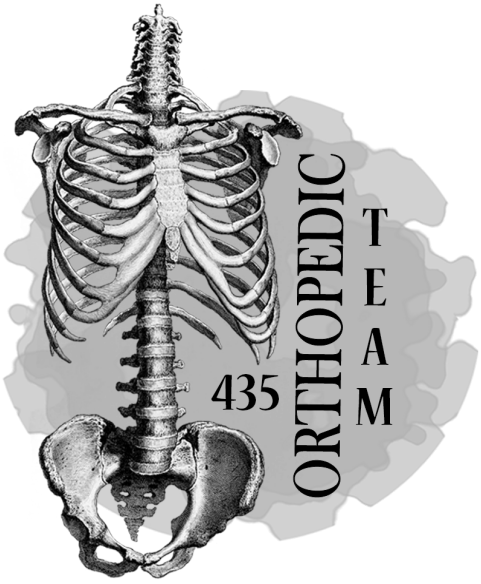

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Chronic Shoulder Disorders

Lecture outlines :

★ Basic shoulder anatomy
★ Impingement syndrome
★ Rotator cuff pathology
★ Adhesive capsulitis
★ Acromioclavicular pathology
★ Recurrent shoulder dislocations

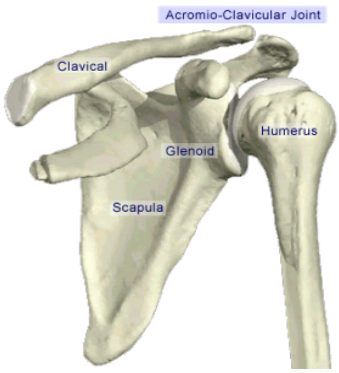
IN THE EXAM ~ 40% impingement, 40% instability, 12% adhesive capsulitis and 8% AC pathology
There will be qs about : Rotator cuff, impingement Syndrome , instability
important questions read them !
45y lady with Shoulder Pain with overhead activity and limited abduction = rotator cuff and impingement
Q: a 20y old male who was involved in car accident and was unable to abduct- MRI shows tear of supraspinatus ? SURGERY
Q: What is the treatment for 50y old have chronic pain for long time and unable to abduct? Conservative
Q: Overhead activity? limited abduction? think about impingement and rotator cuff tear

Done by: Raghad AlMansour & Reema Allhidan
Edited By: Bedoor Julaidan
Revised by: Dalal Alhuzaimi
References: 435 Lectures And Notes,Toronto Notes

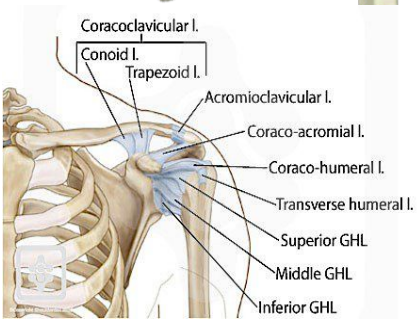
Shoulder Anatomy

Notes : The anatomy in the shoulder is very very special
in joints we have two things to consider: **Range of motion and Stability** you have to sacrifice in one to gain the other. (اذا ز ادت وحده قلت الثانية)

- e.g. the **ROM** in the knee is limited only in one axis: flexion and extension (although it's not very accurate to say one axis), but the shoulder has many axes: abduction, adduction, forward flexion, extension, internal rotation, external rotation and circumduction (basically all kind of ROM)
- **Stability** is either by **static structure** (always there always acting the same way) or **dynamic**:
  - ➢ **Stability by static structures can be due to** :

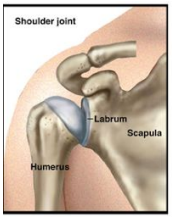


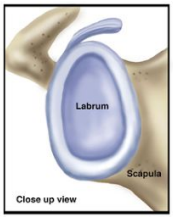
    - Bony structures:
      - Humeral head is big, glenoid is wide (humerus head is much bigger than glenoid) which can give you **some stability but not the best**, Shoulder injury caused by low energy, certain movements can get your shoulder out.
      - unlike the femoral head which is more like spherical in shape and the acetabulum is covering most of it → more stability, It typically takes a major force or trauma to dislocate the hip (It's a big issue to have someone with hip dislocation!)

