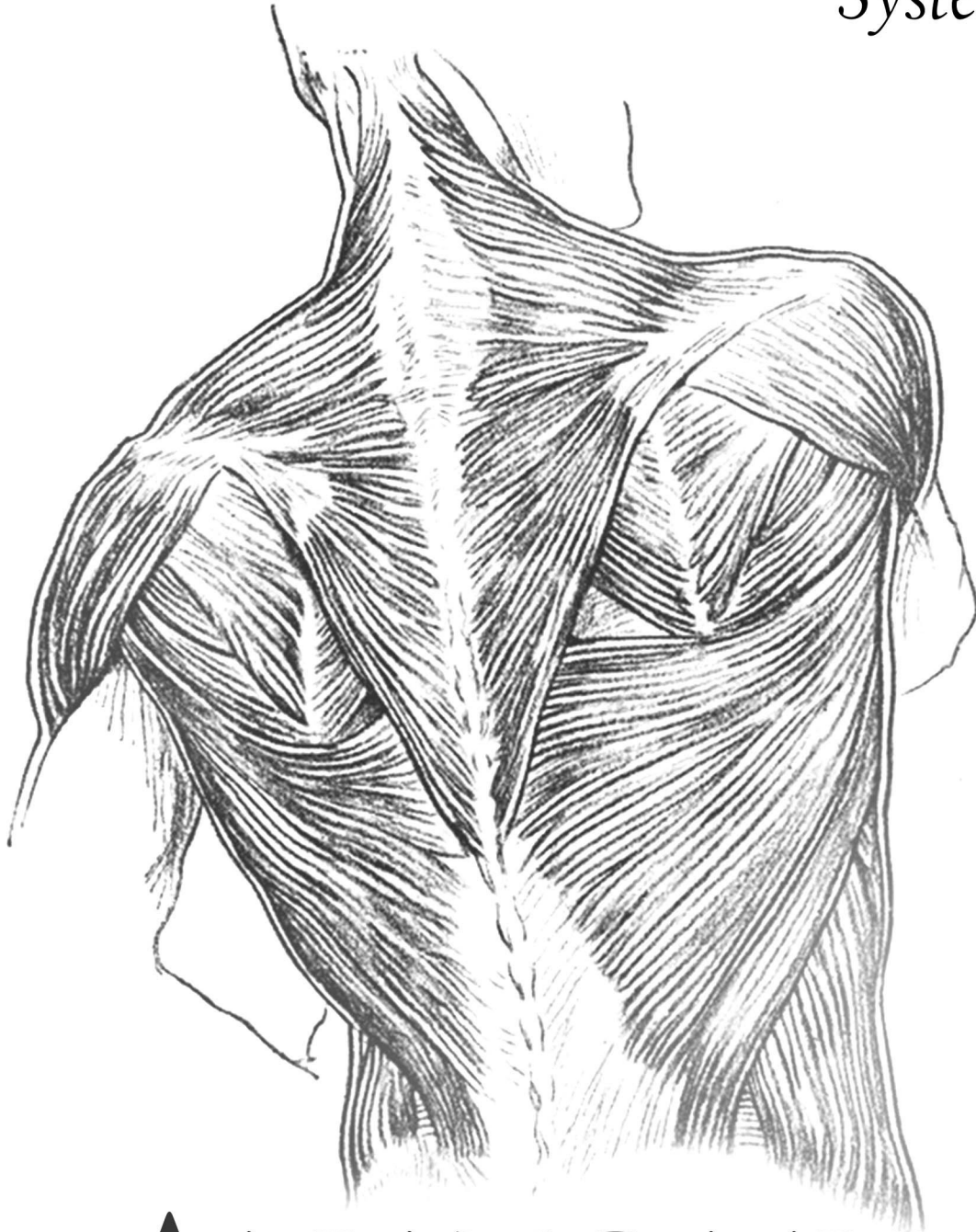




The Skin and
MUSCULOSKELETAL
System



ANATOMY

SLIDES

SHEET

SLIDE: **9**

DOCTOR: **Amjad Al-Shatarat**

JOINTS OF THE LOWER LIMB



Hip joint

1-Type:

Synovial ball-and-socket joint

2-Articular surfaces:

a- head of femur

b- lunate surface of acetabulum



Which is deepened by the fibrocartilaginous *labrum acetabulare*

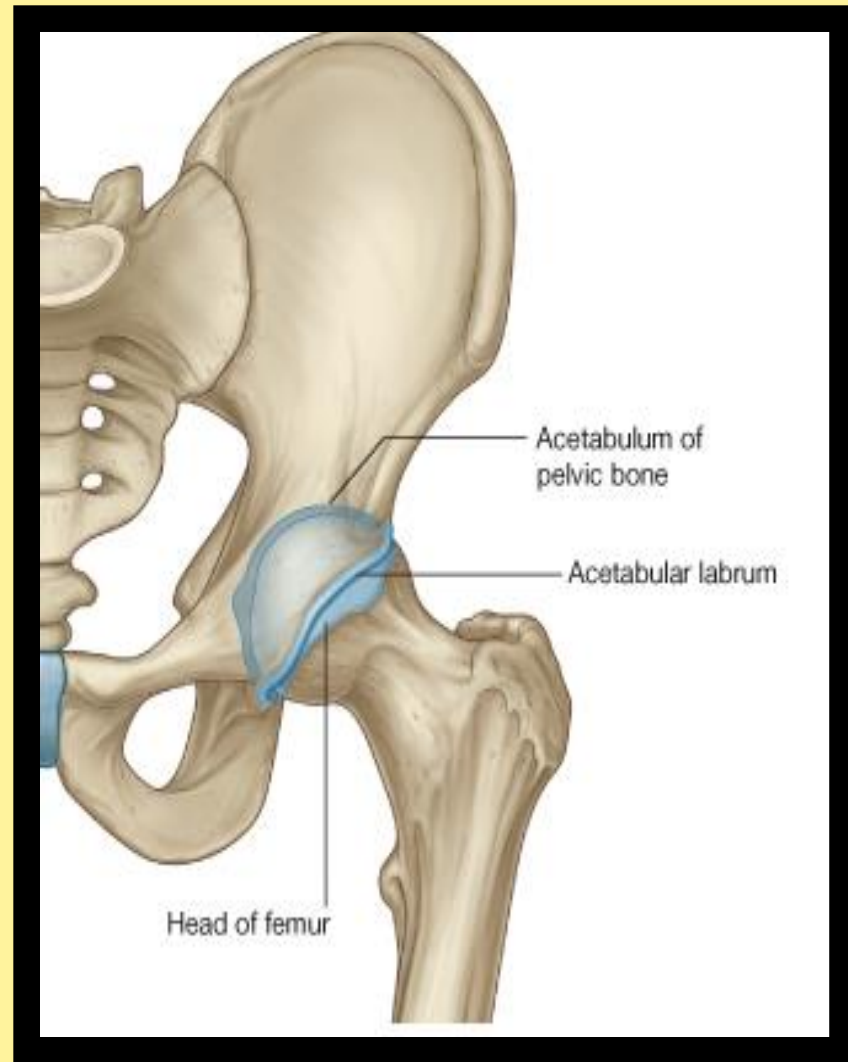
3-Nerve Supply:

Femoral nerve

Obturator nerve

Sciatic nerve

Remember referred pain



Capsule

4-The capsule of the hip is attached

proximally to the margins of the acetabulum

posteriorly,
to the femoral
neck about 0.5 in
(12mm) from the
trochanteric crest.
From this distal
attachment,
capsular fibres are
reflected on to the
femoral
neck as *retinacula*
and provide one
pathway for the
blood supply to the
femoral head

?????



