

Surgical Radiology

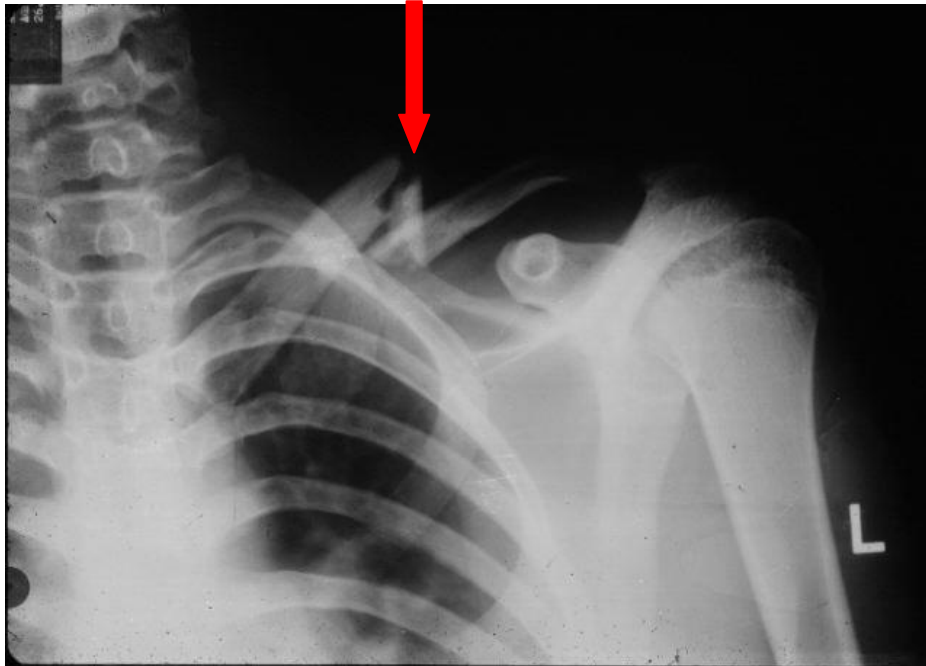
Orthopaedic Surgery

By
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Contents

- Upper limb fractures & dislocations
- Lower limb fractures & dislocations
- Osteomyelitis
- Bone tumours
- Other bone diseases

