APPROACH TO MSK X-RAYS

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- First line in Imaging technology.
- Inexpensive
- Quick
- Specific
- Easily available

SIGNIFICANCE

- Detection of fractures.
- Detection of periosteal reaction secondary to tumors and infection.
- Essential modality for evaluation of bone tumors.
- Screening for degenerative diseases.
- Detection of soft tissue gases and calcifications.

Approaching the X-ray film

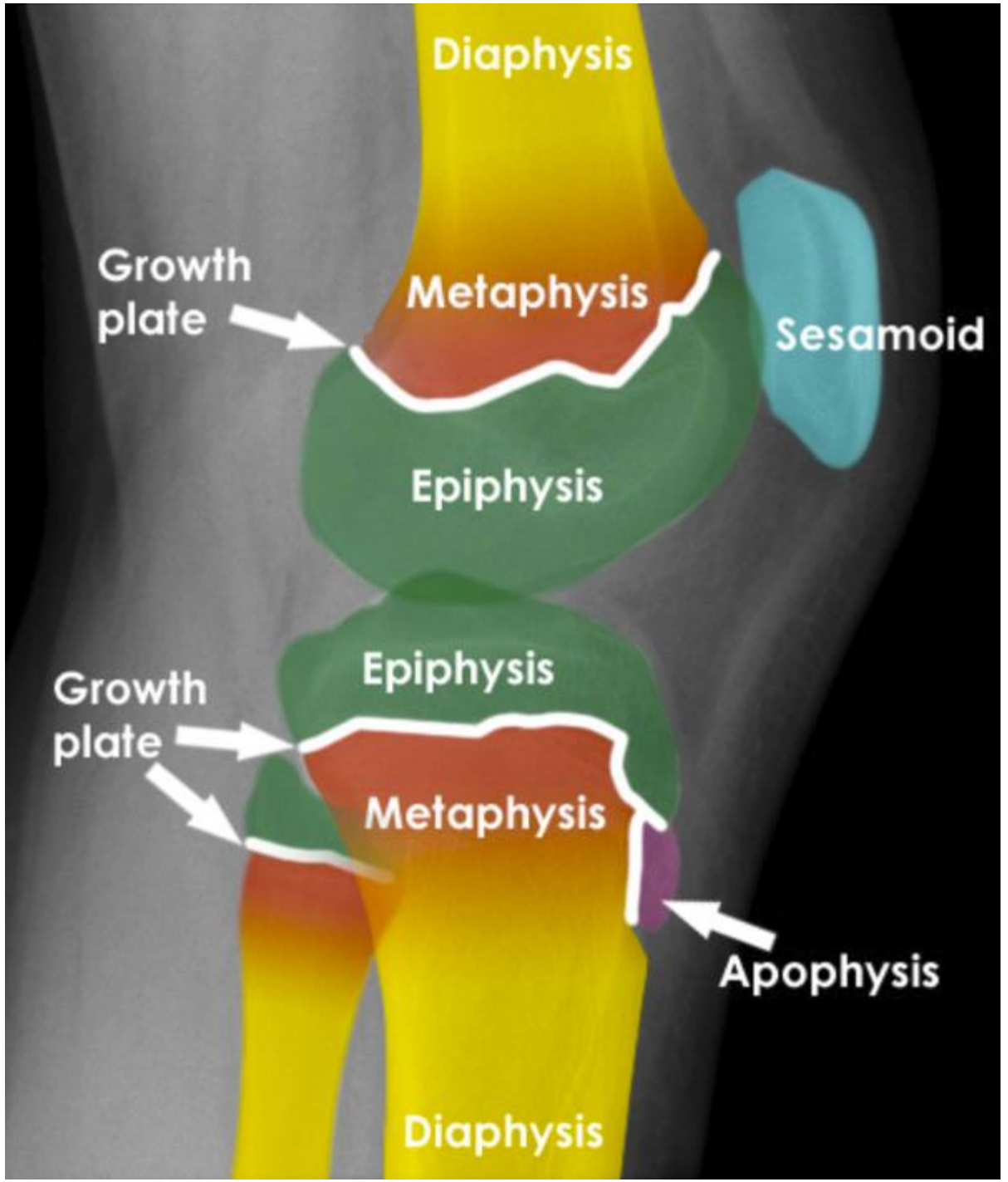
- Patient and Image details
- Date of examination
- Correct image/view (AP and Lateral)
- Exposure
- Side (R/L)
- Identify the bone

WHAT TO LOOK FOR?

