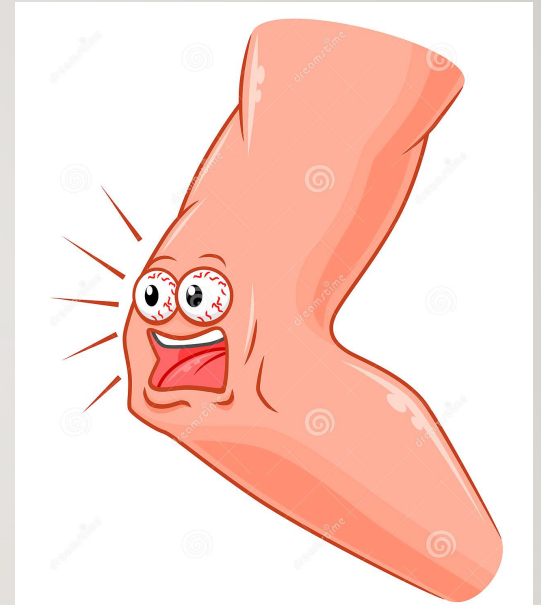


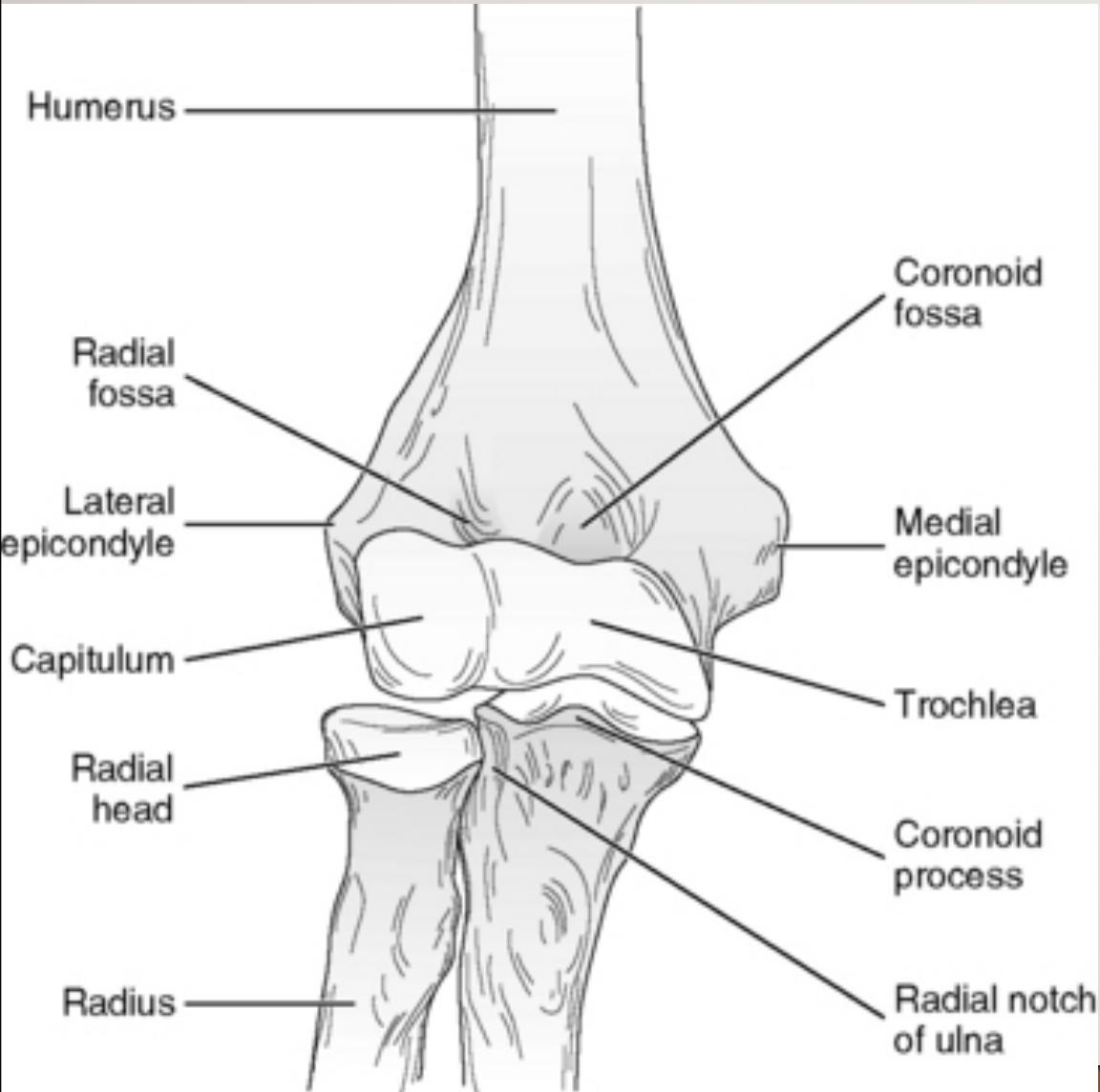
ELBOW DISORDERS

SARA ABU HUSEIN

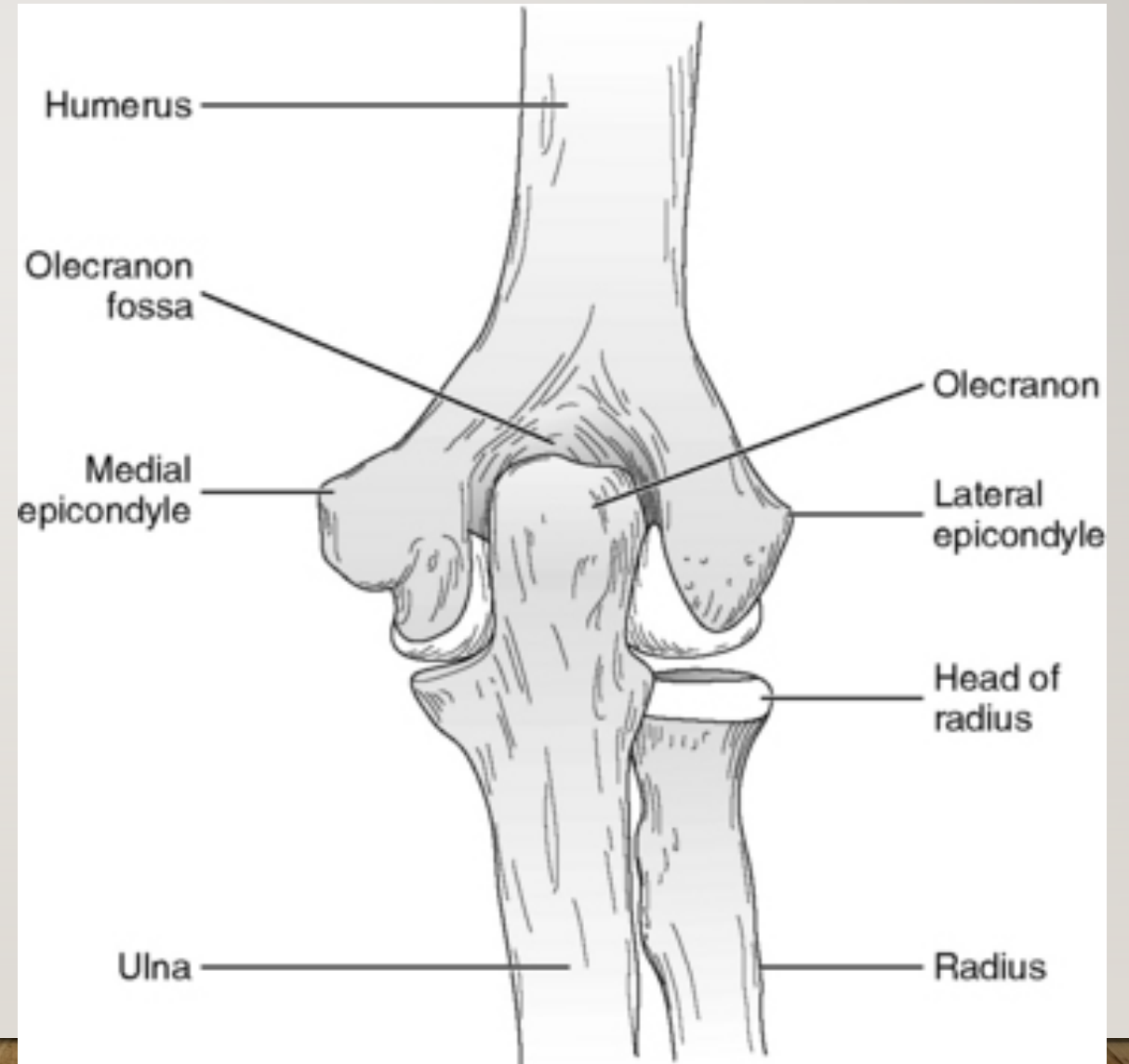
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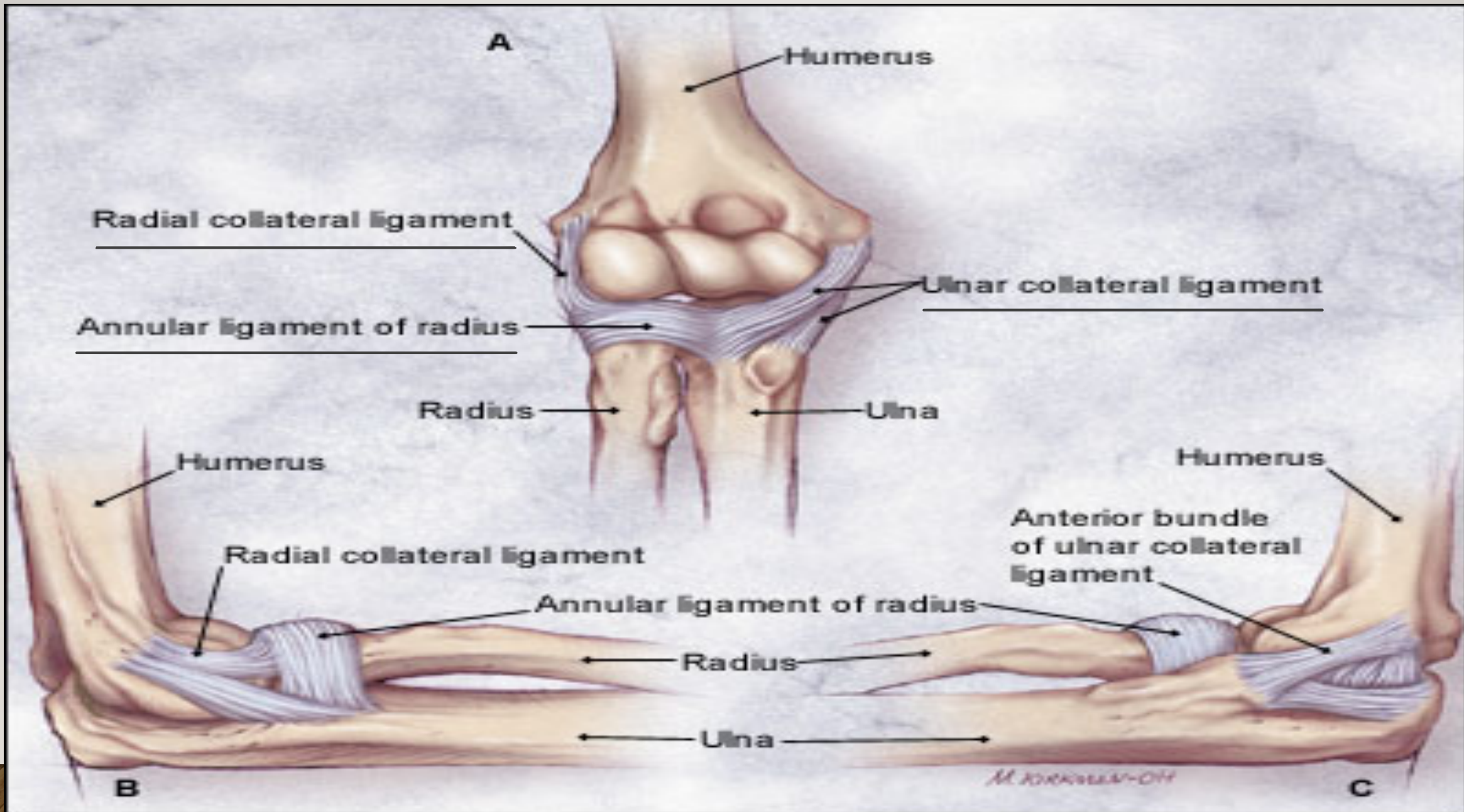


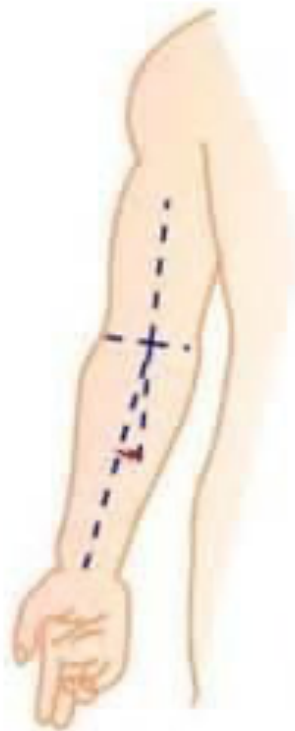
Anterior view



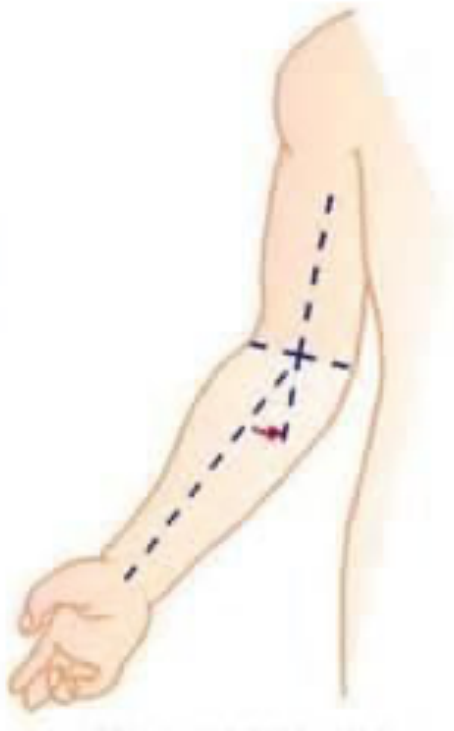
Posterior view







NORMAL



CUBITUS VALGUS



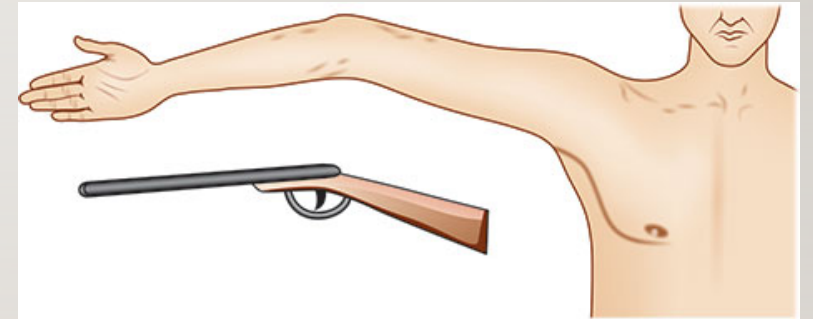
CUBITUS VARUS