Upper Limb Fractures & Dislocations



Clavicle fracture

Upper Limb Fractures & Dislocations

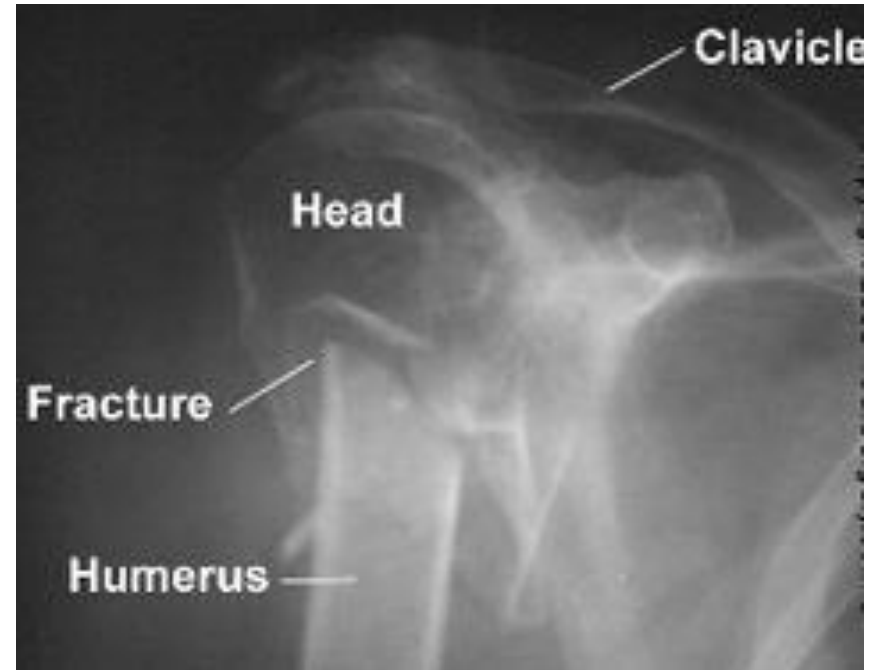


Normal shoulder



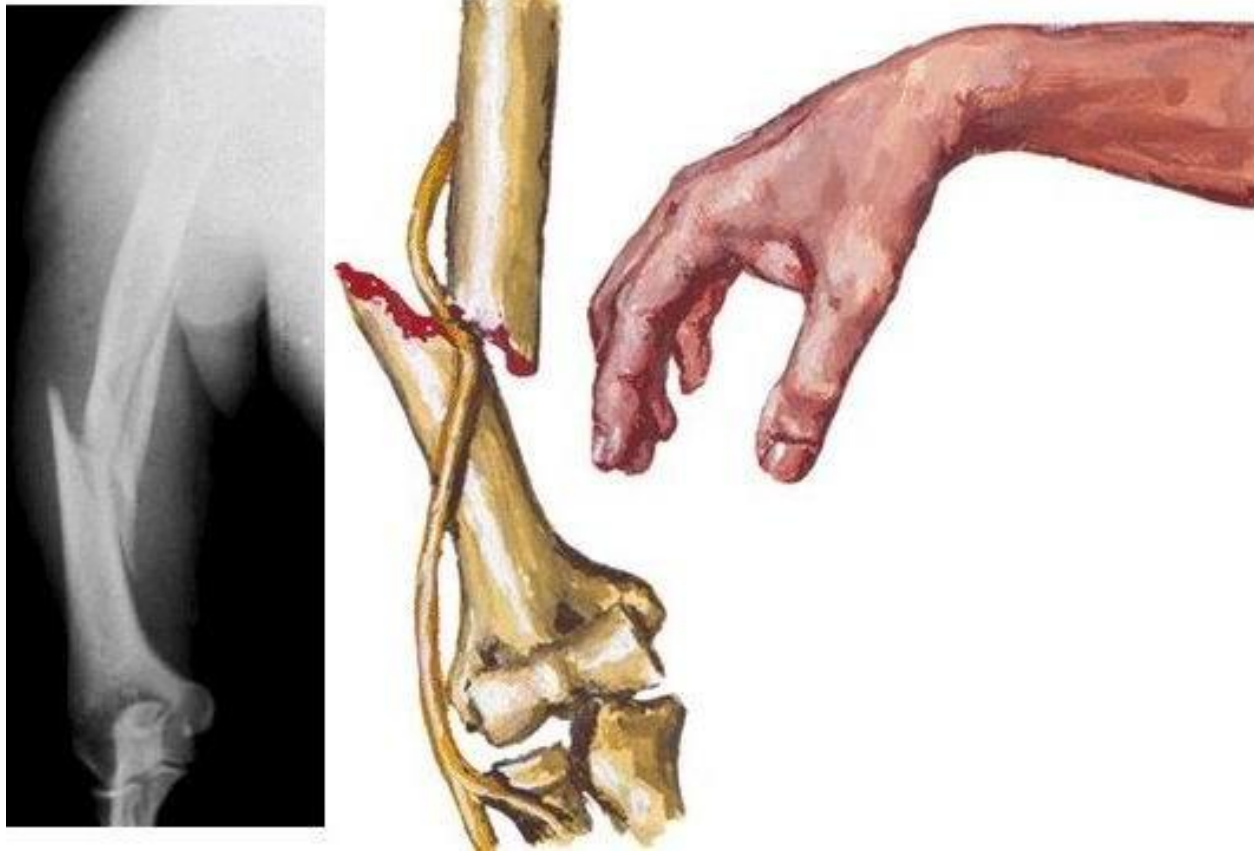
**Anterior shoulder
dislocation**

Upper Limb Fractures & Dislocations



Fracture of neck of humerus.
This fracture may injure the
circumflex (axillary) nerve C5,6

Upper Limb Fractures & Dislocations



Fracture of shaft of humerus. This fracture may injure the radial nerve while it lies in the spiral groove at the back of the bone

Upper Limb Fractures & Dislocations



**Humerus
shaft
fracture**

Pathological fracture where the bone is weakened by the presence of a multilocular cyst



Comminuted fracture

Upper Limb Fractures & Dislocations

Supracondylar fracture of humerus. Extension fracture is the usual type

This fracture may injure the brachial artery and/or the median nerve



Upper Limb Fractures & Dislocations



Examples of **supracondylar fractures** (extension type). This fracture is common in children



Upper Limb Fractures & Dislocations



Normal elbow

Medial epicondyle fracture. This fracture may injure the ulnar nerve



Olecranon fracture

Upper Limb Fractures & Dislocations

Fractures of radius and ulna
in a child. The ulna fracture is of
the green-stick type