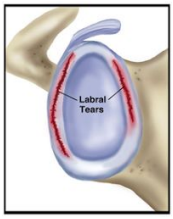


    - Ligaments: the shoulders' ligaments are not as big and strong as the knees' ligaments, **why**? the ligaments in the shoulder are just thickening of the capsule[1].
      - ➢ There are 3 anterior ligaments which prevent anterior dislocations: **superior, middle and inferior Glenohumeral ligaments**
      - ➢ You have to keep in mind! **95 % of the dislocations are anterior** (commonly anterior- inferior), while the posterior is extremely rare and only certain traumas will cause the inferior, posterior or superior dislocations.
      - ➢ **The anterior dislocation happens when the shoulder is abducted in 90 degree and externally rotated,** So in this position Which one of the three ligaments has more chance to get strained and also affected in the anterior dislocation? **inferior** glenohumeral ligaments
        - **How**? while abducting and externally rotating the shoulder → the inferior ligament will be more stretched, but the ligaments are stronger than any structures although they are only thickening but still the are the strongest → they will not tear but they will **detach the labrum from the bone** when there is dislocation[2].
        - Very very **IMP I WILL ASK YOU ABOUT IT!!** (What is called? What will you see in MRI? Very very imp) **BANKART LESION** (anterior inferior part of the **labrum is detached** and causing instability) يصير المريض أي حركة مثل ابدكشن أو اكسترنال روتيشن يطلع الكتف معها ! [3]

    - labrum is (fibrocartilage) that gives the depth for accommodating the head also the ligaments attach to it.







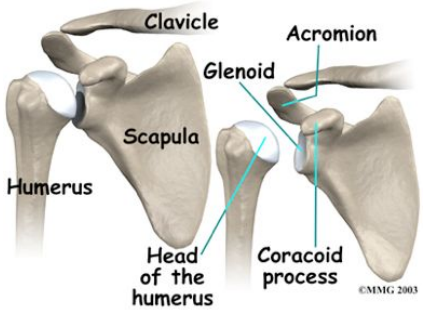
[1] Capsule is attached between proximal humerus and glenoid
[2] Not like the ACL in the knee if it's stretched the tear will happen in the middle of it (midsubstance tear), avulsion happens only in children ينقشع من طرفه
[3] How to treat it ? Suture it at 5 o'clock by 2 or 3:30 or 4:30 (postgraduate level) not required

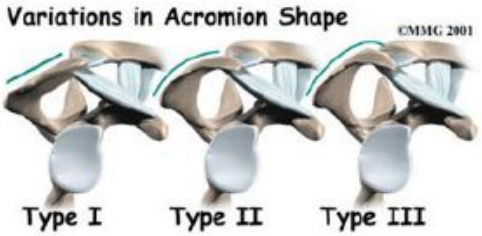
➢ **Stability By dynamic structures:**
- Rotator cuff actions (To depress and to keep the humeral head within the glenoid (especially **supraspinatus**).
- Fine-tuning of movement (it means: keeping the head stable and in place, no abnormal movement) → by rotator cuff
  - in case of rotator cuff tear, even in the big muscles of the shoulder like the deltoid if it starts to contract, this will lead to proximal migration instead of abduction (very big problem)

Bony Anatomy

★ **Humerus**
★ **Scapula:**
1-Scapular body
2-Glenoid pear shape
3-Coracoid
4-Acromion:
- Type I : flat (straight)
- Type II: curved
- Type III: hooked

★ **Clavicle**
★ **Sternum**





Notes

★ 2 important structures in proximal humerus: GT (Greater tubercle) and LT (Lesser tubercle)
- Supraspinatus is attached to GT
- Subscapularis is attached to LT

★ Acromion is very important, it's a landmark for almost everything you do around the shoulder, and it's supporting the rotator cuff and acts like a roof over the glenohumeral joint
- in case of abduction if there was a proximal migration what will happen ? the GT will hit the acromion ⟶ the supraspinatus[4] will impinge انحشار

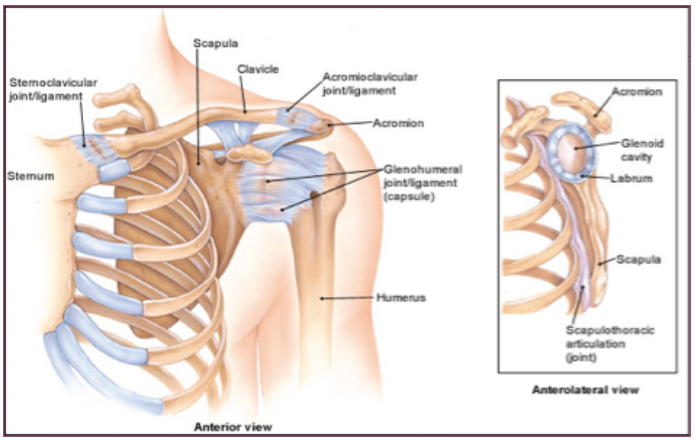
★ Coracoid is attached to the conjoint tendon (tendons of short head of biceps and coracobrachialis)

