HIP JOINT

PRESENTED BY

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INTRODUCTION

- *Vankshana Sandhi* is one of the chief *Sandhi* of lower extremities as it is mainly associated with locomotion and to balance our body weight.
- It is *Ulukhala* variety of *Chala Sandhi* which is of 2 in number (one in each limb).

जानुगुल्फवङ्क्षणेष्वेकैकः (सु.शा.५/२८)

- *Aacharya* have mentioned *Vankshana* under *Pratyanga*.

- There are ten *Snayu* in *Vankshana*.
- There are ten *Peshi* in *Vankshana*.

- उर्व्या ऊर्ध्वमधो वङ्क्षणसन्धेरूरुमूले लोहिताक्षं, तत्र लोहितक्षयेण मरणं पक्षाघातो वा; (सु.शा.६/२५)

  Above *Urvi* and below *Vankshana Sandhi*, at the root of *Uru*, *Lohitaksha* is located, there loss of blood leading to death or paralysis

- वङ्क्षणवृषणयोरन्तरे विटपं, तत्र षाण्ढ्यमल्पशुक्रता वा भवति; (सु.शा.६/२५)

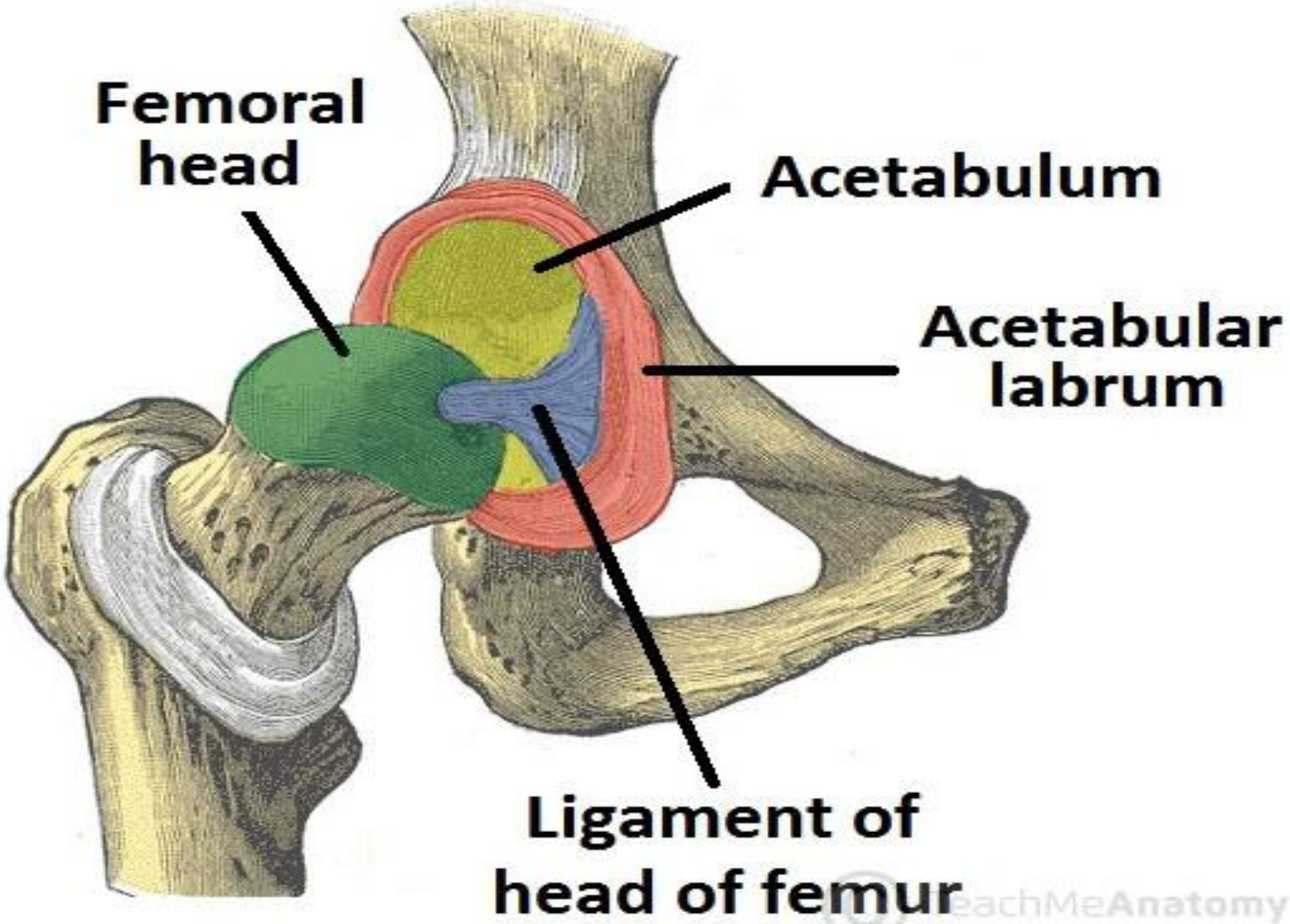
  Between *Vanklshana* and *Vrushana* is *Vitapa*, it causes *Shandhya* or *Alpashukrata*.

- मूत्रवहानां स्रोतसां बस्तिर्मूलं वङ्क्षणौ च |(च.वि.५/७)
  Mootravaha Srotas have their root in *Basti* and *Vankshana*

