have brachial plexus symptoms; pain in the arm during the overhead activities especially those whom their jobs require overhead activity such as engineering, cabin crew and athletes.



- ★ The X-Ray shows an **open reduction and internal fixation with plate and screws**

## Complications:

- Cosmetic.
- Shoulder stiness, weakness with repetitive activity
- Pneumothorax, brachial plexus injuries, and subclavian vessel (all very rare)



<sup>2</sup> CT scanning with three-dimensional reconstructions may be needed to determine accurately the degree of shortening or for diagnosing a sternoclavicular fracture-dislocation, and also to establish whether a fracture has united.

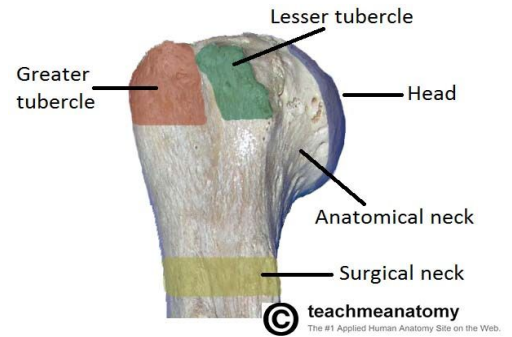
<sup>3</sup> **malunion:** When the fragments join in an unsatisfactory position (unacceptable angulation, rotation or shortening) the fracture is said to be malunited.

# Humerus fracture

## Proximal Humerus

### ★ Anatomy:

- Proximal humerus has four anatomic parts:
  - ↪ Head
  - ↪ Greater tuberosity
  - ↪ Lesser tuberosity
  - ↪ Shaft
- Anatomical neck v.s surgical neck: **anatomical neck is between the tuberosities and the head while surgical neck is between the tuberosities and the shaft.**



- Why is it called surgical neck? because this is the location of many fractures that require surgery
- Surgical neck fractures are more common and carry good outcomes.
- Anatomical neck fractures: rare and carry bad outcomes because of the blood supply, the healing will be affected and the patient may have AVN (avascular necrosis)

### ★ Fracture: These fractures happen in a bimodal fashion so you can see it in:

- Younger patients: violent trauma such as RTA.
- Older patients: minor trauma.
- Most fractures are minimally displaced, and treated it conservative like what is seen on the X-Ray.



### ★ Physical exam: Start with ATLS history (You need to know what was happened and the mechanism of the injury) then proceed to the physical examination:

- Expose the shoulder very well.
- **Look for fracture signs** (swelling, tenderness, inability to move, ecchymosis)
- Check the skin, to know if it is an open or closed fracture (**unlikely to have an open fracture of proximal humerus bc it's a deep joint**).
- Peripheral N/V exam, and specifically examine the:
  - ↪ **Axillary nerve:** lateral skin patch

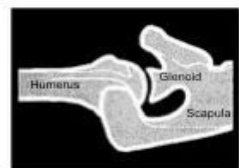
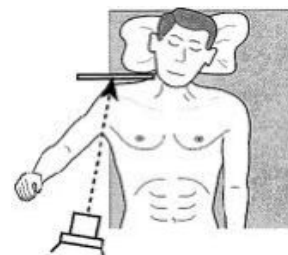


Check if the patient has sensation (**fine touch**) over the the lateral side of the shoulder which is supplied by terminal branches.

- Examine cervical spine, you have to **examine joint above** (cervical spine) **and joint below** (the elbow).