CARRYING ANGLE

- The normal carrying angle is 5-10°
- Cubitus valgus more than 15°
- Cubitus varus less than 5°

- **CUBITUS VARUS (gun-stock deformity)**

The most common cause is **malunion** of **supracondylar** fracture.

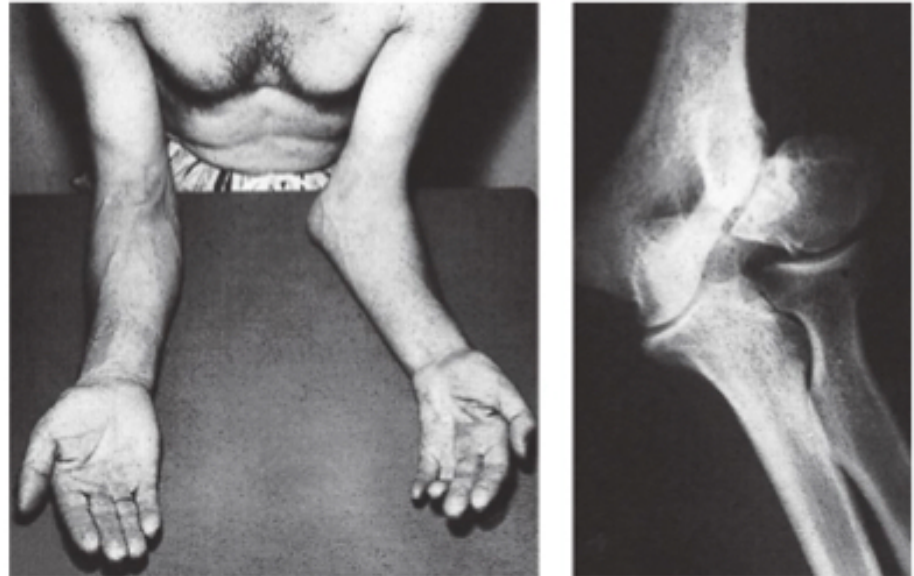


- **CUBITUS VALGUS**

The most common cause is **non-union** of a fractured **lateral condyle**; this may give gross deformity and a bony knob on the inner side of the joint.