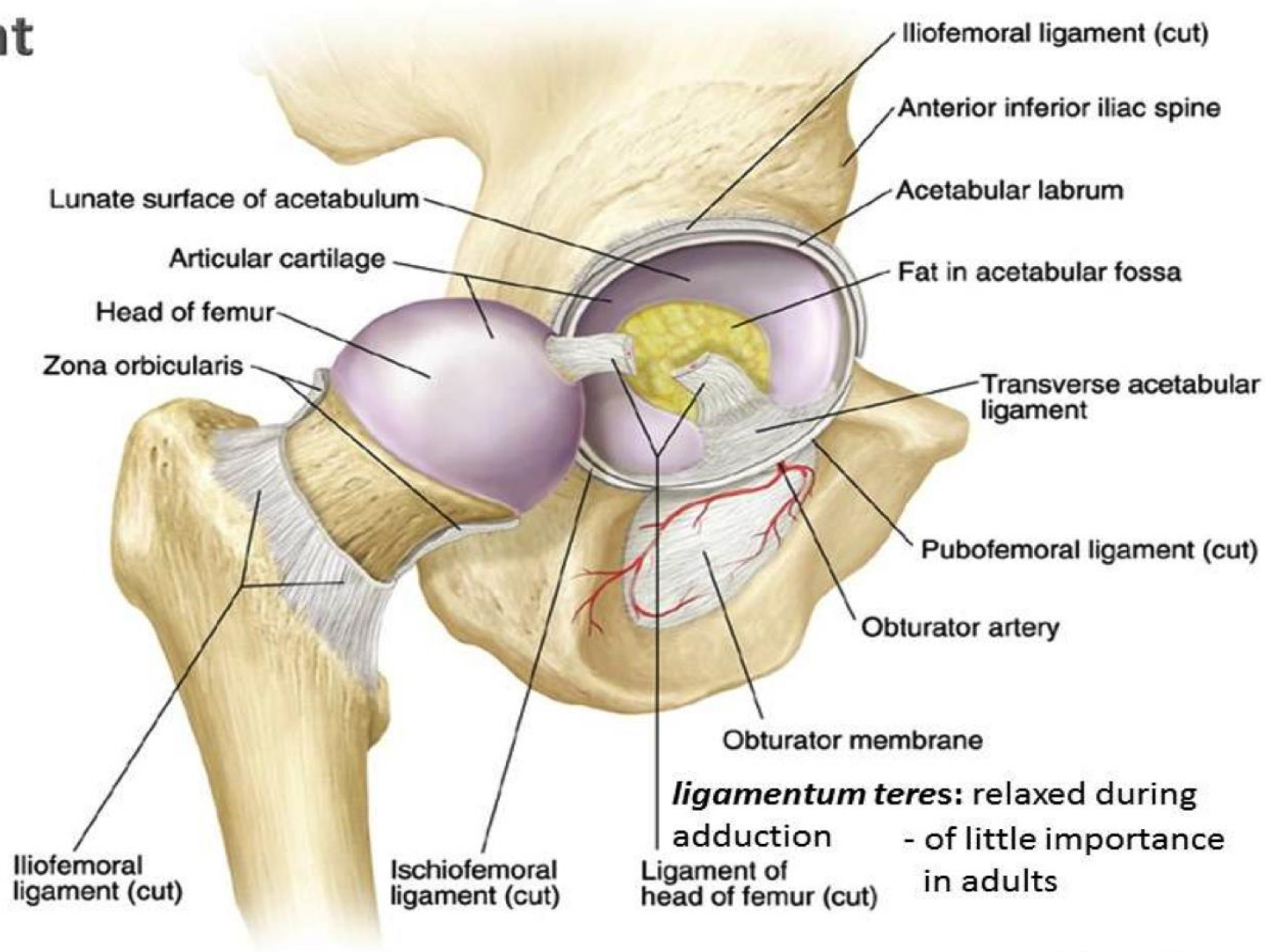
Hip joint

INTRODUCTION

- The hip joint (coxal joint) is a ball-and-socket joint formed by the head of the femur and the acetabulum of the hip bone.
- It is multiaxial joint

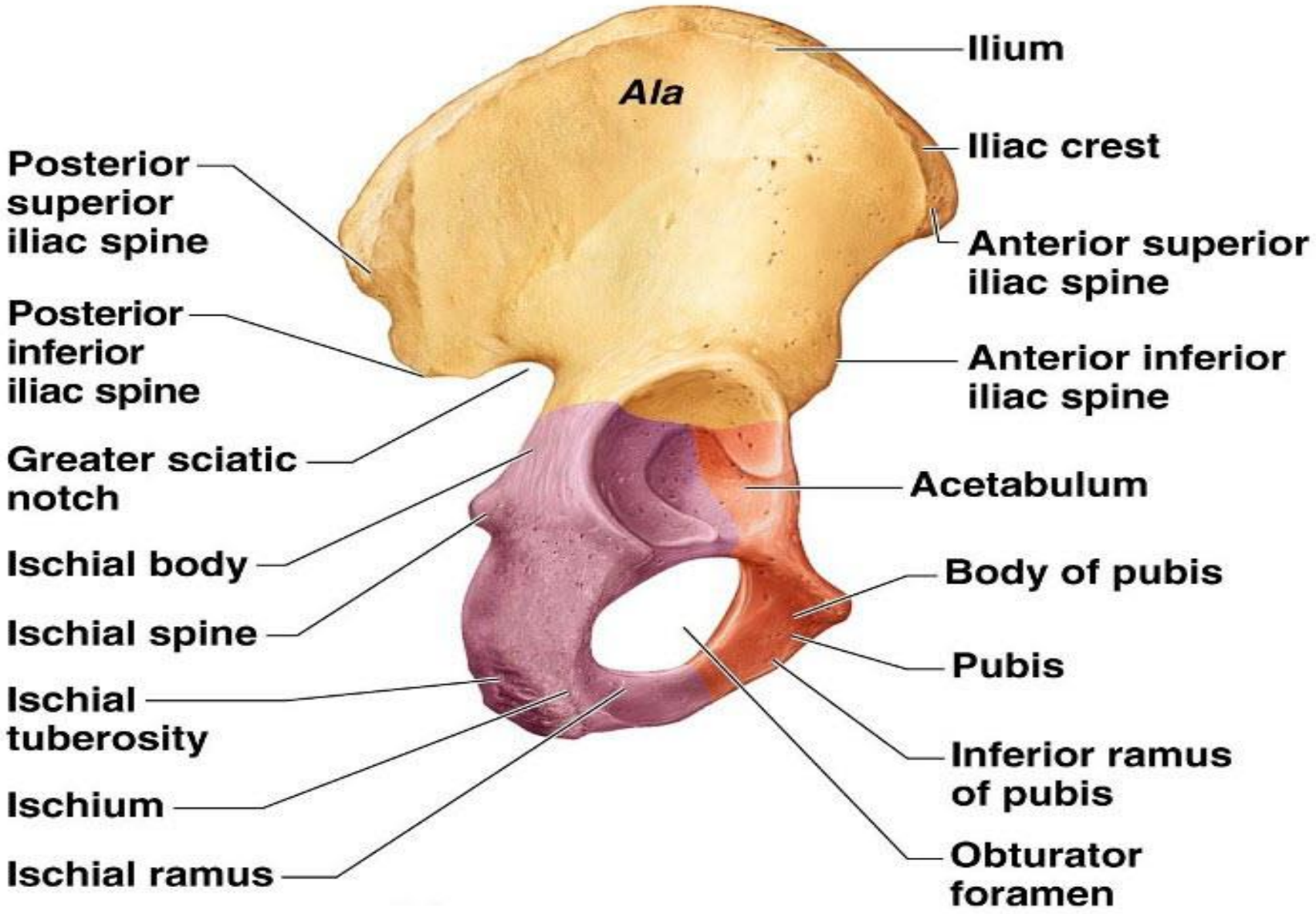

Femoral head
Acetabulum
Acetabular labrum
Ligament of head of femur
TeachMeAnatomy

Hip Joint



***ligamentum teres*: relaxed during adduction**
- of little importance in adults

Plate 3-55


Ala
Ilium
Iliac crest
Anterior superior iliac spine
Anterior inferior iliac spine
Acetabulum
Body of pubis
Pubis
Inferior ramus of pubis
Obturator foramen
Posterior superior iliac spine
Posterior inferior iliac spine
Greater sciatic notch
Ischial body
Ischial spine
Ischial tuberosity
Ischium
Ischial ramus

ARTICULAR SURFACES

- **The femoral head articulates with the cup-shaped (cotyloid) acetabulum**
- **The hip joint consists of an articulation between the head of femur and acetabulum of the pelvis.**
- **The acetabulum is a cup-like depression located on the inferolateral aspect of the pelvis. The head of femur is hemispherical, and fits completely into the concavity of the acetabulum.**