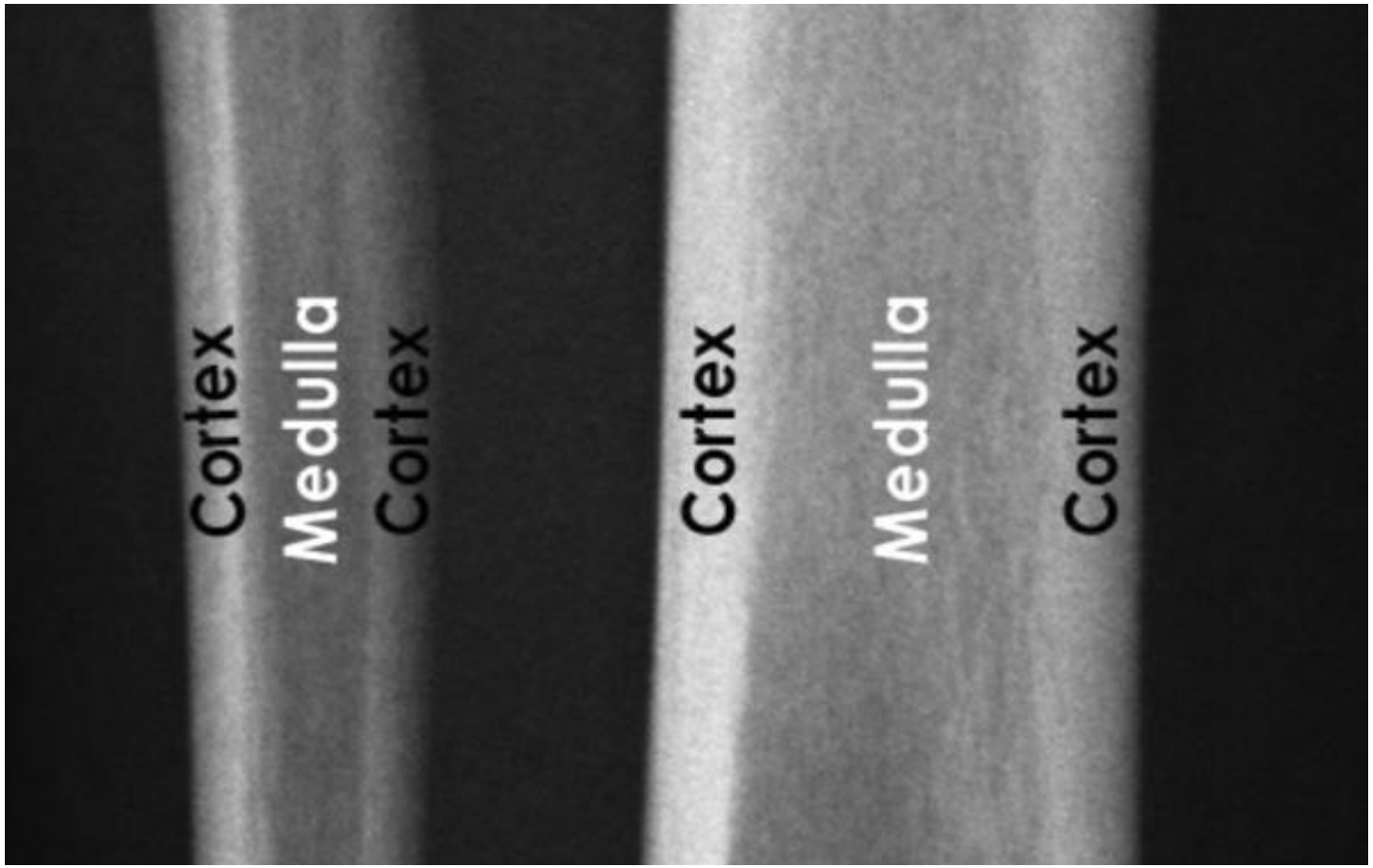
- Bone and joint alignment
- Joint spacing
- Cortical outline
- Bone texture
- Soft tissues

BONE ANATOMY

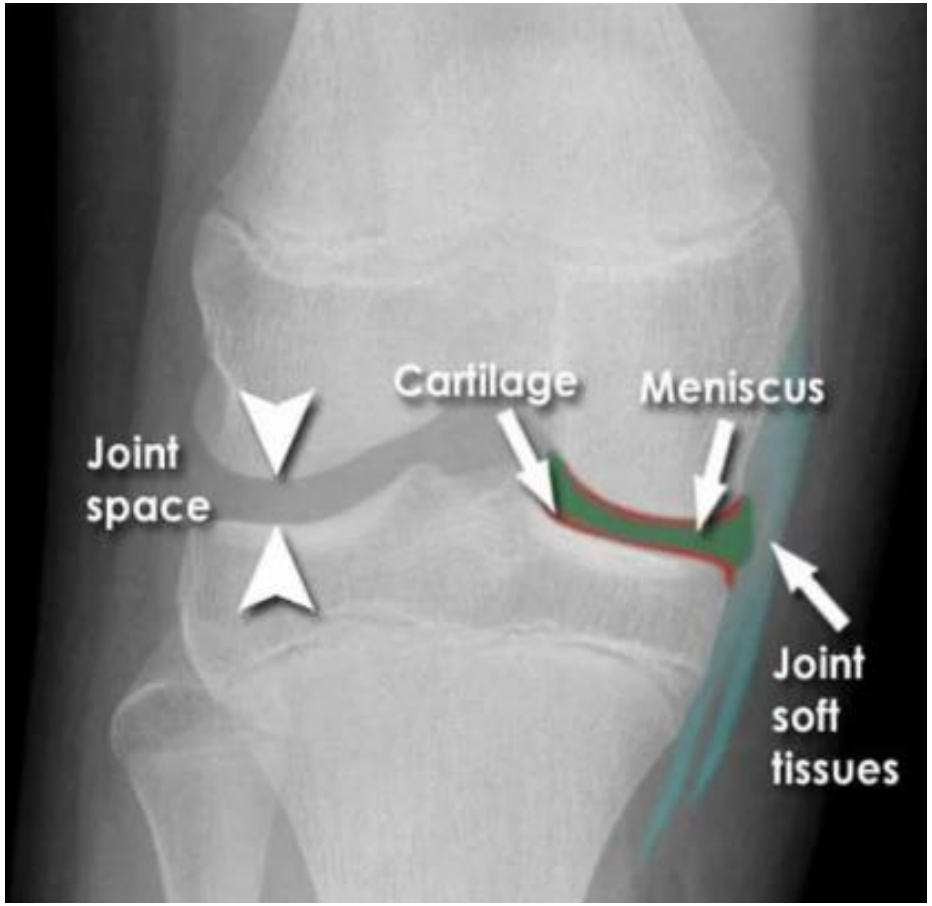
- Long bones comprise diaphysis, metaphysis and epiphysis.
- The growth plate separates the metaphysis from the epiphysis until fusion in adult life.
- A sesamoid is a bone that ossifies within a tendon.
- An apophysis is a normal bony outgrowth of a bone.


Diaphysis
Growth plate
Metaphysis
Sesamoid
Epiphysis
Epiphysis
Growth plate
Metaphysis
Apophysis
Diaphysis