Years after the causal injury, the patient notices weakness of the hand with numbness and tingling of the ulnar fingers (delayed ulnar palsy)

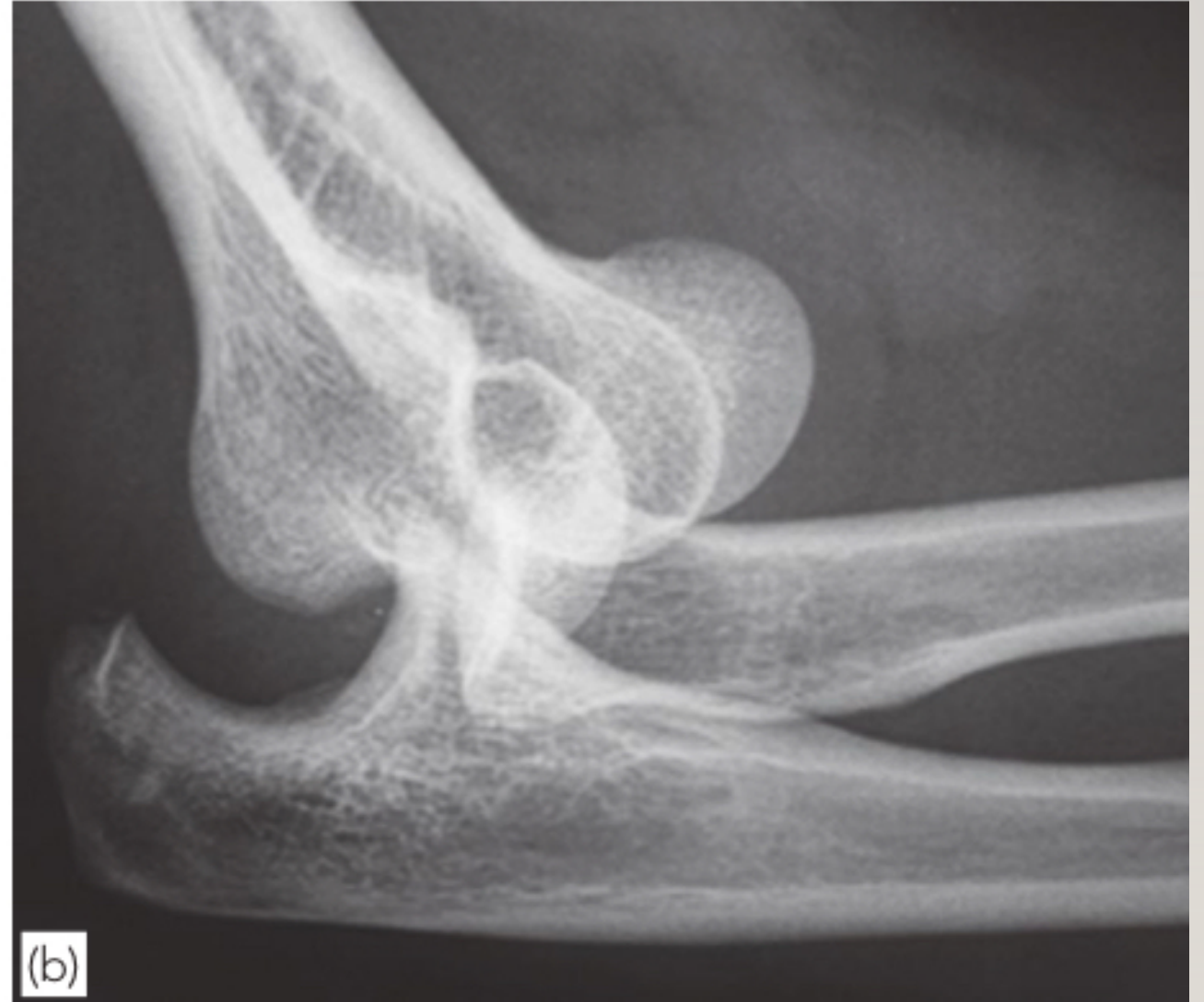
The deformity itself needs no treatment, but for delayed ulnar palsy the nerve should be transposed to the front of the elbow.



14.2 Cubitus valgus This man's valgus deformity, the sequel to an ununited fracture of the lateral condyle, has resulted in an ulnar nerve palsy.

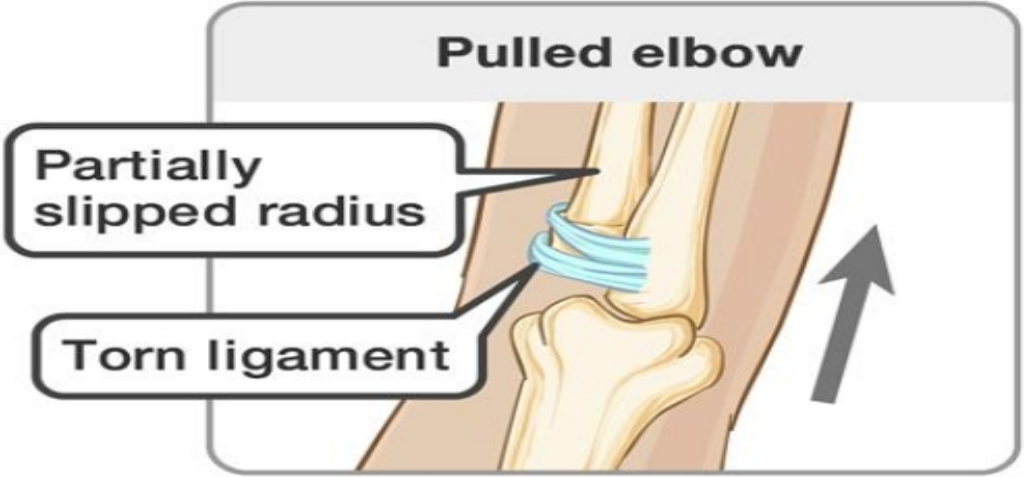
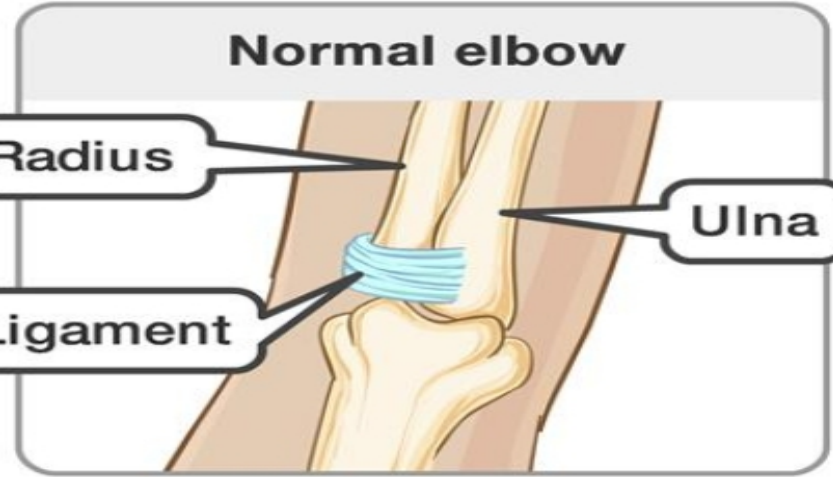
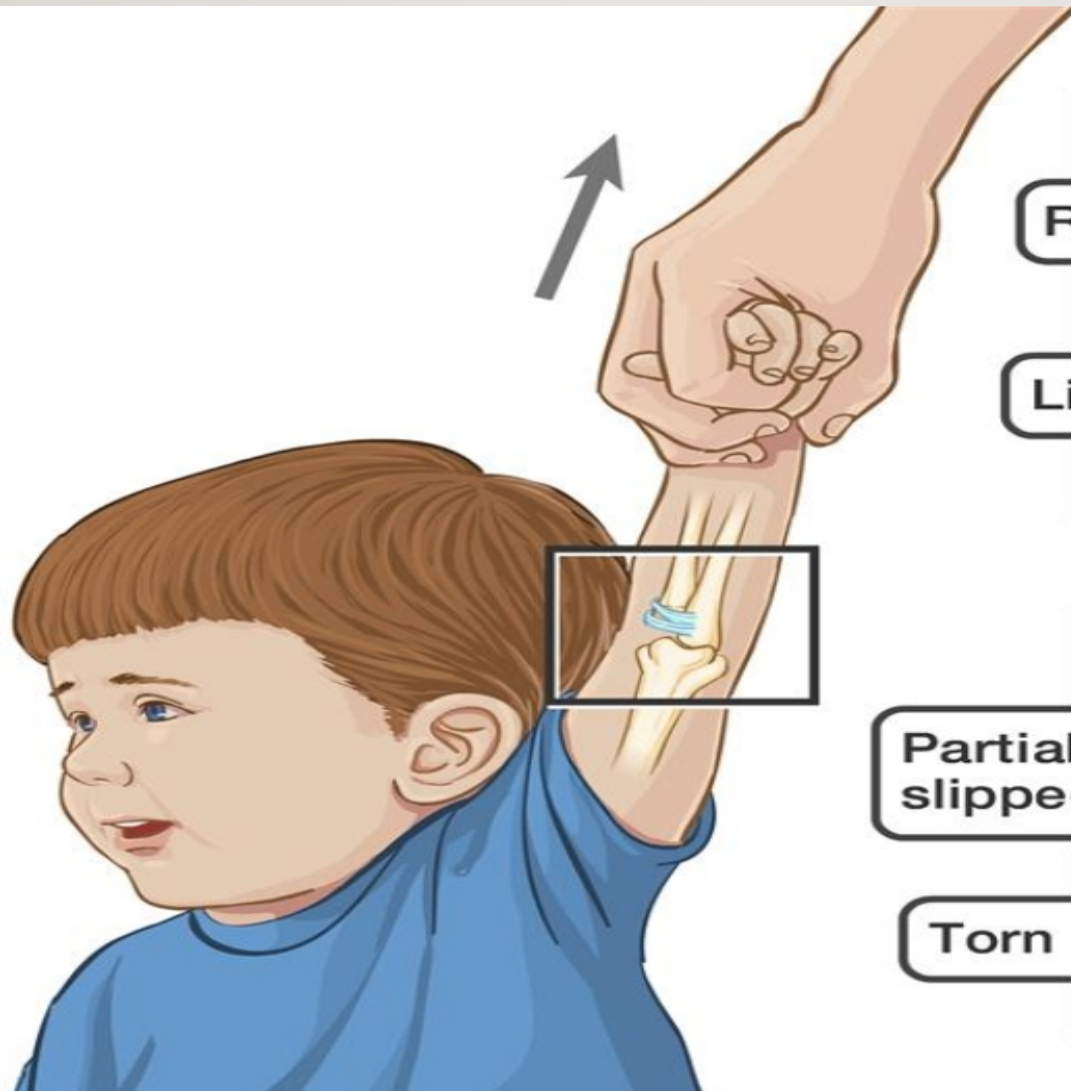
DISLOCATION OF THE ELBOW

