Degloving injury : Peeling of skin & subcutaneous fat / tissue

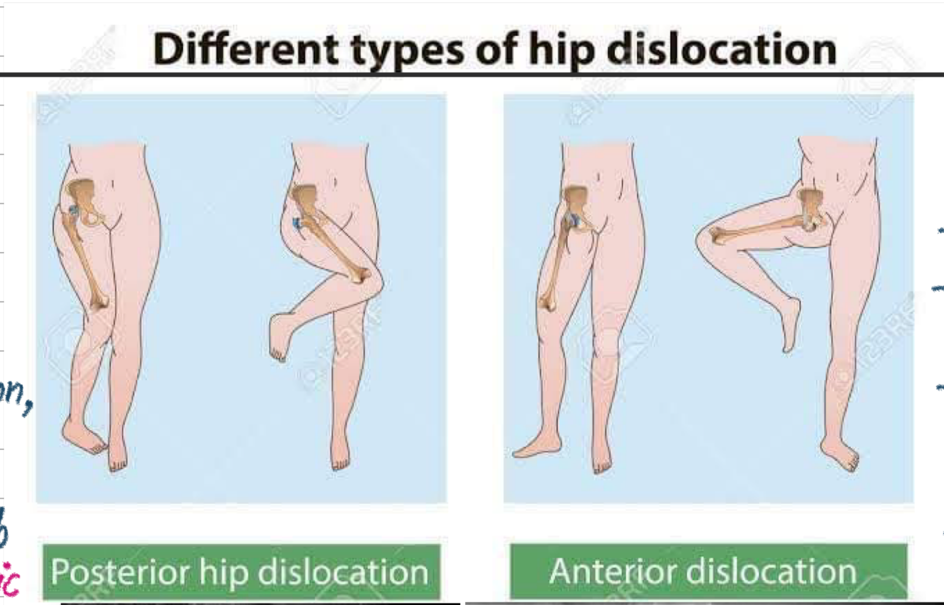
Sprengel Deformity : Congenital elevation of the scapula

↳ m/c congenital shoulder girdle deformity.

- It occurs due to persistent omovertebral bar
- Presents with restriction of shoulder movements

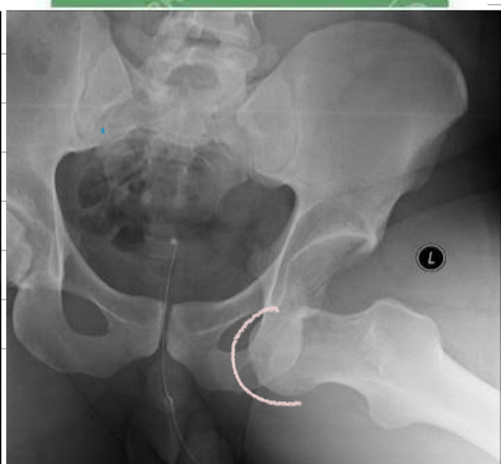
m/c associated with :
- Klippel Feil Syndrome / KFS
- Scoliosis & other congenital anomalies

Rx :- • Release the omovertebral bar & bring the scapula down
The Surgery is aka : Woodward operation
• Usually done between 3-8 years of age.



PDH

- m/c
- Dashboard injury
- Flexion adduction, internal rotation [FADIR]
- Shortened Limb
- Nerve # : Sciatic nerve
- Femoral head is displaced sup. & laterally
  - Femoral head appears smaller than normal
  - Lesser trochanter is not visualized.



ADH

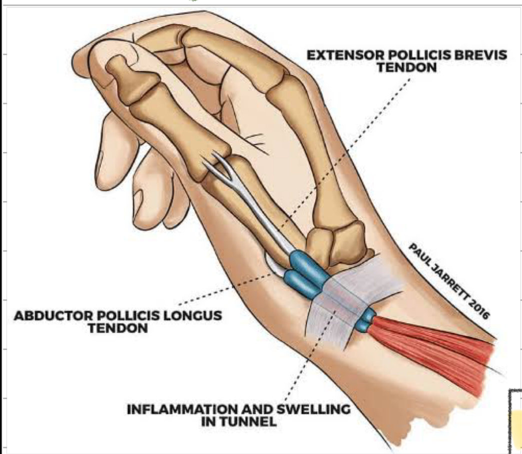
- Less common
- Deceleration injury / Fall from height
- Flexion abduction, external rotation. [FABER]
- Lengthened Limb
- Nerve # : Femoral nerve
- Femoral head may be seen inferior to the acetabulum.
- Femoral head appears larger than normal

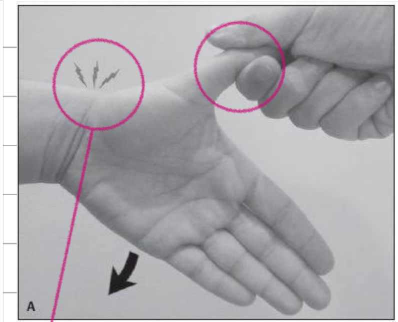
Dequervain's disease

Stenosing tenosynovitis of abductor Pollicis Longus & extensor pollices brevis at 1st Dorsal compartment of wrist.

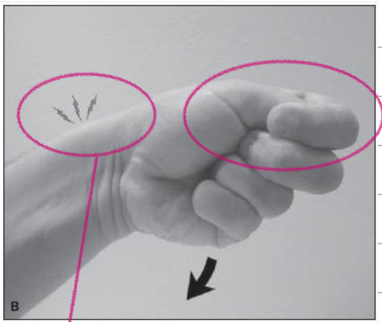
- Female > male
- Cause : overuse , Rheumatoid artheritis.
- Test : Finkelstein's test , Eichoff test.
- Rx: Rest, immobilisation, physiotherapy, NSAIDS, splint.

Steroid injection not advised as it can cause tendon rupture.





Finkelstein's test



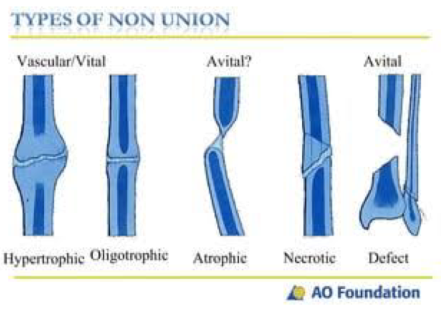
Eichoff's test

Non-Union

No callus >6 months — Delayed union.
No callus >9 months — non-union.

Note: Diaphyseal bone usually undergo non-union.
Metaphyseal # undergo mal-union.

Types of Non-Union.



Hypertrophic	Atrophic
• Callous not bridging the fracture	• No callous formed
• Biology of bone is good. Rx: Immobilization	• Biology of the bone is abnormal. Rx: Autologous bone grafting Treat the underlying cause. • Typical Non-union.

Carpal Bones:

Mnemonic → She Looks Too Pretty Try To Catch Her.

Scaphoid Lunate Triquitrum Pisiform Trapezium Trapezoid Capitate Hamate

Q. Largest Bone – Capitate, Smallest – Pisiform

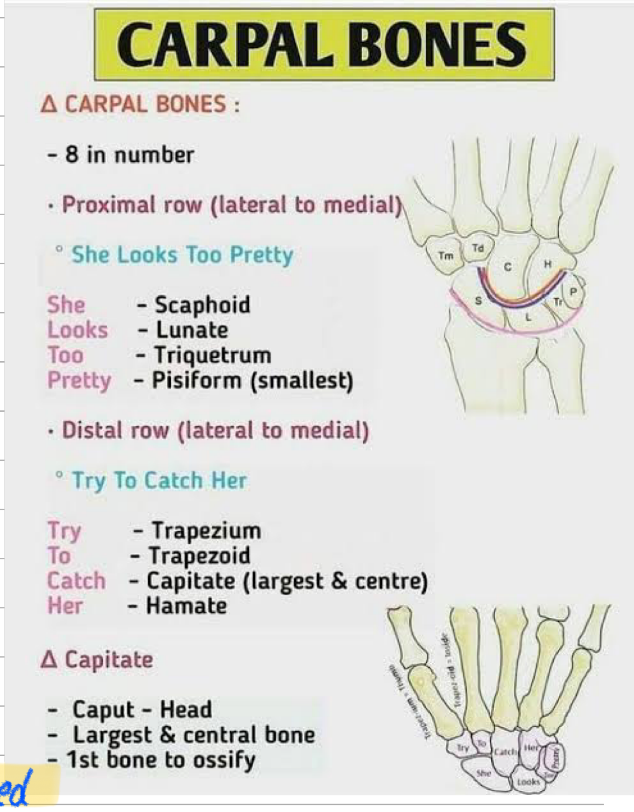
Q. m/c fractured – Scaphoid

Q. m/c dislocated – Lunate

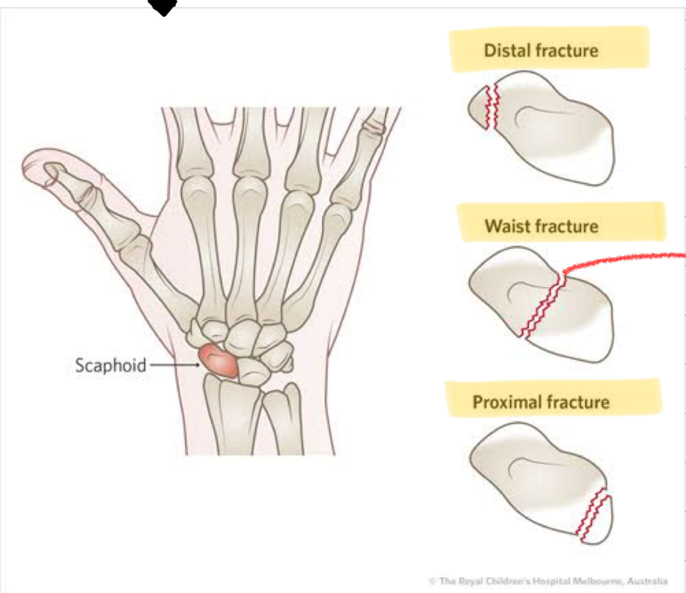
Q. m/c nerve in lunate dislocation?
↳ Median Nerve

Q. 1st to ossify – Capitate (around 2 months)

Q. Last to ossify – Pisiform (12–13 years)



Scaphoid Fracture → MOA – Fall on outstretched Hand.



→ m/c

X-ray – AP / Lat / Oblique wrist view (Best)

Vascularity of scaphoid → Distal to Proximal

at waist of scaphoid
↓
Proximal pole undergoes AVN

→ Thumb spica splint

Colle's Fracture

↓

\# distal end at Cortico-cancellous Junction.

