

Hip Fractures

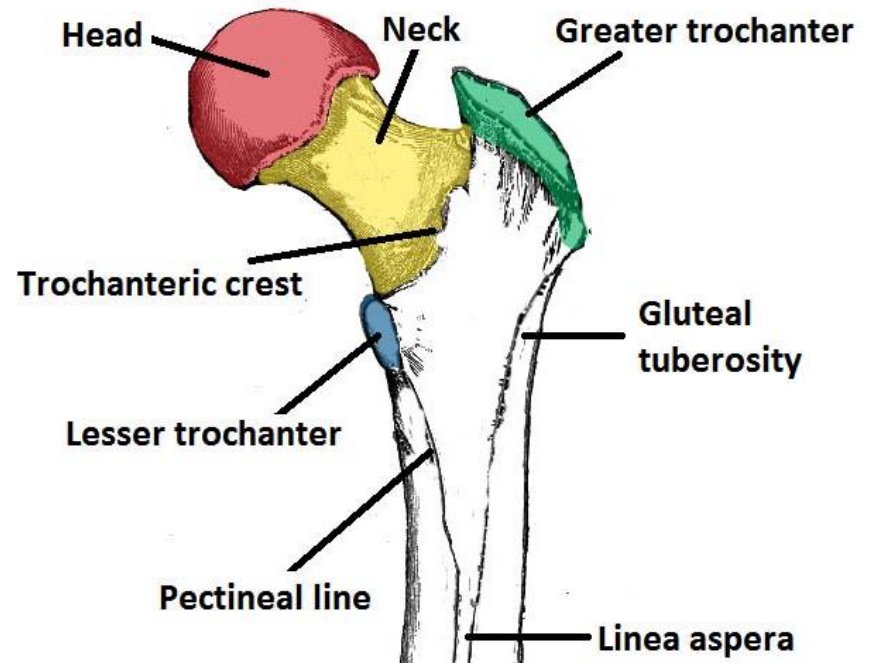
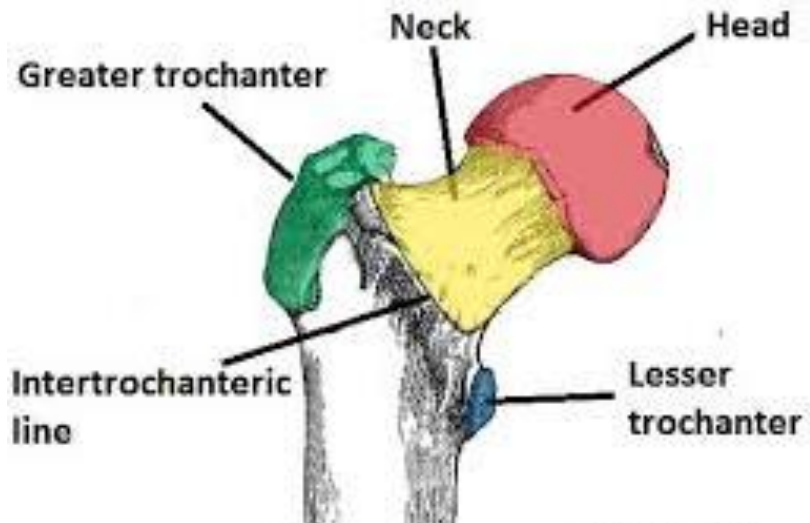
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Learning Objectives