★ Long head of biceps is a trouble maker passes through the bicipital groove and attached to superior labrum (doesn't attach to bone which is unusual) with age there will be pulling out and detachment of labrum which is called (**SLAP lesion** superior labrum anterior posterior lesion) or becomes inflamed in old people, very common problem in the West (white ethnicity) but here it is not bad as in the West, what do we do for them? (shoulder arthroscopy تنفصل البايسبز) , In women base of thumb is usually affected by instability then arthritis in the West, here is not that common

[4] The supraspinatus passes beneath the acromion and then inserts in the greater tubercle

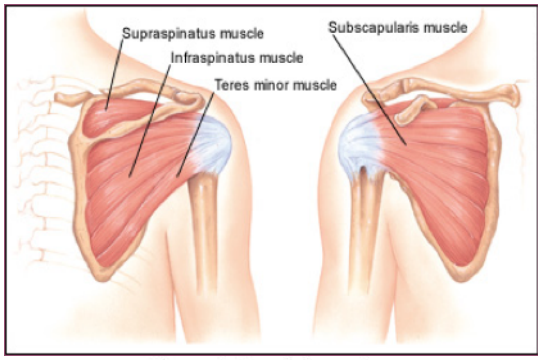
Joints
(all of them called the shoulder girdle) but when we say shoulder joint we mean GHJ

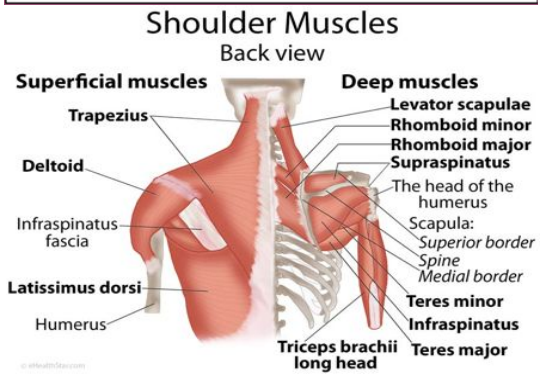
- ★ **Glenohumeral joint**: the main joint
  - Most commonly dislocated joint
  - **Lacks** bony stability
  - Composed of:
    - Fibrous capsule
    - Ligaments
    - Surrounding muscles
    - Glenoid labrum
- ★ **Acromioclavicular (AC) joint**
- ★ **Sternoclavicular (SC) joint**
- ★ **Scapulothoracic joint**



Muscles

- ★ **Rotator Cuff Muscles: Depress humeral head against glenoid**
  - Supraspinatus: Initiation of abduction + external rotation
  - Infraspinatus:External rotation
  - Teres Minor: External rotation
  - Subscapularis: Internal rotation
- ★ **Deltoid**: largest, strongest muscle of the shoulder
- ★ **Biceps**
- ★ **Pectoralis major**
- ★ **Posterior scapular muscles**
  - Trapezius
  - Rhomboids
  - levator scapulae
- ★ **latissimus dorsi**
- ★ **serratus anterior**



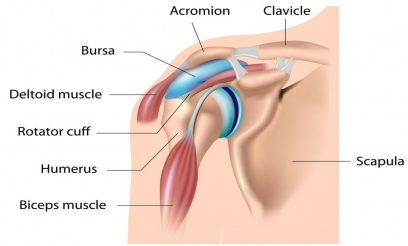


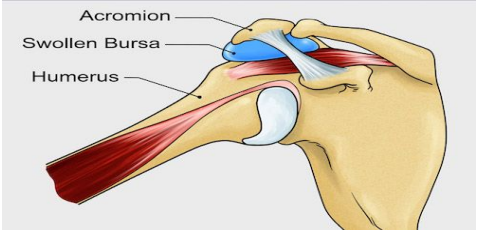
Notes

- ★ Supraspinatus initiates the abduction and the deltoid proceeds the abduction but can't initiate it, so they have a synergistic effect.
- ★ Supraspinatus also keeps head of humerus in its place