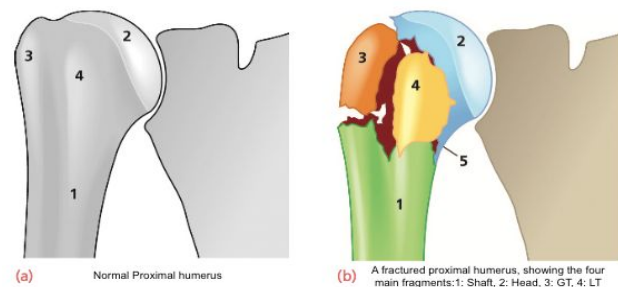
### ➤ X-Ray: of the shoulder (3 views)

- **AP and lateral views:** you need 2 perpendicular (Orthogonal) views, why? to have 3D image of the fracture
- **Axillary view (special X-ray):** the patient is laying down, and the beam will go through the axilla to allow you see this view( the whole joint), it can show you if there is a **fracture dislocation** (it has different management)



## ➤ Classification

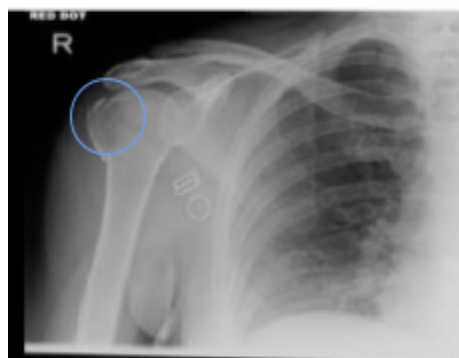
- Imagine that you cracked the anatomical neck, the surgical neck and you have a crack between the GT and LT → **you will end by having 4 pieces**. If you have 1 fracture line → you will get 2 pieces. 2 fracture lines → 3 pieces. 3 fracture lines → 4 pieces
- If we have all the fractures but not displaced we call this nondisplaced humerus fracture (one-part fracture)
- **If not displaced, we don't count the fragments**
- If there is a fracture with displacement **more than 1 cm** between the fragments then we count the fragments. If there is 2 fragments we call it 2 fragments fracture "two-part fracture", if there is 3 fragments we call it 3 fragments fracture "three-part fracture" and so on
- **if all the major parts are displaced** (the head of the humerus, the lesser tuberosity, the greater tuberosity and the shaft), **it is a four-part fracture**.
- Fracture is defined by the fragments displaced: Neer's classification
- Displacement: **more than 1 cm** and/or angulation  $>45^\circ$



## X-rays



The greater tuberosity is clear, but where is the the lesser tuberosity? superimposed by the other part of the bone you won't be able to see it

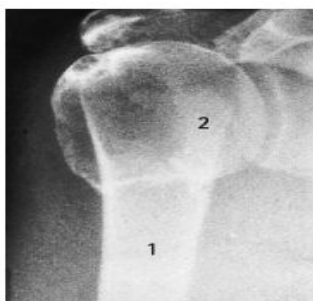


Undisplaced fracture of the greater tuberosity

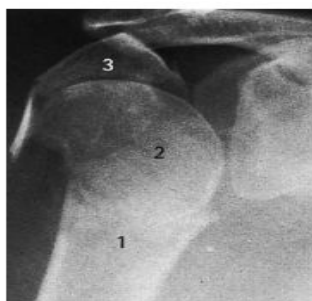


1: Shaft, 2: Head, 3: GT,  
At least three-fragments fracture  
- If you would say that 2 and 3 are near from each other, notice that 2 is displaced (the arrow) from its original location and thus 3 is also displaced

## Extra Figures



(a) two- Part fracture



(b) Three- part fracture



(c) Four-Part fracture  
1: shaft, 2: Head, 3: GT, 4: LT



(d) Fracture dislocation of the shoulder

## ★ Treatment:

- If fracture is not displaced:
  - Treatment with sling immobilization and NWB of upper extremity for 6-8 weeks, why 6-8 weeks? based on the healing process of the fracture
  - Early ROM exercises after 2-4 weeks.
  - Normal function can be resumed after 3-4 months.
- What type of healing for this fracture? Primary (**direct**) or secondary (**indirect**)? **secondary healing**<sup>4</sup> "I promise you there will be **MCQ** about bone healing" Mentioned in Principles of Fracture lecture.
- If the fracture is **displaced**:
  - Surgery is indicated.
  - **ORIF of proximal humerus** is indicated (plate and screws).
  - Shoulder hemi-arthroplasty is indicated in some cases, **such as fracture dislocation** (the humerus is out of the joint in the **axillary view**)
- ★ A patient with proximal humerus fracture, AP and lateral X-Ray were done, what is your next step in the management?
  - A)CT
  - B)MRI
  - C)Axillary view**



To know if there is fracture dislocation! because in this case the patient might need a hemiarthroplasty (is the replacement of the ball only and leaving the socket "glenoid") while total joint replacement we replace both the head and the socket (humeral head and glenoid). You should do X-ray before CT scan (to evaluate for articular involvement and fracture displacement).