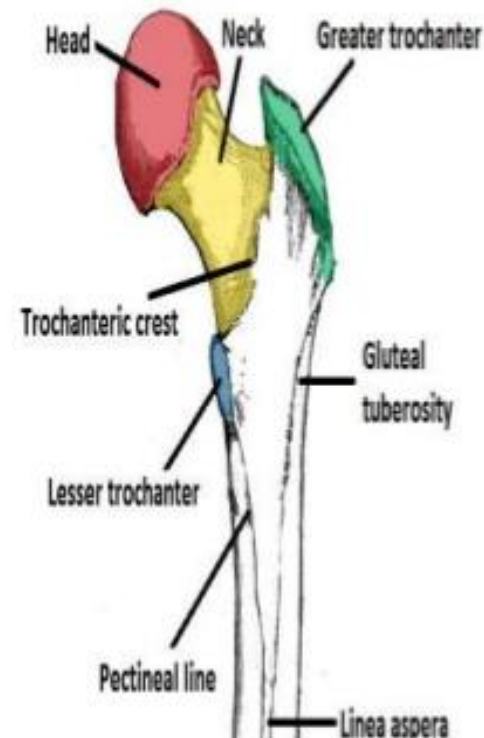
- Identify anatomy of the proximal femur
- Identify vascular supply of the proximal femur
- Clarify the mechanisms of injury
- Identify the signs & symptoms of PF fractures
- Classification of PF fractures
- Identify the principles of management

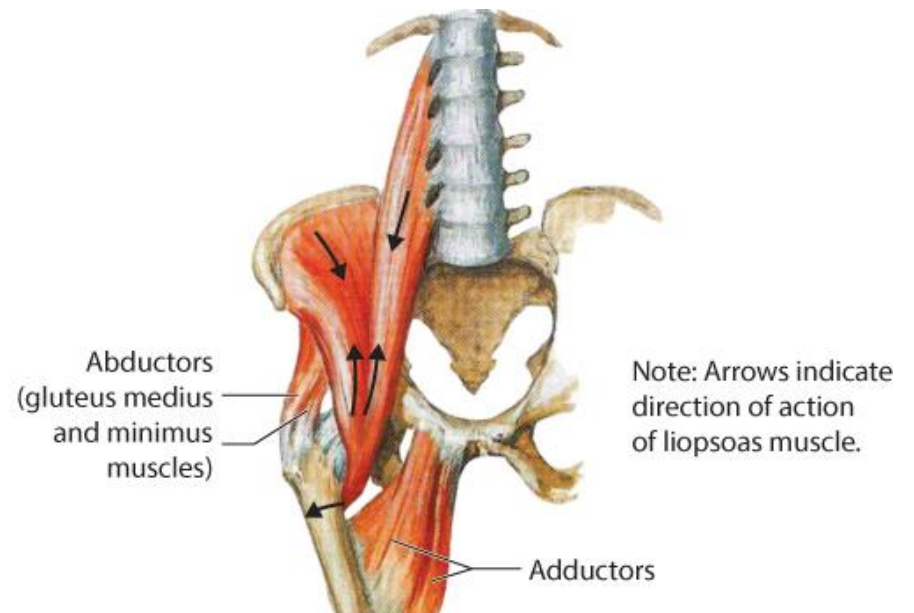
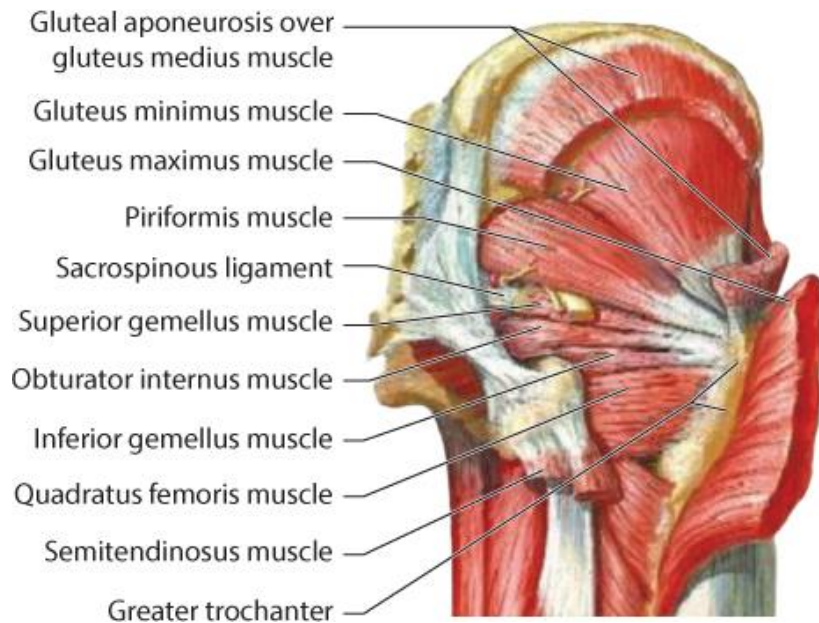