- The most common dislocation in the children
- The second most common in adults after shoulder dislocation
- Mechanism : a fall on the outstretched hand
- 90% of dislocation is posterior or posterolaterally
- 2 types of dislocation : simple (no accompanied fracture), complex (accompanied with fracture and ligamentous injury)
- Isolated radial dislocation is very rare (always see if there is associated ulnar fracture)



PULLED ELBOW

- Downward dislocation of the head of radius from the annular ligament.
- Common injury in children under age of 6y.
- Presentation: the limb is held immobile with the elbow is fully extended & forearm is pronated
- Diagnosis : clinical (X-ray to exclude fracture).
- Reduction : the elbow is quickly supinated & then flexed.



ISOLATED DISLOCATION OF THE HEAD OF RADIUS

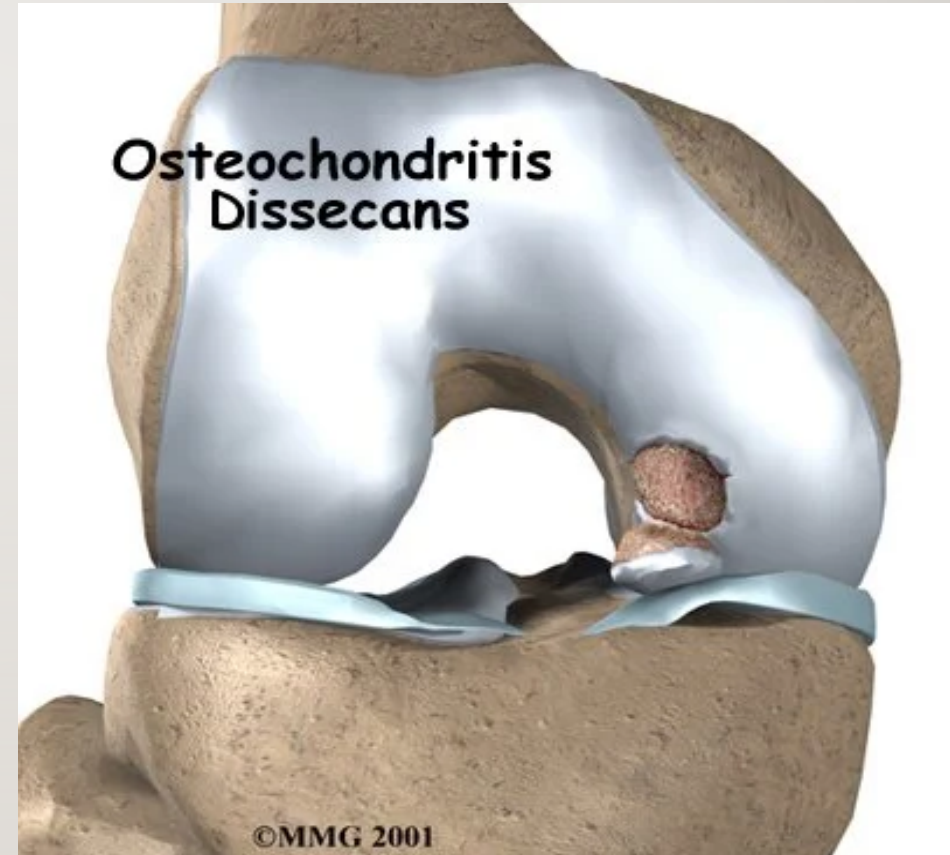
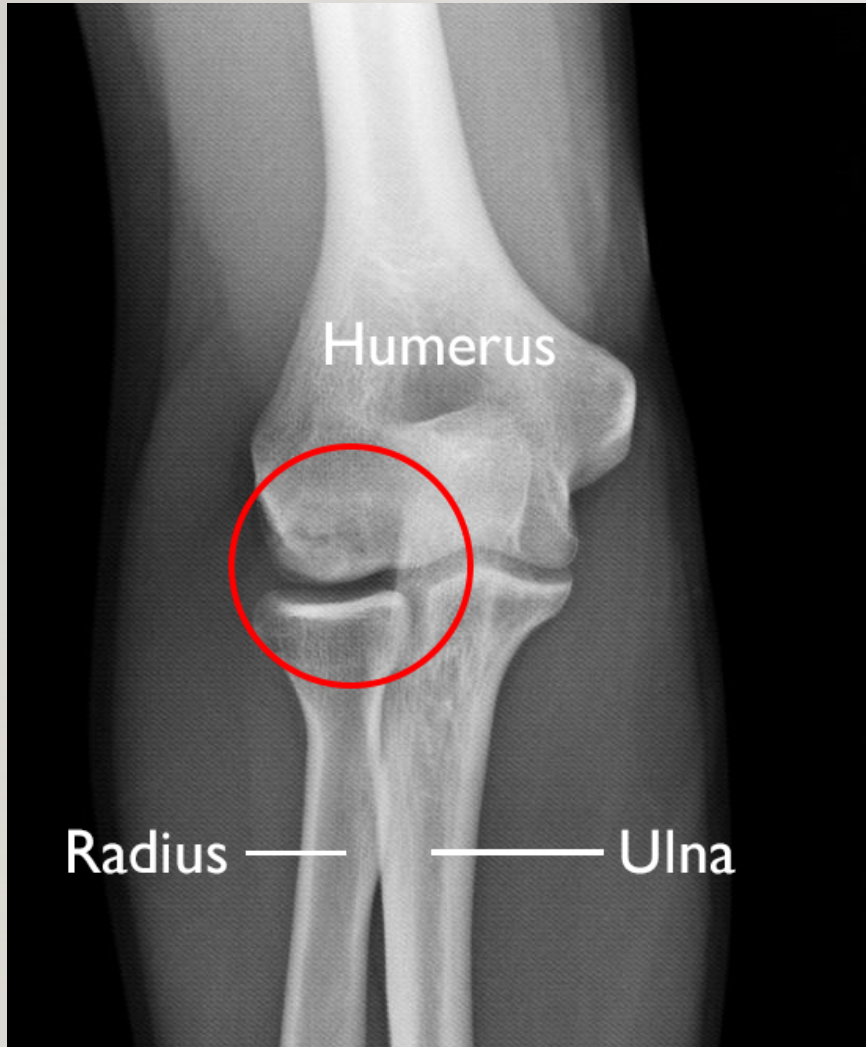
- Very rare
- Unreduced Ulnar fracture (Monteggia injury) will lead to permanent radial head dislocation.
- Open reduction & stabilization with Kirchner wire together with soft tissue reconstruction, may improve function .