## Humerus shaft Fracture

It is a common fracture, we see it almost every other day. It can be low or high energy mechanism fracture.

★ **Classification:** It can be classified based on location of fracture. (proximal, middle and distal)

### ★ Fracture Symptoms & signs:

- pain, swelling, weakness ± shortening, motion/crepitus at fracture site

### ★ Physical exam:

- Skin
- Compartment
- N/V (neurovascular): watch for **radial nerve palsy**.
- How to examine the radial nerve? Motor: extension of the wrist. Sensory over the dorsum of the first webspace.



★ **X-Ray:** 2 orthogonal views. It shows spiral fracture in the middle third of the humerus.

### ★ Treatment:

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



<sup>4</sup> [Very recommended](#)

- What is the difference between brace and cast: the brace is removable, plastic with velcro tape, clamshell. There is no significant difference compared to the cast but it's more easy to the patient.
- Surgery is indicated for specific conditions like:
  - ↗ Segmental fracture, **big fragment in the middle.**
  - ↗ Open fracture
  - ↗ Obese patient, **why? because of body built which will push the humerus and displace it.**
  - ↗ Bilateral fracture, **why? patient can't function with 2 casts (inhumane).**
  - ↗ Floating elbow (forearm and humerus); **difficult to control.**
  - ↗ Surgery: ORIF with plate and screws



## Both bones forearm fractures



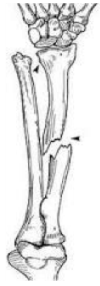

### Anatomy

- Forearm is complex with two mobile parallel bones, **we consider the forearm as a one joint** (quadrilateral joint).
- Radius and ulna articulate proximally and distally, **by the proximal and distal radioulnar joint (DRUJ) to allow forearm rotation.**

### Fracture

- Fractures are often from fall or direct blow.
- It very unlikely to fracture only one bone without disruption of their articulation:

**It is impossible to break only one bone, it is either both bones fracture, or one is broken and the other is dislocated, (If you see 1 one bone broken → stick fracture)**

<p><b>Monteggia fracture:</b> Means <b>proximal</b> or <b>middle third ulna shaft fracture</b> with <b>dislocation of radius proximally</b> (at elbow capitulum)</p>	<p><b>Galeazzi fracture:</b> Means <b>distal</b> or <b>middle third shaft radius fracture</b> with <b>disruption of DRUJ.</b></p>
<div style="display: flex; justify-content: space-around;">   </div> <p><b>Ulna is the fractured big bone, radius is the dislocated one.</b></p> <p>-Mechanism: direct blow on the posterior aspect of the forearm, hyperpronation or fall on the hyperextended elbow.</p> <p>-Clinical Features: decreased rotation of forearm ± palpable lump at the radial head.</p>	<div style="display: flex; justify-content: space-around;">   </div> <p><b>radius is fractured, ulna is dislocated from DRUJ</b></p> <p>-Mechanism: hand FOOSH with axial loading of pronated forearm or direct wrist trauma</p>

**Both bones fracture:**  
Means radius and ulna are broken.

## Clinical

- Symptoms and signs of fracture: deformity, pain, swelling loss of function in hand and forearm
- Check the skin
- **Check the compartments of forearm**, you have to check because forearm and leg fractures have a higher risk for compartment syndrome especially leg fractures.
- Check Ulnar, median and radial nerve (PIN, AIN)
- How to examine AIN and PIN?
- **AIN:** ask the patient to do opposition, it gives branches to the flexor pollicis longus (**FPL**) and flexor digitorum profundus (**FDP**) muscles. If it get injured the patient will be unable to flex the distal interphalangeal joint (DIP), Can not make a perfect "O" sign.
- **PIN:** ask the patient to put his thumb up, it gives branche to Extensor pollicis longus (EPL).
  - Check vascularity: color, temperature, capillary refill and pulse.