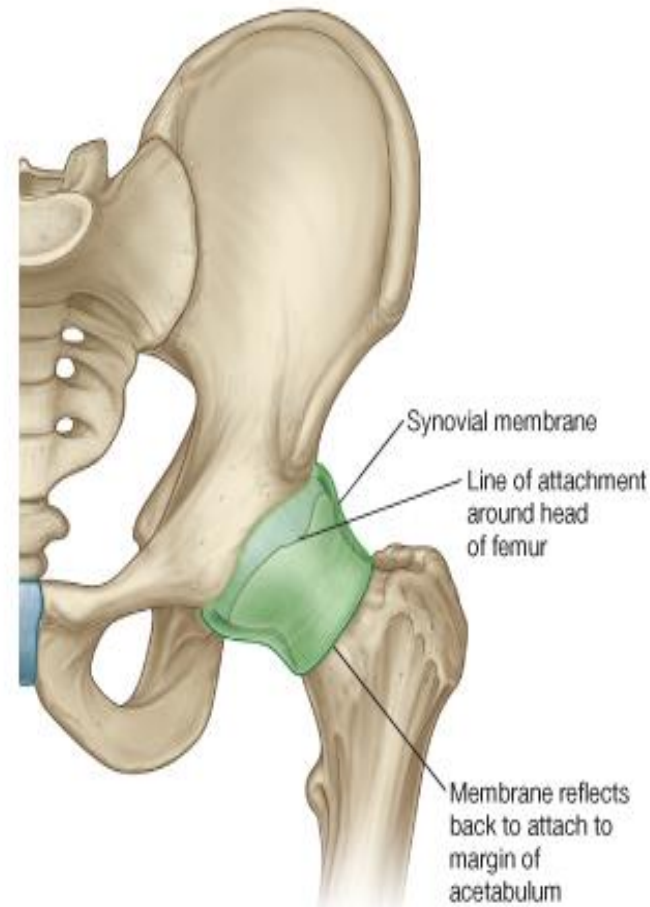
Distally, it is attached
along
the trochanteric line,
the bases of the
greater and lesser
trochanters

5-The synovial membrane of the hip joint

lines the fibrous layer as well as any intracapsular bony surfaces not lined with articular cartilage

Thus, where the fibrous layer attaches to the femur, the synovial membrane reflects proximally along the femoral neck to the edge of

the femoral head. The **synovial folds (retinacula)**, which reflect superiorly along the femoral neck as longitudinal bands, contain subsynovial retinacular arteries (branches of the medial and a few from the lateral femoral circumflex artery), which supply the head and neck of the femur



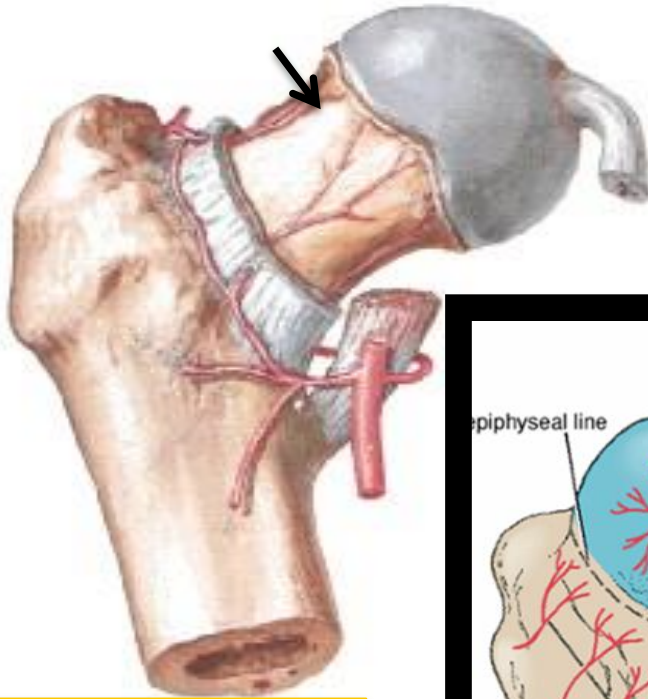
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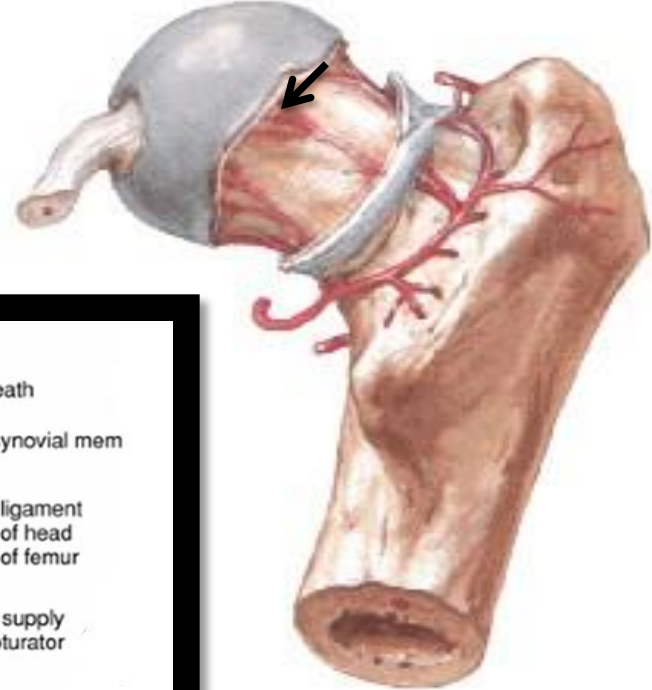
Figure 6.31 Synovial membrane of the hip joint.

important

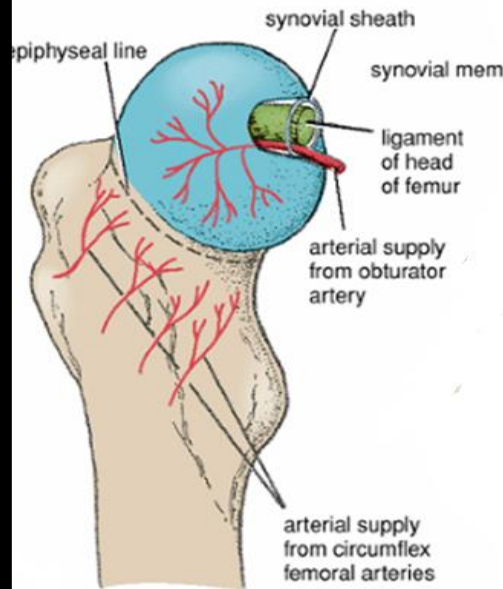
**6-Subsynovial retinacular arteries
(branches of the medial and a few from the
lateral femoral circumflex artery), which supply
the head and neck of the femur**