ACETABULAR LABRUM

- **The acetabular labrum, a fibrocartilaginous rim attached to the acetabular margin, serves to deepen the acetabulum and bridges the acetabular notch by attaching to the peripheral edge of the transverse acetabular ligament.**

FIBROUS CAPSULE

- **The capsule is strong and dense.**
- **It is attached above to the acetabular margin 5–6 mm medial to the labral attachment**
- **It extends laterally to surround the femoral head and neck, and is attached anteriorly to the intertrochanteric line, superiorly to the base of the femoral neck, posteriorly 1 cm superomedial to the intertrochanteric crest, and inferiorly to the femoral neck near the lesser trochanter.**
- **The capsule is thicker anterosuperiorly, where maximal stress occurs, Posteroinferiorly it is relatively thin and loosely attached.**

LIGAMENTS

The ligaments of the hip joint are-

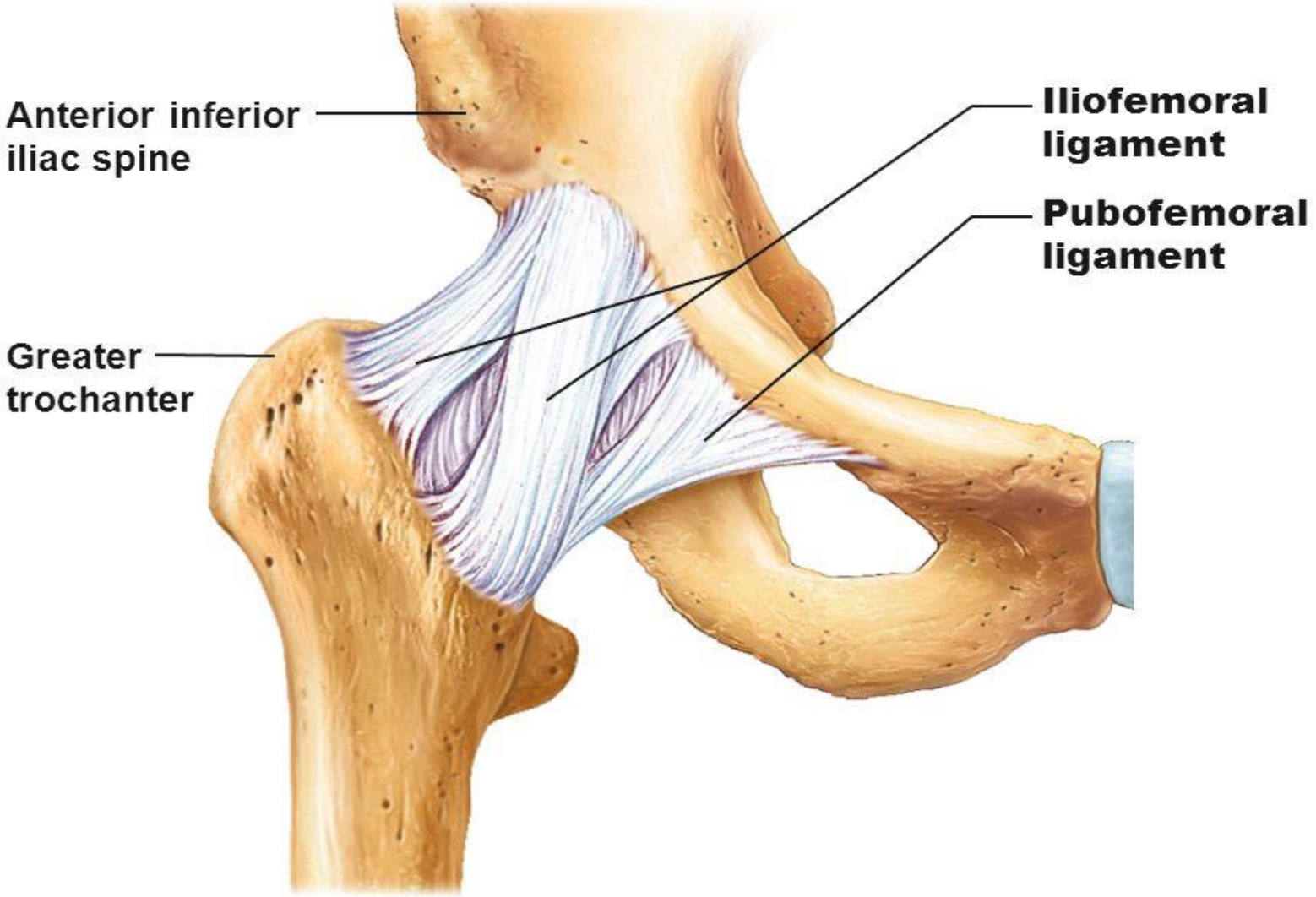
- Iliofemoral
- Pubofemoral
- Ischiofemoral
- Transverse acetabular Ligaments
- Ligamentum Teres

1. Iliofemoral ligament

The iliofemoral ligament is very strong and shaped like an inverted Y, lying anteriorly and intimately blended with the capsule. Its apex is attached between the anterior inferior iliac spine and acetabular rim, its base to the intertrochanteric line

2. Pubofemoral ligament

The pubofemoral ligament is triangular, its base attaching to the iliopubic eminence, superior pubic ramus, obturator crest and obturator membrane. It blends distally with the capsule and deep surface of the medial iliofemoral ligament.



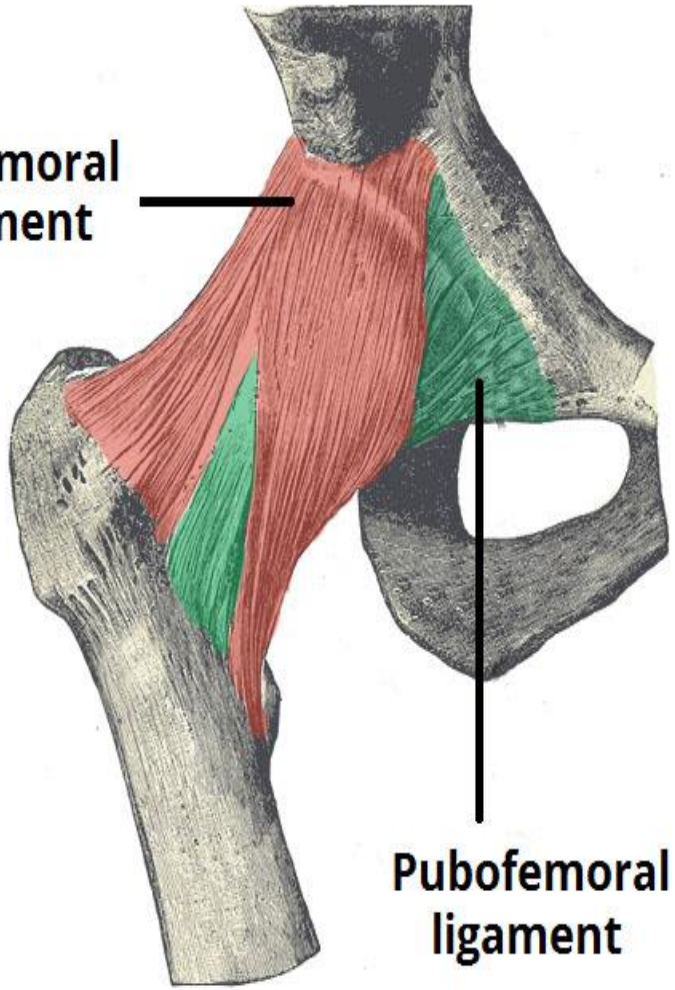
(d) Anterior view of right hip joint, capsule in place