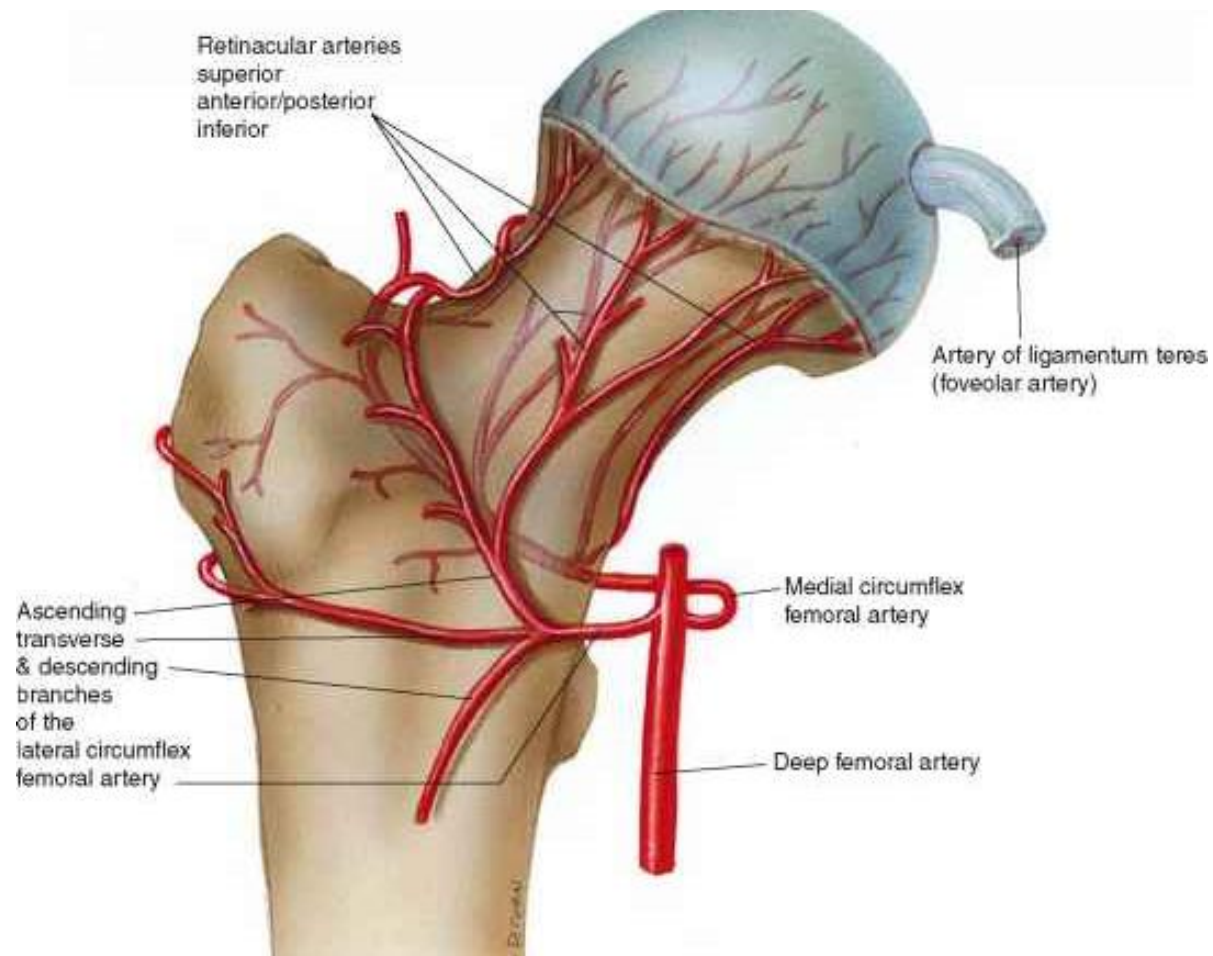


ANATOMY OF NECK OF FEMUR

- Neck connects head with shaft and is about 3.7 cm long.
 - It makes angle with the shaft 130 ± 7 degree (less in female due to their wider pelvis).
- It facilitate movements of hip joint.
- It is strengthened by calcar femorale (bony thickening along its concavity).







Blood supply

Crock described the arteries of the proximal end of the femur in three groups

- (a) an extracapsular arterial ring located at the base of the femoral neck;
- (b) ascending cervical branches of the extracapsular arterial ring on the surface of the femoral neck (known as retinacular arteries)
- (c) the arteries of the ligamentum teres

Mechanism of Injury

- Old patients: result from low energy trauma in osteoporotic bones
- younger patients following high energy trauma like motor vehicle accidents.