CORTEX VS MEDULLA

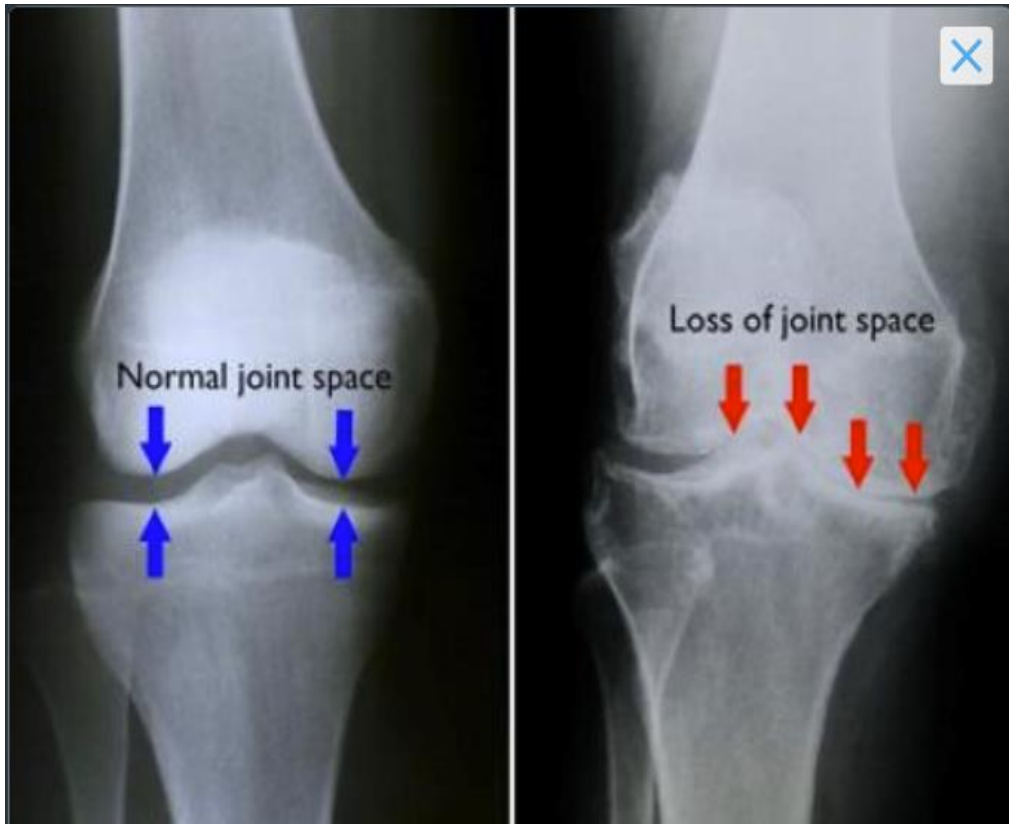


JOINT ANATOMY



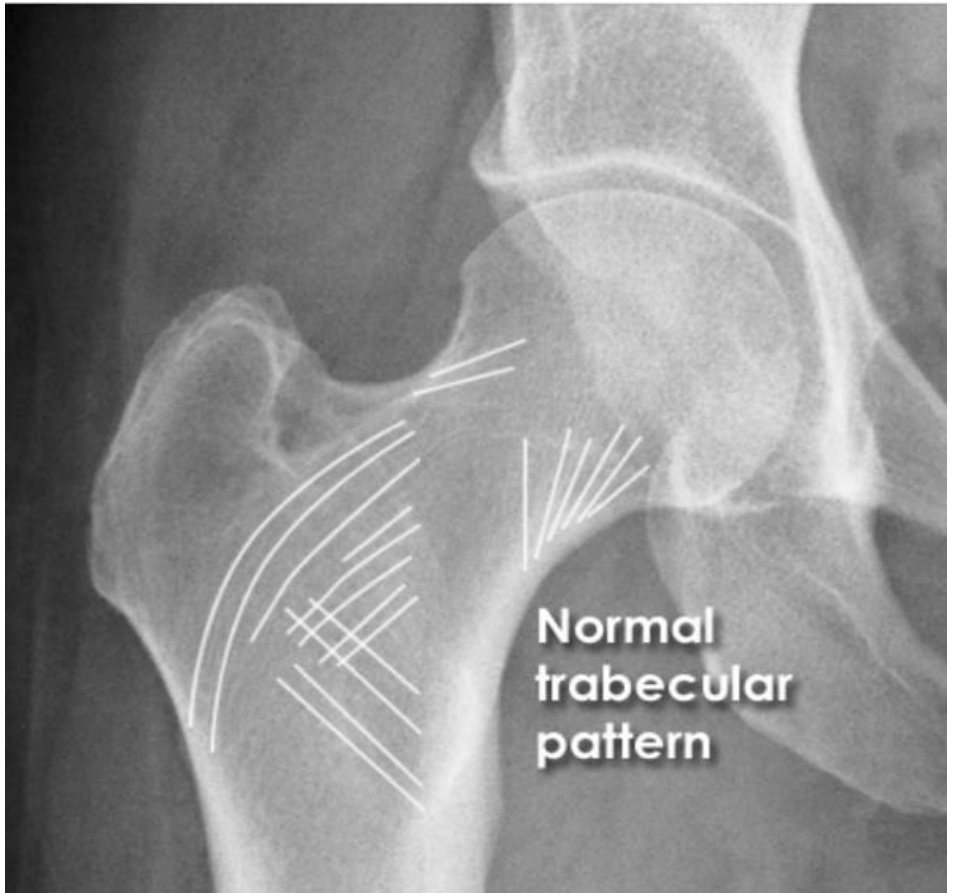
BONE AND JOINT ALIGNMENT

JOINT SPACING

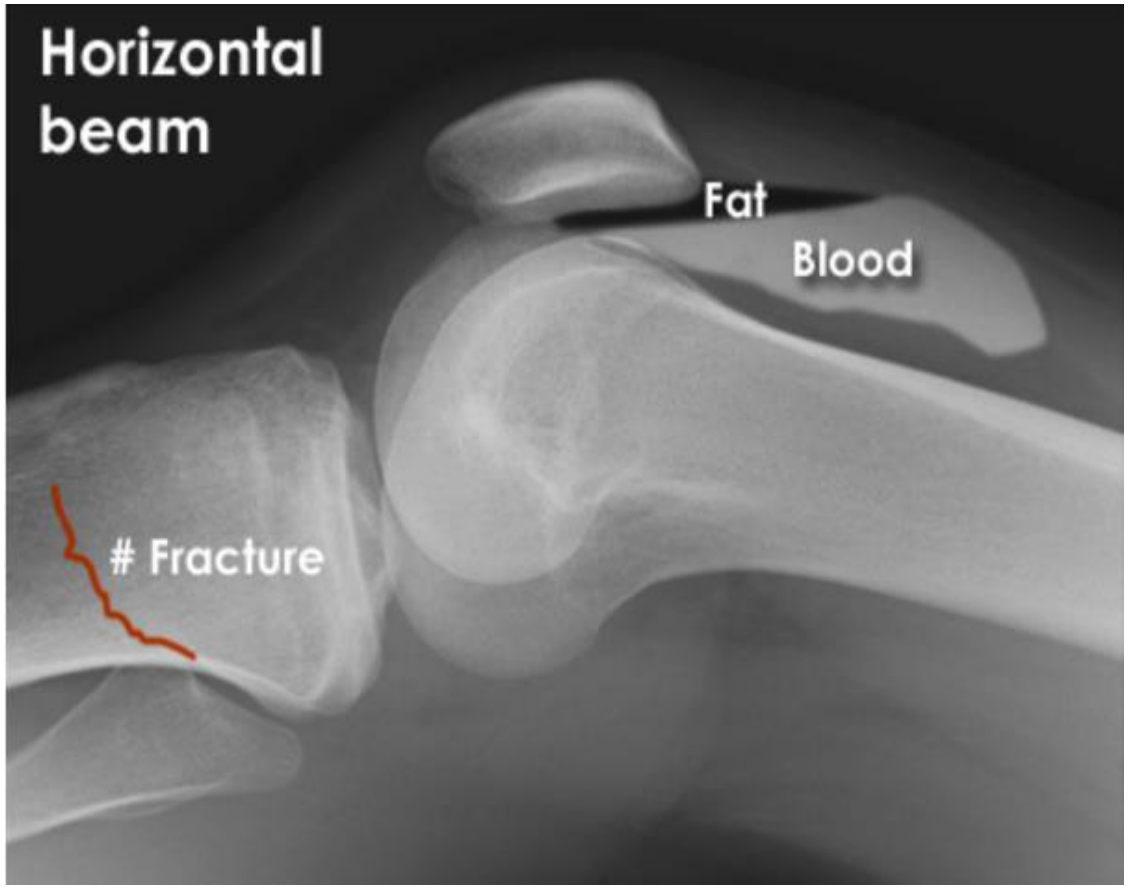