Figure 8.12d

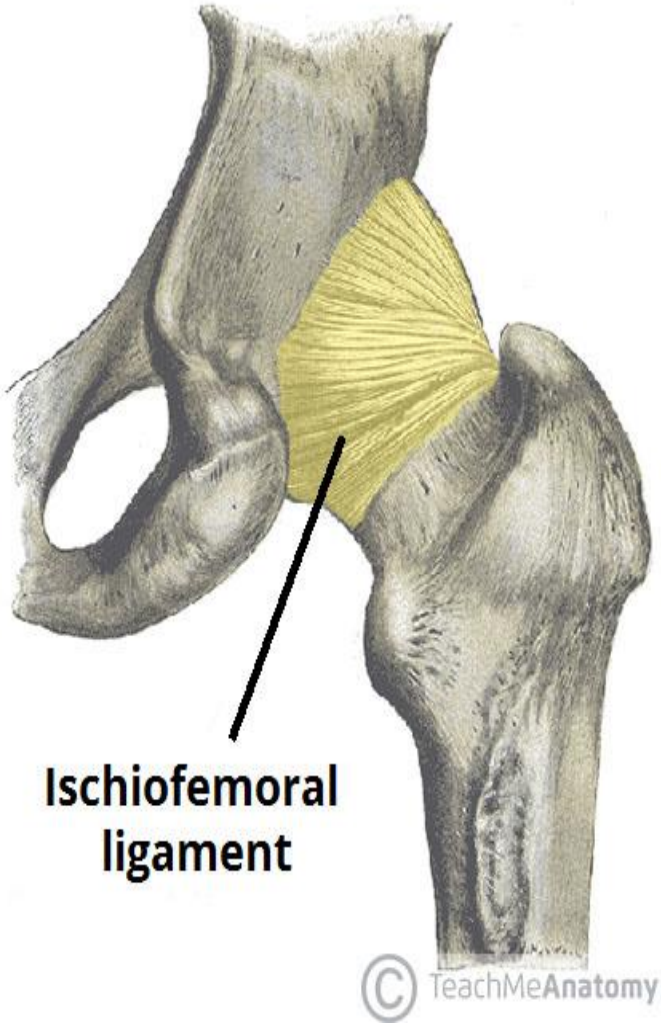
3. Ischiofemoral ligament

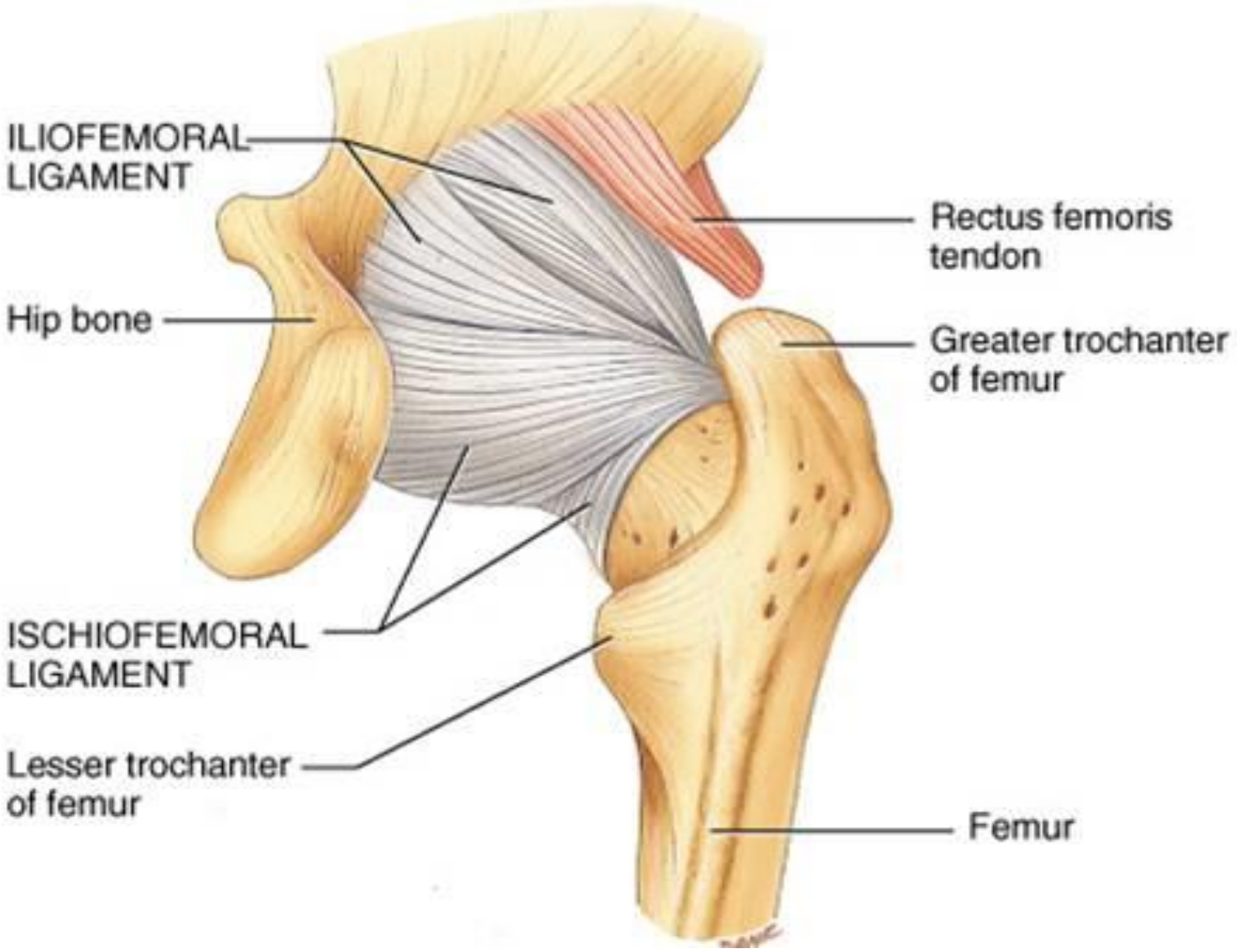
- **The ischiofemoral ligament thickens the back of the capsule and consists of three distinct parts.**
- **The central part, the superior ischiofemoral ligament, spirals superolaterally from the ischium, where it is attached posteroinferior to the acetabulum, behind the femoral neck to attach to the greater trochanter**
- **Lateral and medial inferior ischiofemoral ligaments embrace the posterior circumference of the femoral neck**