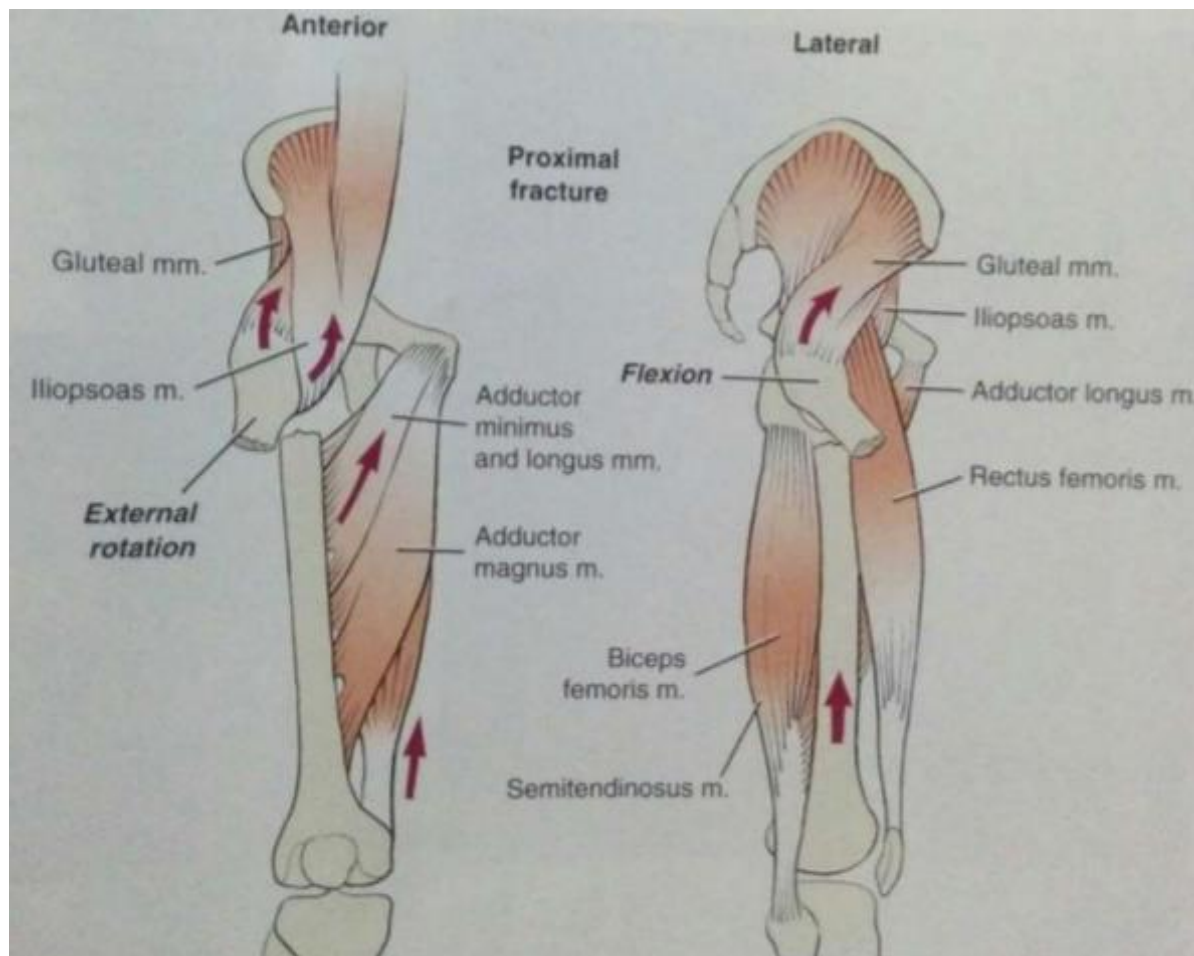
Presentation

- The clinical presentation of the proximal femur fractures can vary depending on the type, severity, and cause of the fracture.

Pain

- displaced fractures: Patients usually cannot stand or ambulate.
- Non-displaced or impacted fractures: patients with may be ambulatory and experience minimal pain.