Subacromial bursa

- Between the acromion and the rotator cuff tendons.
- Protects rotator cuff tendons from grinding against acromion
- Pathology→ irritation → thickening → subacromial space narrowing → further impingement





Notes:

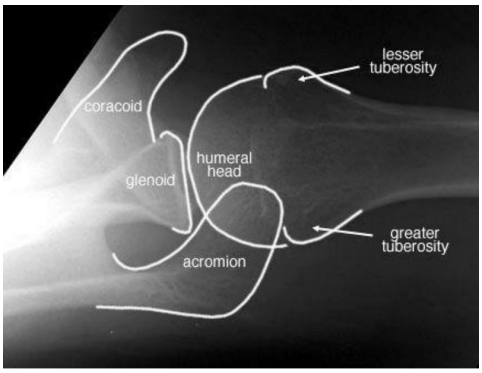
Bursa : what is it ? it's a fibrous tissue usually found on prominent bones like : tibial tuberosity, ankle, acromion

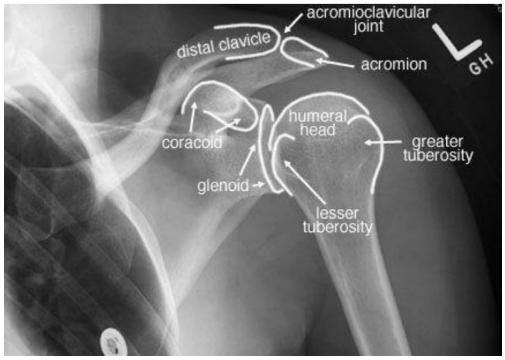
- ★ It helps in the sliding of the bones to prevent friction, compression on the skin
- ★ Protect tendons and structures from compression by bones

- in case of impingement the acromion is pressing on supraspinatus so it gets inflamed as well and becomes thick and narrows the space.
- It's also found in the tibial tuberosity which can be inflamed and cause bursitis which is also called **(Housemaid's knee or prepatellar bursitis)**

من كثر ما الناس يجلسون على الأرض ويسجدون ويصلون أو مثلًا مثل أول الخادمات أو ربات البيوت كانت البيوت خشب وينزلون ويمسحون الأرض كثير ويصير عندهم احتكاك كبير بين التيبيال تيوبروسيتي والأرض الصلبة

Radiology of the shoulder (extra)





Impingement Syndrome

Mechanism

Supraspinatus and bursa ⇀ pinched ⇀ as they pass between greater tuberosity and lateral acromion usually happens with the proximal migration

Risk factors

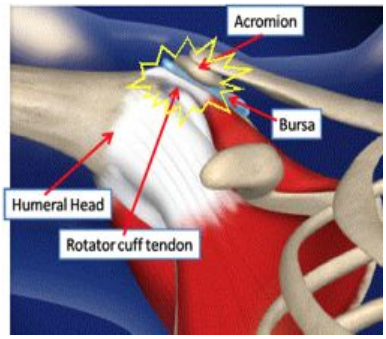
- ★ Age (middle and older age; **40-85y**) due to two reasons:
  1- changes in the tendons structure **2-** weakness of the rotator cuff that causes proximal migration
- ★ **Bursitis** and **supraspinatus tendinitis**
- ★ **Acromial shape:** type II & III acromion but keep in mind! not all people with type two have the impingement syndrome why ? basically it could be due to two reasons: first their muscles are strong so there is no proximal migration, the second thing is their tendons are more strong when they are young, more fresh, healthy, it has water content and healthy collagen, the older you get changes happen.
- ★ **AC** (Acromioclavicular joint) **arthritis** or AC joint osteophytes may result in impingement and mechanical irritation to the rotator cuff tendons if you imagine, with arthritis there are osteophytes, spurs and abnormal growth which help in putting on pressure the supraspinatus
- ★ **overhead activity** e.g. lifting, swimming, tennis, baseball, comping hair, wearing thob and niqab). مهم تسألون متى يضايقك بالضبط أو ايش الشيء اللي يضايقك كثير ؟ بتقول لما ألبس النقاب والرجال لم يرفعون يدهم وهم يلبسون الثوب
- ★ **Posterior shoulder capsule stiffness**[5].
- ★ **Rotator cuff weakness**.[6]