Anterior view

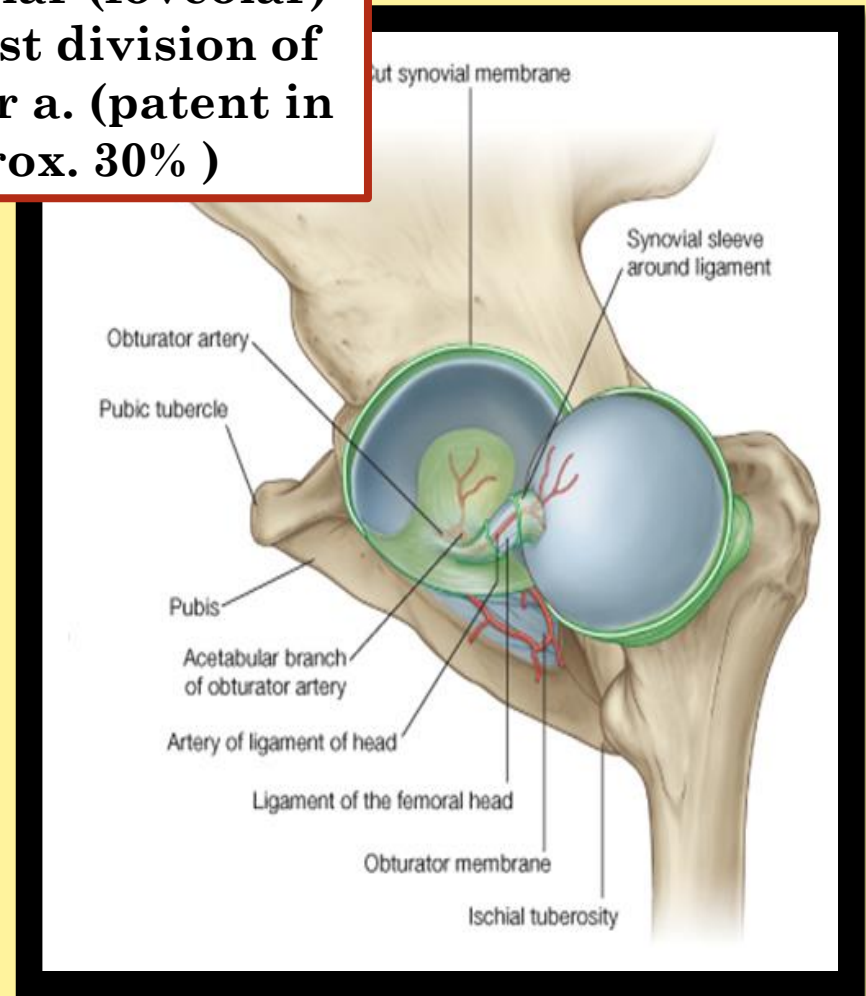
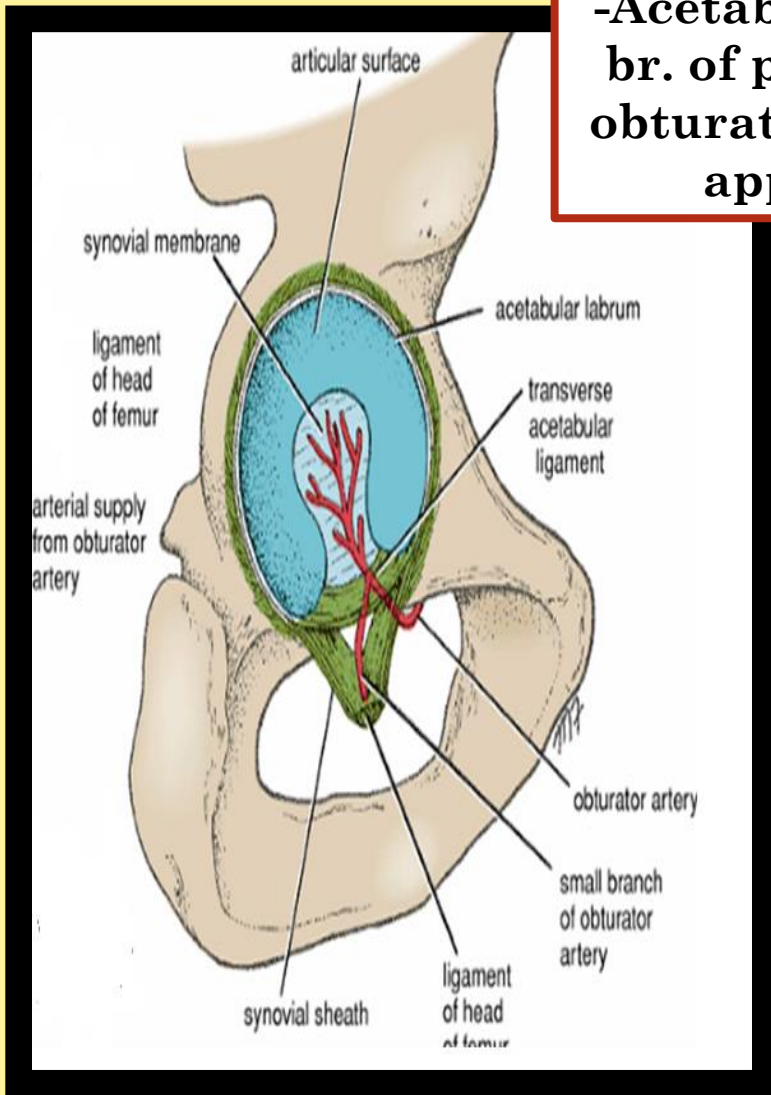


Posterior view



Blood supply of the head of the femur

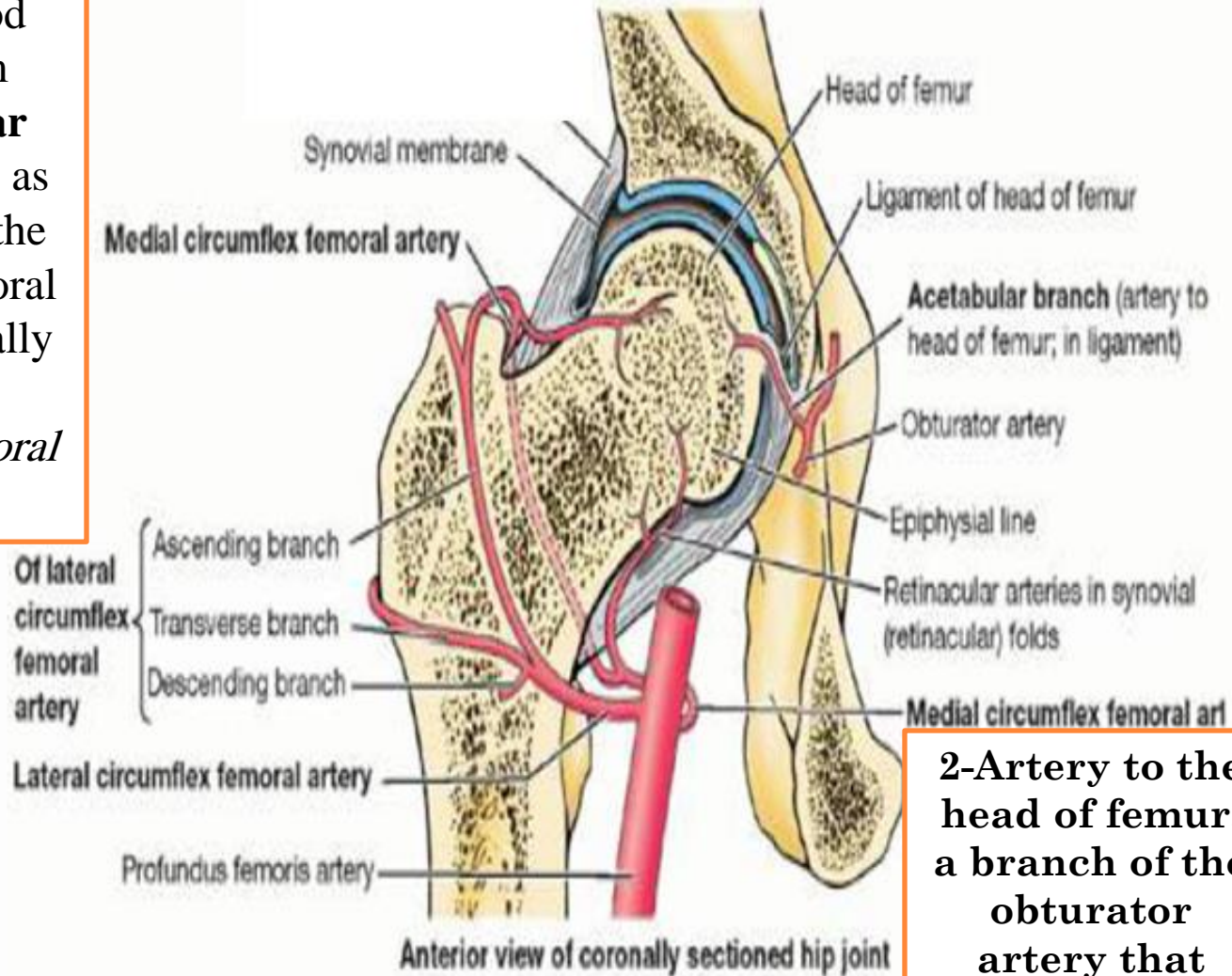
-Acetabular (foveolar) br. of post division of obturator a. (patent in approx. 30%)