Upper Limb Fractures & Dislocations



Colles' fracture



Upper Limb Fractures & Dislocations



Colles' fracture

Upper Limb Fractures & Dislocations



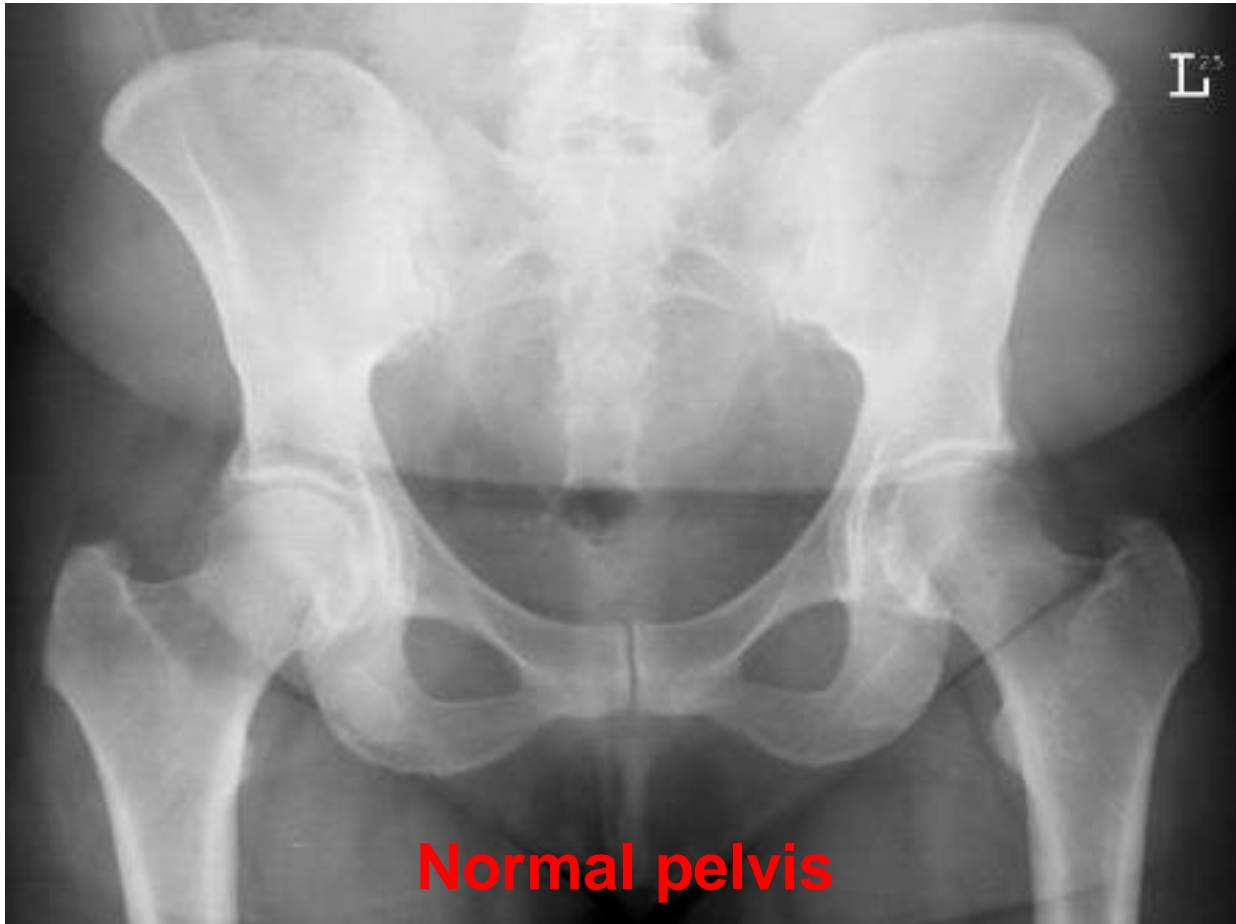
**Scaphoid
fracture**

Upper Limb Fractures & Dislocations



**Fracture of 5th
metacarpal**

Lower Limb Fractures & Dislocations



Lower Limb Fractures & Dislocations



Fracture of superior pubic ramus

Lower Limb Fractures & Dislocations

**Fracture of
superior and
inferior pubic
rami on both
sides**



This fracture is likely to injure the bladder and intra-pelvic urethra

Lower Limb Fractures & Dislocations