## Images

- 2 orthogonal views



## Treatment

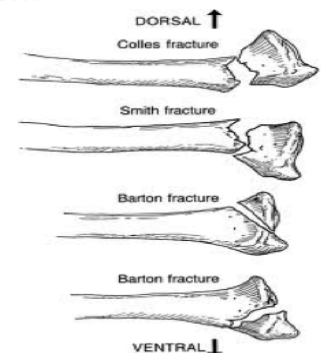
- **Both bone fracture:**
  - ↪ Reduce and splint at ER/clinic (temporary)
  - ↪ Are treated **almost always with ORIF:** (plate and screws)
- **Monteggia fracture:**  
ORIF ulna and close reduction of radial head
- **Galeazzi fracture:**  
ORIF radius and close reduction of DRUJ.



★ If the close reduction fails then we do an open reduction of the joint  
نثبت العظم المكسور و نرجع المفصل المخلوع، اذا ما تقدر نرجعه بدون ما نفتح < نفتح و نرجع المفصل المخلوع

## 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 (**FOOSH**)





## Extra-articular

### Colles' Fracture:

Dorsal angulation **displacement** is more accurate, shortening and radial deviation



### Smith's fracture:

Volar angulation (**displacement**) and shortening. (reverse Colles')

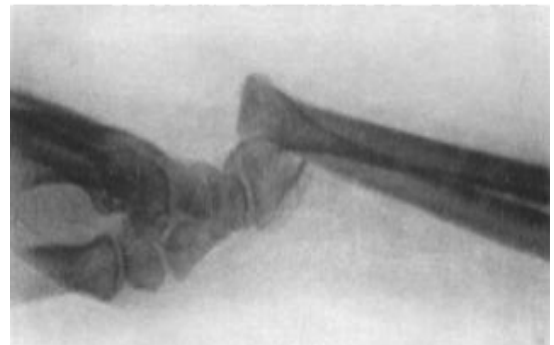


A dinner fork deformity, also known as a bayonet deformity



Dorsal angulation with apex directed volarly

Volar displacement, we always describe distal to proximal



Volar angulation with apex directed dorsally, always look at the thumb to know if it is volar = palmar side of the hand

## Intra-articular

### Barton's fracture: volar or dorsal

The joint is fractured and splitted (blue color), look at the bony fragment (white circle) to know if it is dorsal or volar



### Others

# Treatment

## ★ Extra-articular fractures:

- ↪ **Closed reduction and cast application.**
- ↪ After fracture reduction we do **X-Ray** to decide the definitive treatment, if the fracture is in accepted position then continue in the cast, if the fracture is not in accepted position > do surgery for the patient. I will not tell you about the accepted position (too much information for you).
- ↪ Immobilization for 6-8 weeks.
- ↪ ROM exercises after cast removal.
- ↪ Surgery: if reduction is not accepted



ORIF with the plate and screws

## ★ Intra-articular fracture:

- ↪ A step **more than 2 mm displacement** is an indication for surgery.
- ↪ ORIF with plate and screws.



## Hip fracture (Old patients)

- ★ The usual story of this fracture: a geriatric patient falls down in the bathroom and it is usually managed by surgery.
- ★ 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, you should ask the patient about the cause of falling down, because this can be the only manifestation of MI or stroke.
- ★ It is a life changing event it's not about the fracture itself, but bc it represents a **systemic failure of the patient** " the patient starts to be senile". most people will walk but they will not be the same.
- ★ Mortality: 20% of these people will die 1 year after the fracture. Not bc of the fracture, It just tells you how it's linked to systemic failure.