1-Medial and lateral circumflex femoral arteries

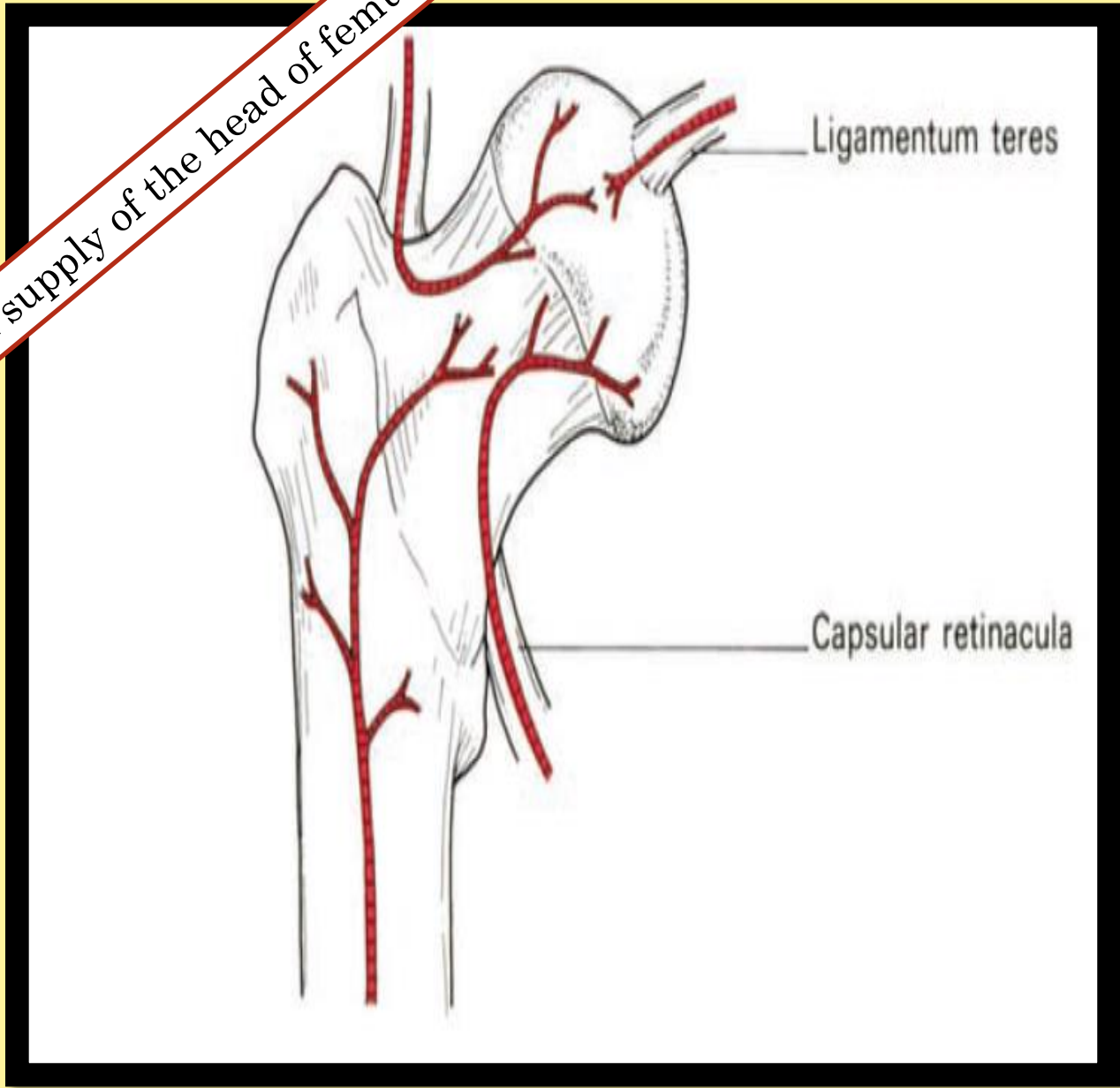
The main blood supply is from the **retinacular arteries** arising as branches from the circumflex femoral arteries (especially the *medial circumflex femoral artery*).

Blood supply to the head of the femur



2-Artery to the head of femur, a branch of the obturator artery that traverses the ligament of the head.