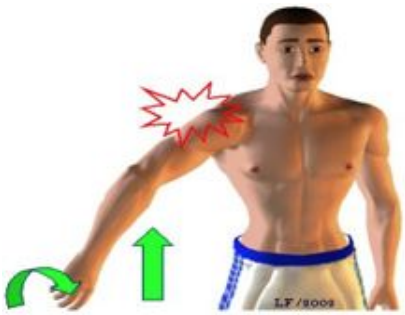
[5] Posterior capsule tightness is thought to be a factor in Subacromial impingement syndrome. One reason is that superior-anterior migration of the humeral head occurs during shoulder flexion in the shoulder joint with posterior capsule tightness. Read this article if you're interested https://www.ors.org/Transactions/55/1916.pdf

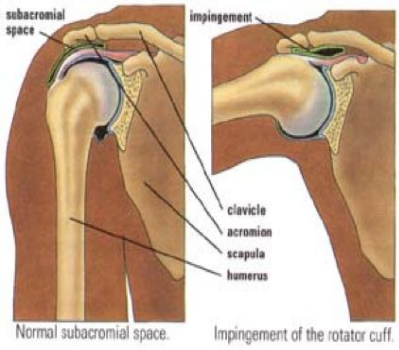
[6] Glenohumeral muscle weakness leading to abnormal motion of humeral head

Symptoms

- ★ **Pain** in the shoulder **the first thing they present**
  - **In the acromial area** → especially with FF and IR (Forward flexion and Internal rotation)
  - Aggravated by lying on affected side
  - **More at night** (difficulty sleeping on affected side) during activity there is no inflammation the moment you stop moving especially at night the inflammation starts to take place and the pain starts either during or after sleep.
  - Due to
    - Bursitis
    - RTC tendinitis (Rotator cuff tendonitis)
- ★ **Affected overhead activities** عشان كذا الحريم دائمًا يقولون ما أقدر ألبس النقاب أو أسرح شعري أو الرجال ما يلعب البيسبول
- ★ ↓ **abduction**
- ★ **Weakness**







Differential diagnosis for inflammation and pain

- ★ Rotator cuff tears[7] Impingement with time becomes rotator cuff tear
- ★ Calcific tendinitis[8] calcifications around the insertion of Supraspinatus due to trauma or other reasons, they present with impingement like symptoms
- ★ Biceps tendinitis[9]
- ★ Cervical radiculopathy
- ★ Brachial plexus compression syndrome (الأبهر)can't raise his arm due to rotator cuff impingement, so compensating by sliding the scapula forward (protraction) that causes contraction of the neck muscles and spasm which causes pressure in Brachial Plexus, so patients with impingement can develop BPCS
- ★ ACJ arthritis (Acromioclavicular joint)
- ★ GHJ instability (Glenohumeral joint) usually settled instability not huge and clear
- ★ GHJ arthritis

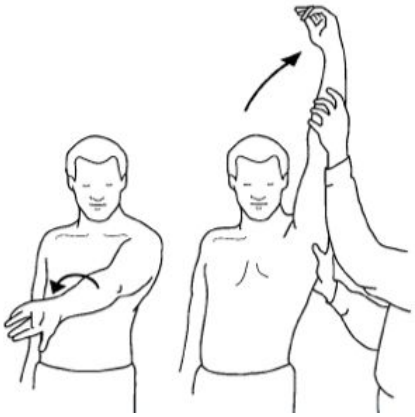
[7] **Ruling in Rotator Cuff Tears** – 98% probability of rotator cuff tear if all 3 of the following are present: Supraspinatus weakness - External rotation weakness - Positive impingement sign(s)

[8] **Calcific tendinitis** is a disorder characterized by deposits of hydroxyapatite (a crystalline calcium phosphate) in any tendon of the body, but most commonly in the tendons of the rotator cuff (shoulder), causing pain and inflammation.