## Fractures can be classified into: MCQ: "what is classification the of this fracture? "

Joint capsule attaches proximally to the acetabulum and distally to the neck of the femur anteriorly at the greater trochanter.

### ★ Intra-capsular:

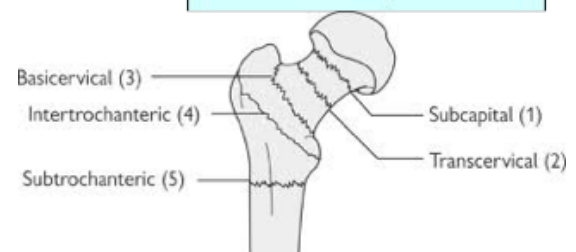
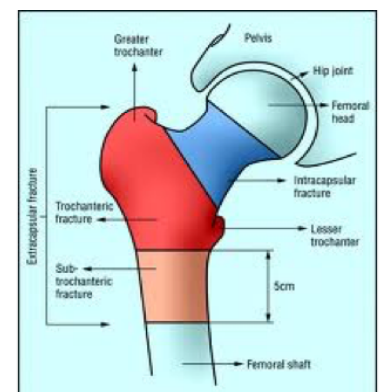
- ↪ Subcapital (below the head)
- ↪ Trans-cervical (الوسط neck)

### ★ Extra-capsular:

- ↪ Basicervical
- ↪ Intertrochanteric

- ★ AVN risk is higher with **intra-capsular fracture**. **Why to bother about the capsule?** because the blood supply is related to the capsule itself, and we know patient who has fracture in this area has a higher chance of avascular necrosis, while if the fracture is outside the capsule he has a lesser chance of AVN.

### ○ Displaced vs nondisplaced



- the importance of classification is to expect the outcome especially the avascular necrosis (higher chance in intracapsular “subcapital then transcervical” lesser chance in extracapsular)

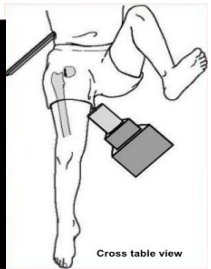
## Clinical

Keep in mind it is not an adult hip it is a geriatric hip, so the patients age usually ranges between 60-80s, they may have osteoporosis, and you will see it more in the future because the number of old people is increasing in SA.

- Full detailed history of mechanism of injury.
- Rule out syncope, chest pain, weakness etc.
- A detailed systematic review.
- **Deformity (old MCQs): Abduction, External rotation and shortening.**
- Assess distal N/V status
- When you do a physical examination for a patient in pain **never move the fracture**, but ask the patient to move the limb.

★ **X-Ray:** 3 views are needed

- ↗ AP pelvis
- ↗ AP hip
- ↗ Lateral hip, **How can we get lateral hip X-Ray?** cross table lateral, the patient rises the normal leg, and the image is taken from down



## Examples

What is the type of this fracture?

- A) Subcapital
- B) Trans-cervical
- C) Basicervical
- D) Intertrochanteric

this is high  
intertrochanteric and yes  
this is maybe basicervical  
(doctor aljryan said it is more likely to be basicervical than intertrochanteric (extracapsular))



What is the type of this fracture?

- A) Subcapital
  - B) Trans-cervical
  - C) Basicervical
  - D) Intertrochanteric
- It's **subcapital transcervical**  
you won't get like this in the exam, it will be clear







## Treatment

- ★ No close reduction is needed, why? a study showed that there is **no difference** if you put a traction or not, not cost effective, and no benefit for the patient.
- ★ No traction is needed.
- ★ Patient needs **surgery** ideally within **48 hrs**, why? a study showed that **mortality** is higher after 48 H.
- ★ 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.

60 years old lady, seen in the ER, she has an external rotation and abduction deformity of the leg, X-Ray shown below, which of the following is the appropriate management?