MOI - Fall on outstreched Hand (wrist Extension)

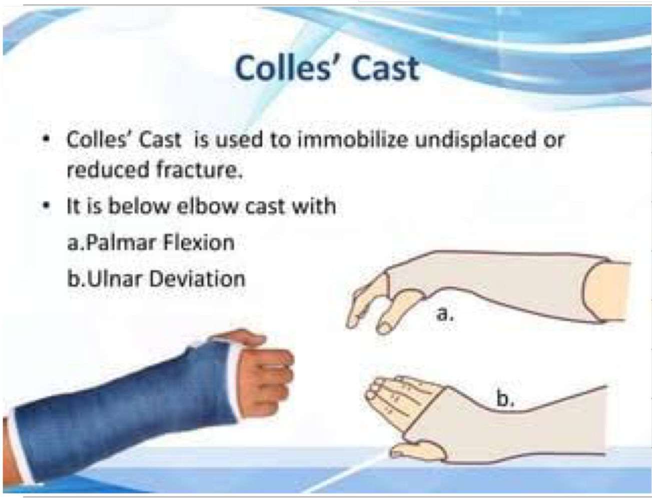
Rx: → • Hand Shaking Cast

- CRIF c̄ k-wires
- ORIF c̄ plates

Smith's Fracture

- Extra articular
- Distal end of Radius
  ↓
  Volar displacement
- MOI : Fall on outstreched Hand (wrist in flexion)
- • Garden spade deformity

Rx: POP or ORIF c̄ plates

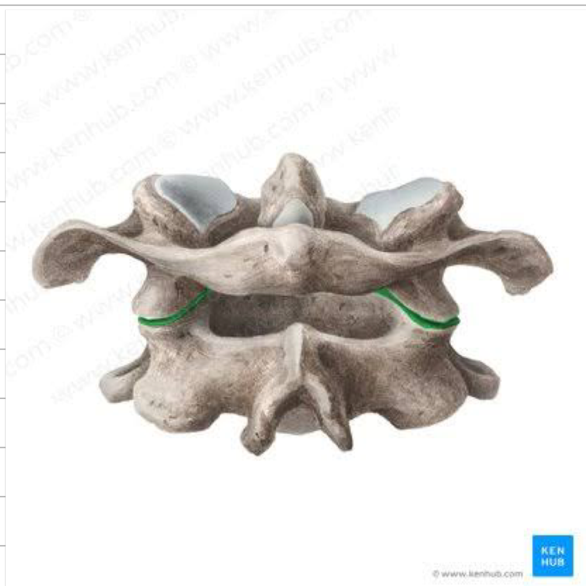


Atlanto-axial Joint

↓

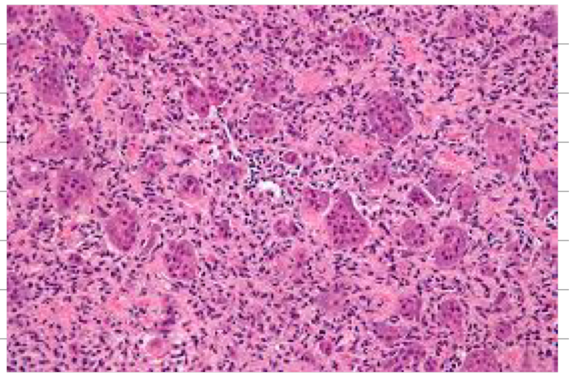
• (articulation b/w the atlas & the occipital Bone)

• The atlanto-occipital joints are Synovial socket type joints.



Giant cell tumors / osteoclastoma :

- Locally aggresive.
- Epiphysio-metaphyseal : can grow up to cartilage or joint (upto 1-1.5 cm)
- F >> M
- 20-40years (after skeletal maturity)



- Location : • Knee lower end of femur (m/c)
  - Upper end of tibia.
  - Distal end of Radius.
- Clinically : Egg shell crackling (thin cortex)
- X-ray : Soap Bubble appearance.
- Biopsy : • Multinucleated osteoclast like giant cells surrounded by mononuclear cells.
  - Nucleus of mononuclear cell and giant cells are the same.
- Rx: Extended curettage : • Liquid nitrogen
  - Bone cement
  - Phenol

Bone Cysts

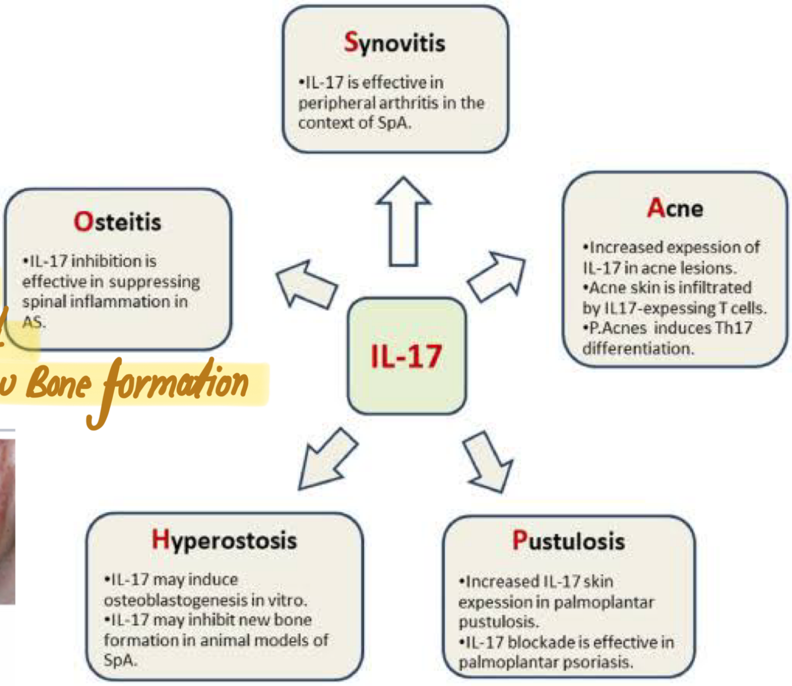
Simple Bone cyst/ Unicameral bone cyst	Aneurysmal bone cyst
• Benign, unilocular • Symmetrical expansion • Centric • Metaphyseal • 10-20 years (younger) • Proximal Humerus • Clear/straw colored Rx: Aspiration +/- injection • steroids/sclerosants. • Excision and curretage + Autogous bone graft. (ABG)	• Benign, multiloculated • Asymmetrical expansile/balloning. • Eccentric • Metaphyseal • 10-20 years (older) • Around knees • Blood Rx: • Extended curettage. • To kill residual tumor cells - liquid Nitrogen (minimize recurrence), bone cement, phenol. • Embolisation

Aneurysmal bone cyst

Fallen leaf sign.

Sapho Syndrome

S - Synovitis
A - Acne
P - Pustulosis
H - Hyperostosis → reflects excessive bone growth and may Result in new Bone formation
O - Osteitis



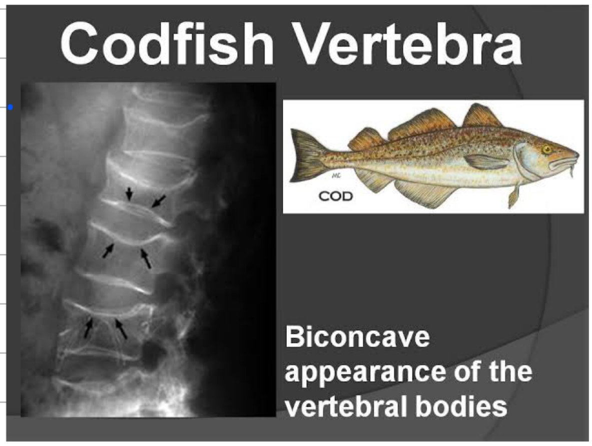

Palmoplantar Pustulosis


Acne Conglobata


Acne Fulminans

Osteoporosis

Volume / mass / density of bone decreases.
- Quantitative defect.
- Porous bone disease
- Normal bone Quality.



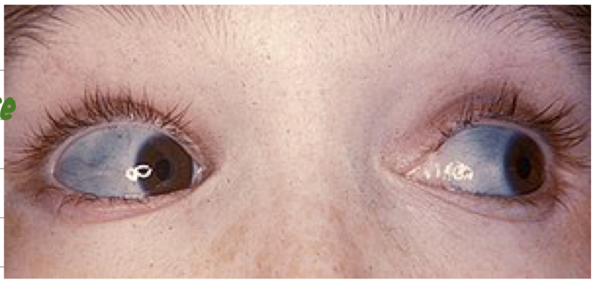
- Estrogen is protective againt osteoporosis.
- ↓ due to menopause.
- m/c/c → Age

Risk factors : • Modifiable : Sedentary life style, alcohol / smoking.

• Non modifiable : Age race, asian, female.

• IOC → Dexa Scan

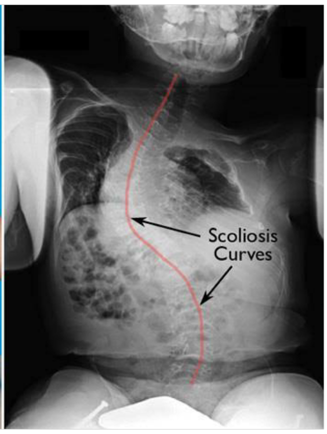
Osteogenesis imperfecta → aka Brittle Bone disease
→ COLA1 Gene defect



- AR / Type II :- • Still born
  - Lethal form of disease.
- AD / Type I / Classical : weak bone leads to recurrent pathological fracture.

Features :- • Blue sclera
- Delayed dentition
- Bruising
- Deformed bones / Bent - use splint or braces.

Rx: Realignment osteotomy : The bent part removed and cut into fragments. Rod called Duboin rod is inserted and bone is put in fragm- -ents. Also called as seekh kebab / scoffied miller operation.

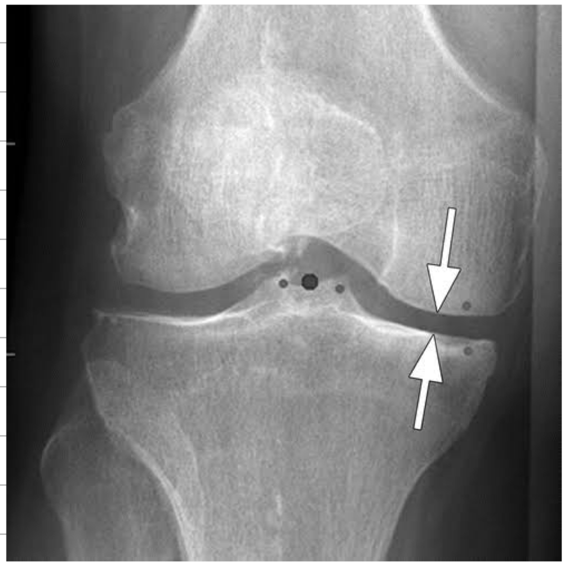


Osteoarthritis : • most common Joint disease.
• Degenerative disease of the cartilage.

↓

X-ray Findings :

1. ↓ joint space : Earliest finding X-ray.
2. Subchondral Sclerosis.
3. Subchondral necrotic cysts
4. osteophytes • Regeneration of bone
   • Break off and form loose bodies.
5. Genu Varus deformity.



Scurvy : Collagen maturity defect because of vit C deficiency.