SHEARING OSTEOCHONDRITIS (OSTEOCHONDRITIS DISSECANS)

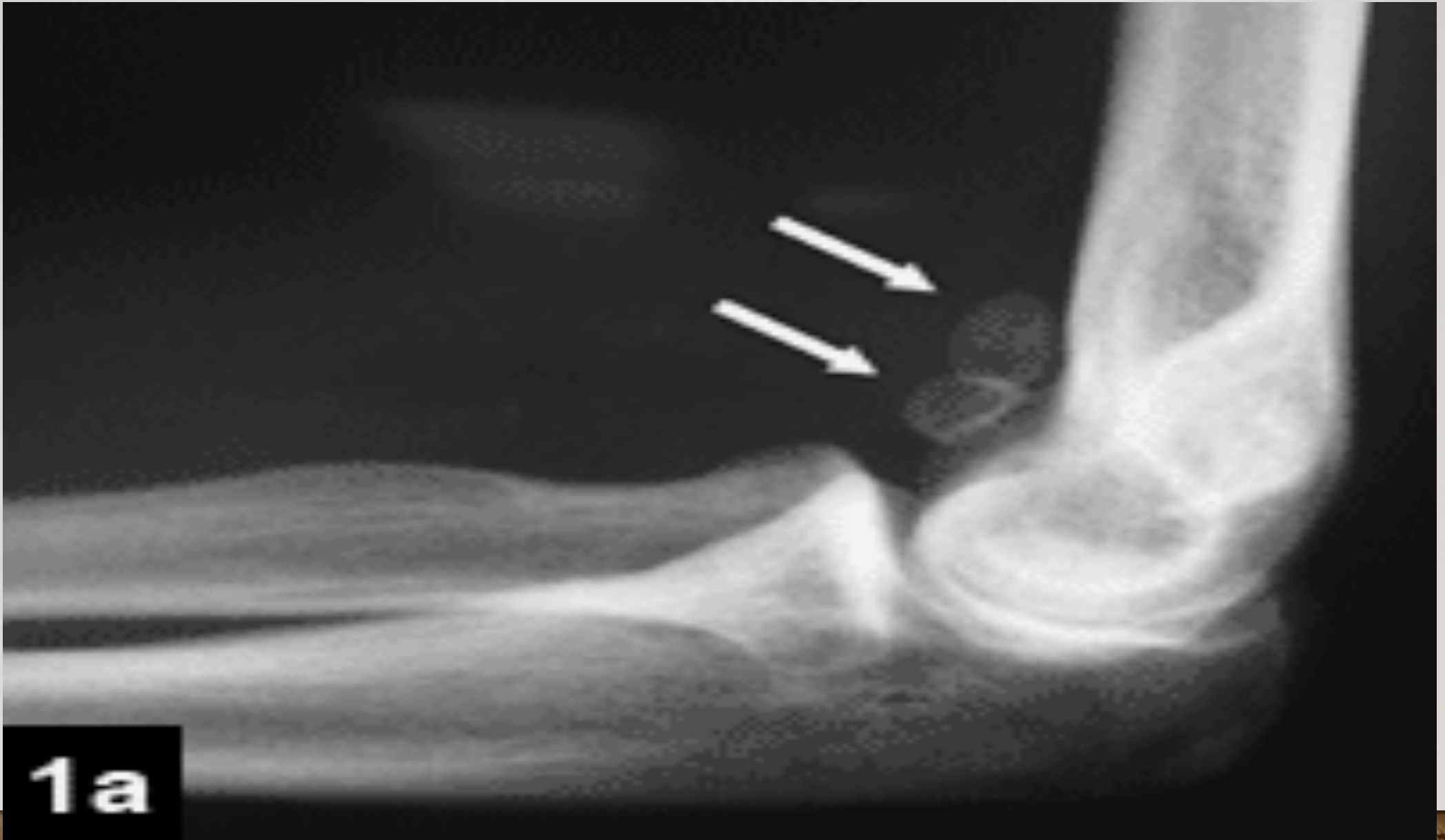
- A joint condition in which the bone underneath the cartilage of a joint dies due to lack of blood flow. This bone and cartilage can then break off as a loose body (Avascular fragment).
- Almost always due to **repeated minor traumas**.
- The **capitulum** is one of the commonest sites (why?)
 - Probably due to repeated stress following prolonged activity.
- The cardinal clinical feature is sudden locking of the elbow (Intermittent locking)

- P/E: swelling, signs of effusion, tenderness, limitation of movement.
- Intermittent locking (If fragment has separated).
- X-ray: fragmentation, flattening of capitulum (late).
- CT & MRI: more useful.
- Treatment: symptomatic, remove the fragment if separated



LOOSE BODIES

- The commonest cause of a **single** loose body in the elbow is osteochondritis dissecans of the capitulum.
- **Multiple** loose bodies may occur with OA or synovial chondromatosis.
- Cardinal feature: sudden locking of the elbow.
- Rarely palpable.
- X-ray nearly always reveal loose body.
- If troublesome, they can be removed by arthroscopically.



1a

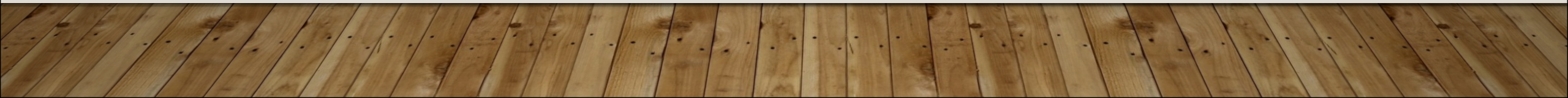
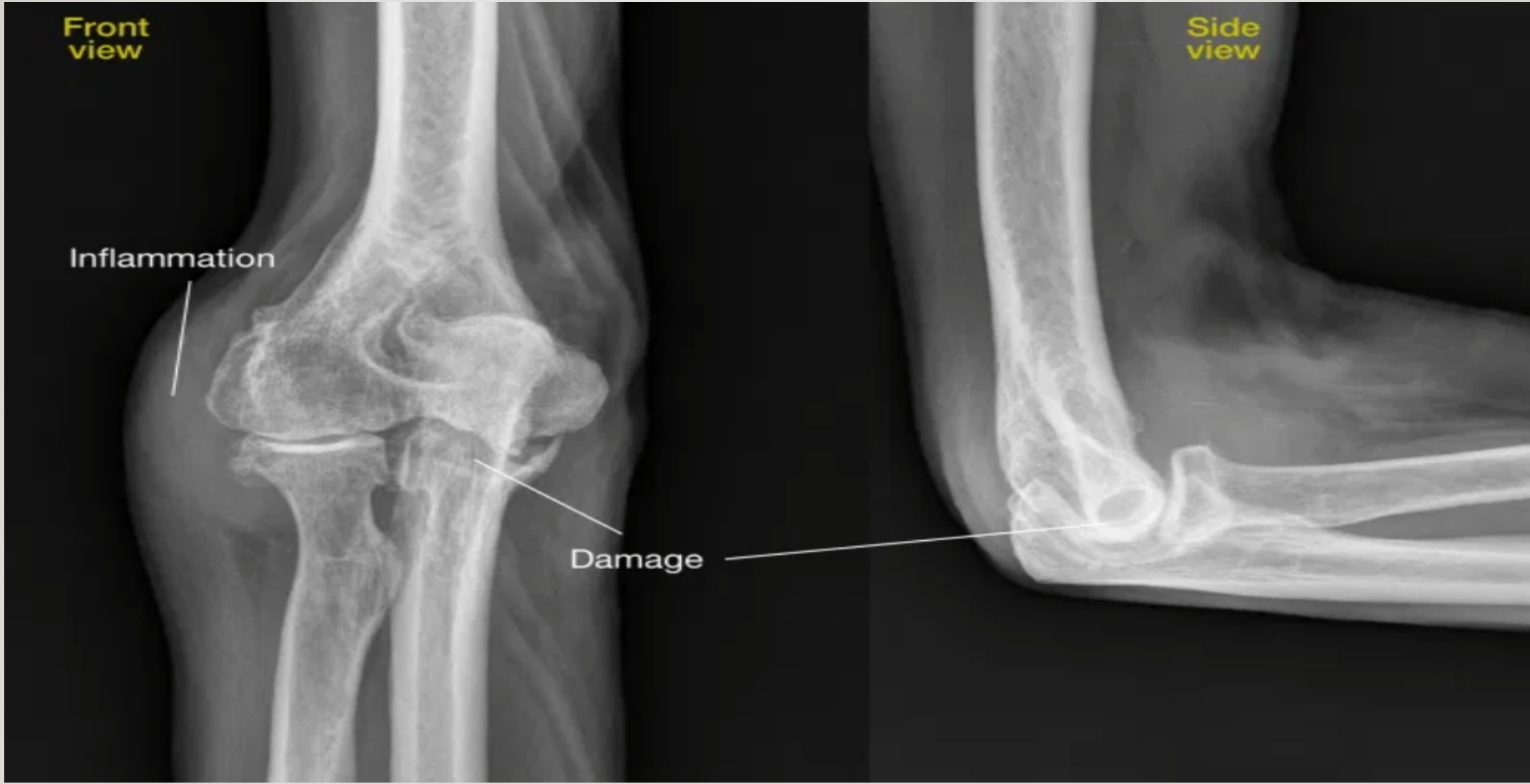
SKELETAL TUBERCULOSIS