- a. Reduce the fracture and place skin traction
- b. Reduce the fracture and place skeletal fracture
- c. **Do not reduce the fracture**
- d. Reduce the fracture and place above the knee cast

Management		
Intracapsular fractures		Extracapsular fractures the chance of AVN is minimum less than 5%
Displaced	Nondisplaced	Closed reduction in the OR and DHS or IM nail fixation
<p>hemiarthroplasty, I do not want to do ORIF because although theoretically it works in 65%, 35% will have AVN and they will need another surgery</p>  <p style="text-align: center; color: blue;">Hemiarthroplasty</p>	<p>closed reduction and Screw fixation (cannulated screws “3 screws in the fracture site”)</p> 	 <p>IM nail (intramedullary nail) the screw passes through the nail and goes inside the bone Used if the fracture was comminuted or 4 parts fracture</p>  <p>DHS (Dynamic hip screw) The plate is out and the screw is inside Used for simple fractures</p>

Remember that they are old patients and if you have one shot in your gun, you want it be accurate (you do want to take the patient multiple times to the OR)

**if young patient always fix even if displaced** (if you done hemiarthroplasty he will live for long time and will need to repeat for multiple time and eventually total hip replacement)

## Hip fracture (young patients)

- ★ It is a completely different entity from similar fractures in elderly (>60 years).
- ★ High energy mechanism, we do not expect to see hip fracture in young patients.
- ★ Patient should be taken to operative room for ORIF within **6 hours**.
- ★ **MCQ:** A 30 years old male, presented to the ER, he missed a step on the stairs, the X-Ray will show you a hip fracture, **what do you think?** It is a pathological fracture (most likely a tumor)

# Treatment

They have the same chances for AVN but **I can take them to the OR again**

Management		
Intracapsular fractures		Extracapsular fractures
Displaced	Nondisplaced	Close reduction and DHS or IM nail fixation
closed reduction open reduction and fixation with cannulated screws. <b>the same as nondisplaced</b> <b>No</b> hemiarthroplasty for young patients	closed reduction and Screw fixation ( <b>cannulated screws</b> ).	

## Femur shaft fracture

### Mechanism

- ★ High energy trauma (MVC, fall from height ,gunshot wound)
  - pathologic as a result malignancy, osteoporosis, bisphosphonate use

### Clinical Features:

- ★ shortened, externally rotated leg (if fracture displaced), inability to weight-bear.
- ★ Associated injuries: **hip or pelvis fractures, Pulmonary, knee ligament injury (common).**



### Investigations

- ★ X-Ray: AP pelvis, AP/lateral hip, femur, knee

### Treatment

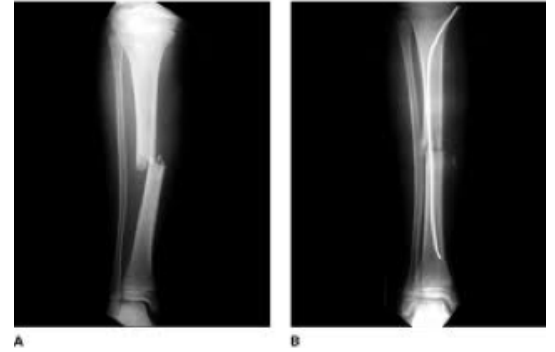
- ★ Early fixation to avoid pulmonary complications (**PE or fat embolism**).
- ★ Skin/ skeletal traction while waiting in the ER
- ★ IM nail within 6-12 hrs **ideally within 24 hours** ORIF with anterograde IM nail (most common) or retrograde IM nail, external fixator for unstable patients, open fractures, or highly vascular areas, or plate and screws for open growth plates within 24h.

# Tibial shaft fracture

- ★ Most common long bone fracture and open fracture
- ★ High energy mechanism

## Clinical Features:

- ★ Pain, inability to weight bear.
- ★ It carries the highest risk of **compartment syndrome**. (cause it is small space and less distal muscles)
- ★ Carefully examine the skin.