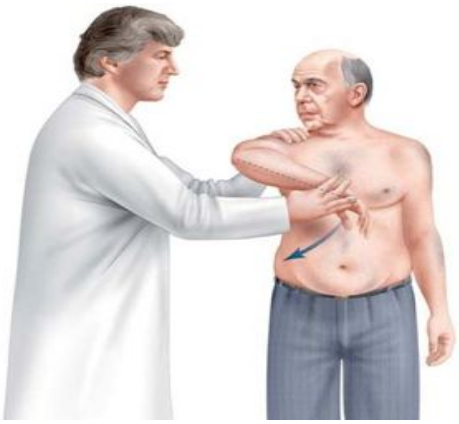
[9] **Biceps tendinitis** is inflammation of the tendon around the long head of the biceps muscle. Biceps tendinosis is caused by degeneration of the tendon from athletics requiring overhead motion or from the normal aging process. **How to rule out bicep tendinosis:** Speed test; SLAP lesion: O'Brien's test

Physical examination[10]

- ★ RTC muscles atrophy (Rotator cuff)
- ★ ↓ ROM → IR and ABD (internal rotation and abduction)
- ★ Weakness
- ★ **Impingement tests** done passively (do it yourself ! don't ask the patient to do it!)
  - **Neer's impingement test:**
    - Passive elevation of the internally rotated arm in the sagittal plane (shoulder forward flexion). Internal rotation and forward flexion (to bring GT forward and cause it to hit the Anterior part of acromion) positive if he felt pain
  - **Hawkins' impingement test:**
    - With the elbow flexed to 90 degrees, the shoulder passively flexed to 90 degrees and internally rotated. Abduction 30 degree and forward flexion, bend the elbow 90 degree, internal rotation and elevation. (Elbow as a handle) Positive test when there is **limited abduction** and weakness. More sensitive

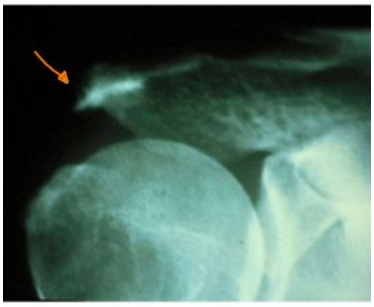


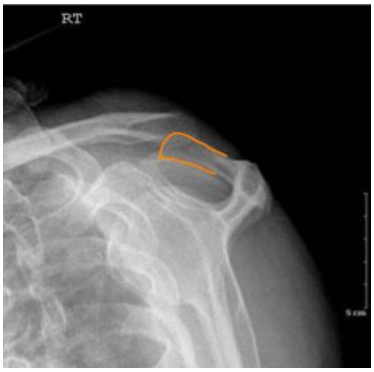
Neer's test



Hawkins test

Radiological findings





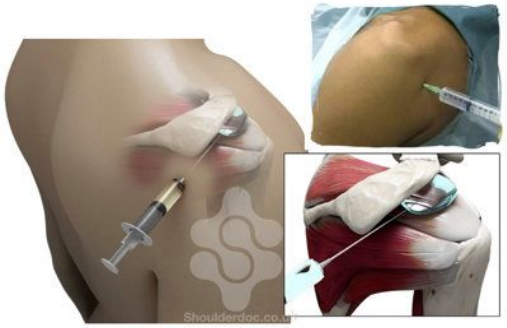
- ★ **Plain X-rays:** not to diagnose, it is to look for all problems
  - If you're lucky you can see proximal migration
  - Narrow space between the humeral head and acromion
  - Acromial spurs (the arrow above)
  - AC joint osteophytes
  - Subacromial sclerosis
  - Greater tuberosity cyst
  - Drawing arch > proximal migration (pic)
  - In lateral view the acromion could be Straight or curved (the commonest) or hooked (the worst). In this picture it's a Curved acromion

[10] **Rotator Cuff Tests read about it !!**
https://www.the-rheumatologist.org/wp-content/uploads/springboard/image/THR_2013_02_pp25_T01_LG.jpg

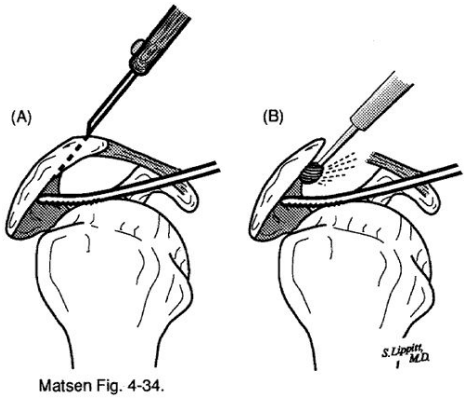
★ **MRI:** it will show you the impengment affect
- bursitis
- Confirm dx
- Assess RTC integrity → tear