- Disease begins as synovitis or osteomyelitis and is rarely seen until **arthritis** supervenes.
- The onset is insidious, with a long history of aching and stiffness.
- The most striking physical sign is the **marked wasting**.
- While the disease is active, the joint is held flexed, looks swollen, feels warm and diffusely tender; movement is considerably limited and accompanied by pain and spasm.

- X-ray: peri-articular osteoporosis & an apparent increase of joint space because of bone erosion.
- Diagnosis: aspiration, synovial biopsy & microbiological Investigations
- Treatment: General anti-tuberculous drugs, the elbow is rested until acute symptoms subside, at first in a splint, but later simply by applying a collar and cuff.
- Surgical debridement is rarely needed.

RHEUMATOID ARTHRITIS

- The elbow is involved in more than 50 % of patients with RA.
- Clinical features: rheumatoid nodules & ulnar bursitis can often be detected on the back of the elbow (Olecranon).
- There is pain and tenderness, especially around the head of the radius. Eventually the whole elbow may become swollen.
- X-ray: Bone erosion, with gradual destruction of the radial head and widening of the trochlear notch of the ulna, is typical of chronic inflammatory arthritis.



- Treatment: the elbow should be splinted during periods of active synovitis.
- Local injection of corticosteroids or radiocollids may reduce pain & swelling.
- For chronic, painful arthritis of the radio-humeral joint, resection of the radial head and partial synovectomy gives good results. If the joint is diffusely involved, joint replacement should be considered (hinged implants).
- The result is often excellent, however, the complication rate is fairly high.

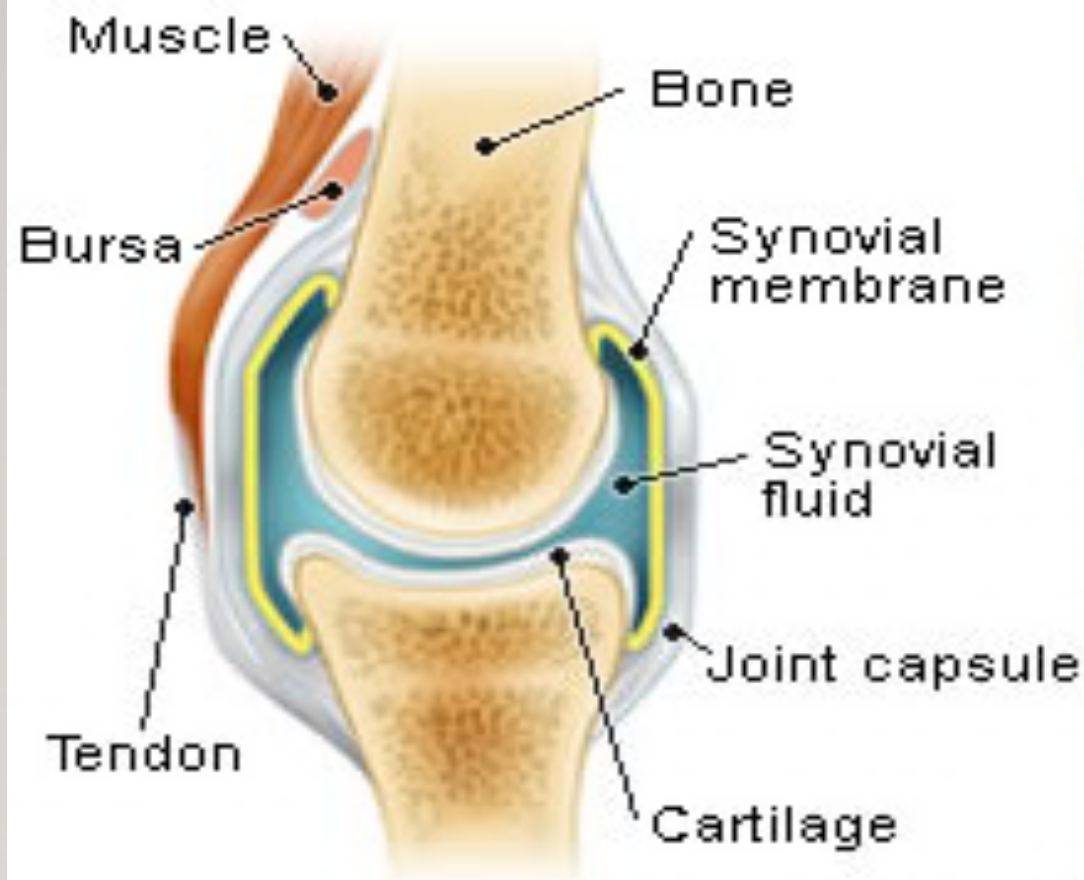
OSTEOARTHRITIS

- The elbow is an uncommon site for osteoarthritis; usually denotes underlying pathology (previous fracture or ligamentous injury, loose bodies, gout, occupational stress).
- Elbow is not a site for primary OA
- There may be pain and stiffness, especially after period of inactivity.
- On Examination: local tenderness, thickening of joint, crepitus, restricted movement.
- Osteophytic hypertrophy can cause ulnar nerve palsy.

- X-rays show narrowing of the joint space with sclerosis and marginal osteophytes; one or more loose bodies may be seen.
- Chondrocalcinosis & periarticular calcification are typical for pyrophosphate arthropathy (Iry OA)

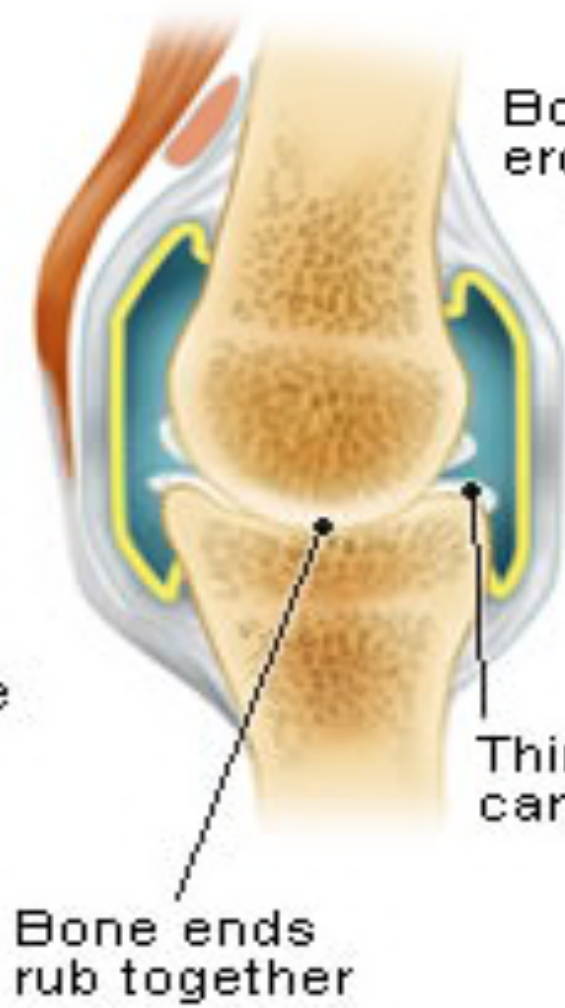
- Treatment :
- Symptomatic treatment, NSAID.
- If stiffness is sufficiently disabling, removal of osteophytes (by either open or arthroscopic surgery) can improve the range of movement.
- If there are signs of ulnar neuritis, the nerve may have to be transposed to the front of the elbow.
- Joint replacement in advanced cases.