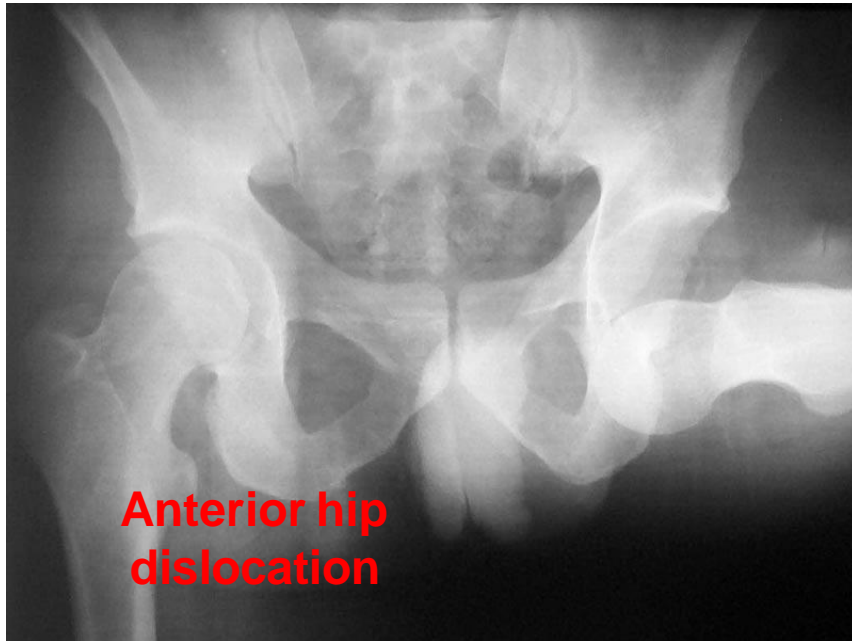
Open-book fracture of pelvis



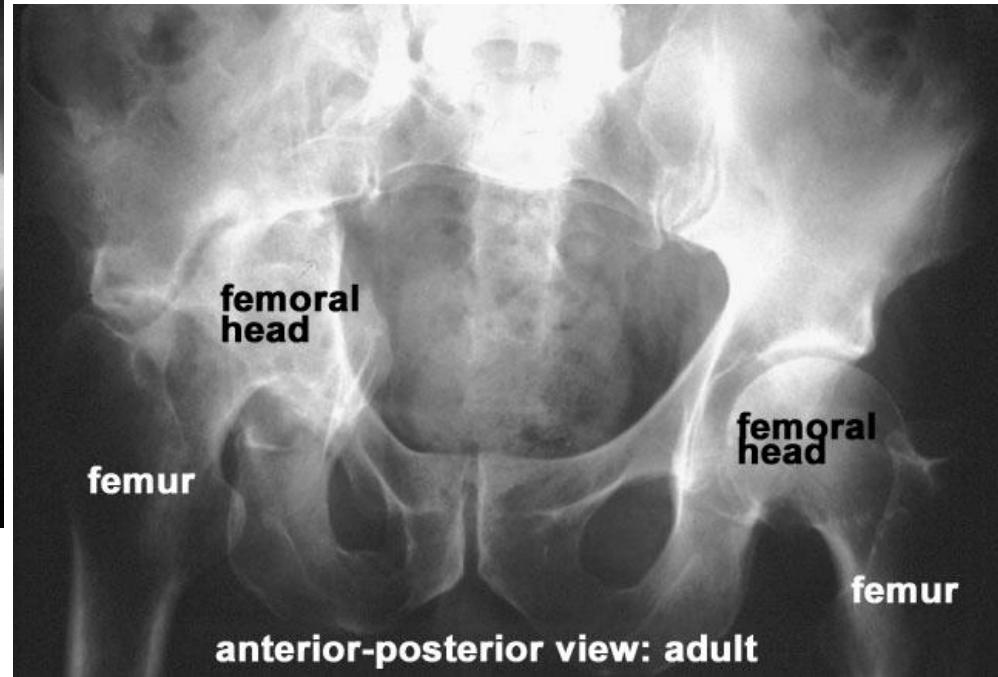
Posterior hip dislocation

This is the most frequent variety of hip dislocation

Lower Limb Fractures & Dislocations



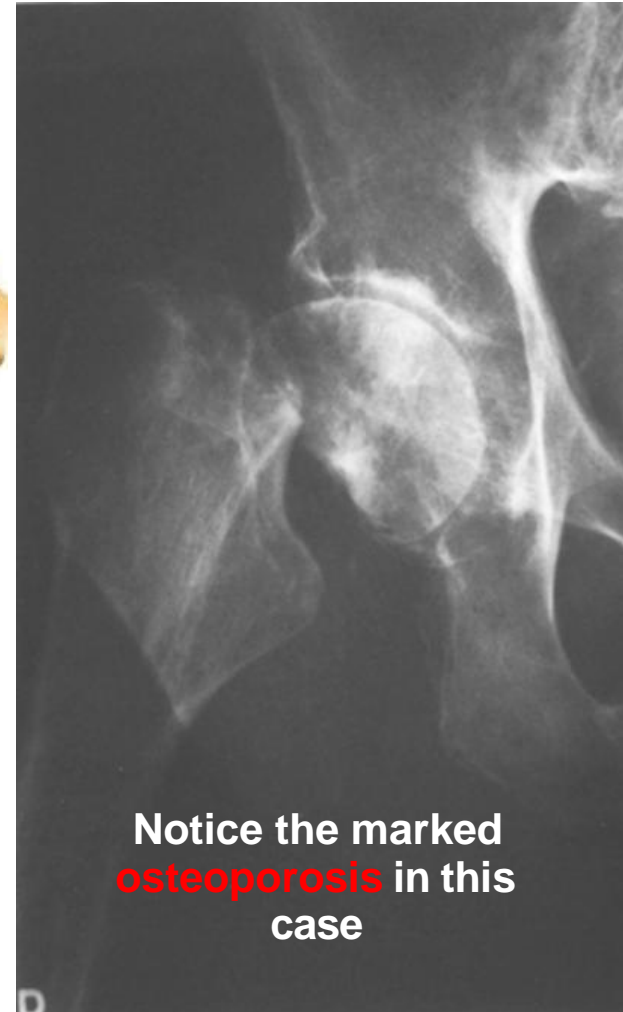
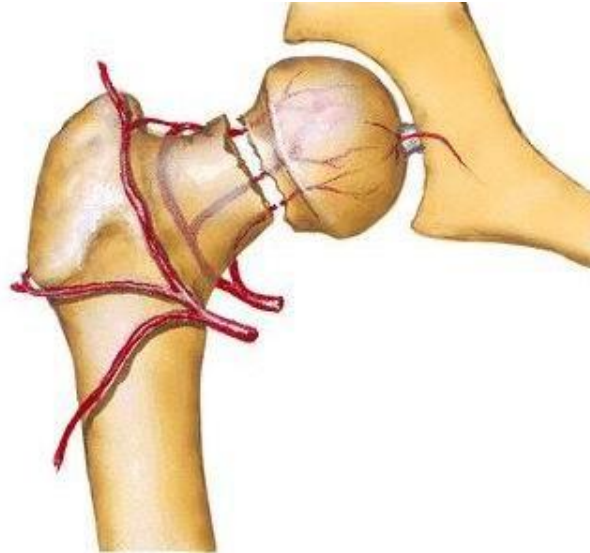
Central hip dislocation (acetabular fracture) on the right side



These are less frequent varieties of hip dislocation

Lower Limb Fractures & Dislocations

Fractures of neck of femur Intra-capsular type



Intracapsular fractures may cause necrosis of femoral head if they are markedly displaced