CORTICAL OUTLINE

BONE TEXTURE

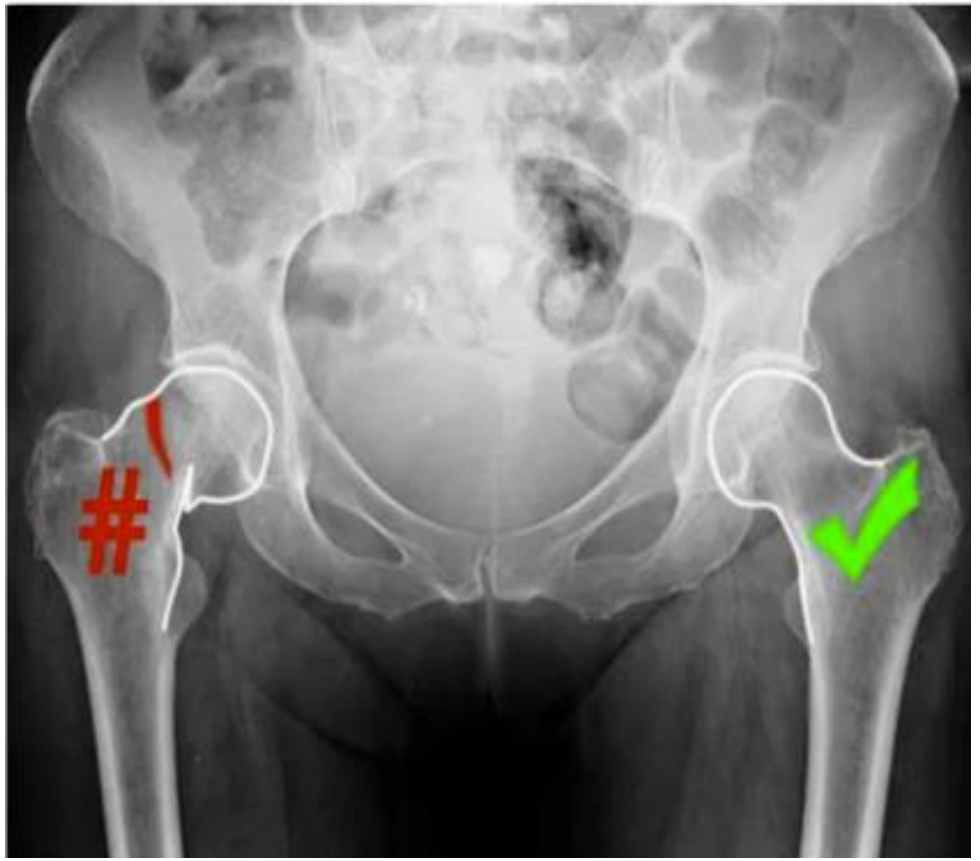


SOFT TISSUES

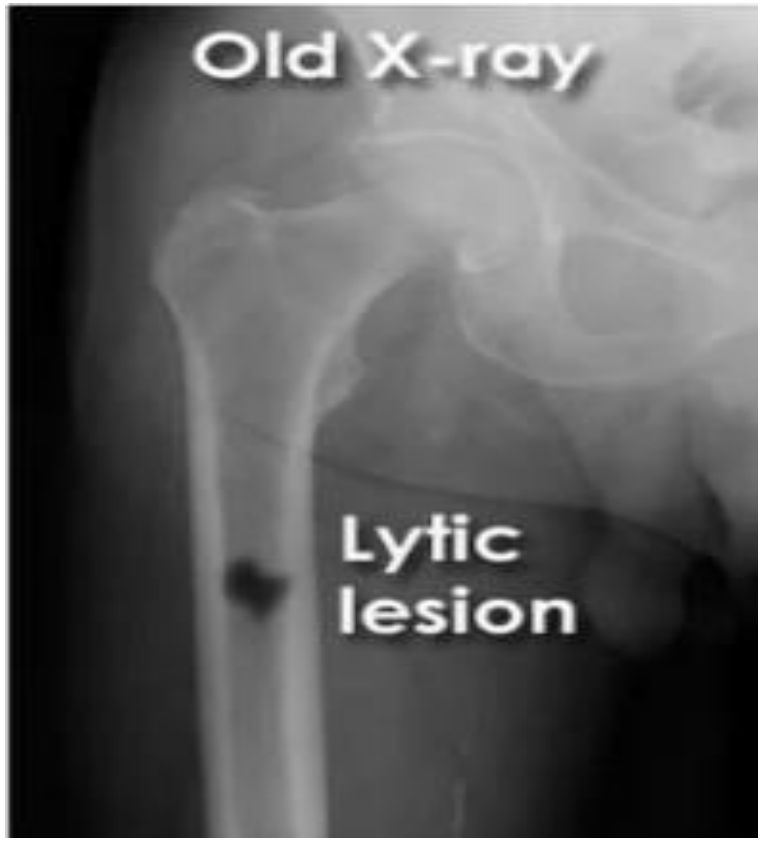


SUBCUTANEOUS EMPHYSEMA

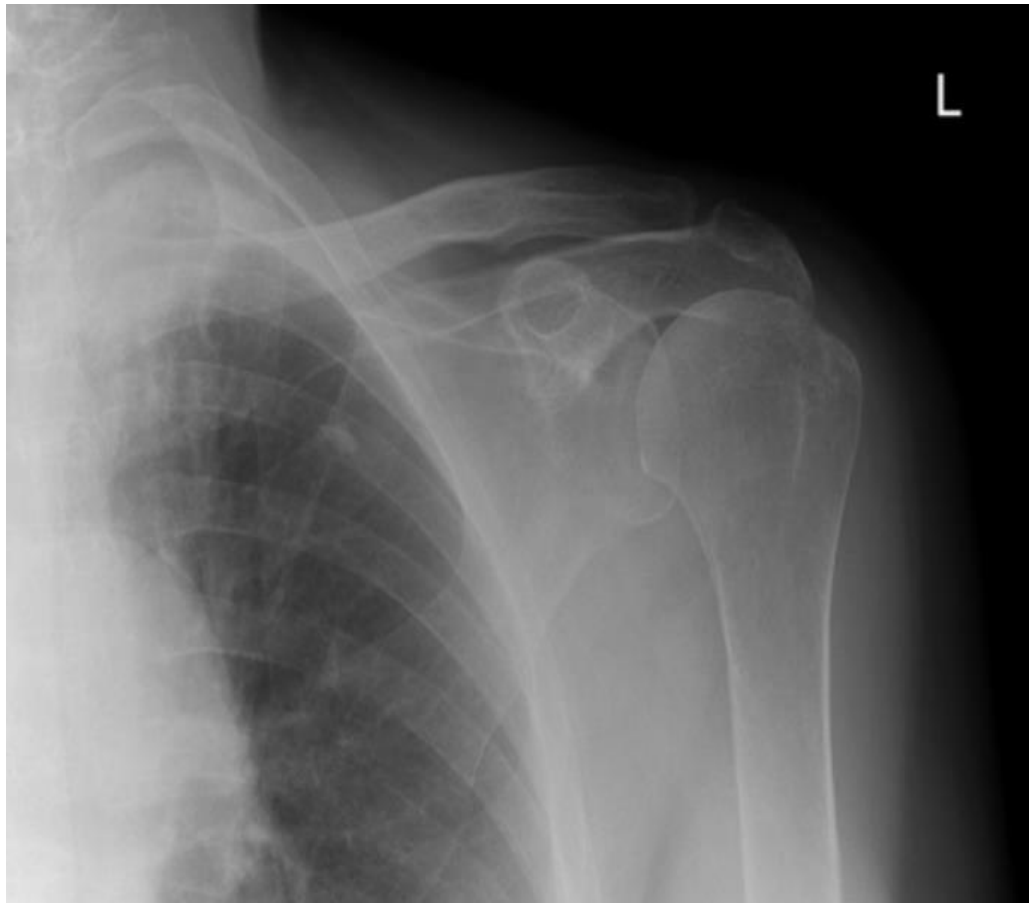