Clinical Manifestations

Bone

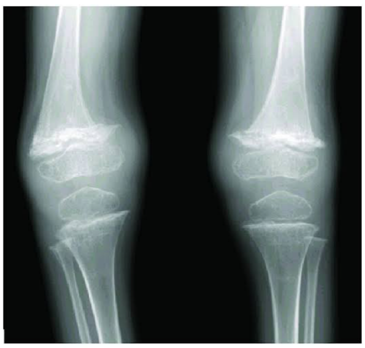
Diaphysis - • Ground glass appearance
• Pencil thin cortex.

Metaphysis - • whiteline of frankel
• Scorbutic Zone.
• Pelkan's spur

Epiphysis • wimbergar ring sign

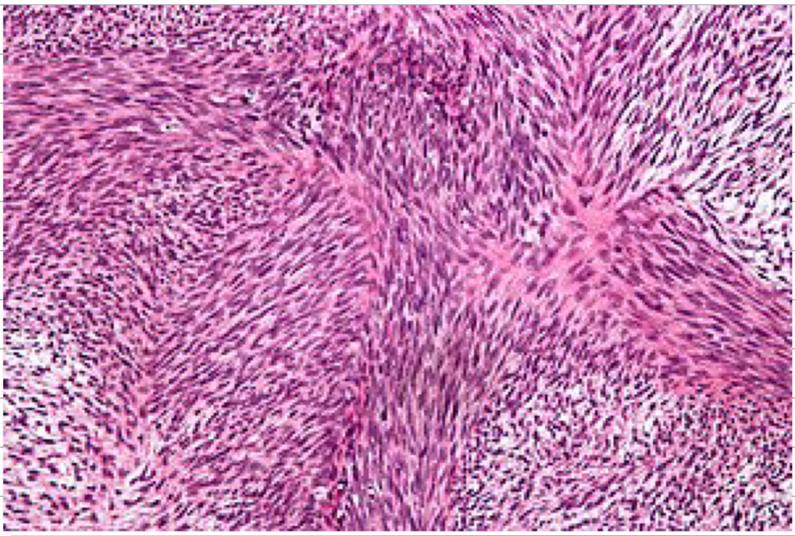
Blood vessels

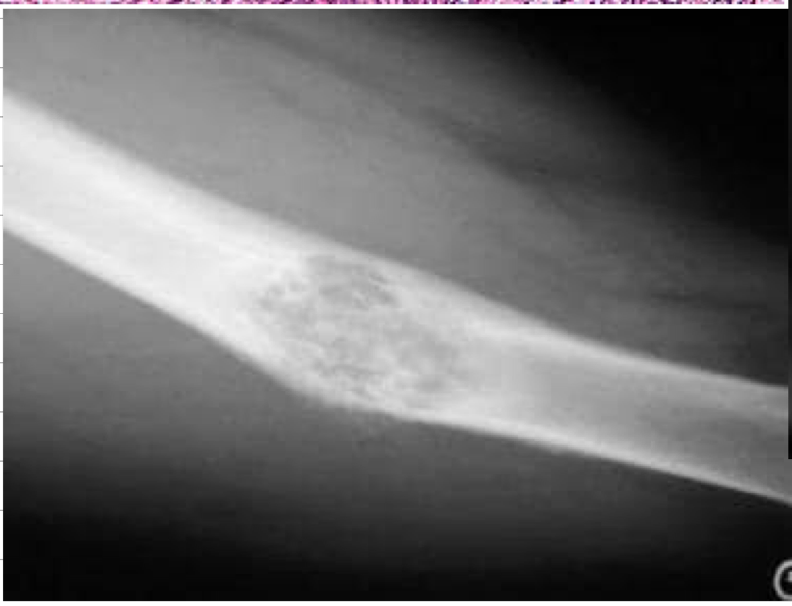
• Bleeding gums.
• Costochondral junction
  - Scorbutic rosary
  - Tender and Sharp
• Bone : Subperiosteal Hemorrhage



Fibrosarcoma

Fibrosarcoma (fibroblastic sarcoma) is a malignant mesenchymal tumour derived from fibrous connective tissue and characterized by the presence of immature proliferating fibroblasts or undifferentiated anaplastic spindle cells in a storifor,-m pattern. Fibrosarcomas mainly arise in people between the ages of 25-79. It originates in fibrous tissues of the bone and invades long or flat bones such as the femur, tibia, and mandible. It also involves the periosteum and overlying muscle.



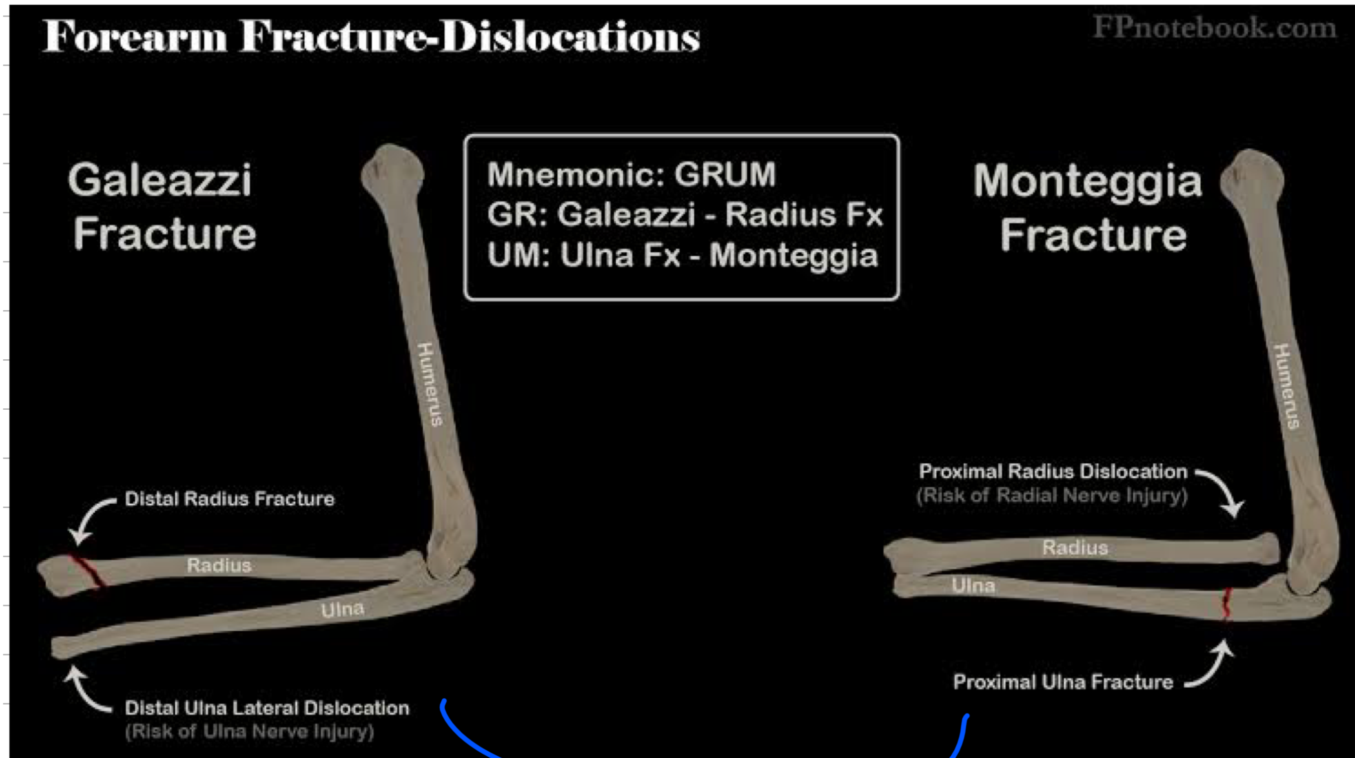


Tom smith Arthritis

- Septic Arthritis of hip in infancy (<1yr)
- Since the capital femoral epiphysis is cartilaginous, disease process destroys head leading to Chondrolysis.

- Distruction of Hip :- Hypermobility of hip joint (destroyed head).
  - Limb shortening.
  - Telescopy test positive (as head of femur and acetabulum are not connected)

- It is a Surgical Emergency to preserve hip function.



Monteggia		Galeazzi
Anterior dislocation of the radial head with a fracture of the ulna, usually angulated dorsally	Description	Fracture of the radius with shortening and dislocation of the distal ulna
Dislocation at the head	Radius	Isolated fracture at the junction of the distal and middle third
Fracture of the proximal third	Ulna	Subluxation or dislocation of the distal radio-ulnar joint
Fall on an outstretched hand with the forearm in excessive pronation Direct blow on back of upper forearm in self-defense (night-stick injury)	Mechanism	Fall on an outstretched arm with elbow flexed
ORIF	Management	Open reduction in adults Closed reduction in children
Nonunion Limitation of motion at elbow	Complications	Malunion/Nonunion Limitation of pronation or supination Anterior interosseous nerve palsy
Giovanni Battista Monteggia	Credit goes to…	Ricardo Galeazzi

Rheumatoid arthritis

- Disease of Synovium.
- M/C type of inflammatory arthritis.
- F>M
- Symmetrical peripheral joint involvement.

Joints involved : Hand : MCP > wrist, PIP.
Knee and hip (DIP spared)
Axial is rare: may involve cervical spine
(Subluxation of C1-C_2 vertebrae : Cord compression)

M/C/C of death is → CAD/CVS problems.

Diagnosis :- Most sensitive marker → Rheumatoid factor : IgM antibody against FC portion of the IgG antibodies.
- Most specific marker → Anti-CCP (anti-cyclic citrullinated peptide).
- Elevated CRP or ESR.

Brodie's Abcess

- A chronic abscess of bone surrounded by dense fibrous tissue and slerotic bone.
- Brodie's Abscesses are especially common in children, more typically boys.

O/E: • Tenderness and Thickening of bone.

Radiological Features → Oval Lucent area Surrounded by Zone of sclerosis.

Rx: • Surgical evacuation & currettage,
 • Cavity large pack with cancellous bone chips.

Dish face Deformity:

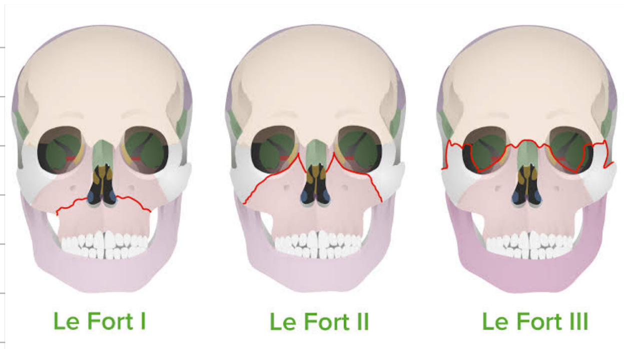
or pan face deformity may occur after an extensive Le Fort II or Le fort III fracture.