Anterior



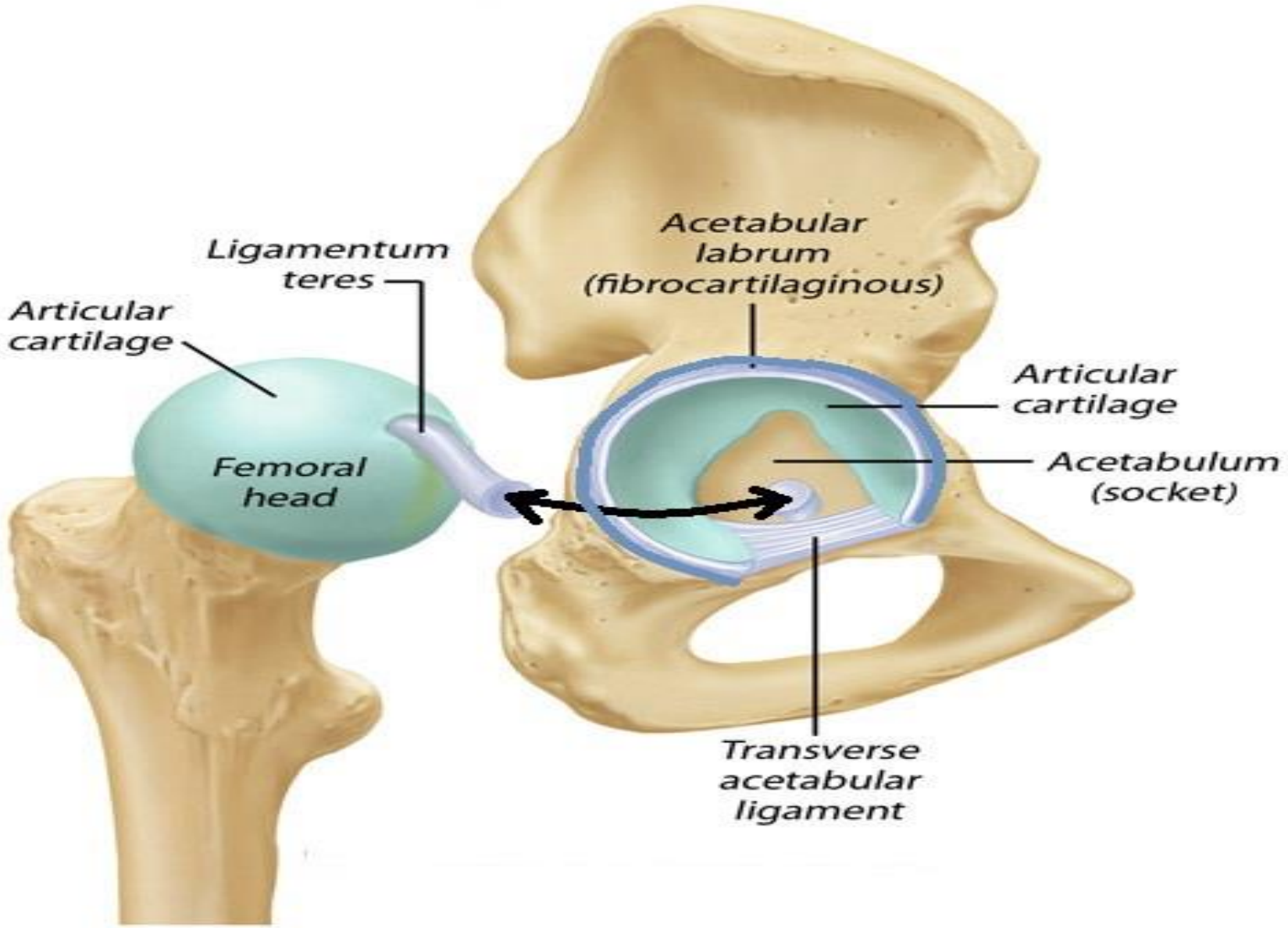
Posterior




ILIOFEMORAL LIGAMENT
Rectus femoris tendon
Hip bone
Greater trochanter of femur
ISCHIOFEMORAL LIGAMENT
Lesser trochanter of femur
Femur

4. Transverse acetabular ligament

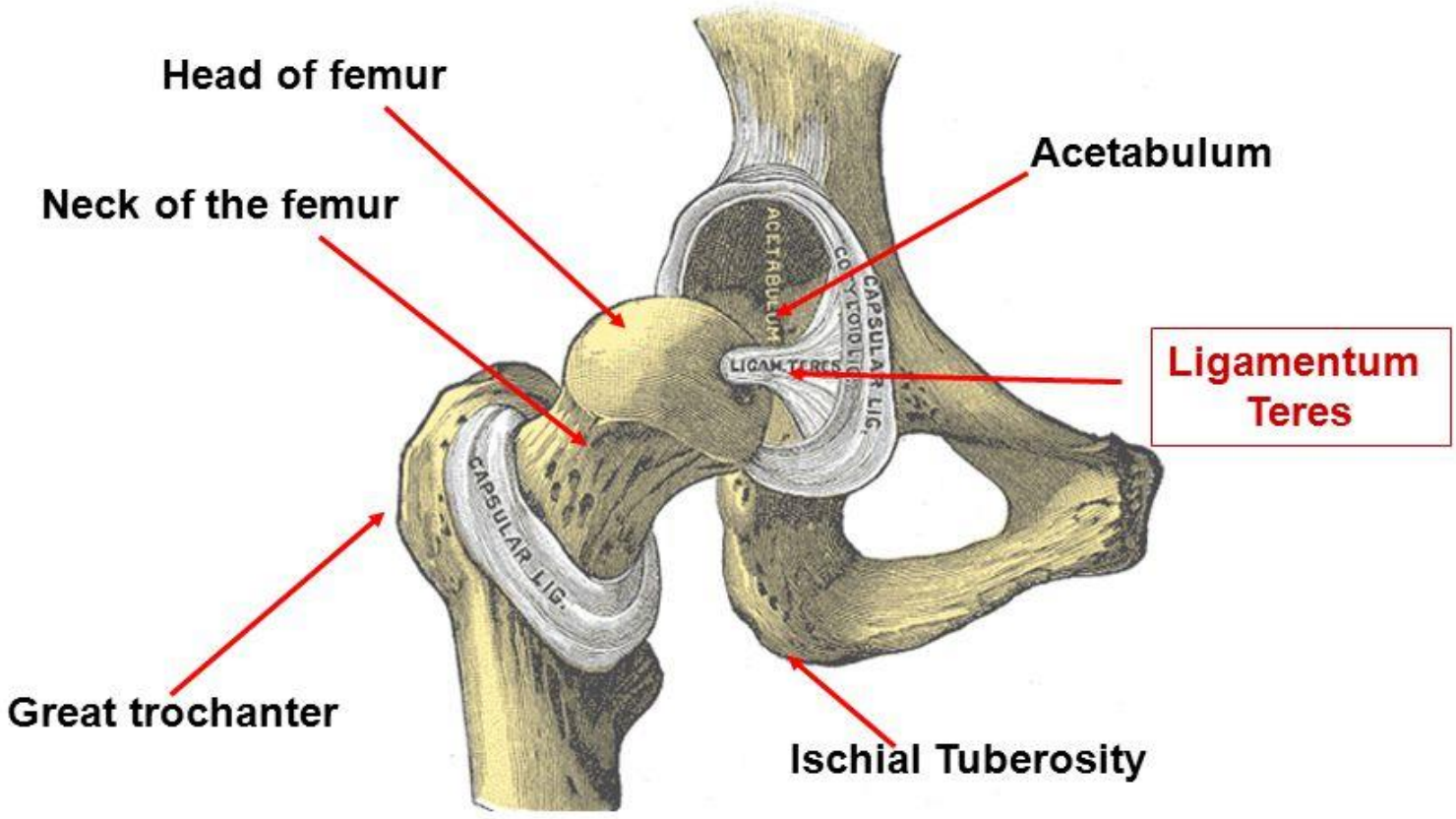
- **The transverse acetabular ligament is continuous peripherally with the labrum.**
- **Its strong, flat fibres cross the acetabular notch forming a foramen through which vessels and nerves enter the joint.**