Normal Joint



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Osteoarthritis



Rheumatoid Arthritis



Normal and Arthritic Joints

GOUT & PSEUDOGOUT

- Olecranon bursa is a favorite site for gout, bilateral.
- Acute attack: rapidly painful, swollen and inflamed.
- The serum uric acid raised and the bursal aspirate will contain urate crystals
- Rx: high dose anti-inflammatory drugs.

- Similar attacks occur in pseudo-gout, due to deposition of calcium pyrophosphate dihydrate (CPPD) crystals which identified in the aspirate.

- Suspect Chronic calcium pyrophosphate arthropathy when:

Spontaneous appearance of osteoarthritic changes in unusual site
(elbow)

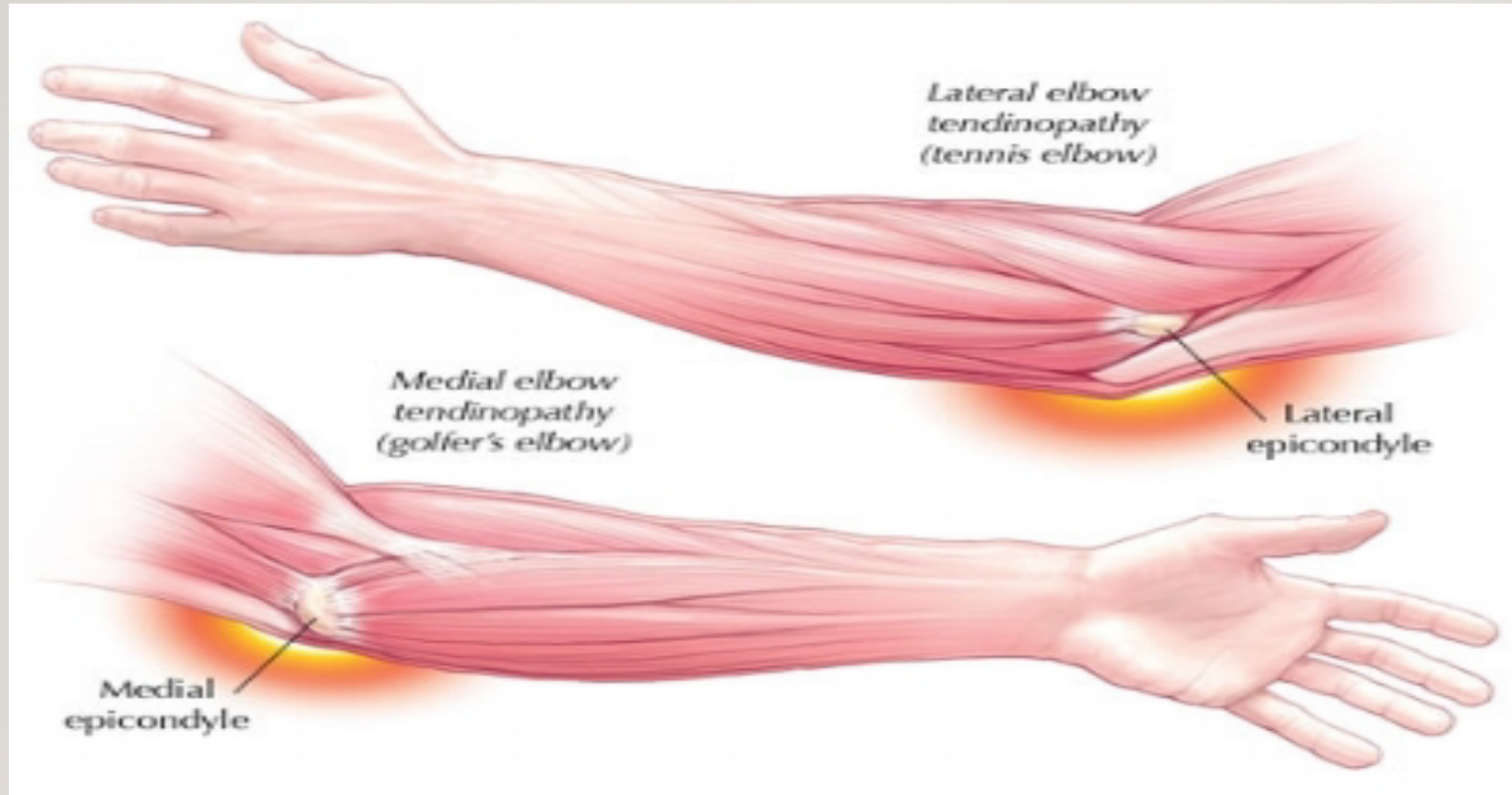
STIFFNESS OF ELBOW

- Patients may be unable to reach others, cannot turn the hand palm downwards to pick up something, or palm upwards to lift something.
- Due to :
 - 1- congenital abnormalities (synostosis)
 - 2- infection
 - 3- osteoarthritis , inflammatory arthritis
 - 4- late effect of trauma

POST TRAUMATIC STIFFNESS

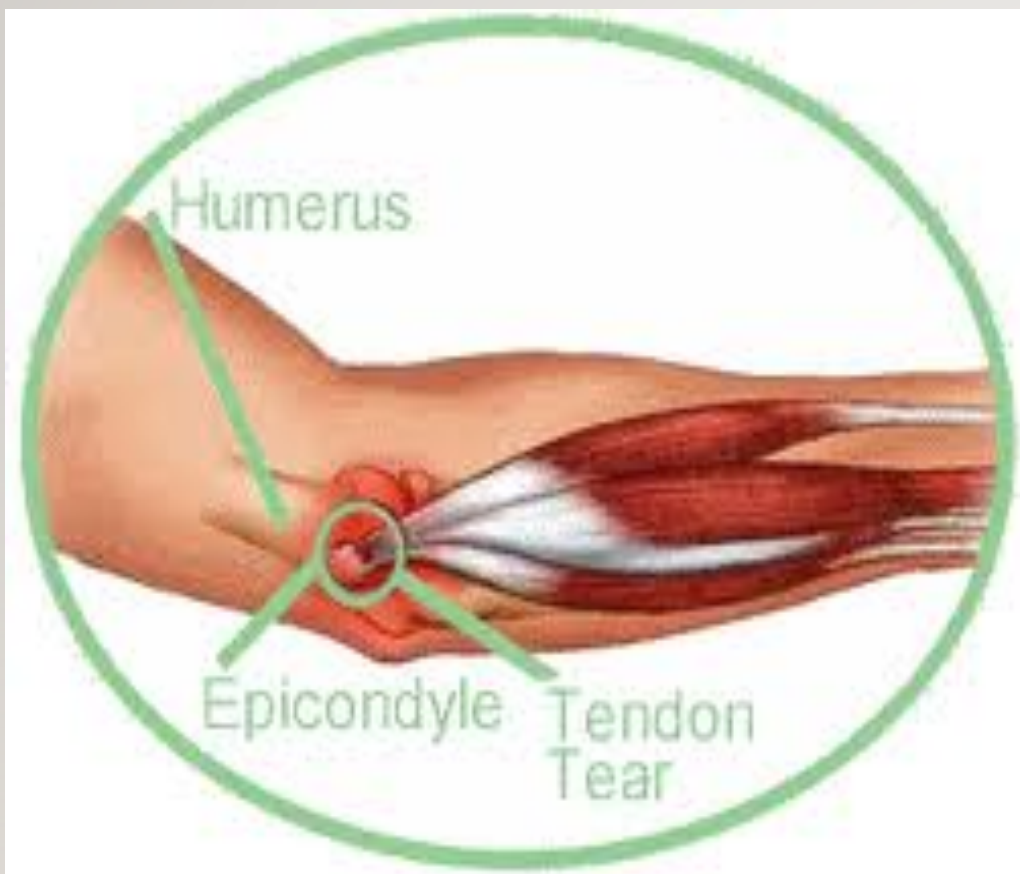
- **Extrinsic**: soft tissue contracture, heterotrophic bone formation
- **Intrinsic** : intra articular adhesion & articular incongruity.
- Treatment :the most effective Rx is prevention, serial splintage.
- Operative treatment: indicated in failure to regain functional movement within 12 m after injury.