⇓

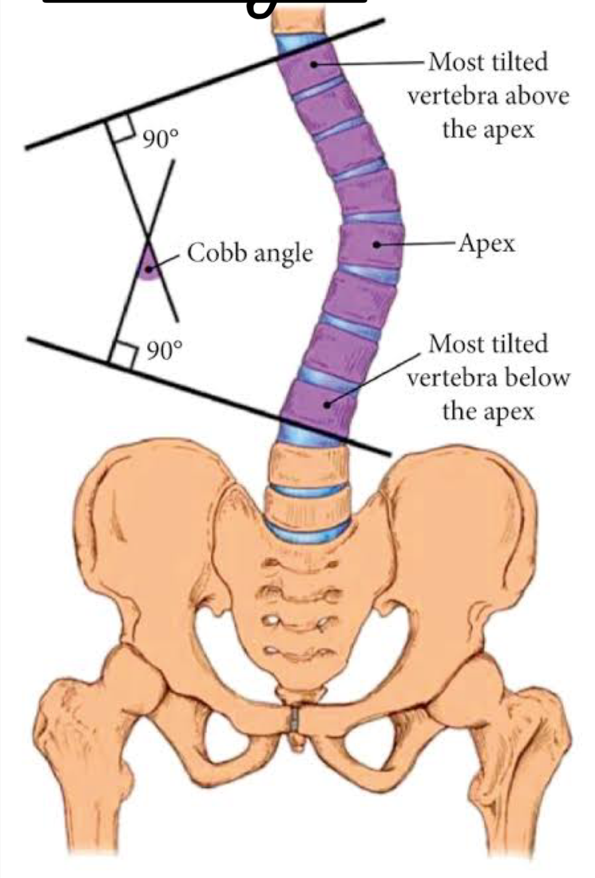
The maxillary segment is displaced posteriorly and inferiorly.

⇓

This may cause premature contact of the molar teeth, resulting in an anterior open bite deformity.



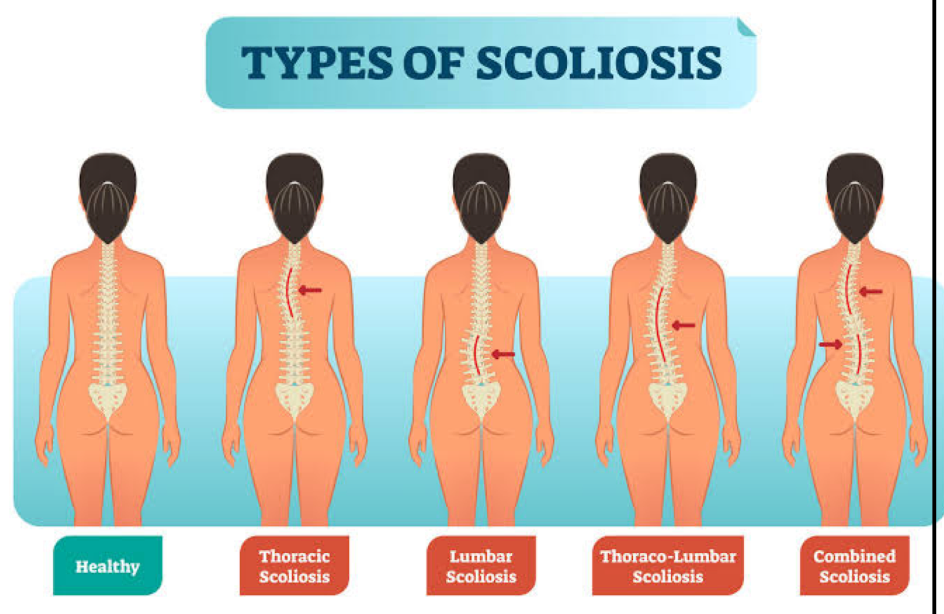
Cobb's Angle



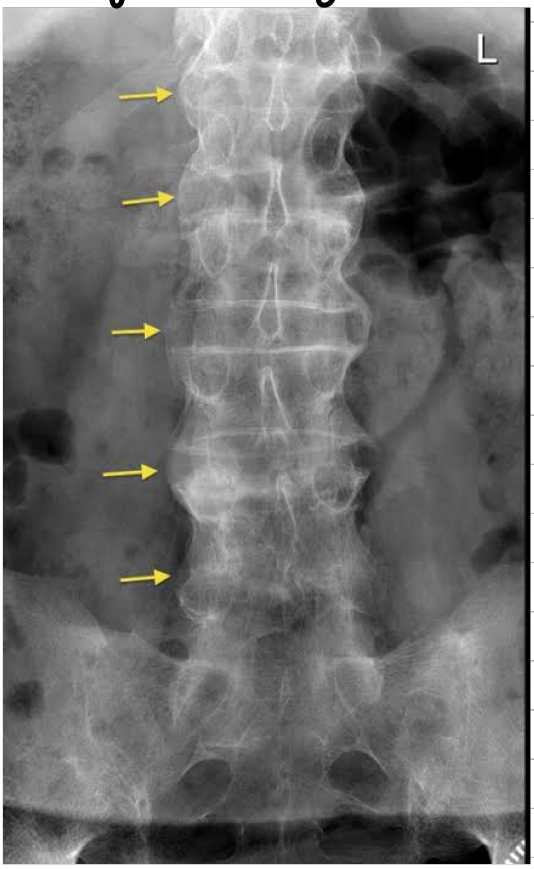
Normal → 10-20°

Mild scoliosis → 20-40°

Severe scoliosis → >40°

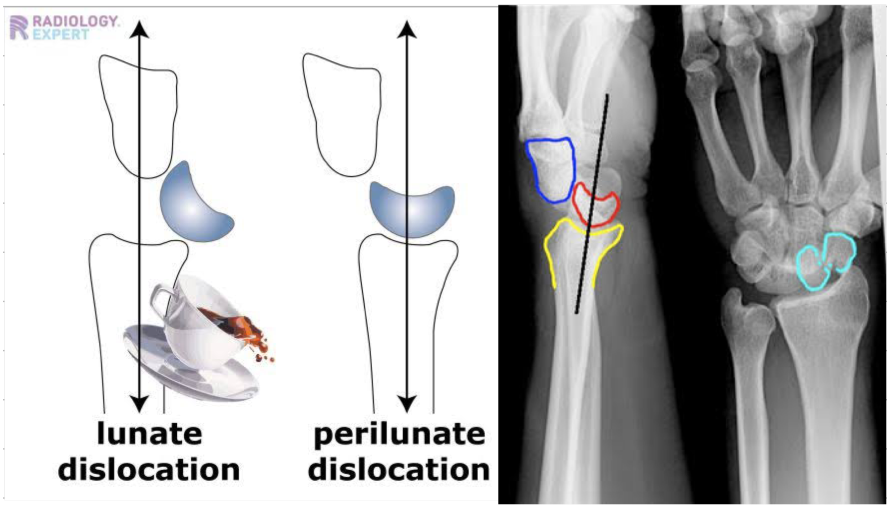


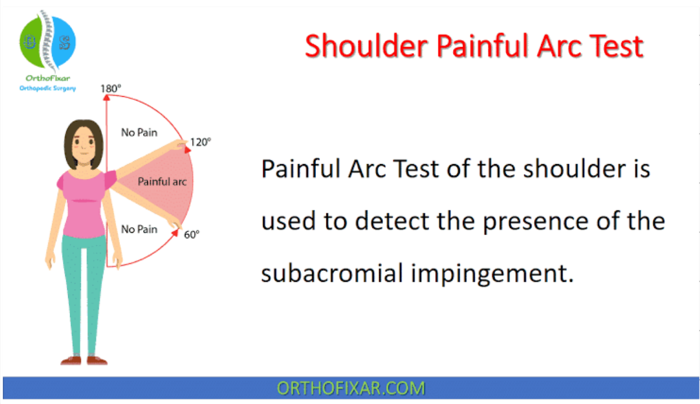
Ankylosis Spondylitis → aka : Bechterew's disease / Marie-Strumpell disease

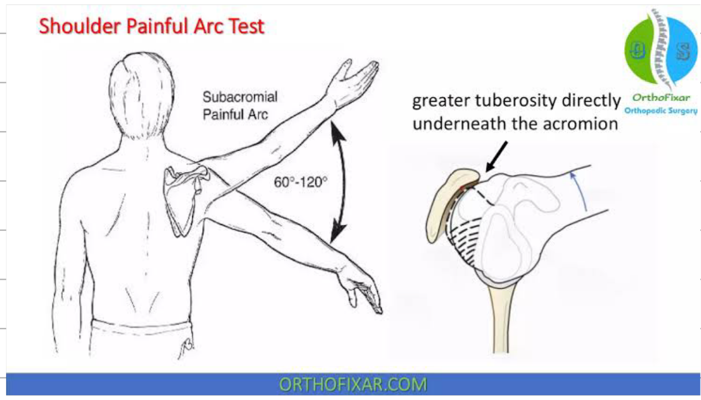


- Seronegative arthritis : RA factor negative but HLA B27 positive.
- Male > Female
- Axial > peripheral
- Sacroiliac joint, Lumbar spine, Hip involvement.
- Pathology : Enthesopathy