ALWAYS COMPARE WITH NORMAL

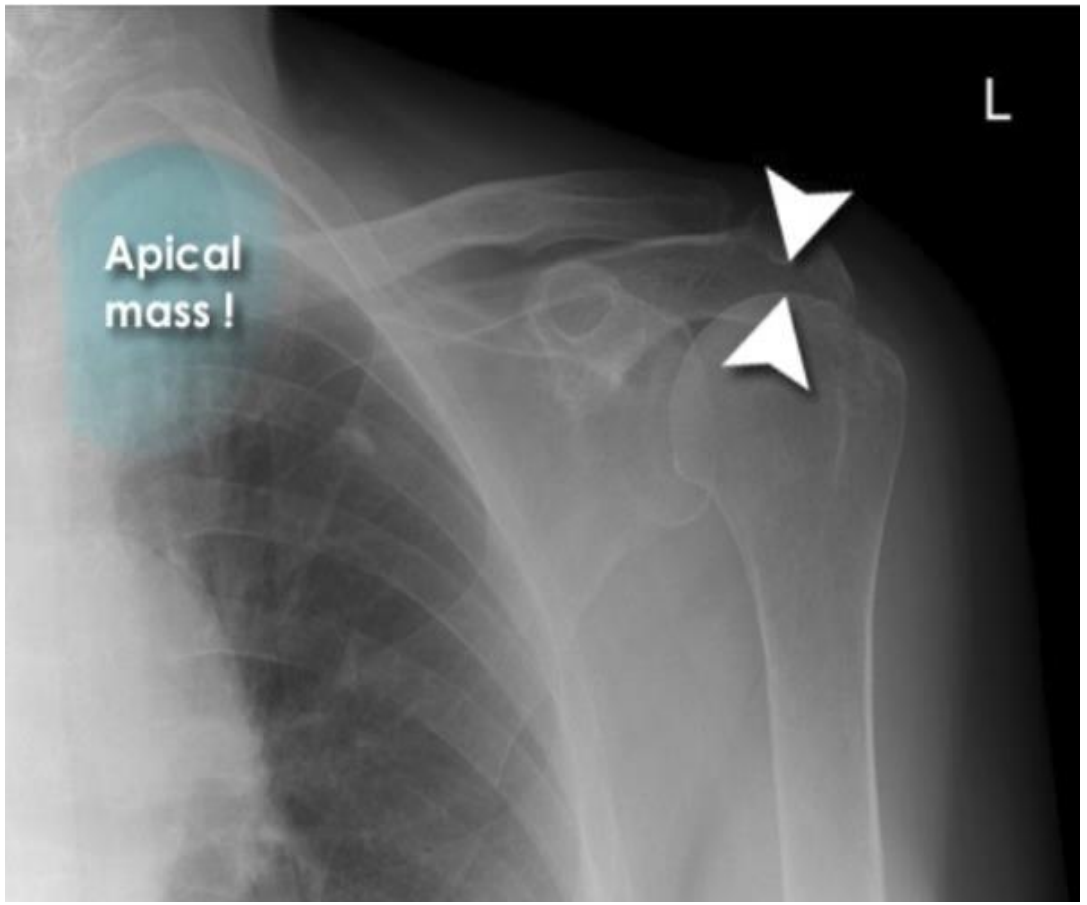


COMPARE WITH OLD X RAYS

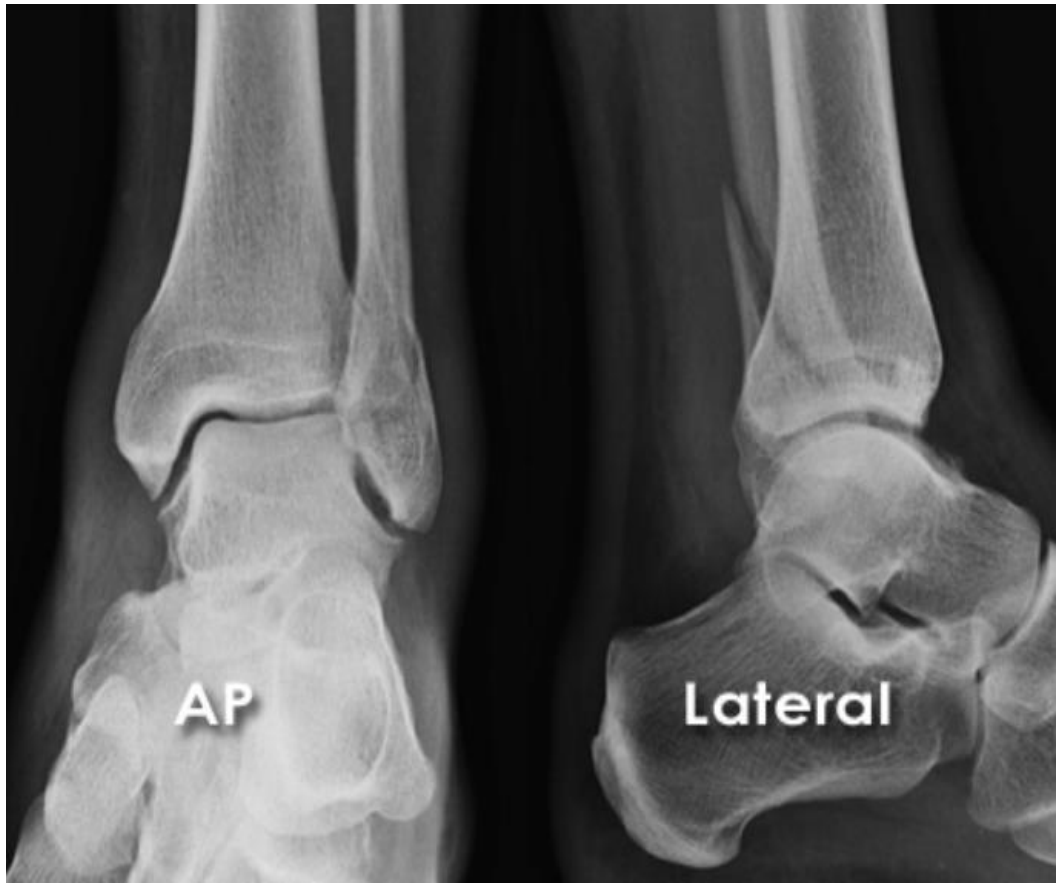


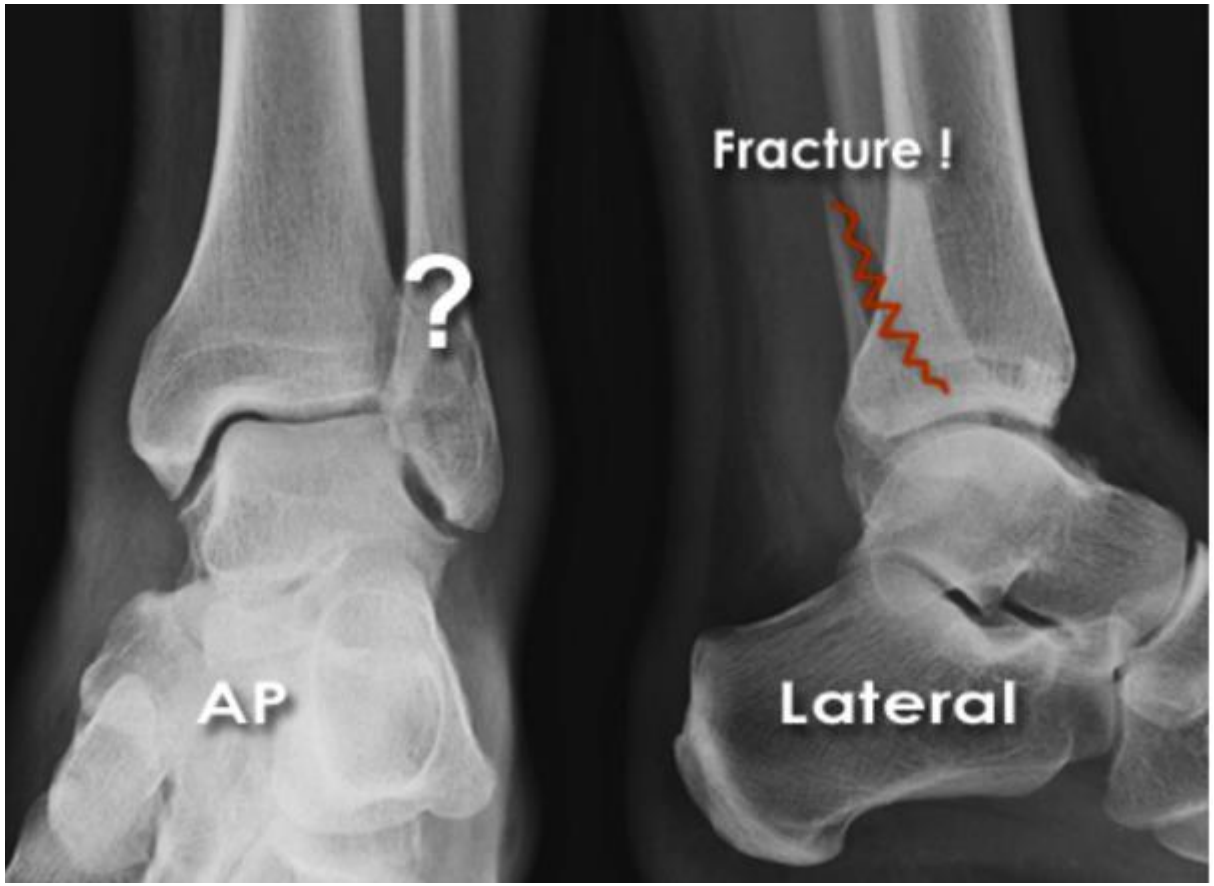