- Patients with a displaced proximal femur fractures exhibit the classic presentation of a shortened and externally rotated extremity. There may be tenderness to palpation in the area of the greater trochanter. Ecchymosis may be present and should be noted.



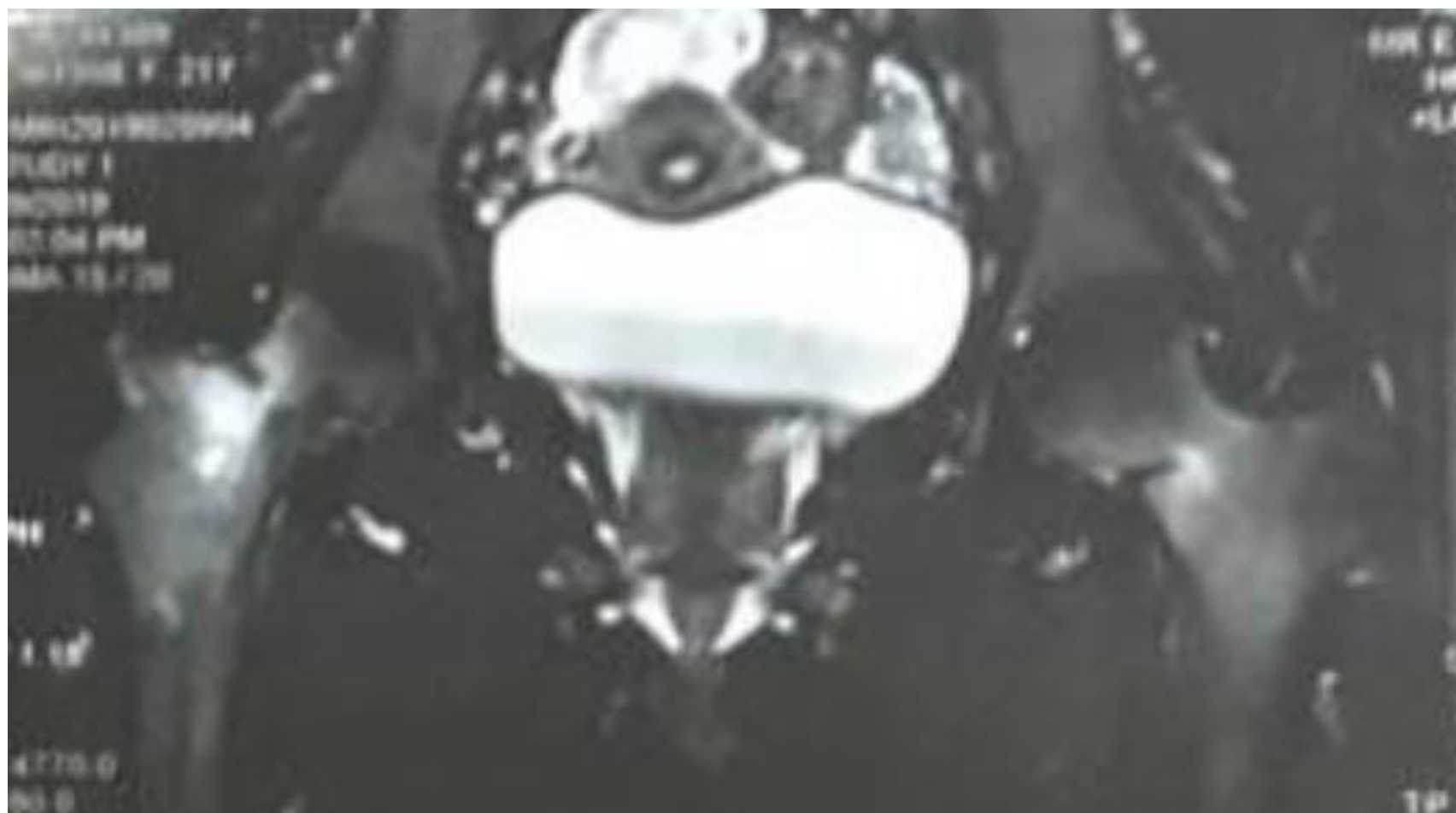
- Range-of-motion testing of the hip will be painful and ***should be avoided***.
- Neurovascular injury is rare after hip fracture, careful evaluation is nevertheless mandatory.