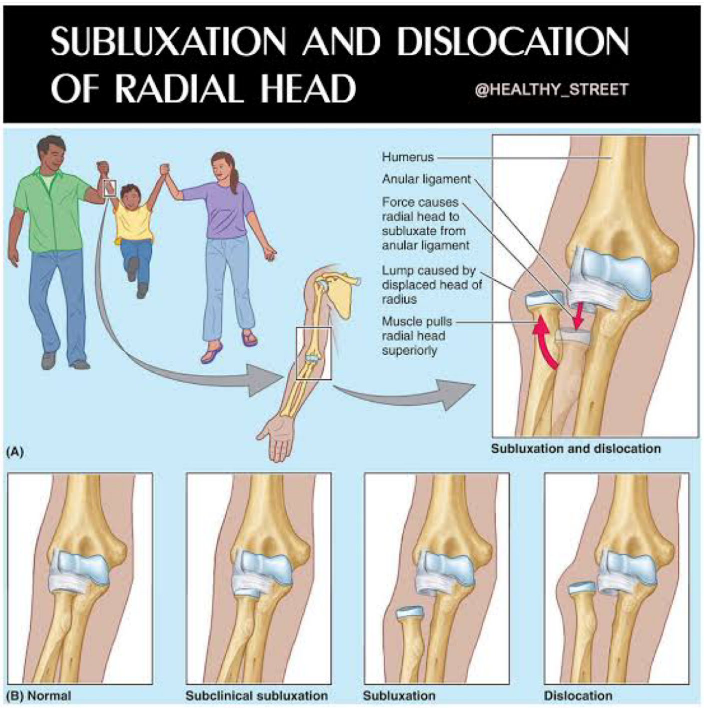
Perilunate dislocation



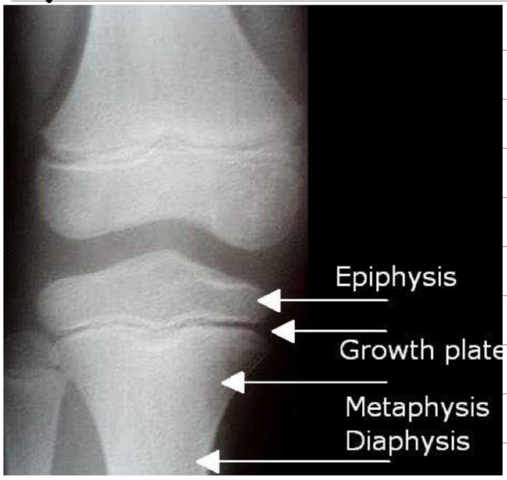


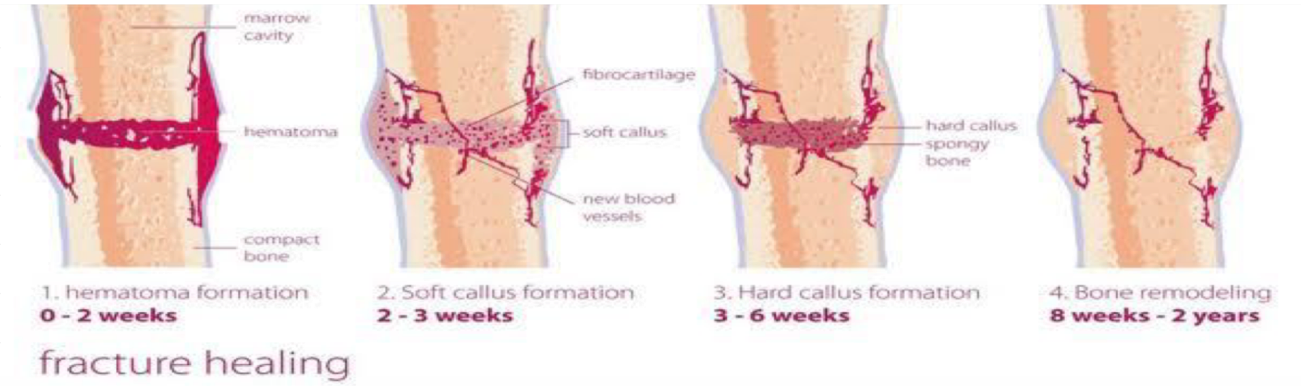


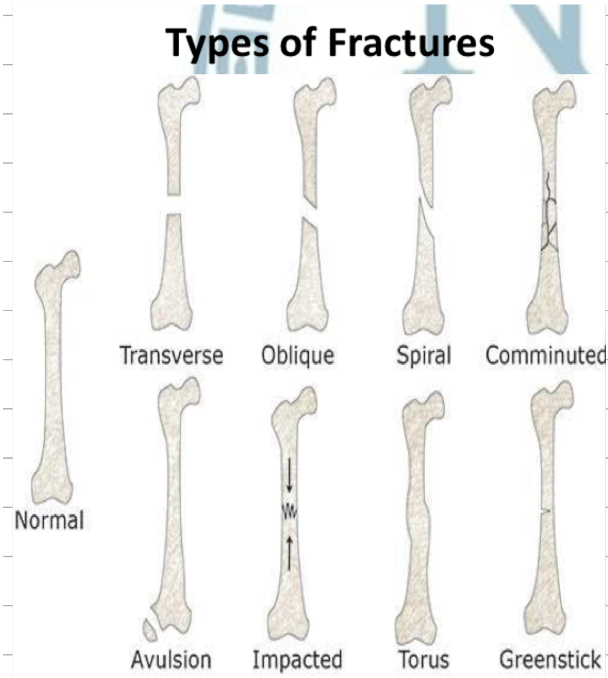
Elbow dislocation and Subluxation

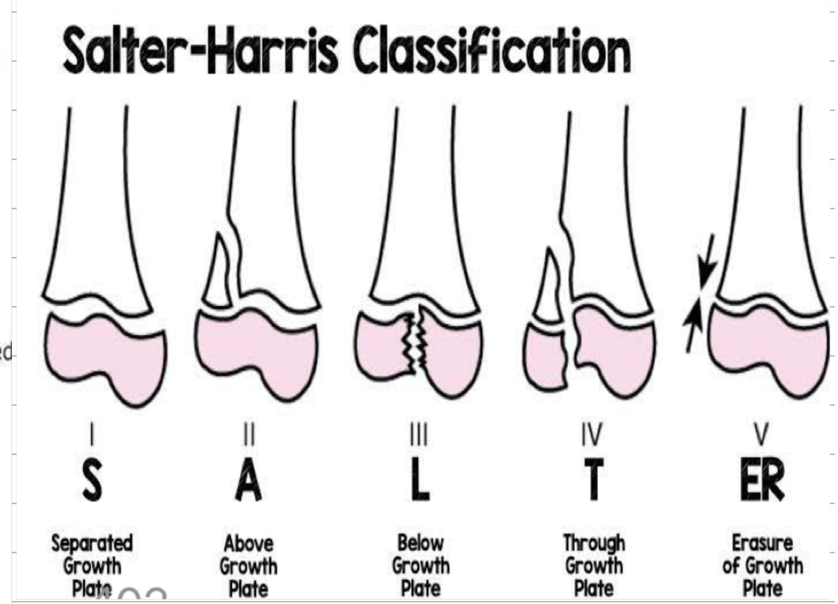


Important Images





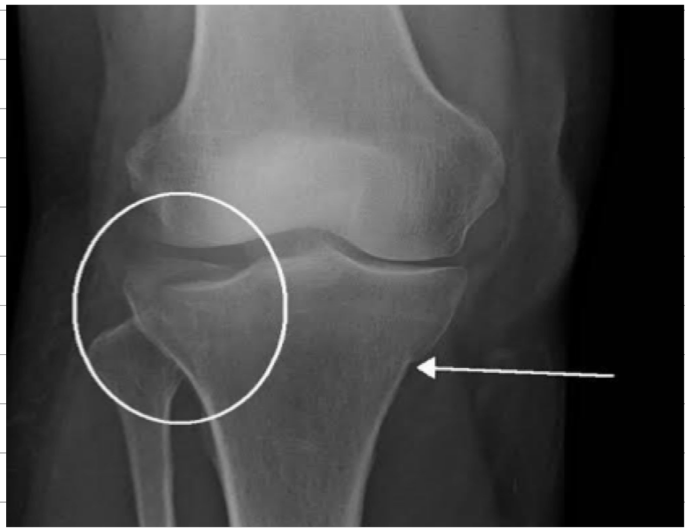




Night stick # (Ulnar Shaft)

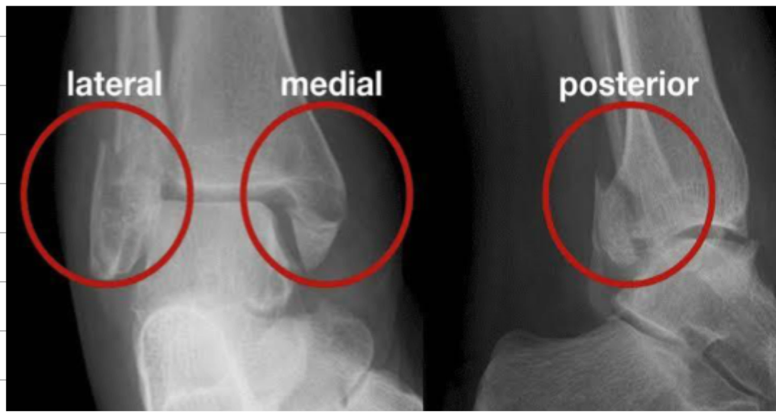
Chauffer's # (Radial styloid Process)

Side swipe injury / Baby Car #
(Distal Humerus + Proximal Ulnar + Radius #)



Bumper's # (Tibial Lateral condyle #)

Pott's # (Bimalleolar)



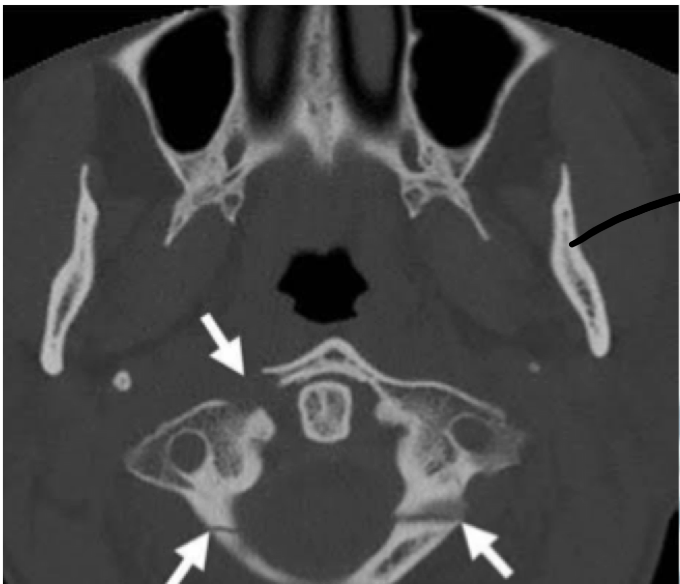
Cotton's # (Trimalleolar)

Pilon #
intra-articular
Tibial #

Aviator's # → (Neck of Talus)

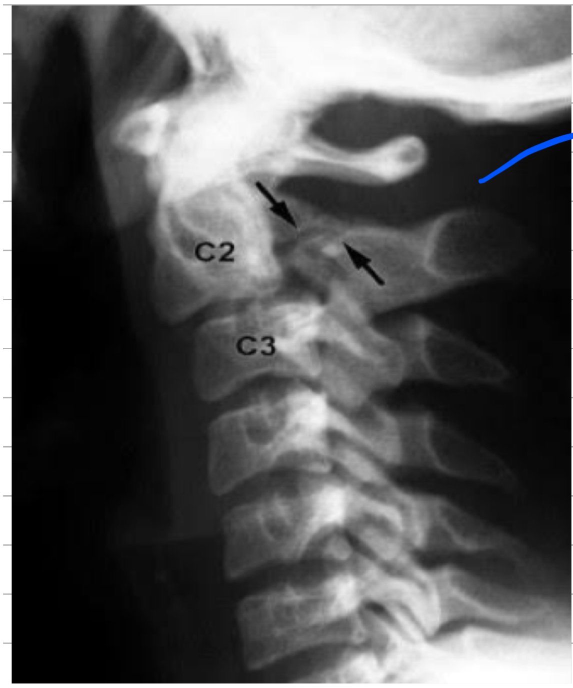
Chance # : aka Seat Belt #

Jone's # →
5th Metatarsal
Base

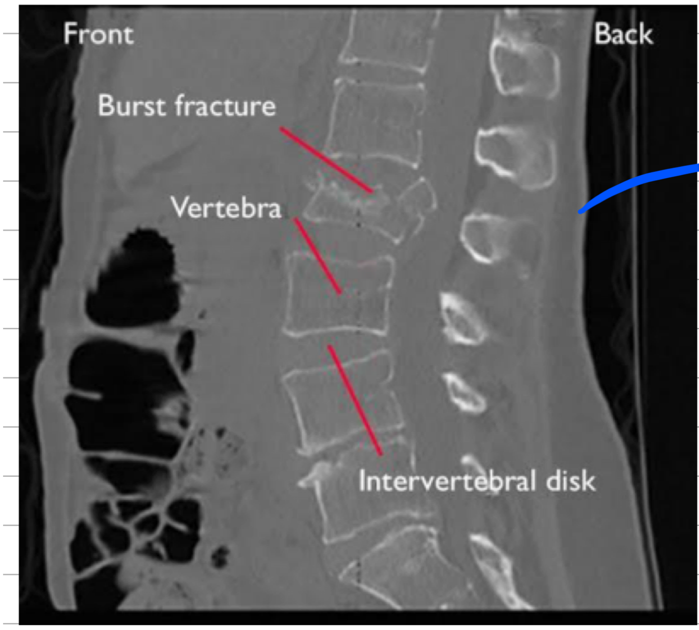


Jefferson's # (C1 arch)