LOOK FOR UNEXPECTED





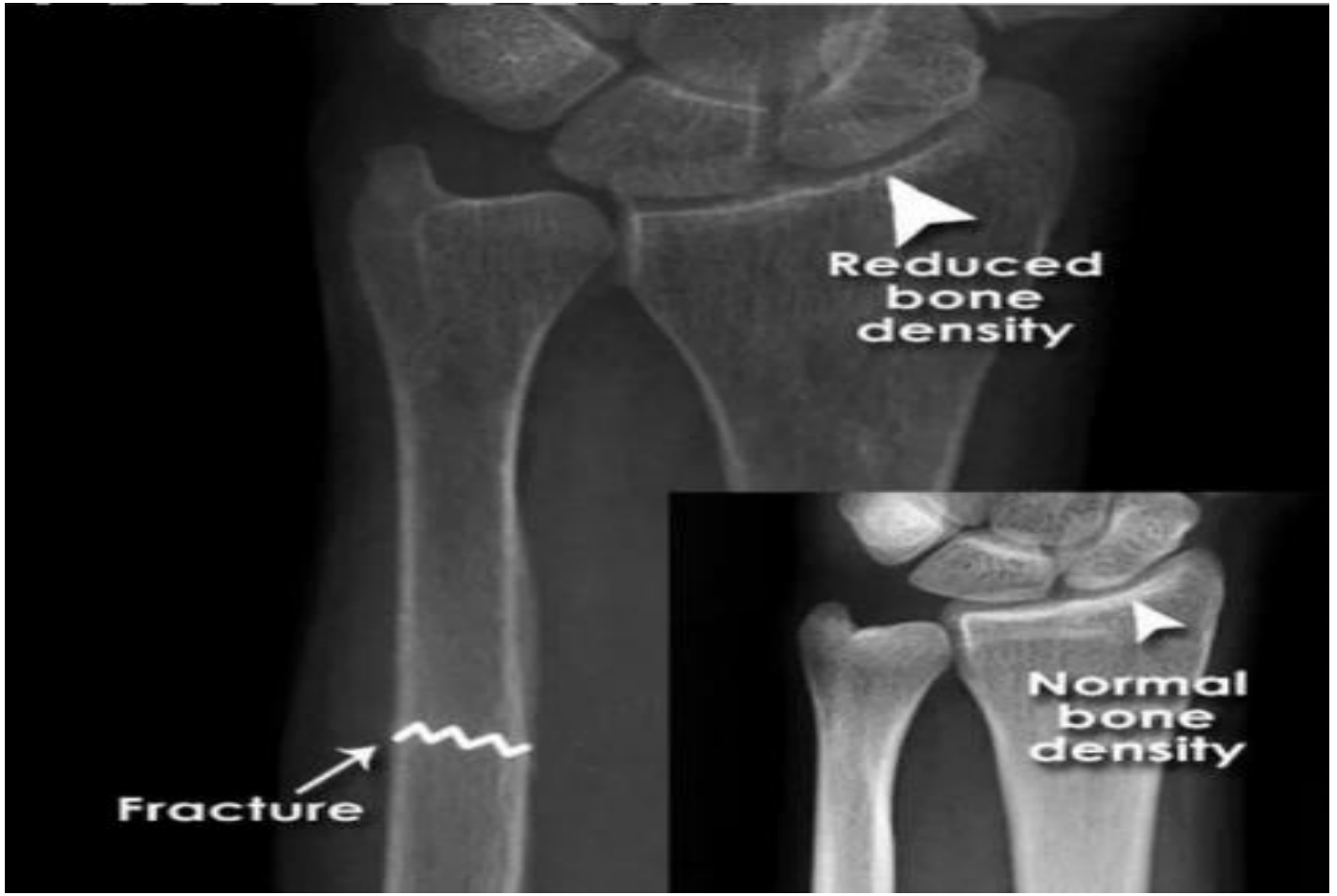
TWO VIEWS





ARTIFACTS

BONE DENSITY



FRACTURE DISCRIPTION

- Anatomic location
- Identify the bone
- Side of the bone (right/left)
- Exact location of the fracture (epiphyseal, diaphyseal, metaphyseal, proximal or distal)
- Fracture pattern
- Relationship of fracture fragments

How to Describe a fracture:

- **LOCATION**
  - Proximal, Middle or Distal Shaft

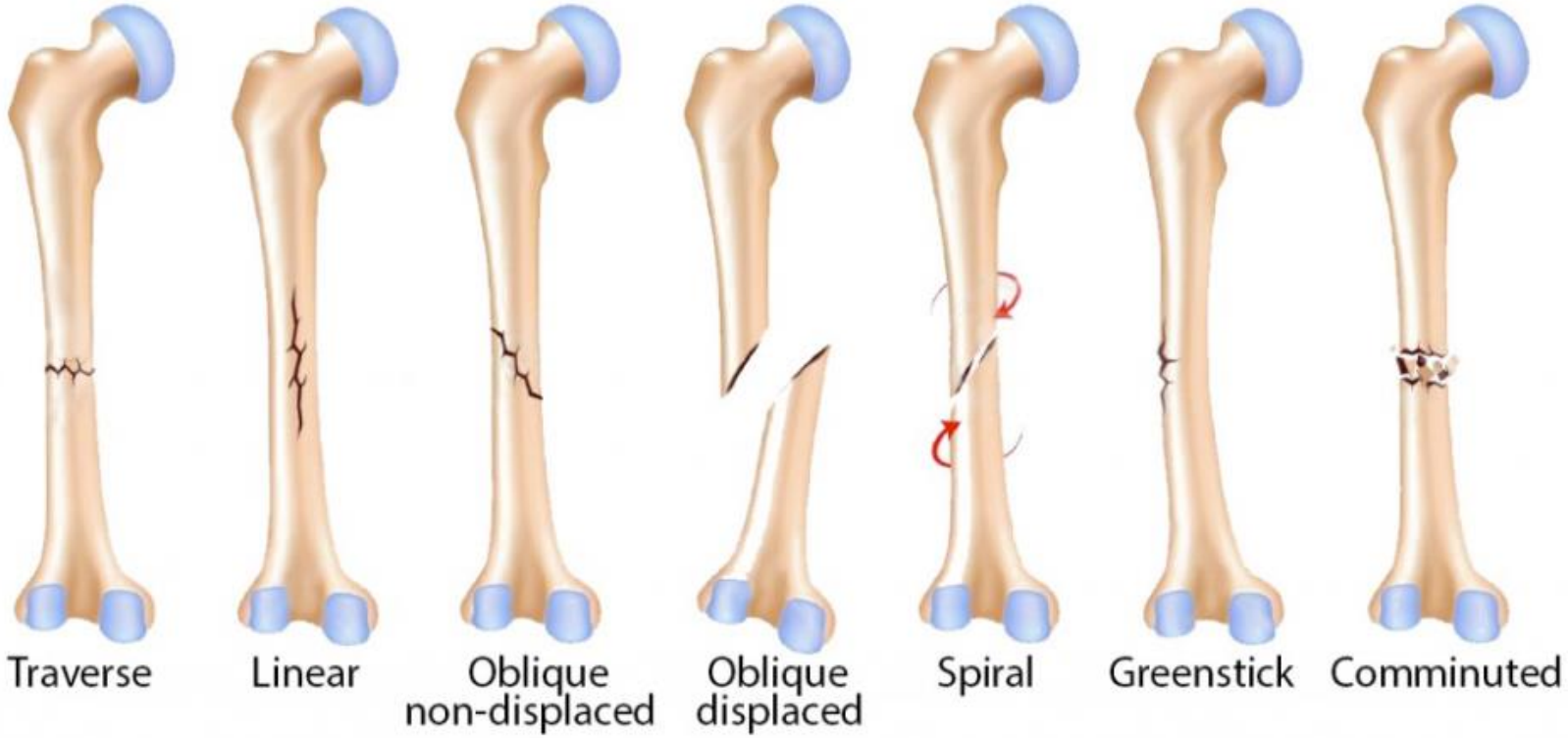
How to Describe a fracture:

- **OPEN/CLOSED**
  - With Respect to involvement of overlying skin.

How to Describe a fracture:

- **COMPLETE/INCOMPLETE**
  - With Respect to Extension Across the width of the bone

FRACTURE PATTERN

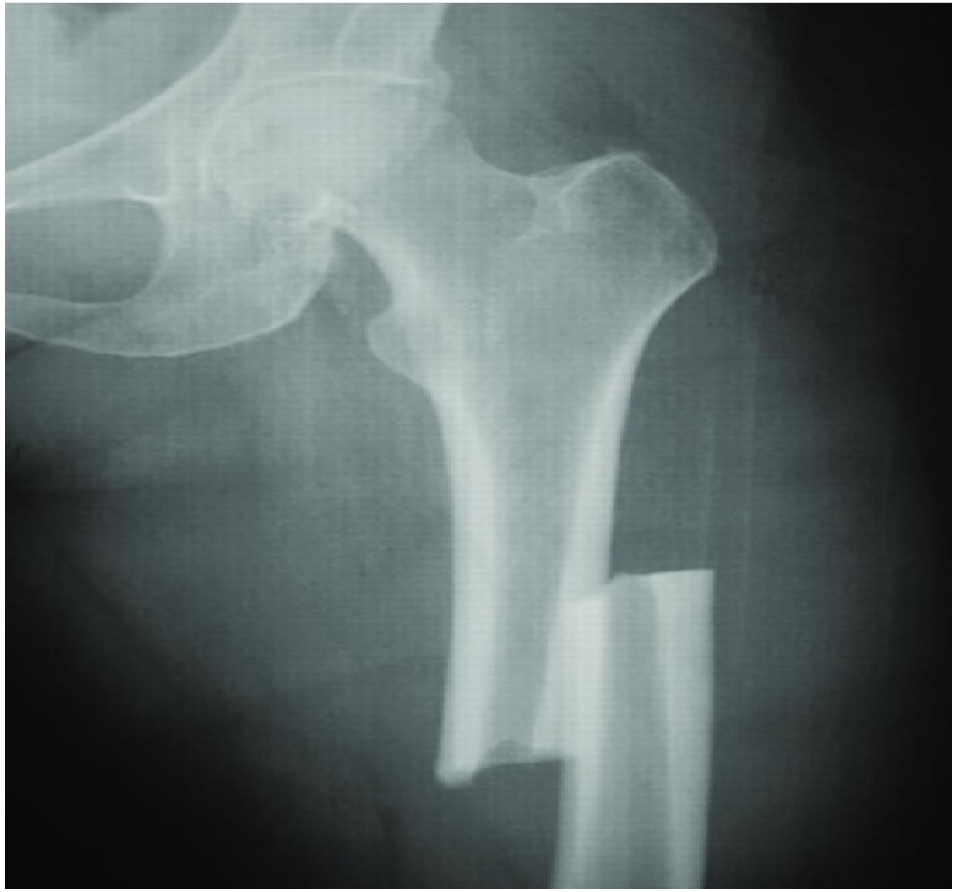


RELATIONSHIP OF FRACTURE FRAGMENTS

- Abnormalities of position describe the relationship of the distal fragment relative to the proximal fragment.
- Displacement
- Angulation
- Shortening
- Rotation

DISPLACEMENT

Lateral displacement of the distal fracture fragment.



SHORTENING

- Overlapping of the ends of fracture fragments

How to Describe a fracture:

- **DISTRACTION:**

How to Describe a fracture:

- **IMPACTION**

  - A fracture in which the ends of bones are driven into one another (common in children)
  - "Also known as buckle fracture."

How to Describe a fracture:

- **OVERRIDING**

How to Describe a fracture:

- **JOINT DISLOCATION**
  - Articular surfaces are completely separated

How to Describe a fracture:

- **SUBLUXATION**
  - Partial Contact Between the articular surfaces

How to Describe a fracture:

- **AVULSION**
  - Separation of the bone fragment at the ligament or tendinous attachment

How to Describe a fracture:

- **TRANSVERSE/OBLIQUE/SPIRAL**

How to Describe a fracture:

- **COMMINUTED FRACTURE**
  - More then 2 separate bone fragments

PATHOLOGICAL FRACTURE


Thank You