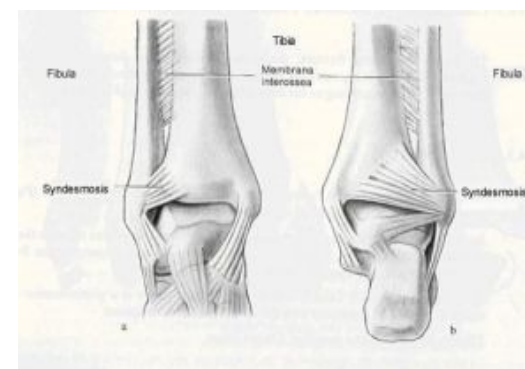
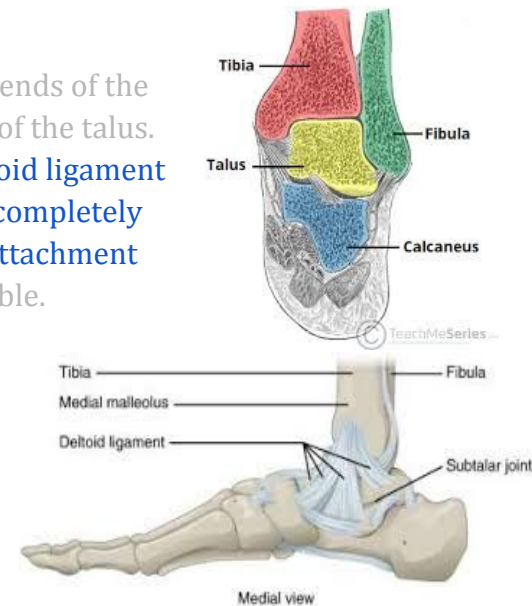
## Treatment

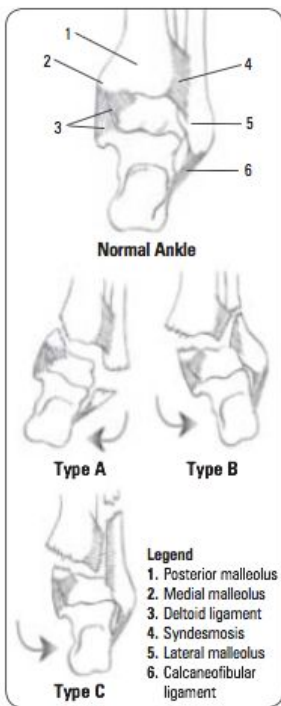
- ★ Splint patient after reduction.
- ★ **IM nail fixation** unless it is not displaced
- ★ If the fracture is not displaced you can go with above the knee cast.
- ★ If the fracture is displaced **more than 50% translation or more than 5 degrees angulation** > do IM nail fixation

# Ankle fracture

## Anatomy it's a common fracture

- ★ The ankle Joint: consists of a deep socket formed by the lower ends of the tibia and fibula, into which is fitted the upper part of the body of the talus. The shape of the bones and the strength of the ligaments (**deltoid ligament** attach the medial malleolus to the talus, If I remove the fibula completely the talus will stay in position because of the deltoid ligament attachment and syndesmosis. ) and tendons make this joint strong and stable.
- ★ The syndesmosis is the ligament that connects two bones of the leg (tibia and fibula), you do not need to know about its tears.
- ★ In order to move the talus out, I have to crack the fibula and **cut the deltoid and syndesmosis**, the talus will go with the fibula toward the fracture. If the syndesmosis and deltoid ligament are intact the talus will not move.
- ★ **Equivalent of deltoid rupture:** fracture of the medial malleolus but the ligament is still intact so both will move together.
- ★ Make sure that there is no lateral translation (**1 mm**) of the talus, because **100%** the patient will get osteoarthritis after 1 year.
- ★ Usually it is a **twisting injury** either RTA or falling down.