Practice the blood supply of the head of femur



The upper end of the femur is a common site
for fracture
in the elderly

The neck may break

1-immediately beneath the head

subcapital

2-near its midpoint

cervical

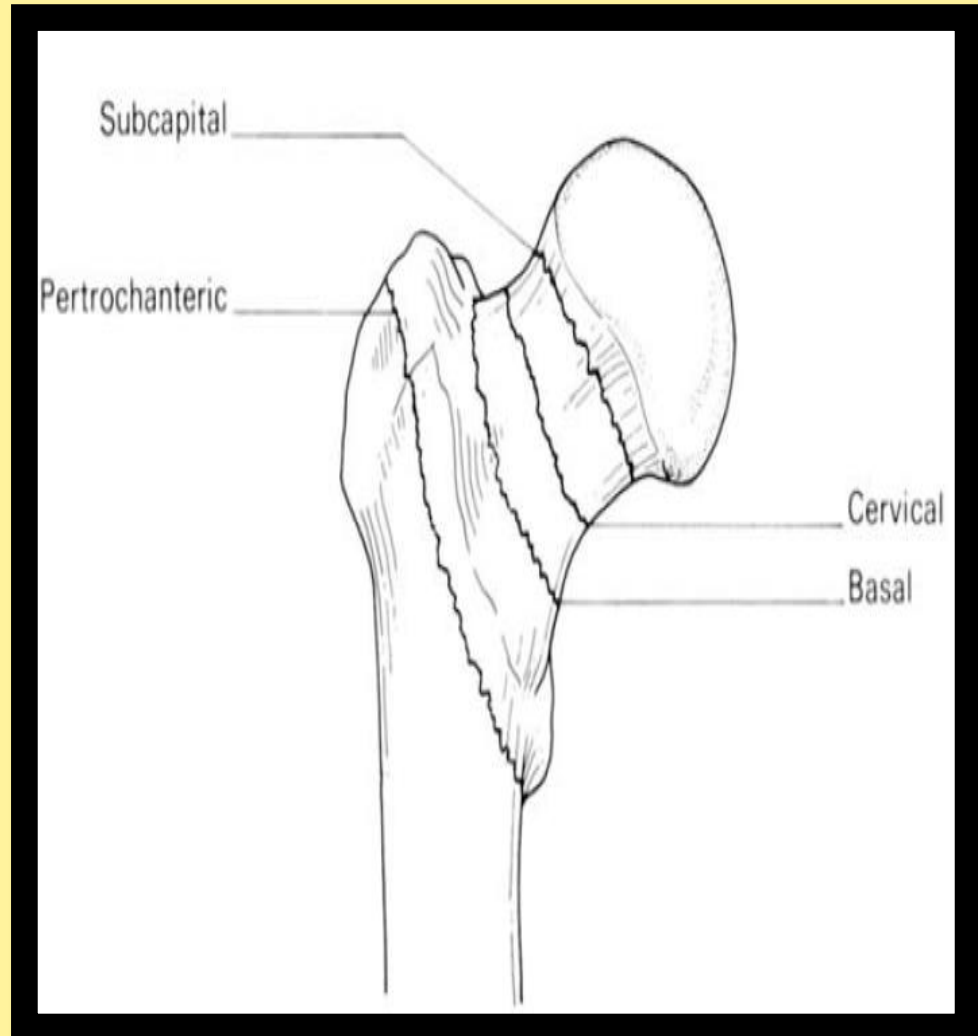
3-adjacent to the trochanters

basal

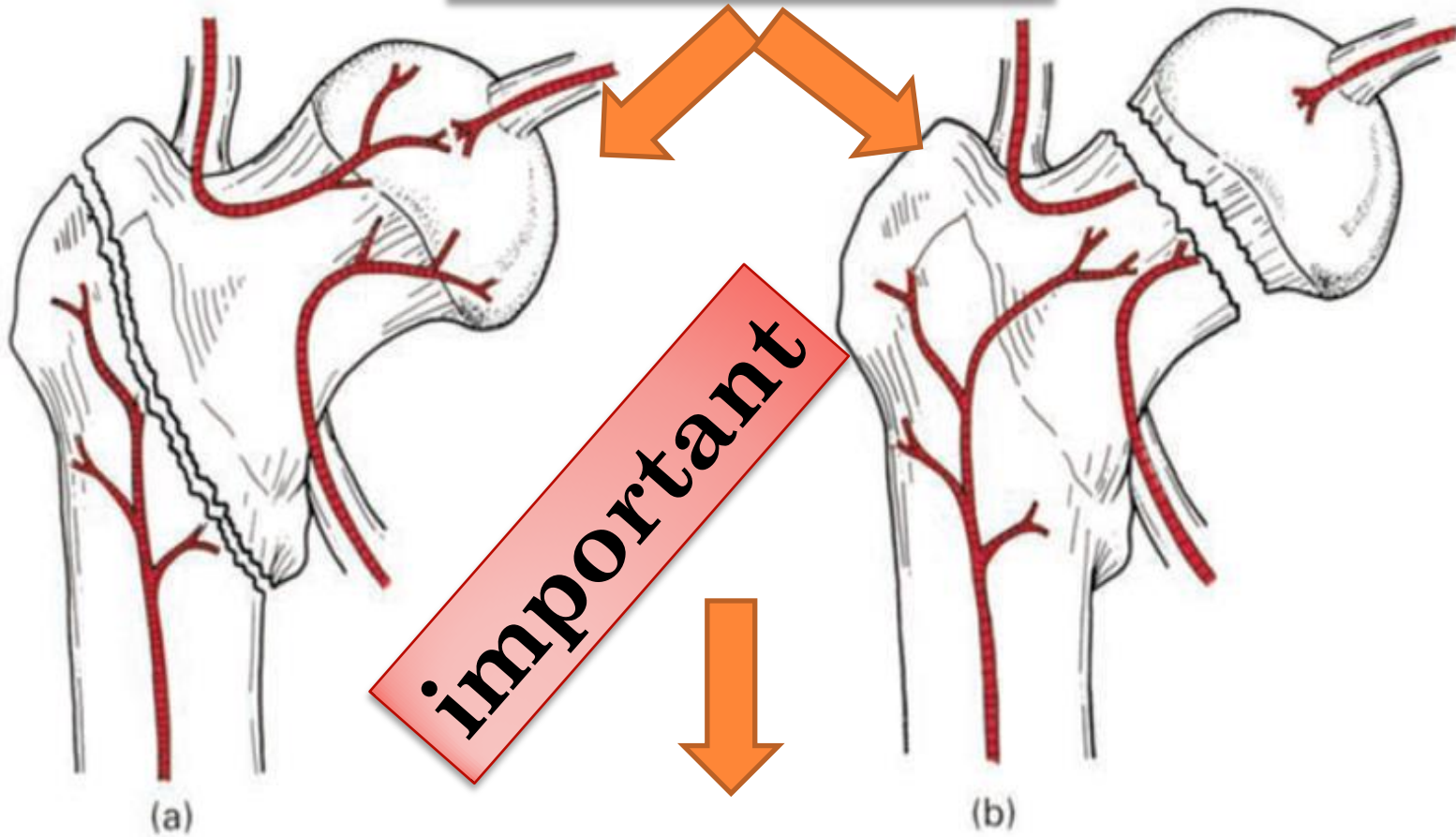
4-the fracture line

may pass between, along or just below
the trochanters

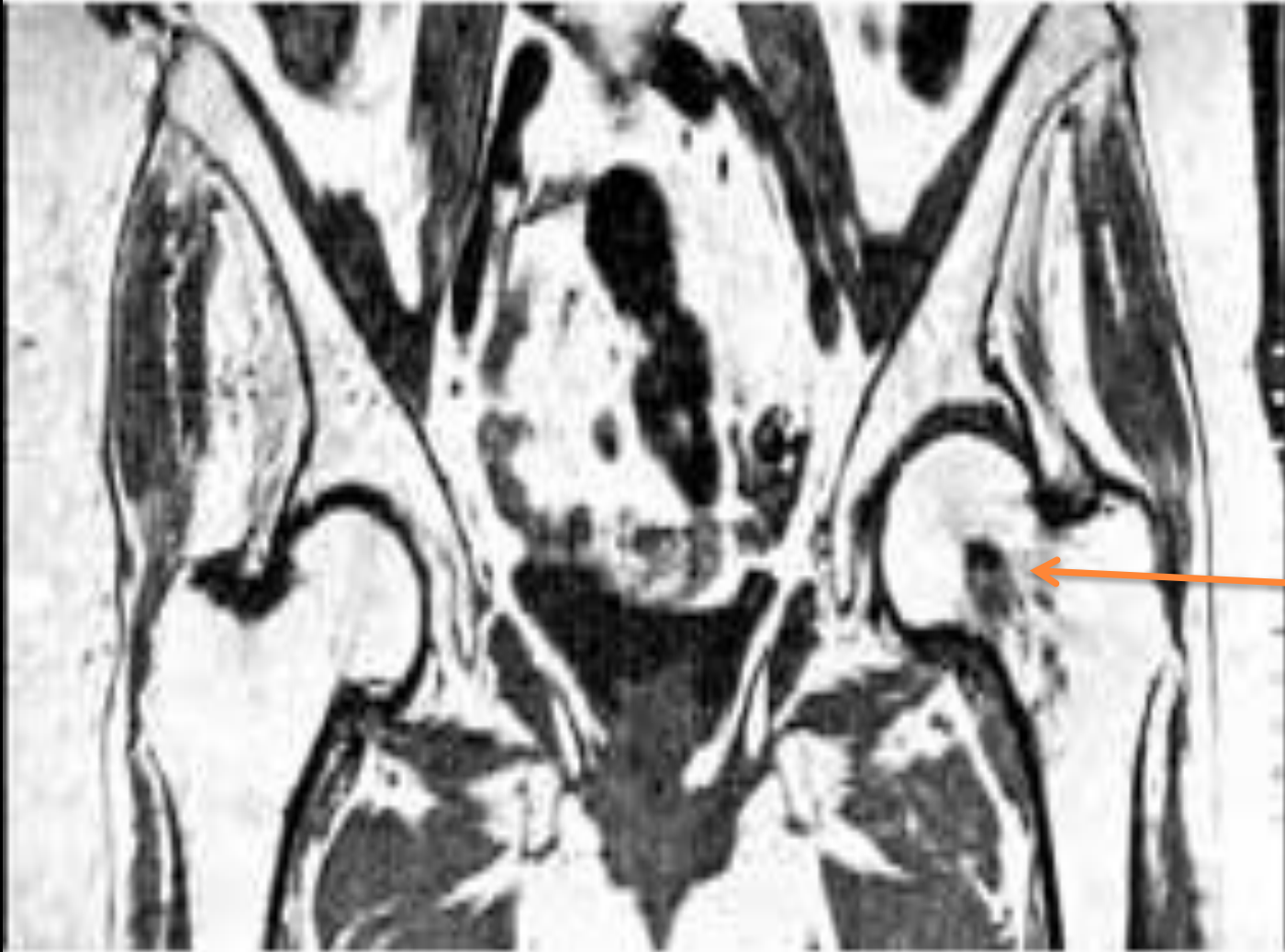
pretrochanteric



Neck fracture will result in



(a) A pertrochanteric fracture does not damage the retinacular blood supply—aseptic bone necrosis does not occur. (b) A subcapital fracture cuts off most of the retinacular supply to the head—aseptic