Special Attention

- Thigh or groin pain without any history of trauma. These patients should be suspected to have with a *stress fracture of the proximal femur*. They should be enquired about any recent changes in the type, duration, or frequency of physical activity.
- In patients in whom no significant history about activity or trauma is available, *pathological fracture* must be considered.

Diagnosis ?



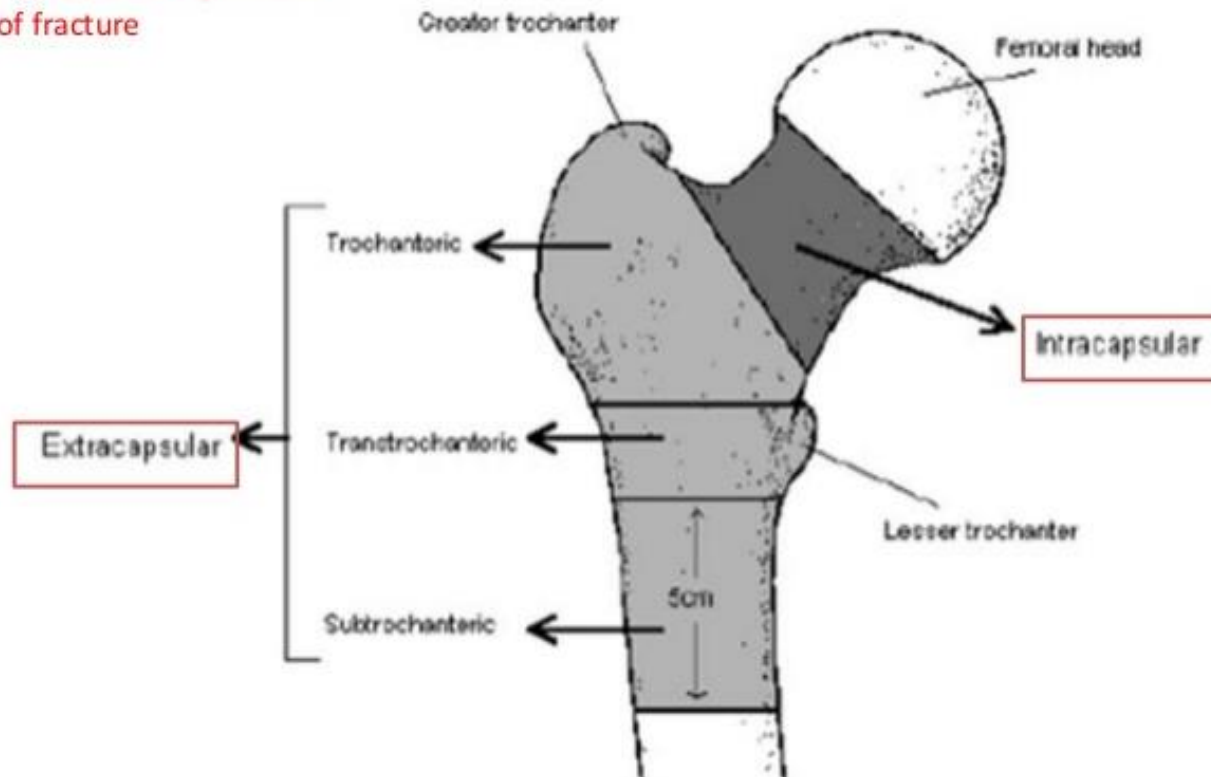


Diagnosis ?



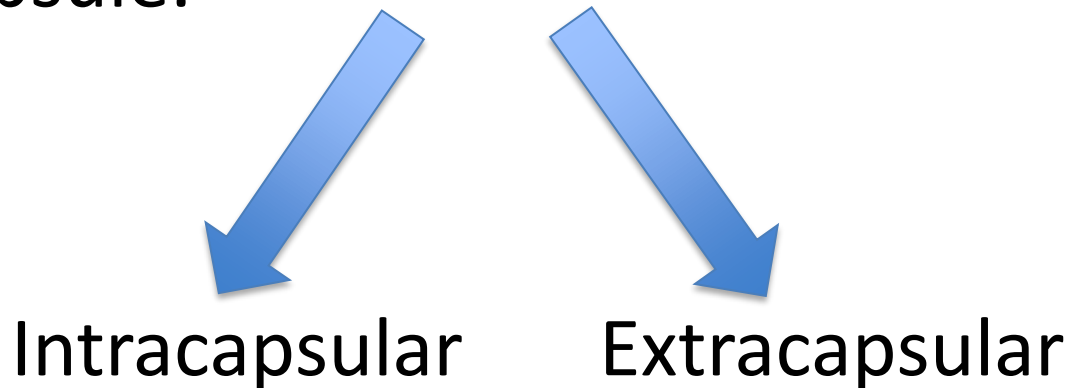
CLASSIFICATION of FEMUR FRACTURE

*based on area/location of fracture



Classification of Proximal Femur Fractures

- Proximal femur fractures are divided into groups based on their location with regard to the capsule.



Intracapsular fractures

- within the lining of hip joint capsule, associated with injury to blood supply to head of femur. may result in avascular necrosis of femoral head.



Femoral head fractures



Femoral neck fractures

Intracapsular fractures

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Femoral head fractures



Femoral neck fractures

Femoral neck fractures

Depending on fracture location these are further classified as

Subcapital fracture – just below the head of femur

Transcervical fracture – through mid neck

Basi-cervical fracture – through base of neck



Diagnosis ?