Management

★ **Conservative treatment:** Always start with it ، 99% management with it
- Activity modification
- Avoid painful activities → especially overhead activities
- **Physiotherapy:** the aim: strengthen the muscle to depress the head and keep it in place, so Supraspinatus, infraspinatus and subscapularis gets strength and pull the head down giving more space
  - Stretching and range of motion exercises
  - Strengthening exercises
- **NSAIDs** and steroids injection (so commonly done)
- Subacromial space steroid injection



★ **Operative:** Indicated when conservative measures fail
- goal → improve subacromial space
  - Acromioplasty see the pic يحكونه عشان تزيد المساحة
  - Subacromial decompression → partial bursectomy يقصون جزء منها
- **Indication** → no improvement after 6/12 (6 months) of conservative treatment
- Done mostly by arthroscopy and can be done by open surgery.
- Success rate 70-90% it's more of 90 than 70



Matsen Fig. 4-34.

Rotator cuff pathology

Function of rotator cuff muscles

★ **Keep the humeral head centered on the glenoid** regardless of the arm's position in space.
★ Generally work to depress the humeral head while powerful deltoid contracts

Causes of rotator cuff tears (generally: **traumatic**; acute trauma or **atraumatic**; usually impingement)

Intrinsic factors:	Extrinsic factors:	Traumatic
○ Vascular ○ Degenerative (age-related) ○ Calcification ○ Inflammation	○ Chronic Impingement دايم ينزل يده ويرفعها ➢ Acromial spurs ➢ AC joint osteophytes ○ Repetitive use	○ Acute trauma (e.g. a fall or trying to catch or lift a heavy object fast)

Diagnosis

★ History, Physical examination
★ X-rays and MRI (x-ray: AP view may show high riding humerus relative to glenoid indicating large tear)

It is Wide spectrum IMPINGEMENT, TENDONITIS, MICRO OR MACRO TEARS

★ Partial tear (articular side or subacromial/acromial side)
★ Complete tear with or without displacement
  - Small
  - Large
  - Massive (irreparable) tear is far 5 or more cm away from insertion

Treatment

★ **Degenerative type:** (always start with non-operative)
  - Rest , Physio , NSAIDs , Steroid injection
  - If no improvement of **6 months**, surgical repair (open or arthroscopic) is indicated

★ **Traumatic type: (acute surgical repair) Please remember this !!!**

- **If not treated** → chronic pain and loss of motion and with time becomes irreparable → **rotator cuff arthropathy**[11] (It means: there is proximal migration, and with increased motion and absence of the fine-tuning there will be scratching of the cartilage → arthritis develops → the only treatment is shoulder replacement[12])
- **Complications of surgery:** not improving, stiffness

Remember: Impingement and rotator cuff tear are continuum: Impingement → tendinitis → partial tear → tear → proximal migration → arthropathy

Adhesive Capsulitis[13]

not as common as the instability and the rotator cuff but I want you to know it there might be Q about it

★ **Scenario: DM pt with severe pain and limited range of motion in all directions.**
★ Also called "**frozen shoulder**"
★ Usually self limiting (typically begins gradually, worsens over time and then resolves but may take >2 years to resolve)
★ 10 % is bilateral

Risk factors:

★ **DM** (esp. insulin dependent) هو اللي بجيبه بالاختبار
★ Hypo and Hyperthyroidism
★ Following injury or surgery to the shoulder eg: had a trauma before→ develops the pain (this does not mean rotator cuff tear), patient had an impingement → underwent surgery → they get worse → develop frozen shoulder (surgery is considered as trauma) .
★ High cholesterol
★ more common in females

[11] The combination of a large rotator cuff tear with arthritis is termed rotator cuff arthropathy.
[12] Shoulder replacement 2 types: total shoulder arthroplasty (needs good rotator cuff so we can't do it) or **reverse shoulder arthroplasty**, it shifts the center of rotation away and let the deltoid initiates abduction (needs a good deltoid, we do it in this case) "it will not come in the exam"
[13] Disorder characterized by progressive pain and stiffness of the shoulder usually resolving spontaneously after 18 mo

Mechanism

- ★ **Primary adhesive capsulitis**
  - idiopathic, usually associated with DM
  - usually resolves spontaneously in 9-18 mo
- ★ **Secondary adhesive capsulitis** → poorer outcomes
  - due to prolonged immobilization
  - shoulder-hand syndrome: CRPS/RSD[14] characterized by arm and shoulder pain, decreased motion, and diffuse swelling → following MI, stroke, shoulder trauma

Symptoms

- ★ Pain so severe, 10% bilateral.
  - worse at night and often prevents sleeping on affected side
- ★ Restriction of all movements of the shoulder (global stiffness) (decreased **active** AND **passive** ROM)

Diagnosis: By exclusion.