bone necrosis is common. Note that the blood supply via the ligamentum teres is negligible in adult life.



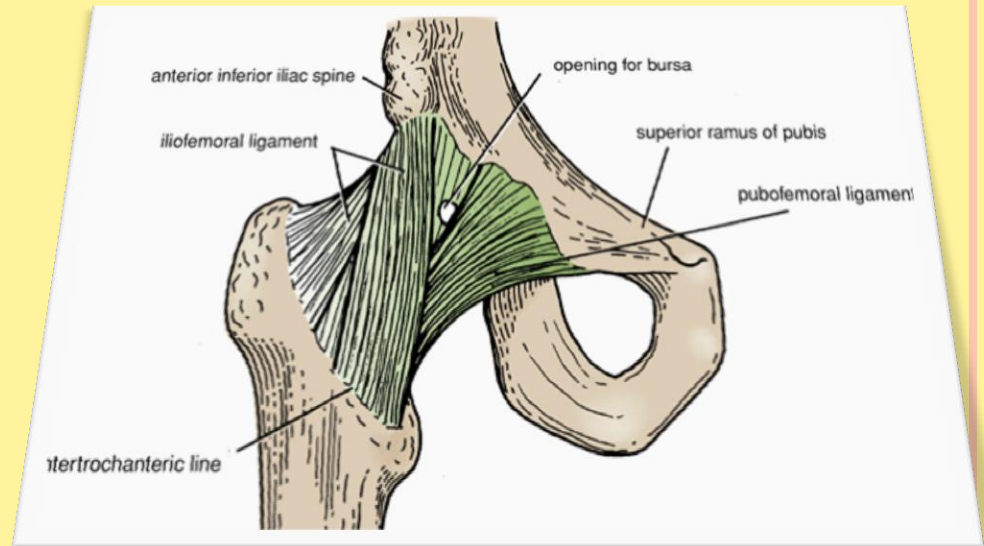
For reading only

MRI
revealing
Left
Femoral
neck
Fracture

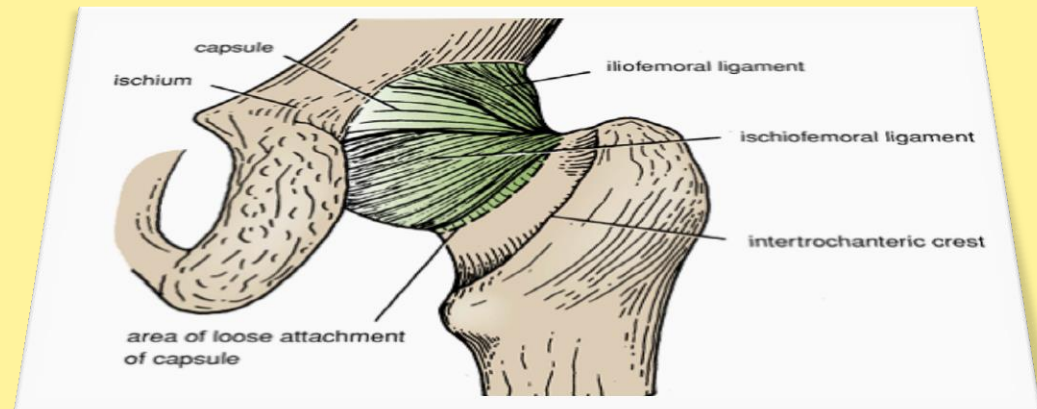


7-MAIN LIGAMENTS OF THE HIP JOINT

a-Iliofemoral: *is a strong, inverted Y-shaped ligament. Prevents hyperextension of hip joint during standing*



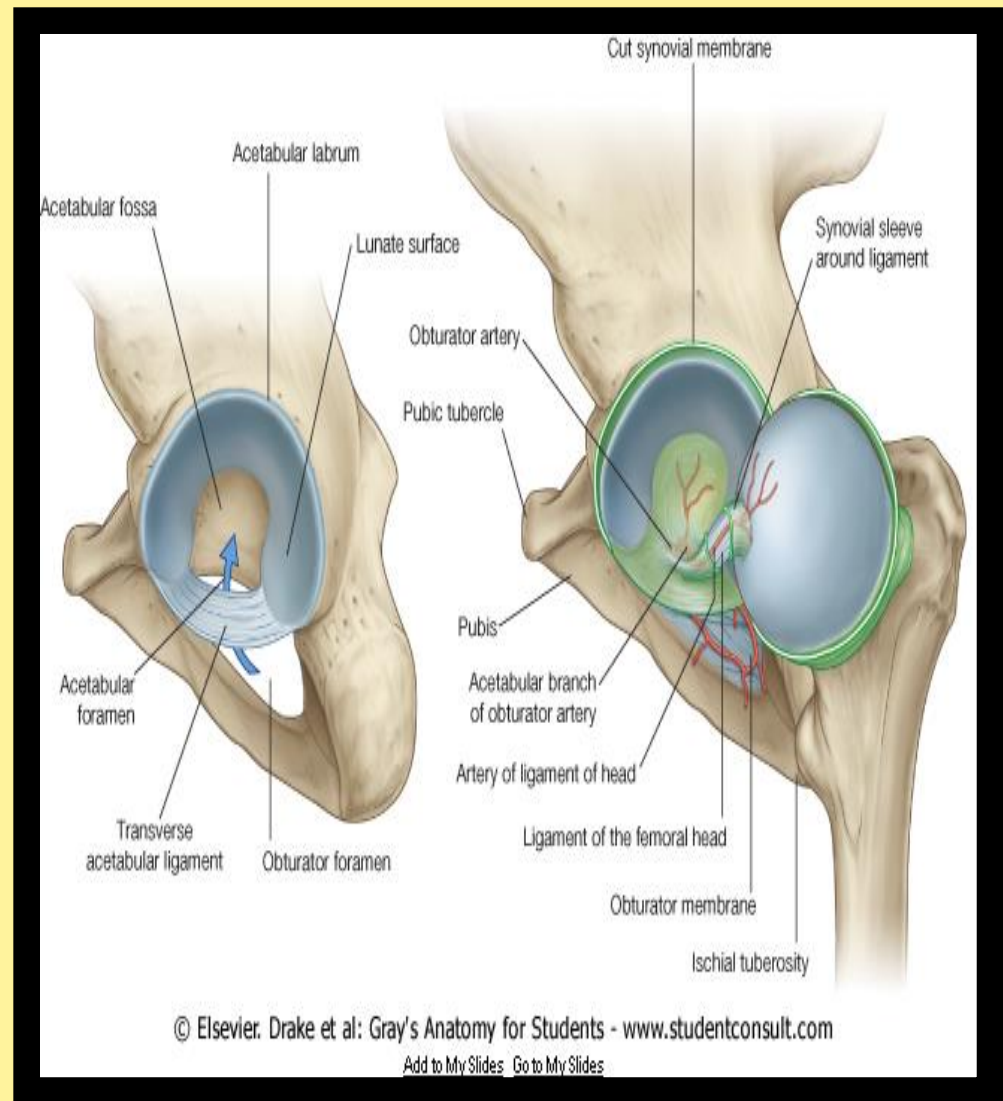
b-Pubofemoral:
limits extension and abduction



c-Ischiofemoral:
limits extension

D-The ligament of head of femur *ligamentum teres* primarily a synovial fold conducting a blood vessel, is weak and of little importance in strengthening the hip joint