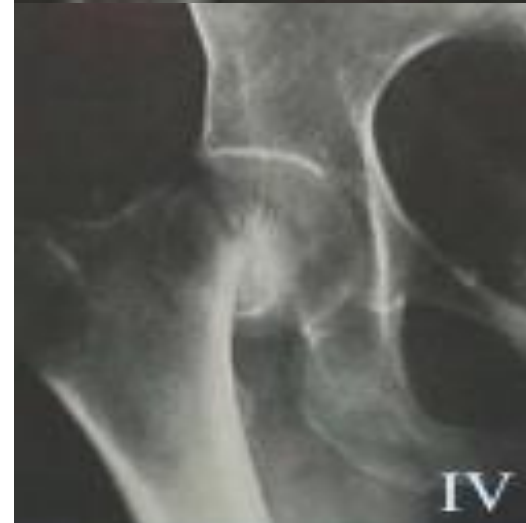
Diagnosis ?



Diagnosis ?



Garden's classification



Extracapsular fractures

Outside the capsule , do not cause the same degree of vascular damage as intra-capsular fractures and therefore can be treated differently.



Intertrochanteric



Subtrochanteric

Intertrochanteric fracture classification

Evans Classification



Stable



Stable



Unstable



Unstable



Unstable

Diagnosis ?



Diagnosis ?



Diagnosis ?

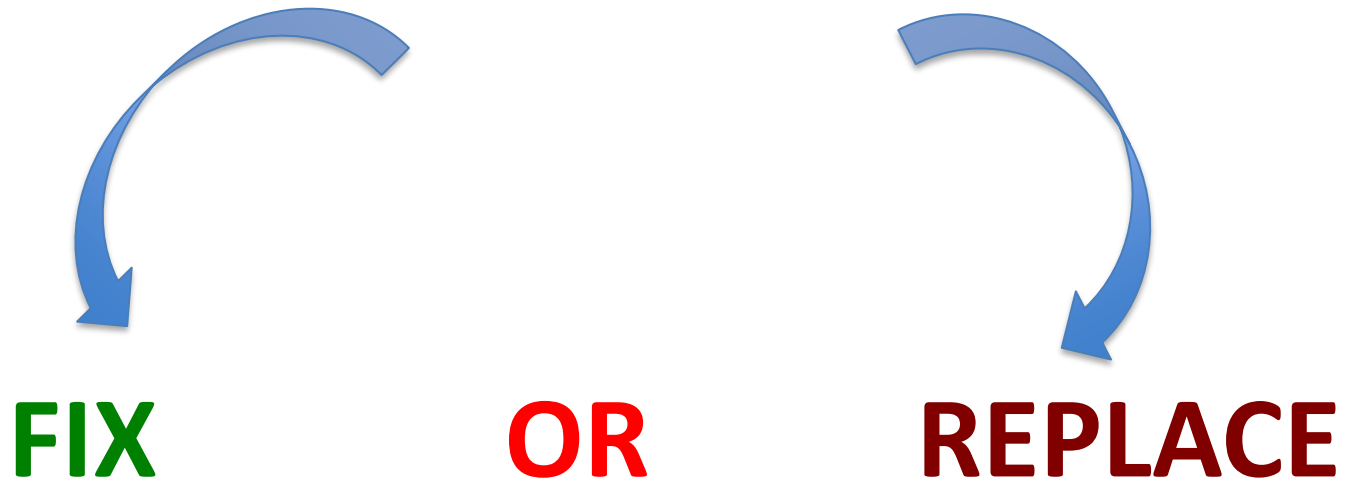


Diagnosis ?



Principles of Management

Femur neck fracture



FN # 25-year-old



FN # 70-year-old



Monopolar PHR



Inter,/ subtrochanteric fractures

- Aim: Restore length, alignment & rotation
NO anatomical reduction

Without extensive soft tissue dissection, this fracture forms abundant callus in 6 weeks

Intertroch. Treatment DHS



Intertroch. Treatment IMN



Subtroch. Treatment



Complications

General

- DVT
- PE
- Pneumonia
- Bed sores

Lacal

- AVN
- Non / Mal-union
- Failure of fixation
- Posttraumatic arthrosis

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