Fractures of neck of femur Intra-capsular type

Treatment

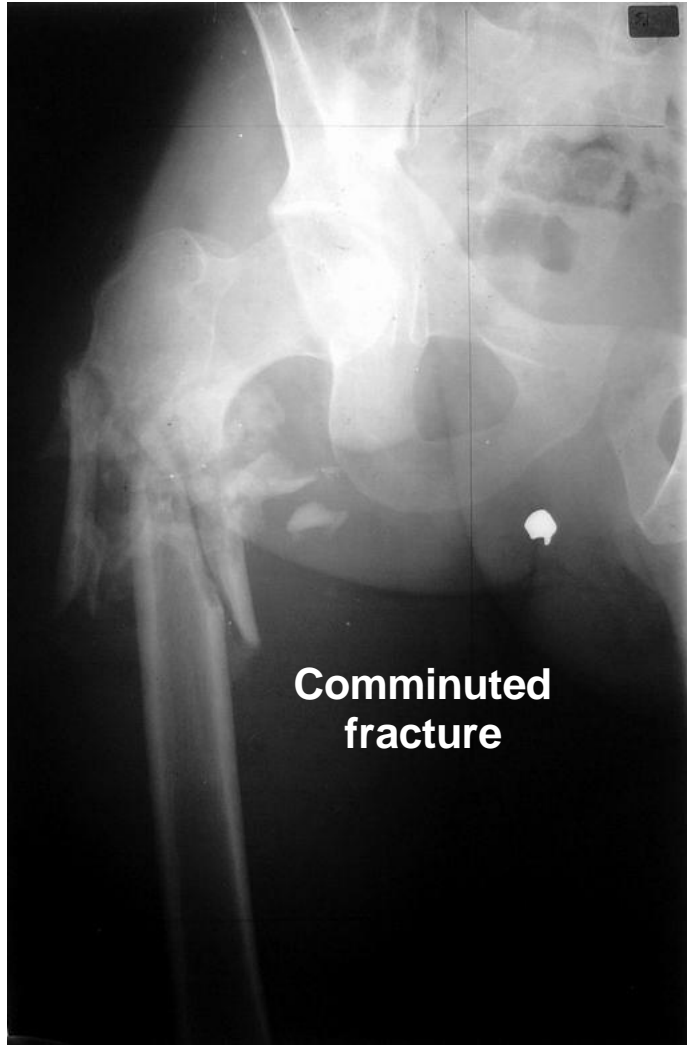


Dynamic hip screw



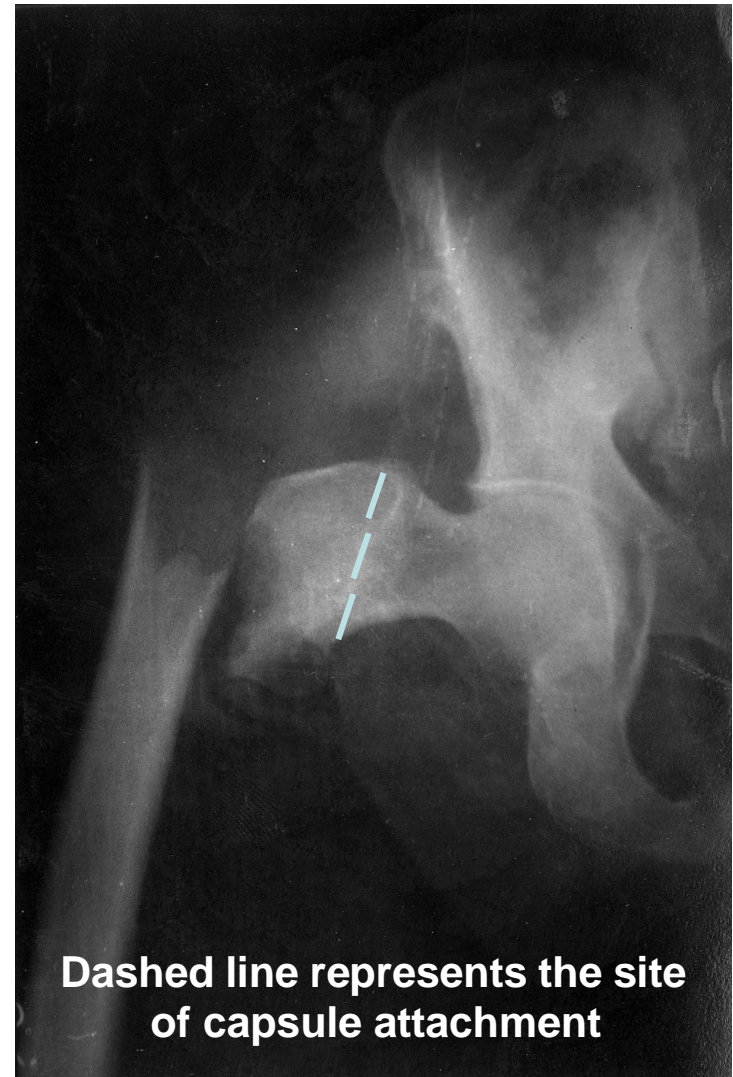
**Necrosis of femoral head is
treated by hemiarthroplasty**