Its wide end attaches to the margins of the acetabular notch and the *transverse acetabular ligament*; its narrow end attaches to the femur at the *fovea for the ligament of the head of femur*. Usually, the ligament contains a small artery to the head of the femur.



The non-articular lower part of the acetabulum, the *acetabular notch*, is closed off below by the *E-transverse acetabular ligament*



8 - Movements

➤ Flexion is performed by ***the iliopsoas, rectus femoris, and sartorius***

➤ Extension is performed by ***the gluteus maximus and the hamstring muscles.***

➤ Abduction is performed by ***the gluteus medius and minimus***, assisted by the sartorius, tensor fasciae latae, and piriformis.

➤ Adduction is performed by ***the adductor longus and brevis and the adductor fibers of the adductor magnus.*** These muscles are assisted by the pectineus and the gracilis.

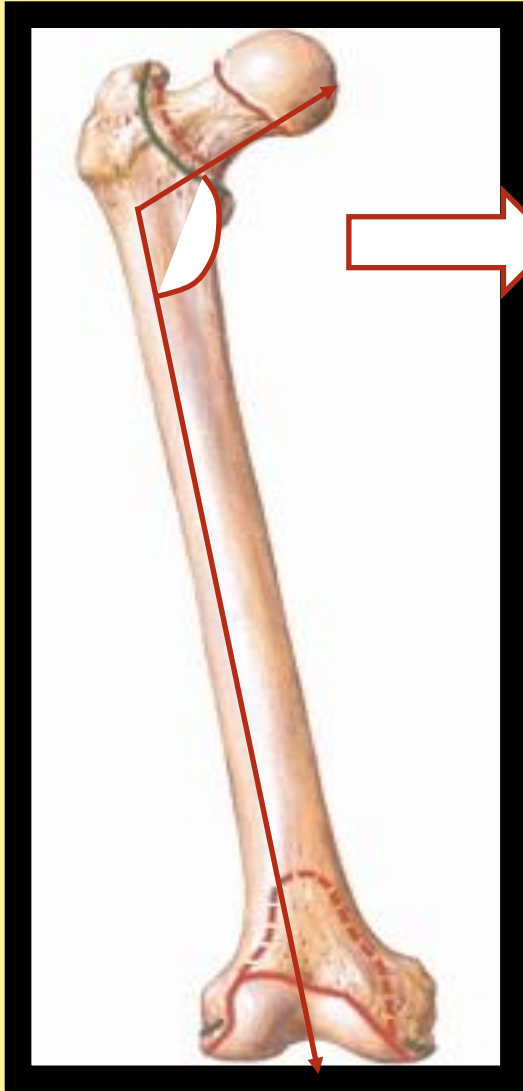
➤ Lateral rotation is performed by the short lateral rotator muscles and assisted by the gluteus maximus.

➤ Medial rotation is performed by **the anterior fibers of the gluteus medius and gluteus minimus** and the tensor fasciae latae.

Flexion is limited by the hamstring muscle group. Extension is limited by the ligamentous thickening of the capsule; abduction, by the adductor group of muscles; adduction, by the tensor muscle and fascia of the abductor muscles; and rotation, by the fibrous capsular

9- ANGLE OF INCLINATION

it is the angle between the neck and shaft of the femur

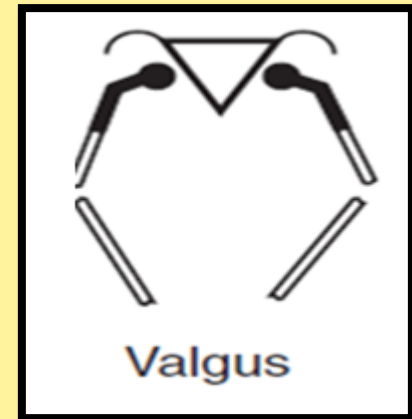
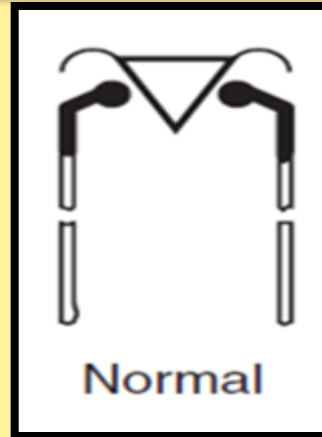
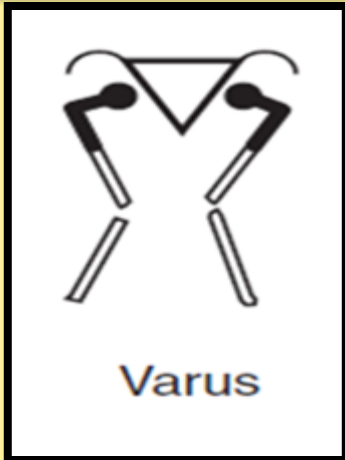
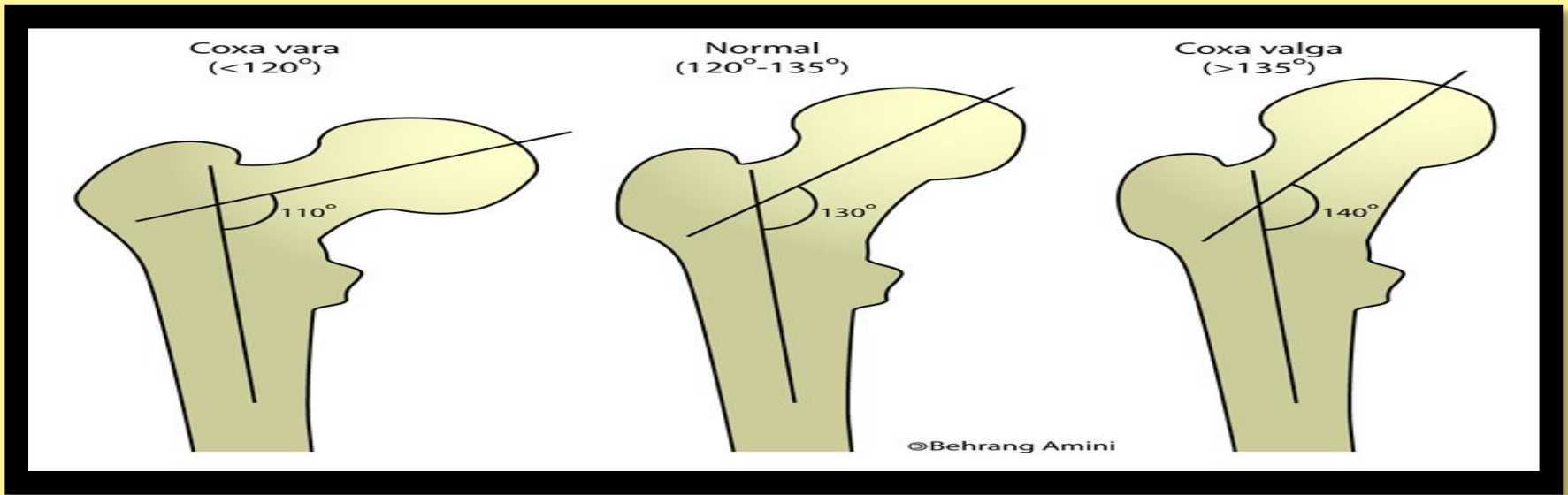