Clay shovellers #
(Spinous process of C7)



Hangman's #

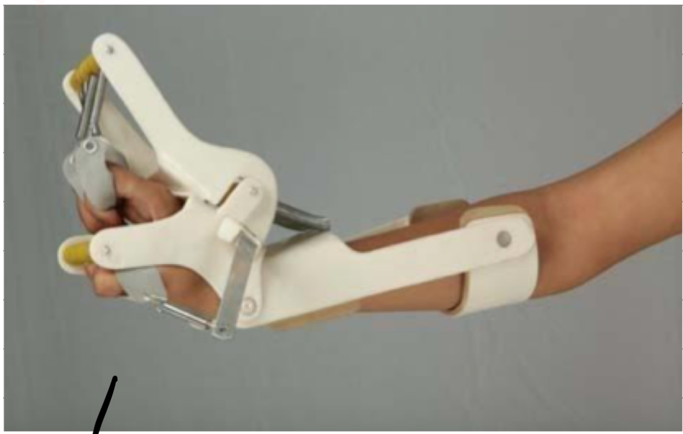


Burst #

krammer wire
(k-wire)

Dennis Brown splint
(Maintains (TEV)

knuckle Bender splint
(for ulnar nerve injury)



Cock-up splint (Radial nerve injury)

Aeroplane Splint
Brachial Plexus injury

Milwaukee and Boston's Brace (for scoliosis)

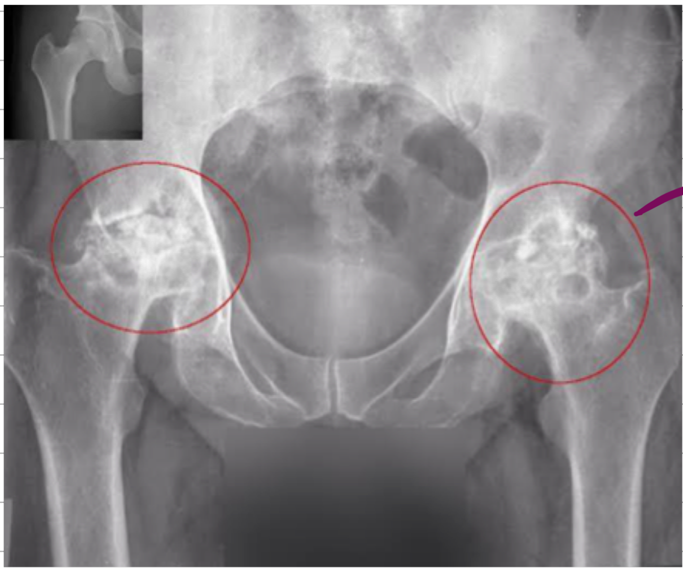
Ankle Foot Orthosis/Foot Drop Splint

Taylor's Brace (for T-L spine)

Posterior Dislocation of hip : Dash board injury → FADIR attitude of Limb

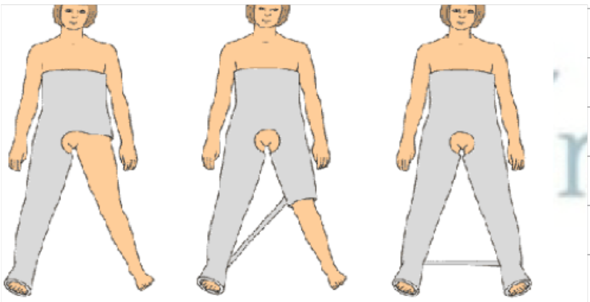
Anterior Dislocation of hip : FABER attitude of Limb.

Central # Dislocation

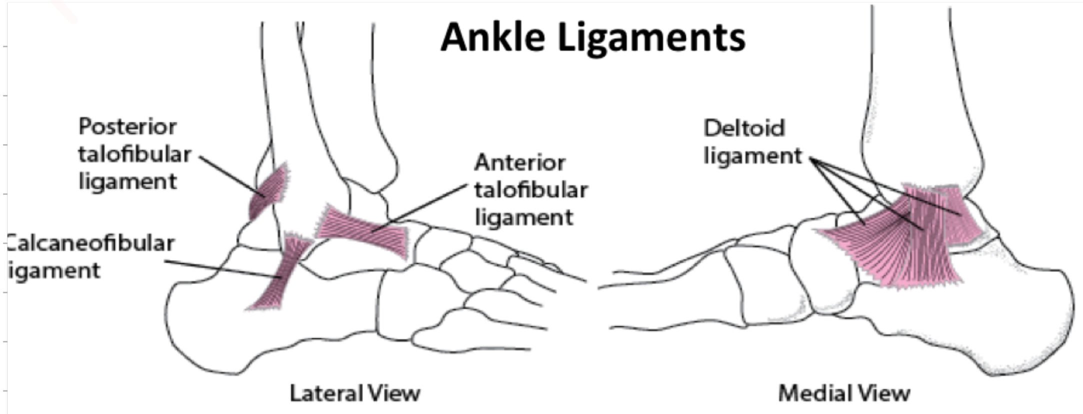


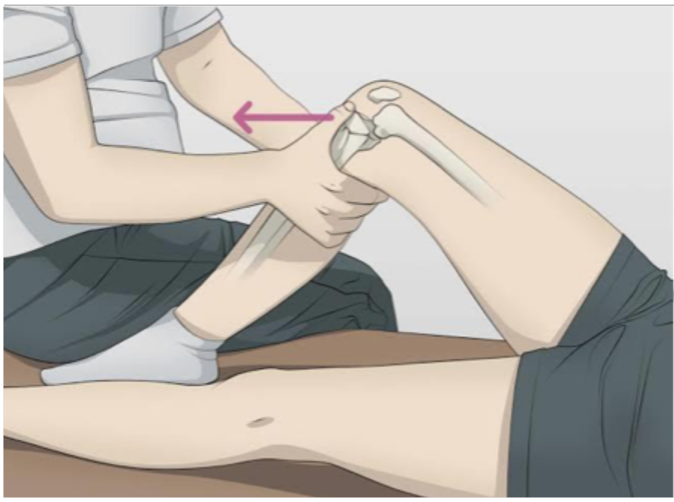
Avascular Necrosis of femoral Head (B/L)

Gallow's/Bryant's Traction
Femoral Shaft #

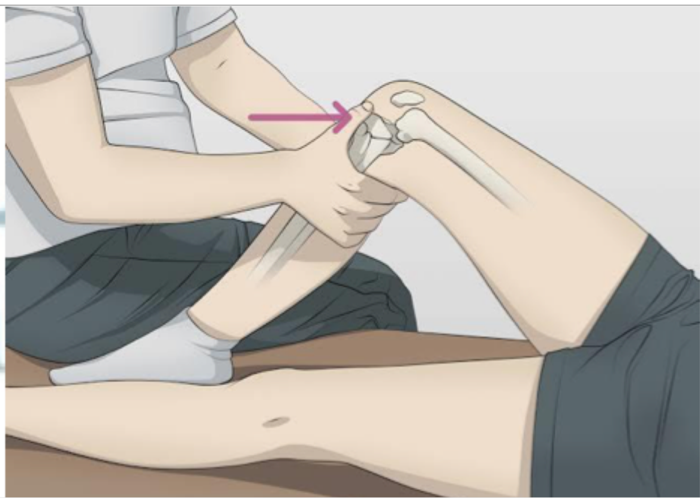


Titanium Elastic Nailing system (TENS)

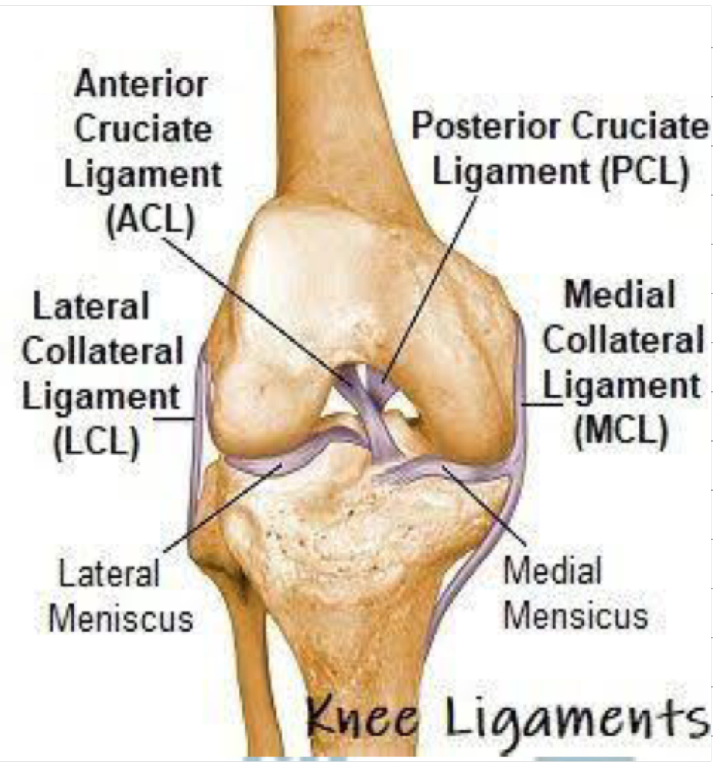




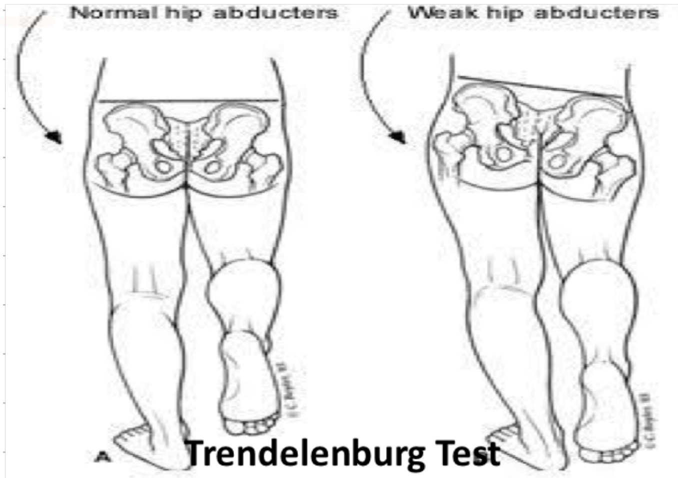
Anterior Drawer Test
↳ for ACL injury



Posterior Drawer Test
↳ for PCL injury



Lachman Test
(for ACL injury)