Lower Limb Fractures & Dislocations



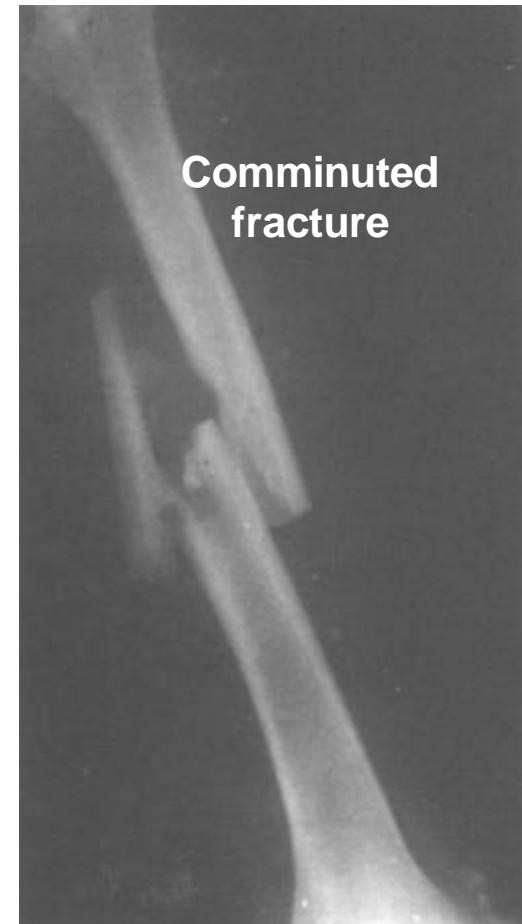
**Fractures of
neck of femur**

**Extra-capsular
type**



Lower Limb Fractures & Dislocations

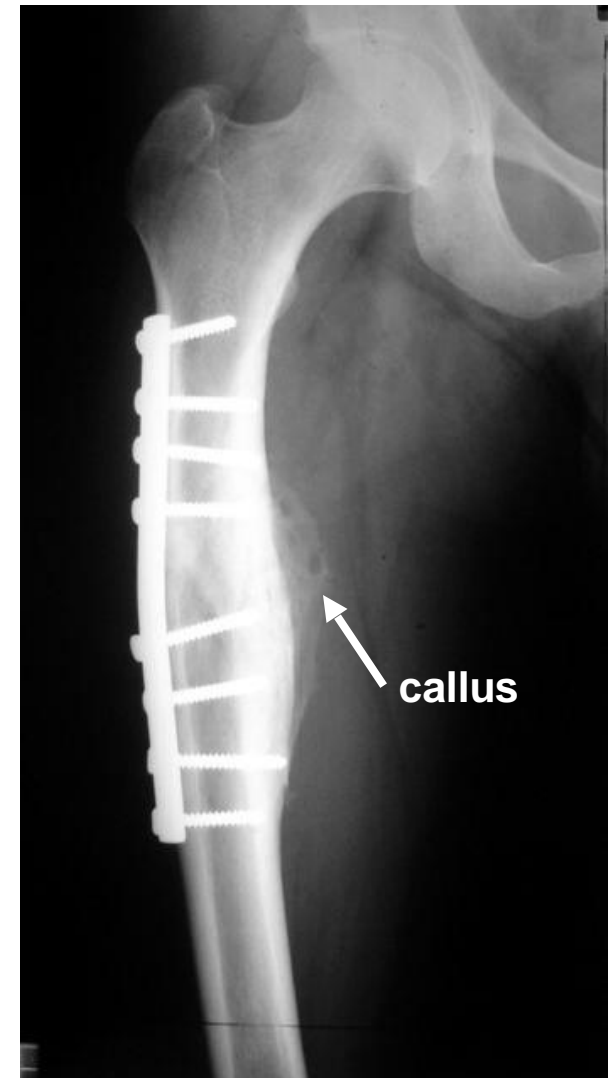
Fractures of shaft of femur



Lower Limb Fractures & Dislocations



Fractures of shaft of femur



Lower Limb Fractures & Dislocations

Supracondylar fracture of femur

This fracture may injure the popliteal artery



Lower Limb Fractures & Dislocations

Fracture of patella with
wide separation of bone
fragments



Lower Limb Fractures & Dislocations

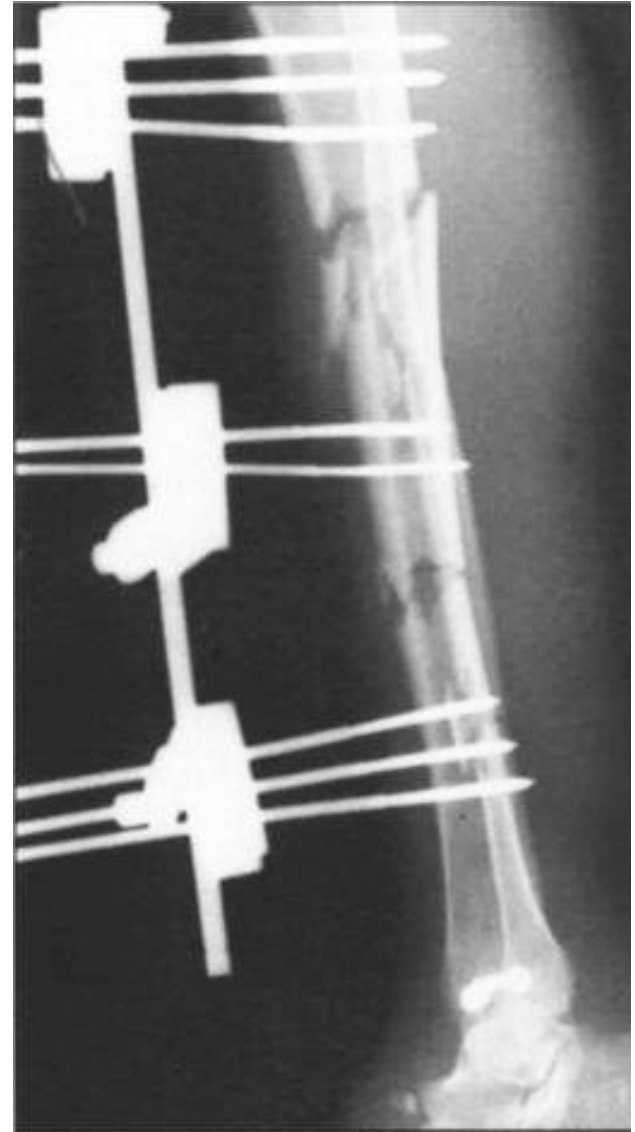


Fracture of tibia and fibula
commonly compound

Lower Limb Fractures & Dislocations

Comminuted fracture of tibia and fibula

External metal fixation is suitable for compound fractures of tibia



Lower Limb Fractures & Dislocations

Ankle fractures



Osteomyelitis

u
i
c
e