Approx. 125°

typically ranges from 115 to 140 degrees

is about 160° in the young child and
about 125° in the adult



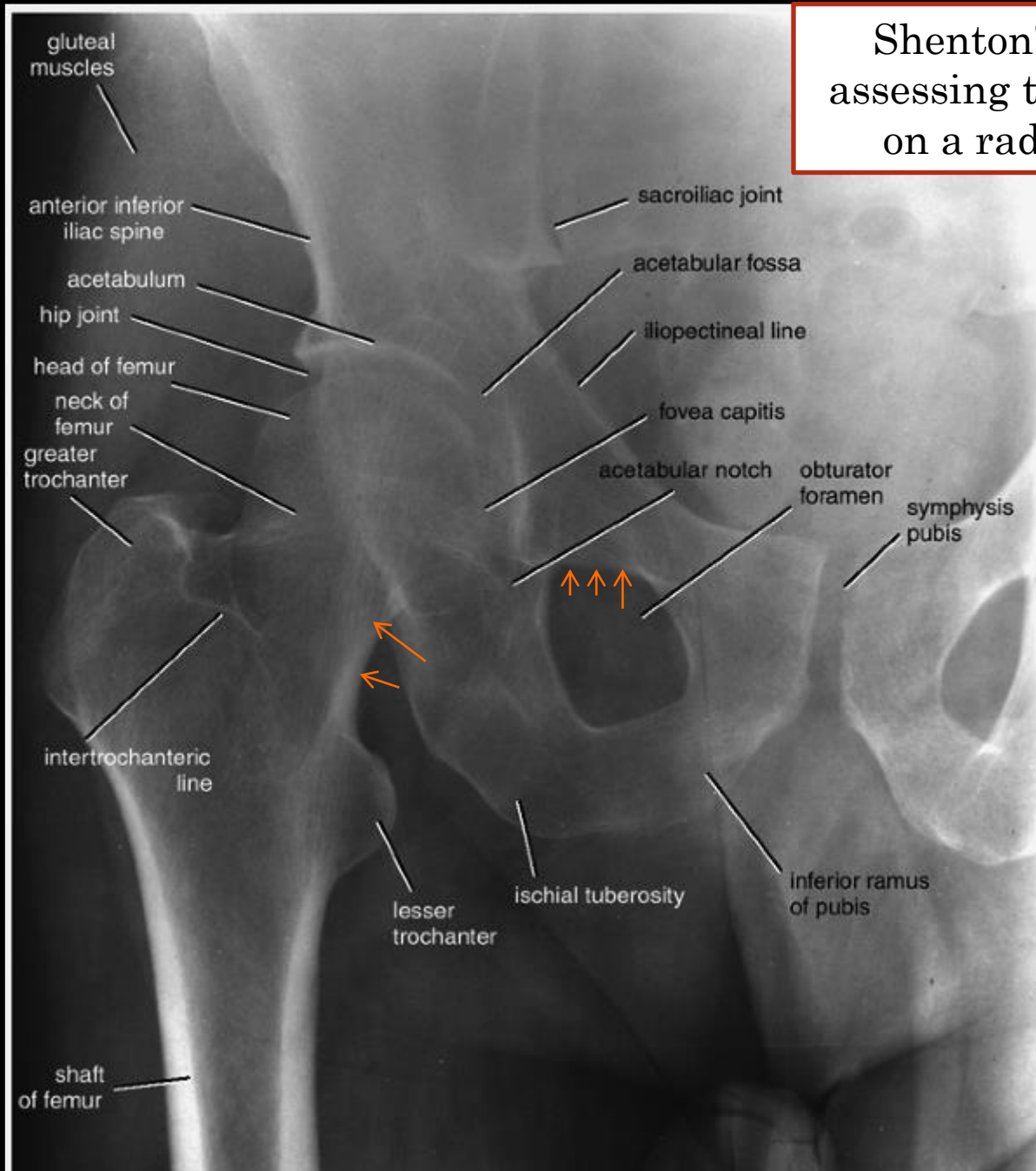


it occurs in fractures of the neck of the femur and in slipping of the femoral epiphysis. In this condition, abduction of the hip joint is limited

for example, in cases of congenital dislocation of the hip. In this condition, adduction of the hip joint is limited

Shenton's line is a useful means of assessing the angle of the femoral neck on a radiograph of the hip region

Note that the inferior margin of the neck of the femur should form a continuous curve with the upper margin of the obturator foramen (Shenton's line)



10-There is a pattern of hip injuries;

In children may sustain
greenstick fractures of the femoral neck

schoolboys may displace the epiphysis
of the femoral head

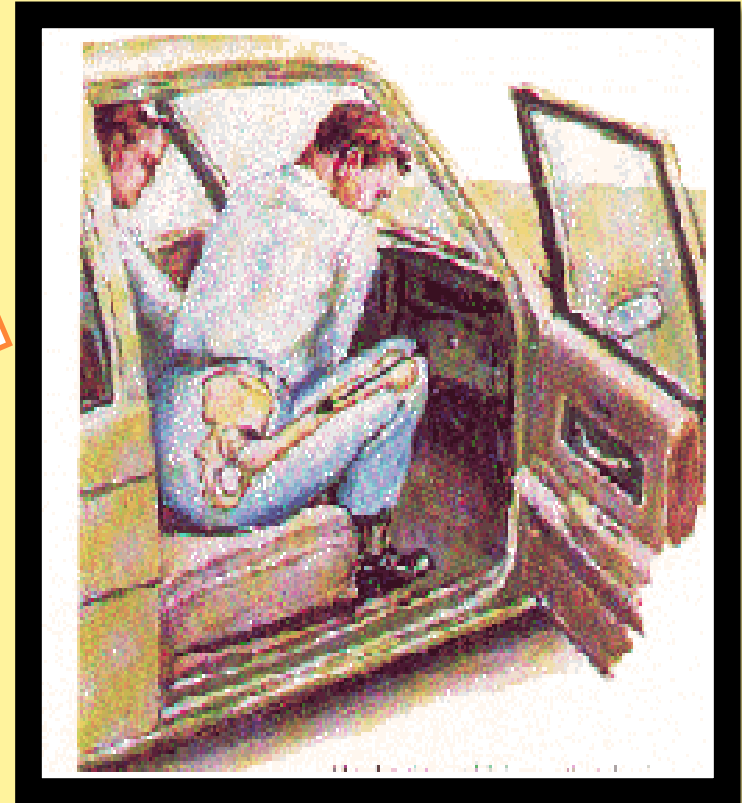
in adult life the hip dislocates

in old age
fracture of the neck of the femur again
becomes the usual lesion



Dislocation of the hip

The hip is usually dislocated backwards and this is produced by a force applied along the femoral shaft with the hip in the flexed position (e.g. the knee striking against the opposite seat or in car accident



The sciatic nerve, is in a close posterior relation with the hip joint therefore, it is in a danger of damage in these injuries