Trendelenburg Test

Indicates weakness of Gluteus medius and minimus (Hip abductors)

↳ Bohler Brown (BB) splint

↳ Congenital Talipes Equinus Varus (CTEV)

Club feet splint and shoes

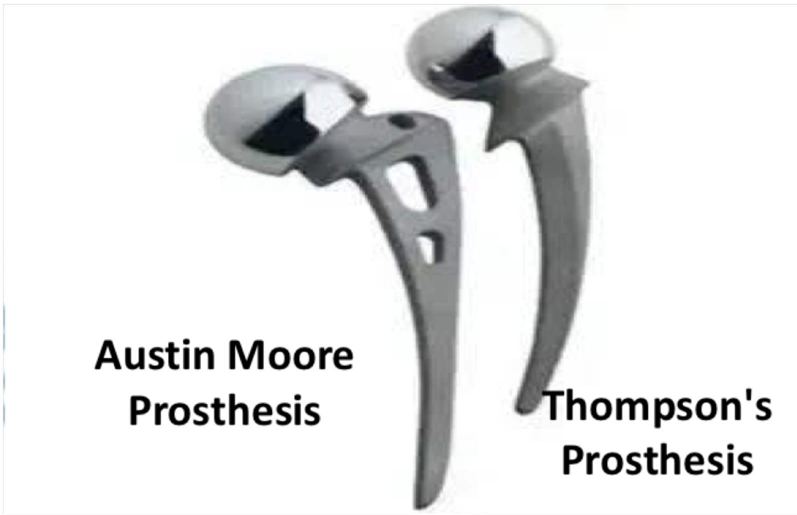
↳ Developmental Dysplasia of Hip CDDH)

Von Rosen Splint

Pawlik's Harness

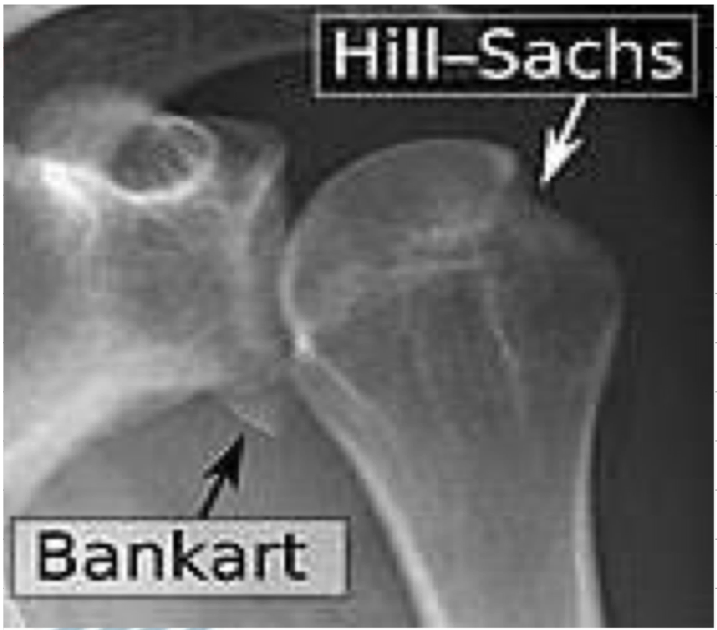
Dynamic Hip Screw

Sudeck's Osteodystrophy (Reflex Sympathetic Dystrophy)



Austin Moore Prosthesis

Thompson's Prosthesis

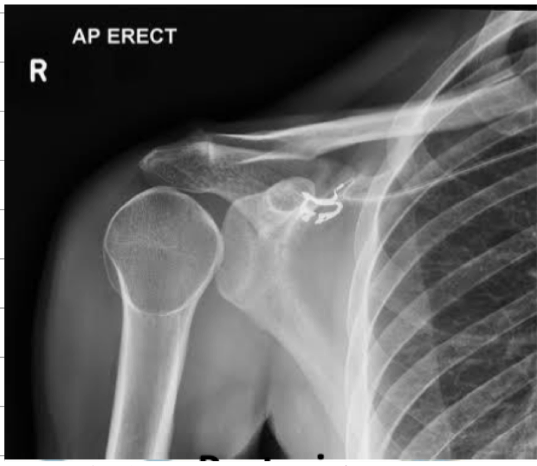


Recurrent Dislocation

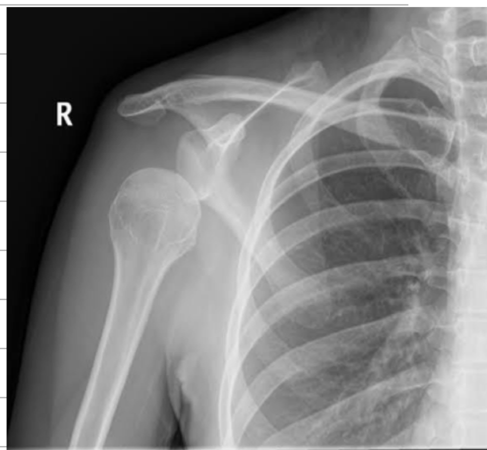
Bankart's Lesion- Anteroinferior

Hill Sach's Lesion- Posterolateral

Anterior Shoulder dislocation

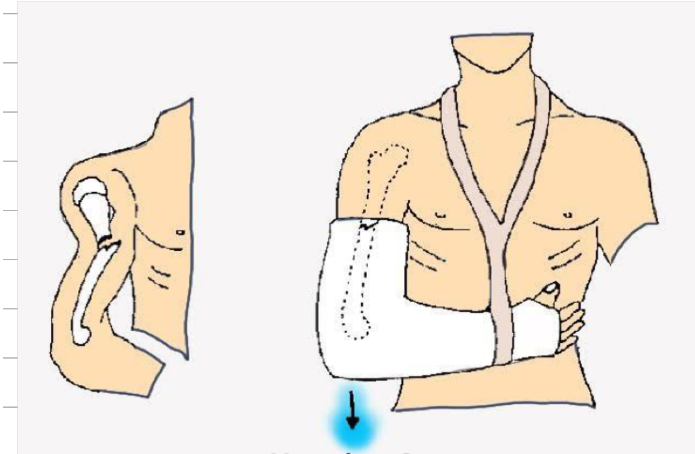


Posterior Dislocation
(light bulb sign)



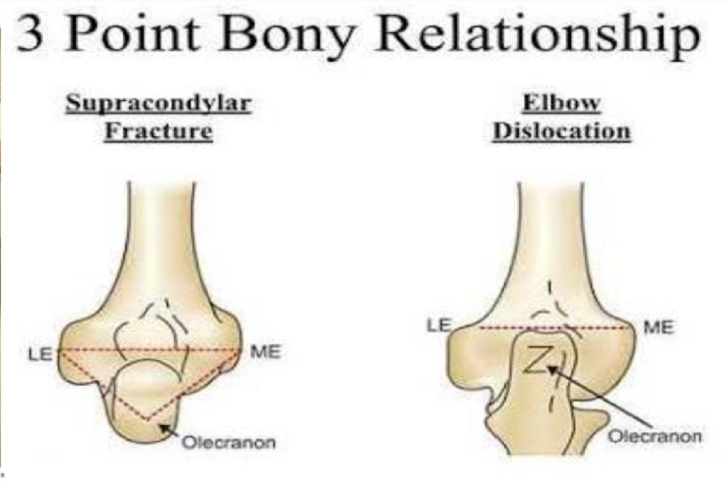
Inferior (Luxatio Erecta)

Dugas test : Anterior Shoulder Dislocation

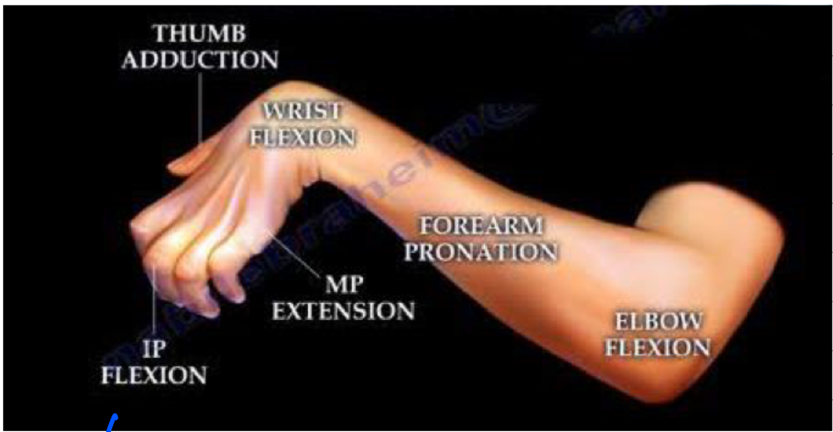


Hanging Cast

Myositis Ossificans



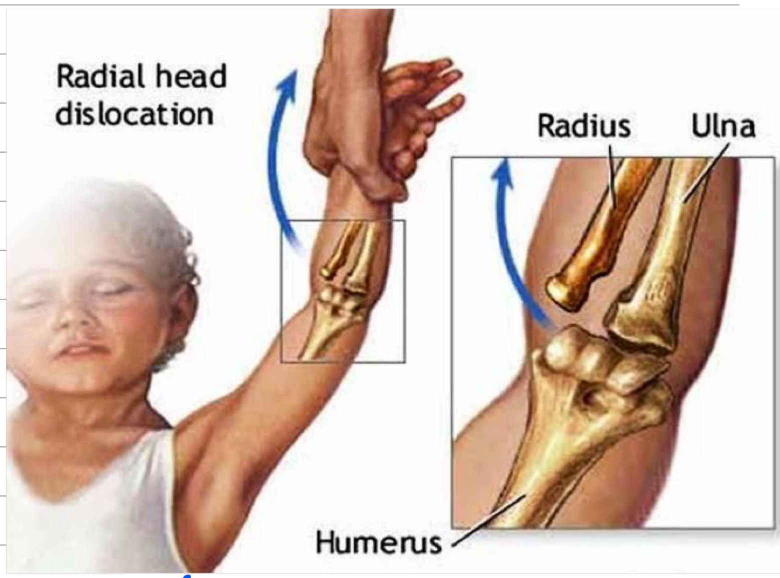
↳ Gun stock deformity : malunion of Supracondylar Humeral #