Chronic non-specific osteomyelitis is also a common occurrence with **diabetic foot infections**, particularly with deep neuropathic

Remember than acute osteomyelitis does not produce radiological changes



Osteomyelitis



Chronic non-specific osteomyelitis is also a common occurrence with **diabetic foot infections**, particularly with deep neuropathic ulcers

Notice that the joints are destroyed because of defective sensation (**Charcot joints**)

Bone Tumours



Multilocular bone cyst of the humerus. **Aneurysmal bone cyst**



Simple bone cyst

Bone Tumours



Osteochondroma (exostosis) at its typical position the metaphysis of the lower femur

Bone Tumours



Enchondroma with
pathological fracture



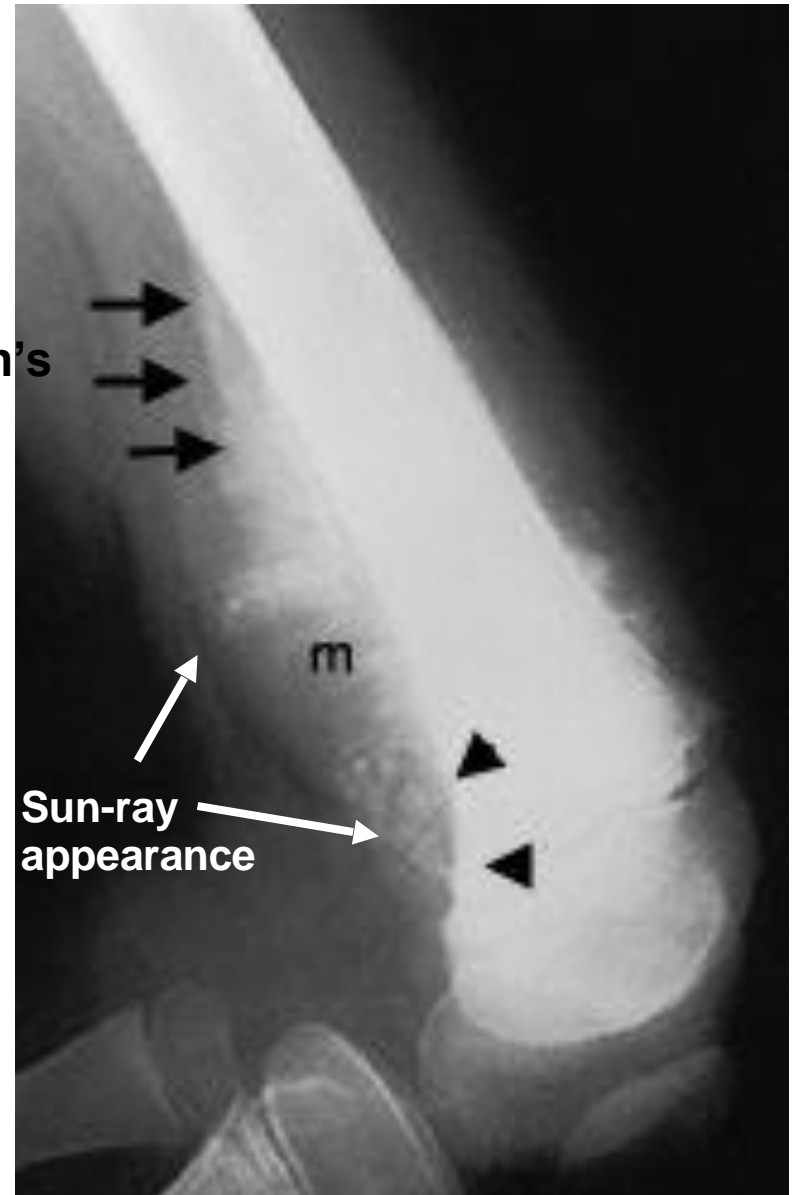
Radiolucent lesions of phalanges that expand bone from inside
Enchondromas. They may be multiple and may cause pathological fracture