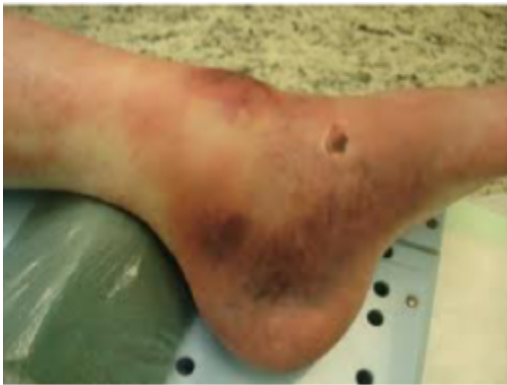




The Danis-Weber classification is based on the level of the fibular fracture:

- **Type A:** a fibular fracture below the syndesmosis, and an oblique fracture of the medial malleolus.
- **Type B:** a fracture at the syndesmosis often associated with disruption of the anterior fibres of the tibiofibular ligament and fracture of the posterior and/ or medial malleolus, or disruption of the medial ligament
- **Type C:** a fibular fracture above the syndesmosis; the tibiofibular ligament must be torn, or else
  - **Bimalleolar fracture:** when both medial and lateral malleolus are broken.

★ Clinical examination is the same.



How it looks in real life



Always do temporary reduction before casting

## Treatment

### ★ Intact medial malleolus:

#### ★ Weber A: No surgery

- Splint + NWB non-weight bearing for 6 weeks.
- Early ROM.

#### ★ Weber B/C: Plate +/- syndesmotic screw

- If medial joint line widen: **ORIF**, if the tibia and fibula are displaced I will put the syndesmotic screw between them, it called **syndesmotic screw** because it act as a syndesmotic ligament (hold the bones together until syndesmosis heal).
- If not: ?



➤ **If both malleoli are broken:** ORIF both bones +/- syndesmotic screw

★ **ORIF**, when do we have to put the syndesmotic screw? if there is lateral translation of the talus intraoperative → if the talus is still moving with stress after fixation → syndesmosis is open and we put screws. so after fixation in weber B or C/ bimalleolar fracture, we do stress test and accordingly we put syndesmotic screws or not

# MCQS

- 1. A 16-year-old came through the ER after he sustained a 3-meter fall from a building, he was cleared except for a solitary left femur injury (X-ray shows mid femoral shaft fracture) how would you manage this injury?**  
A-External fixation.  
B-Screws and plate.  
C-Rigid IM.  
D-Flexible IM  
Ans: D
- 2. A picture of a fracture of the radius, what is the Diagnosis:**  
A-Gelazzei.  
B-Distal radial  
Ans: A
- 3. What is the type of the fracture shown in the picture below?**  
A-Intertrochanteric Fracture.  
B-Subcapital neck fracture  
C-Transcervical Fracture.  
D-Fracture of the greater trochanter.  
Ans: A
- 4. 20-year-old male, who is fall down from 2 steps stair and fractured his ankle. The parents report that their son' personality has been changed since the past weeks,which one of the following describe the patient situation?**  
A-Pathological fracture.  
B-Psychological factors  
Ans: A





5. **Young patient has a clavicular fracture how to manage him?**

A-Figure of eight.

B-Sling

C-ORIFT

Ans: **B, Dr.Abdulmonam said it's C**

6. **Which one of the following is considered as unstable fracture?**

A-Lateral displacement of the talus.

7. **Patient has a fracture in the humerus as shown below in the picture, how would you manage him?**

A-Screw and plates.

B-ORIF.

C-Brace

Ans: A

8. **Patient has an isolated fracture of the femur, what is the management?**

A-IMN

9. **A distal humeral fracture will result in?**

A-Wrist drop.

10. **Which fracture is described as dislocation of the distal head of the radius and a fracture of the ulnar?**

A-Monteggia

11. **What is the diagnosis (Can't remember the case but they gave us a pic and asked)?**

A-Barton's fracture

B-Smith's Fracture

C-Colle's Fracture

D-Galeazzi

Ans: A



12. **Case about an old patient with intracapsular fracture what is the treatment?**

A-IM nail

B-hemiarthroplasty

C-DHS

D-percutaneous in situ fixation

Ans: B