OVER USE SYNDROME

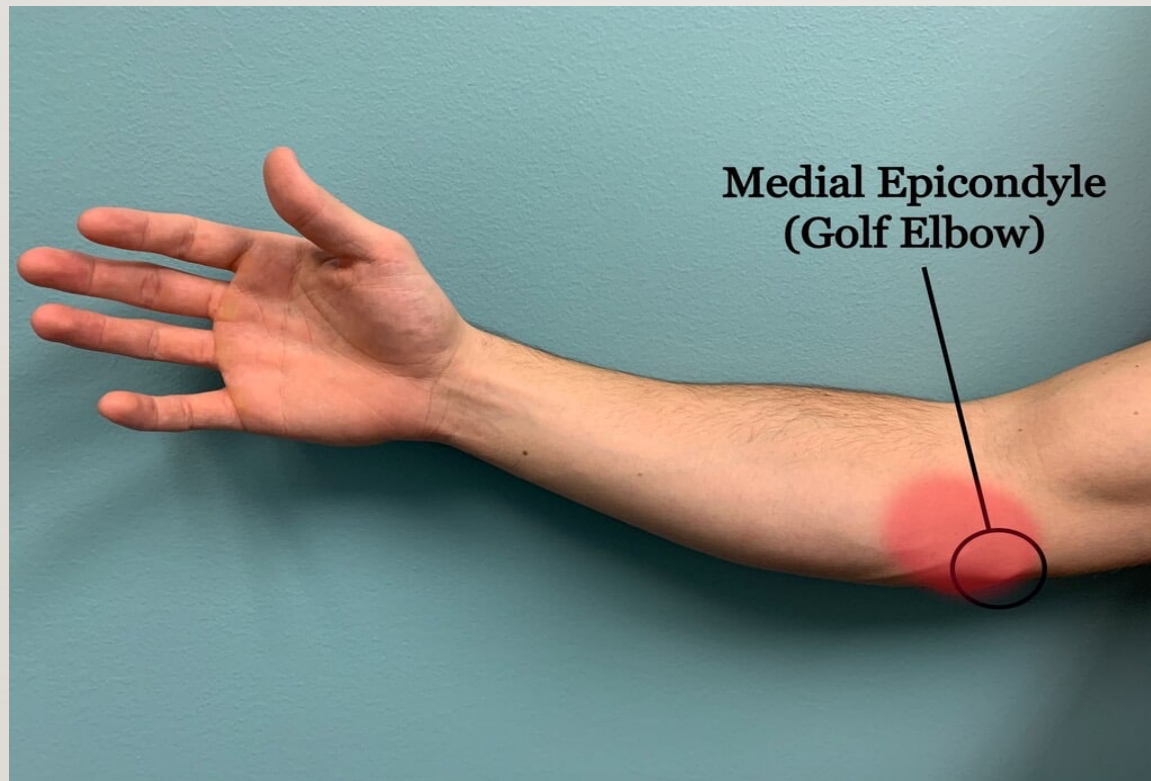


- Most cases follow **minor trauma** or **repetitive strain** on the tendon aponeuroses attached to either the lateral or medial humeral epicondyle.
- There is a history of occupational stress, such as house painting, or other activities that involve strenuous wrist movements and forearm muscle contraction.

- In **tennis elbow**: gradual pain is felt over the outer side of the elbow (more accurately the bony insertion of common **extensor** tendon) , but in severe cases it may radiate widely It is initiated or aggravated by movements such as turning a stiff door-handle, shaking hands or lifting with the forearm pronated (activities involving forceful repetitive wrist extension) .The elbow looks normal and flexion and extension are full and painless.
- Tenderness is localized to a spot just **below the lateral epicondyle**, and pain is reproduced by getting the patient to extend the wrist against resistance, or simply by passively flexing the wrist so as to stretch the common extensors.



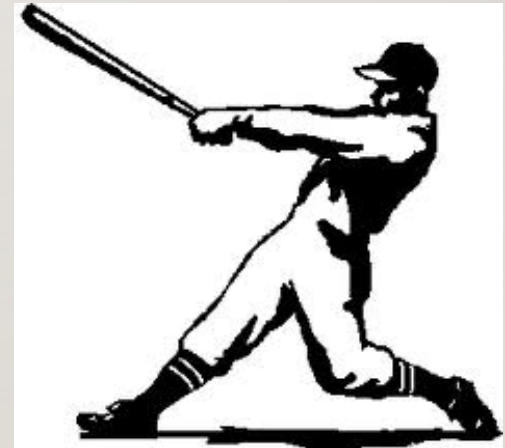
- In **golfer's elbow**; similar symptoms occur around the **medial epicondyle** and, owing to involvement of the common tendon of origin of the wrist **flexors**, pain is reproduced by passive extension of the wrist in supination.



- Treatment:
- Restrict movements that cause pain
- Rest
- injection with a mixture of corticosteroid and local anesthetic.
- Persistent or recurrent pain which fails to respond to conservative measures may call for operative treatment. The affected common tendon on the lateral or medial side of the elbow is detached from its origin at the humeral epicondyle.
- Surgery is successful in 60% of cases.

BASEBALL PITCHER'S ELBOW

- Repetitive, vigorous throwing activities cause damage to the bone or soft tissue attachments around the elbow.
- Hypertrophy of the lower humerus, loose body formation, osteoarthritis.



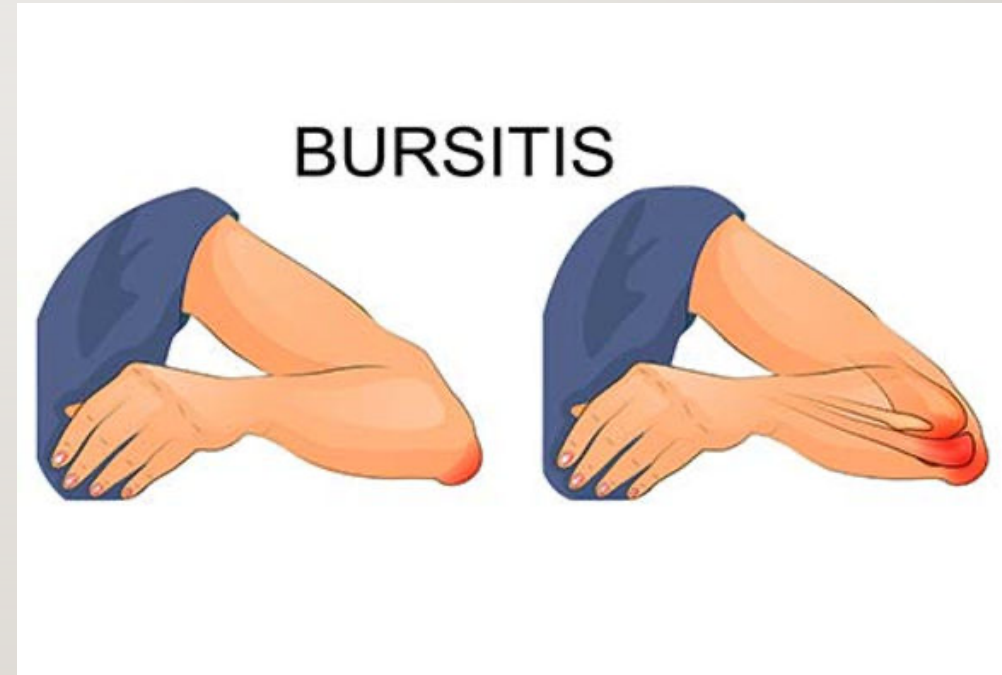
OLECRANON BURSTITIS 'STUDENT ELBOW'

- Enlarged olecranon bursa as a result of **pressure** or **friction**. When it is also painful, the cause is more likely to be infection, gout or RA.
- Traumatic or non traumatic
- Gout (commonest non traumatic cause) is suspected if there is a history of previous attacks, if the condition is bilateral, if there are tophi , or if x-ray shows calcification in the bursa.
- Rheumatoid arthritis causes both swelling and nodularity over the olecranon.
- You need to exclude infection first , so do aspiration of bursa fluid .

- Treatment: The underlying disorder must be treated. Septic bursitis may need local drainage. Occasionally a chronically enlarged bursa has to be excised.



14.5 Olecranon bursitis The enormous red lumps over the points of the elbows are due to swollen olecranon bursae; the patient's ruddy complexion completes the typical picture of gout.



AVULSION OF THE DISTAL TENDON OF BICEPS

- Injury to the biceps tendon at the radial tuberosity insertion that generally occurs due to a sudden excessive contraction of the biceps brachii.
- Typical scenario is a 55 year old male that ,feels pain and weakness at the front of elbow.
- The tendon maybe partially or completely avulsed.
- Flexion & supination preserved but weaker than normal .
- MRI confirm the Dx.

Treatment :

- Treatment can be nonoperative or operative depending on patient age, patient activity demands, chronicity of tear, and degree of tear.