↳ Volkmann's Ischemic Contracture

Dupuytren's contracture

Lateral Condylar Fracture of Humerus

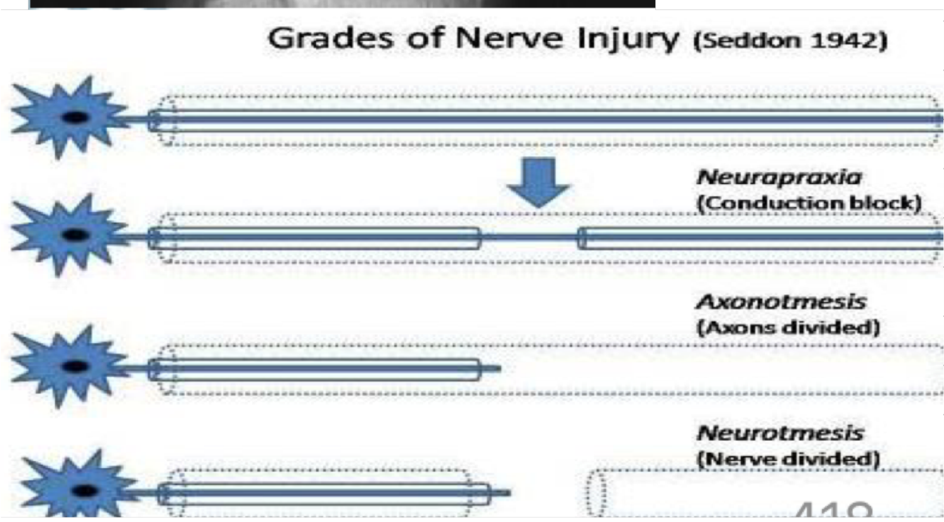


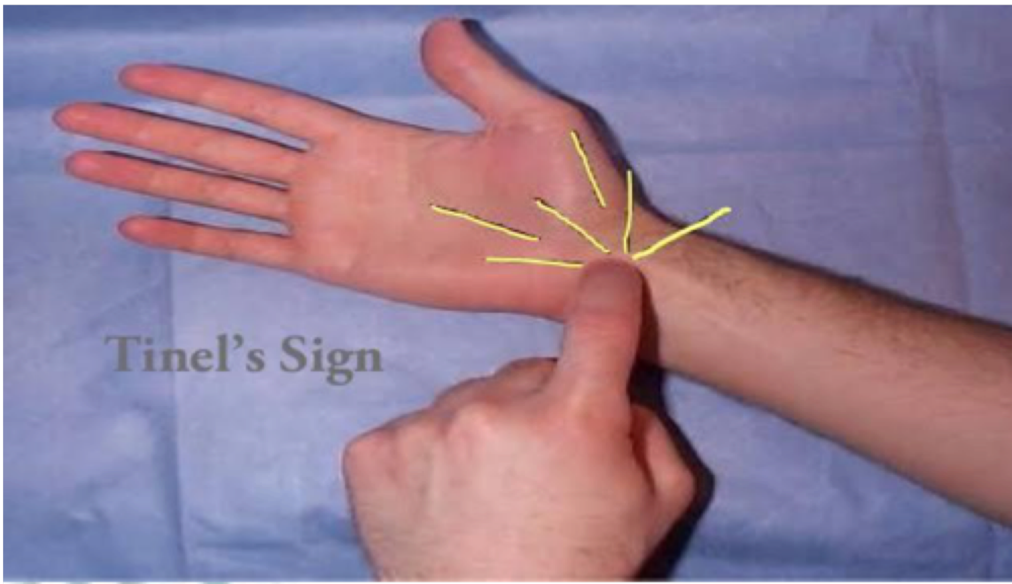
↳ Nursemaid's Elbow (pulled elbow)

Boxer's Fracture
Neck of 5th Metacarpal

Bennett's fracture Dislocation
↳ Intra articular # of base of 1st metacarpal with Subluxation at 1st CMC joint

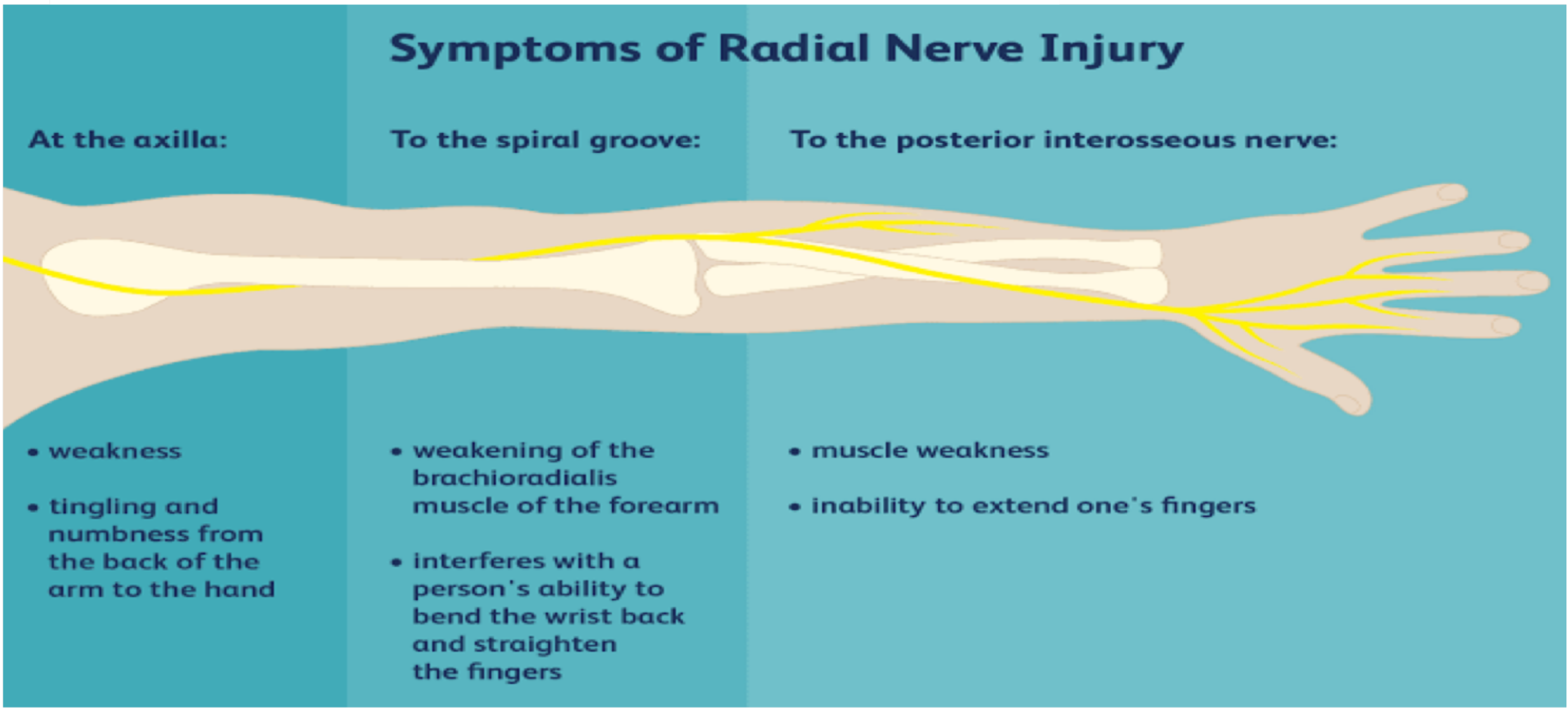
Rolando's fracture
Comminuted # of base of 1st metacarpal





Tinel's Test/Sign

To assess nerve regeneration



Mallet Finger/Baseball Finger

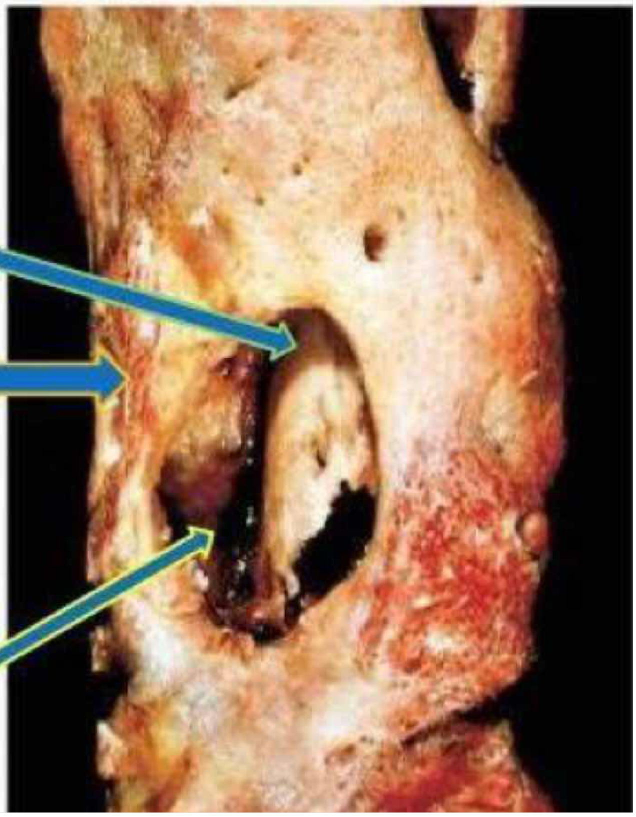
Phalen's Test

Reverse Phalen's Test

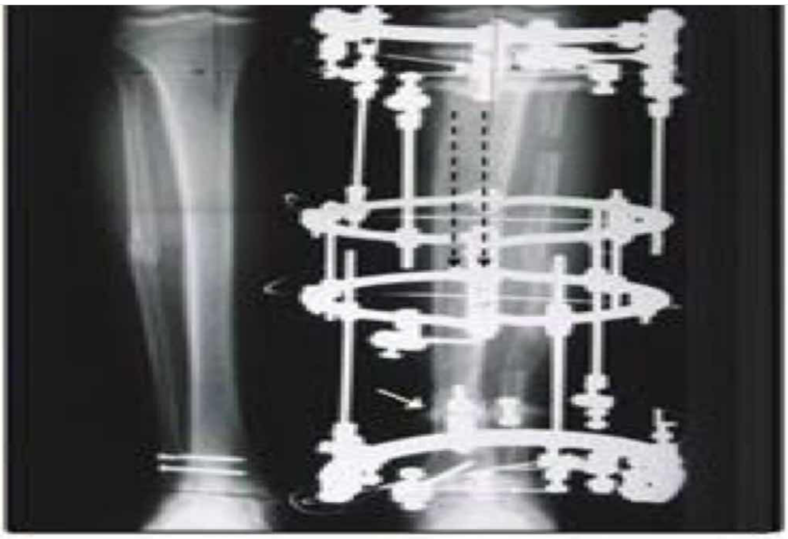
Pen Test **Pointing Index Test/Sign**

CHRONIC OSTEOMYELITIS

- **Sequestrum** is the necrotic bone that is embedded in the pus/infected granulation tissue.
- **Involucrum** is the new bone laid down by the periosteum that surrounds the sequestra.
- **Cloaca** is the opening in the involucrum through which pus & sequestra make their way out.



AN ILIZAROV, CIRCULAR FIXATOR USED TO STABILIZE AND LENGTHEN THE TIBIA



SMALL WIRES AND PINS FIX THE BONE TO THE FRAME UNTIL HEALING OCCURS

Charcots Joints DM

Bone Cutter

Bone Nibbler

Bone Curette