Bone Tumours

Osteosarcoma facts:

- Commonest 1^{ry} bone malignancy
- Children (rarely elderly on top of Paget's disease)
- Growing end of bones (commonest site is lower femur)
- Metaphyseal
- Bone destruction & new bone formation (see X-ray)
- Invasion of local soft tissues
- Blood spread to lungs

Codman's triangle



Bone Tumours

Giant-cell tumour

facts:

- Varying grades of malignancy
- Growing end of bones
- Epiphyseal
- Bone destruction NO new bone formation (see X-ray)
- Good demarcation between tumour and bone medulla
- No invasion of articular cartilage



Bone Tumours

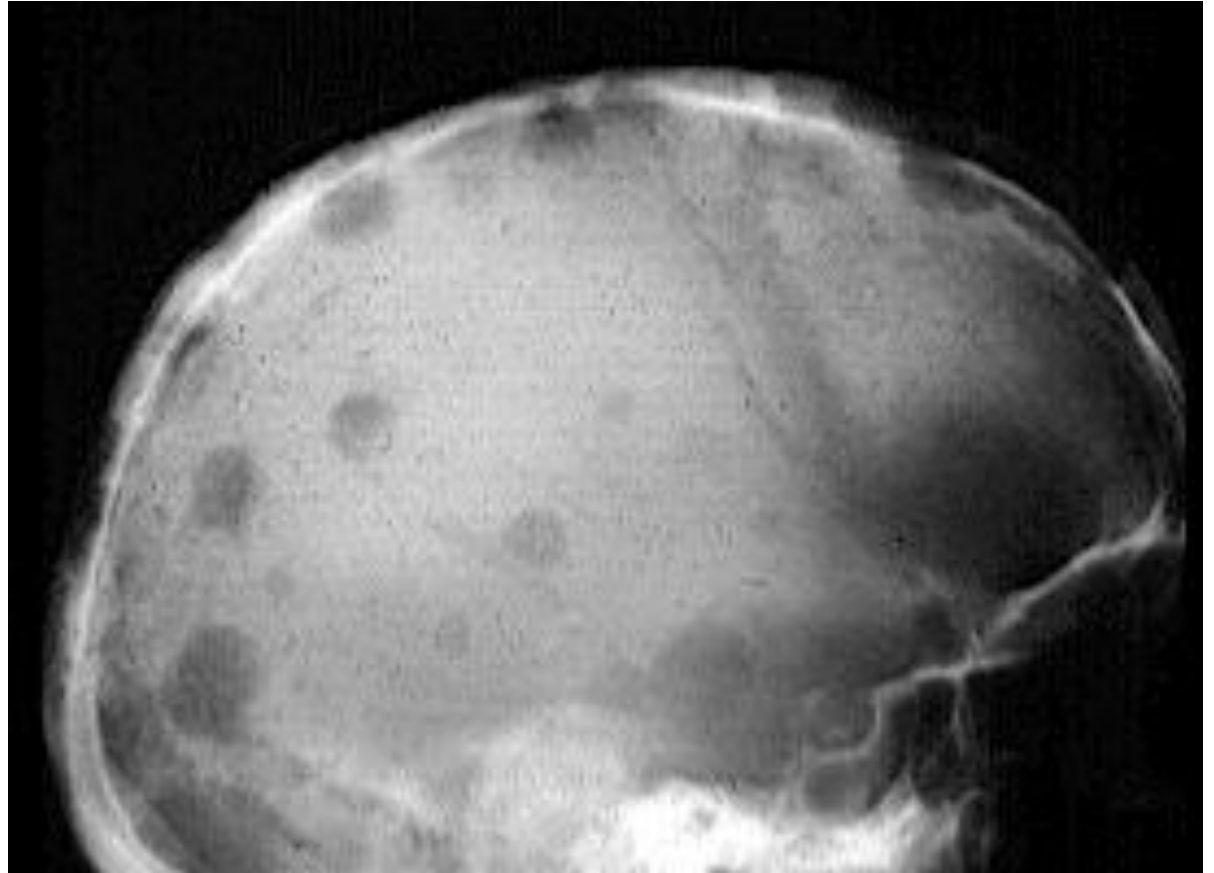
Chondrosarcoma

affects flat bones
as the ilium and
shows
characteristic
flecks of
calcification



Bone Tumours

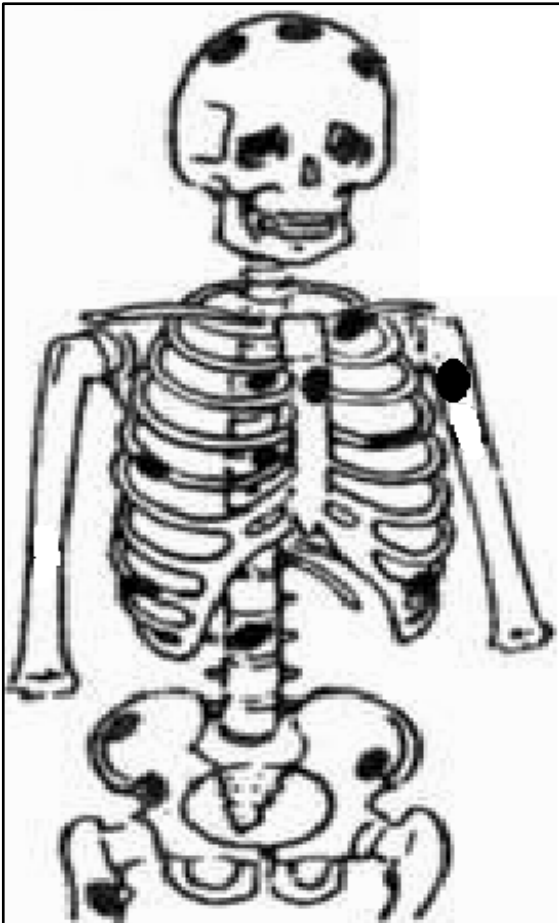
**Multiple
osteolytic
lesions that
affect the skull**



Metastases or multiple myeloma

Bone Tumours

Sites of bone metastases and multiple myeloma



Multiple osteolytic lesions of the pelvis & upper femurs

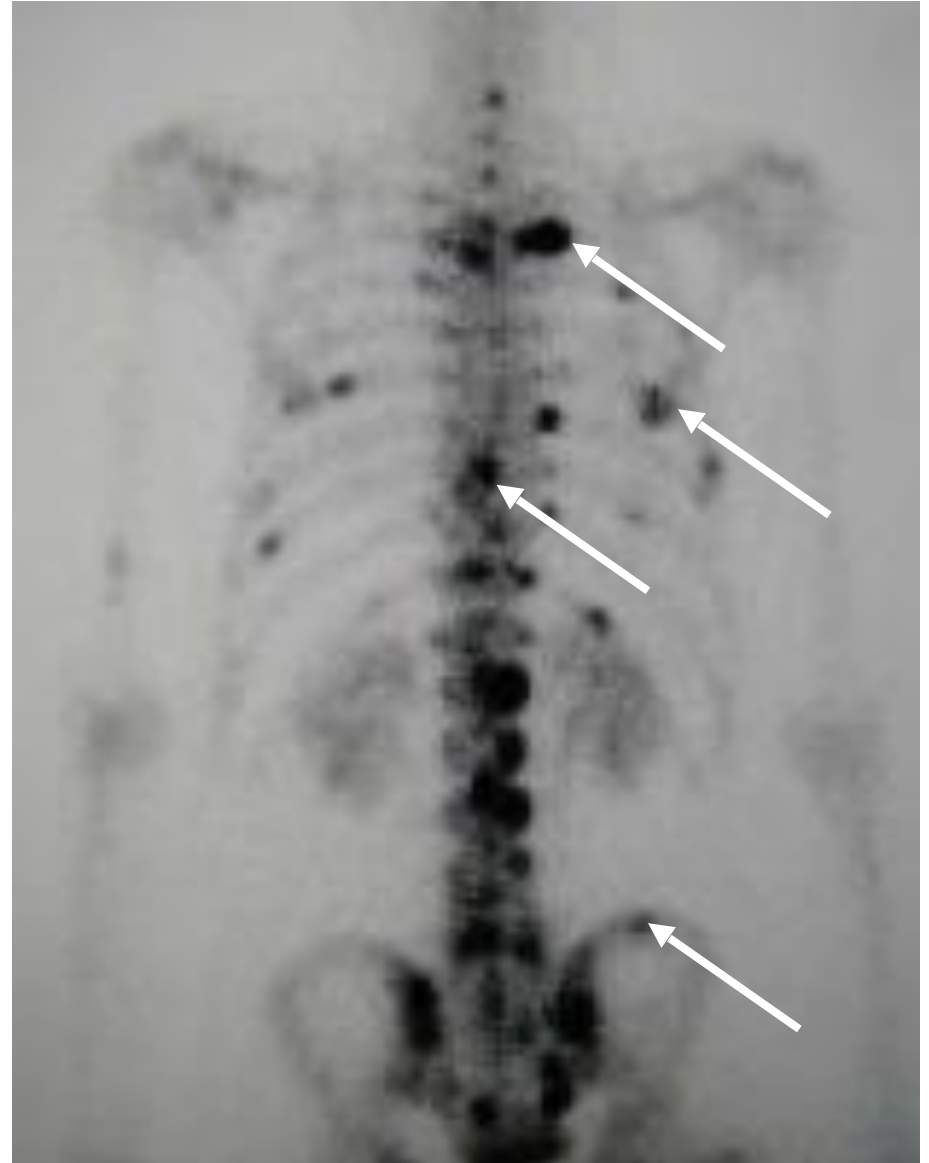
Metastases or multiple myeloma

Bone Tumours

Bone isotope scan
showing

**Multiple bone
metastases** that
appear as dark spots

*Bone metastases are the
commonest bone malignancies*



Other Bone Diseases

**Bilateral
Congenital Hip
Dislocation
(CDH)**



Other Bone Diseases



Obliterated joint spaces of both hips (compare with [normal hip joints](#))

Bilateral hip osteoarthritis

Other Bone Diseases

Hyperparathyroidism may
produce multiple bone cysts