Ligamentum teres
Articular cartilage
Femoral head
Acetabular labrum (fibrocartilaginous)
Articular cartilage
Acetabulum (socket)
Transverse acetabular ligament

5. Ligamentum teres (ligament of the head of the femur)

- **The ligamentum teres is a triangular and some what flattened band.**
- **Its apex is attached anterosuperiorly in the fovea on the femoral head and its base is attached principally to both edges of the acetabular notch, between which it blends with the transverse ligament.**

HIP JOINT



OPEN JOINT VIEW

BLOOD SUPPLY

Articular arteries are branches of -

- **Obturator Artey**
- **Medial Circumflex Femoral Artey**
- **Superior Gluteal Artery**
- **Inferior Gluteal Arteries**

NOTE-They form the cruciate and trochanteric anastomoses.

INNERVATION

- **Femoral Nerve**
- **Obturator Nerve**
- **Accessory Obturator Nerves,**
- **Nerve To Quadratus Femoris**
- **Superior Gluteal Nerve.**

MOVEMENTS

- Flexion
- Extension
- Abduction
- Adduction
- Lateral rotation
- Medial rotation
- CIrcumduction

CLINICAL CONDITIONS

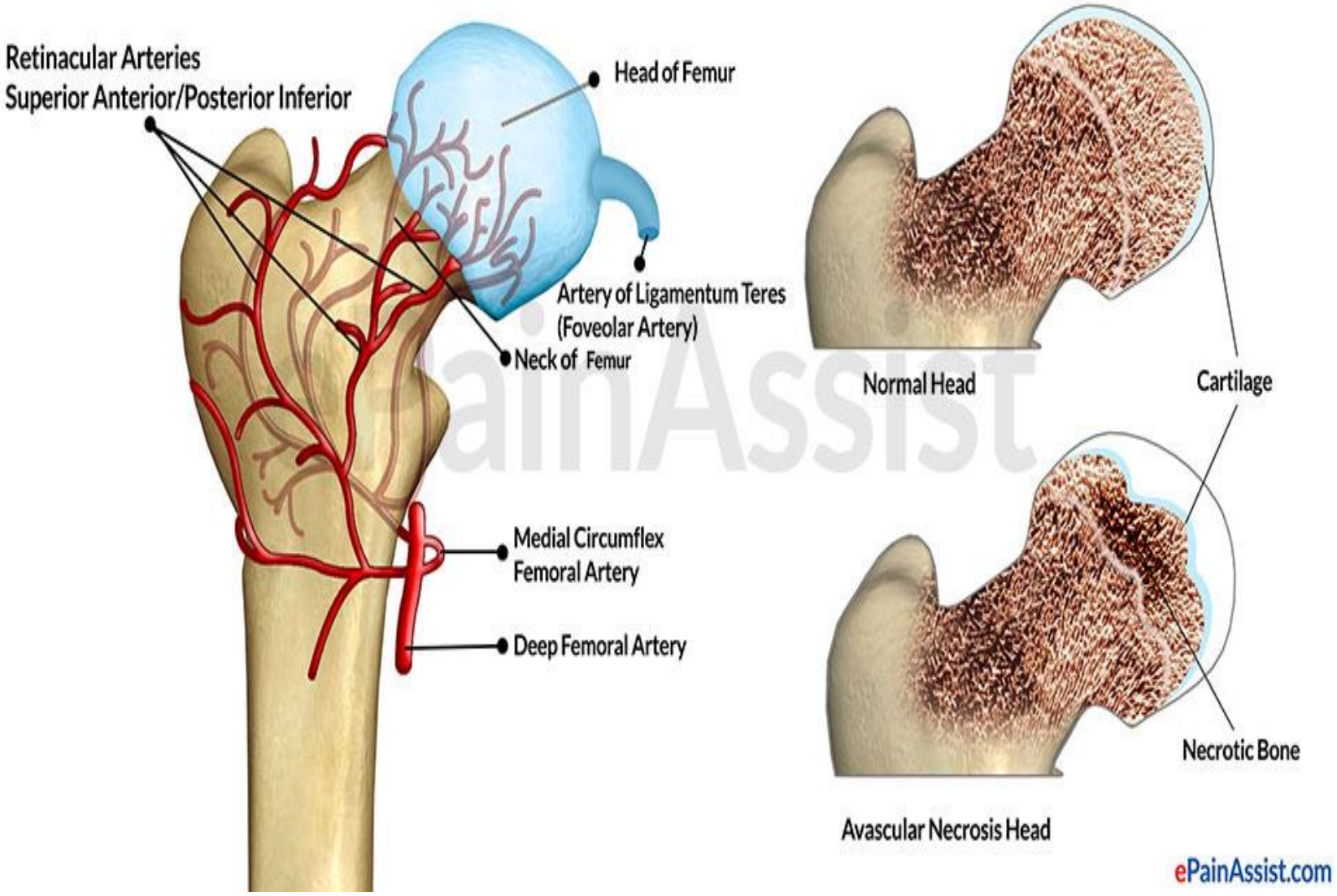
1. Avascular Necrosis

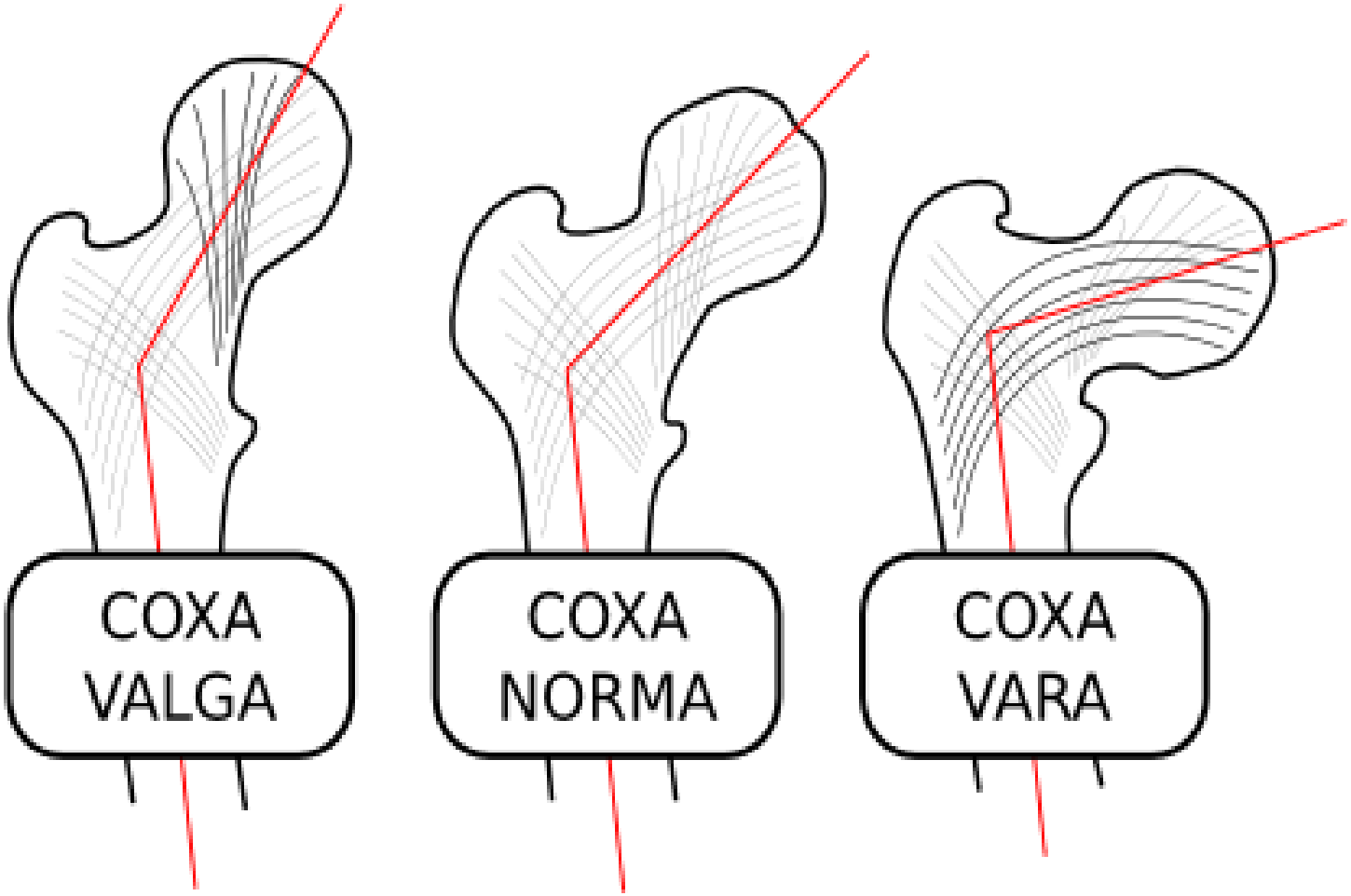
Avascular necrosis (AVN) or osteonecrosis of the femoral head occurs because of an interruption in the blood supply to the femoral head, which causes bone death.

2. Coxa vara and coxa valga

The angle of inclination between the long axis of the femoral neck and the femoral shaft varies with age, sex and development of femur.

Avascular Necrosis



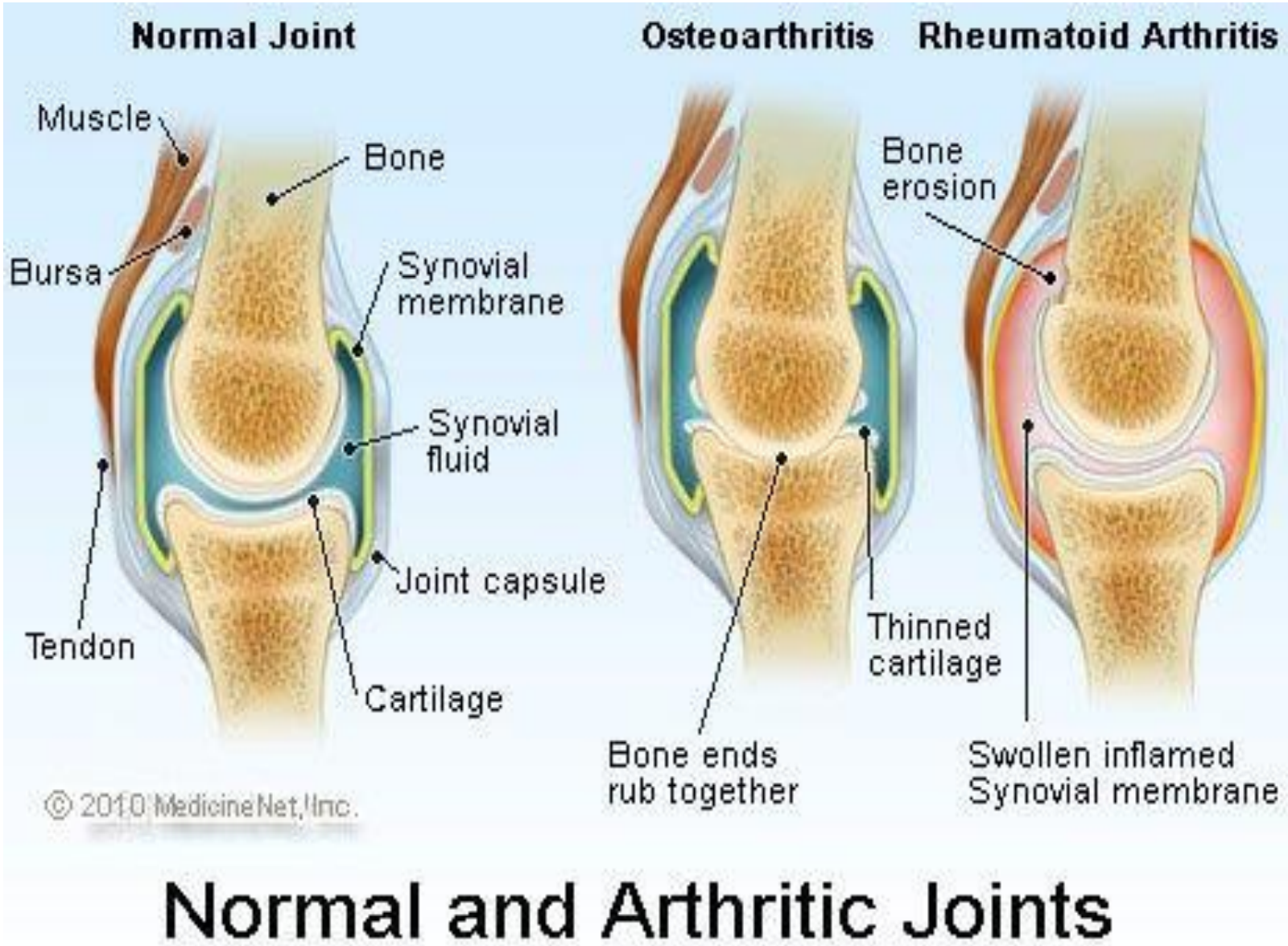

COXA
VALGA
COXA
NORMA
COXA
VARA

3. Osteoarthritis

Osteoarthritis is an on-inflammatory condition that is characterized by progressive damage and loss of the articular cartilage.

4. Perthes' disease

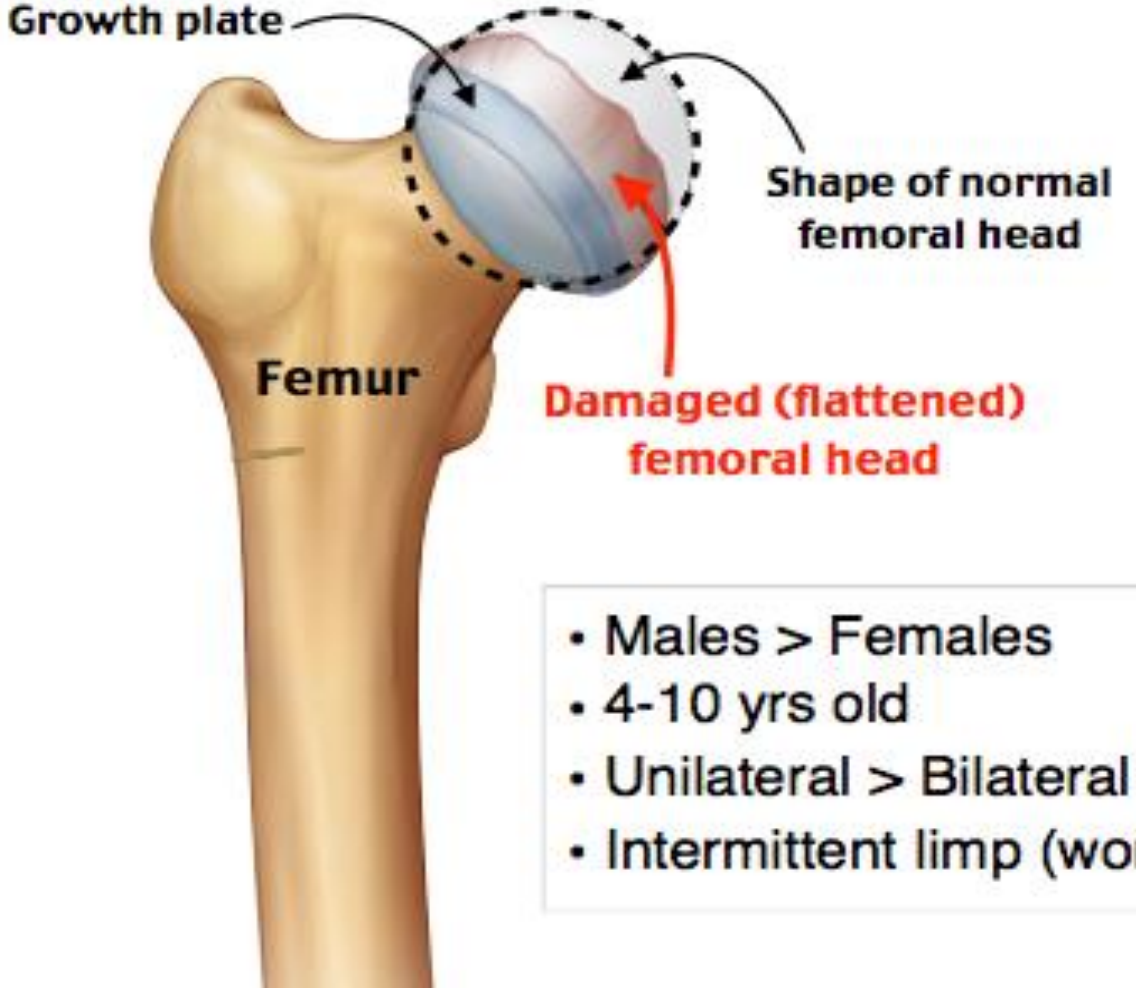
This condition is characterised by the development of AVN of the proximal femoral epiphysis and is probably one of the most controversial topics in paediatric orthopaedics.



Normal and Arthritic Joints

Legg–Calvé–Perthes Disease

→ Avascular necrosis of the femoral head



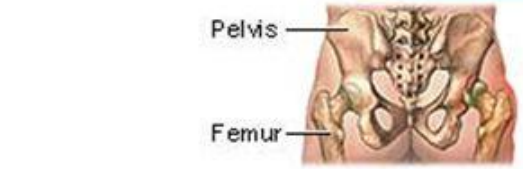
- Males > Females
- 4-10 yrs old
- Unilateral > Bilateral
- Intermittent limp (worse after activity)

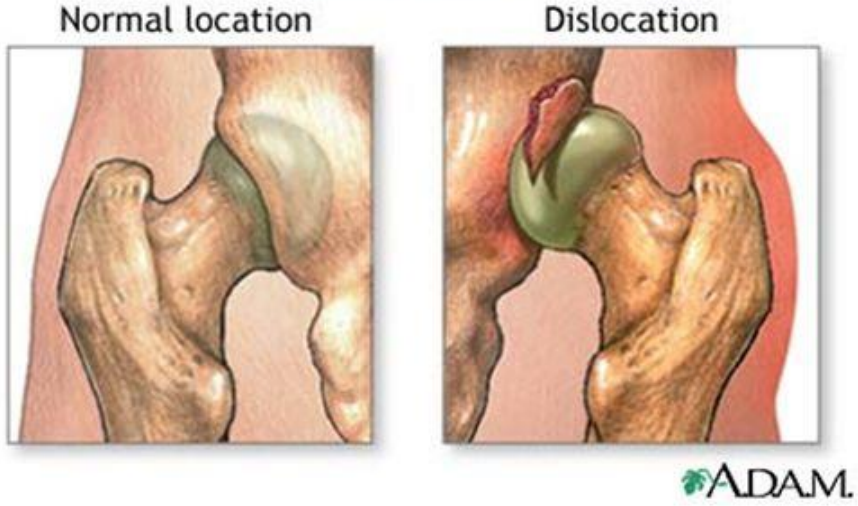
5. Acquired dislocation of hip joint

Acquired dislocation of hip joint is uncommon because this articulation is so strong and stable. Nevertheless, dislocation may occur during an automobile accident when the hip is flexed, adducted and medially rotated, the usual position of the lower limb when a person is riding in a car

Hip Dislocation

* Difficult to do
  * Ball and Socket joint very stable
* Can be acquired or congenital (hip dysplasia)
* Easy to diagnose






THANK
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