- ★ Mainly clinical
- ★ X-rays and MRI to rule out other pathologies

Stages:

- ★ **Pain** (freezing stage) the hardest stage because it's very painful
- ★ **Stiffness** (frozen stage)
- ★ **Resolution** (thawing stage)

Treatment

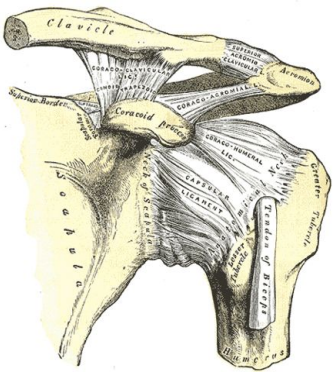
- ★ **Resolves if untreated over 2-4 years** but it's painful you need to give injections, do debridement and shoulder reliefs to improve ROM
- ★ **Physiotherapy** we refer them a lot to physiotherapy, it's difficult to do bc of pain but yet we give a lot of medication. This is the main treatment
- ★ Pain relief and anti-inflammatory medications
- ★ Steroid injections
- ★ Manipulation under anesthesia نخدره وندخله ونسوي المانيبيو لايشن عشان يتحرك
- ★ Arthroscopic capsular release[15]
- ★ من زمان كان فيه حريم ما يتحركون كثير فما يفرق معهم وما يسوون العمليه بس الحين لا تقولك ابغى اسويها لان حياتي اليوميه تأثرت

[14] Complex Regional Pain Syndrome/ Reflex Sympathetic Dystrophy

[15] Arthroscopic capsular release is a minimally-invasive shoulder surgery used to help relieve pain and loss of mobility in the shoulder from adhesive capsulitis (frozen shoulder). A radiofrequency (RF) probe is inserted into the shoulder. The probe uses RF waves to cut the tissue capsule that surrounds the shoulder joint, allowing the shoulder to move more freely.

Acromioclavicular Pathology

Anatomy



- ★ Arthritis between acromion and clavicle
- ★ Not very common it's just a Relatively common
- ★ Easy to pick: Diagnosed **clinically** + **X-Ray** (by examination: **AC joint tenderness** + by X-Ray: might show **proximal migration** due to inflammation and tear of rotator cuff). if you treat the rotator cuff only the patient will not get better because you didn't address the problem, **you have to examine the patient** even if the MRI shows impingement, tear, arthritis ..
- ★ The AC joint is different from joints like the knee or ankle, because it doesn't need to move very much. The AC joint only needs to be flexible enough for the shoulder to move freely. The AC joint just shifts a bit as the shoulder moves.
  The joint is stabilized by **three ligaments**[16]**AC ligament and CC ligament.**

AC arthritis

- ★ Arthritis is a condition characterized by **loss of cartilage** in the joint, which is essentially wear and tear of the smooth cartilage which allows the bones to move smoothly.
- ★ Motions which aggravate arthritis at the AC joint include **reaching across the body toward the other arm.**

Causes of AC Arthritis

- ★ **Degenerative osteoarthritis.**(wear and tear in old aged people) mostly
- ★ Rheumatoid Arthritis
- ★ Gouty Arthritis
- ★ **Septic Arthritis** in drug addicts
- ★ **Atraumatic osteolysis in weight lifters.** (result of repeated movements that wear away the cartilage surface found at the acromioclavicular joint)
- ★ Post-traumatic osteolysis of lateral end of clavicle.(like dislocation or a fracture)

Signs and Symptoms

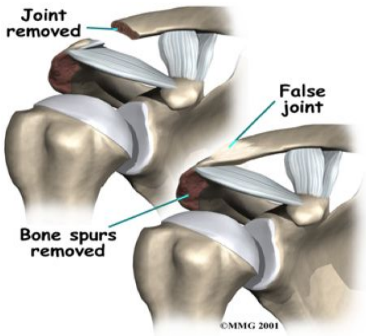
- **Pain**
  - Which worsens with movement and progressively worsens.
  - The patient may suffer a night pain which is a sign of arthritis
  - Pain with adduction of shoulder and/or palpation over AC joint
  - limited ROM
- **It is commonly associated with impingement syndrome**

Diagnosis

- Clinical and by x-rays

[16] **Acromioclavicular**, Coracoclavicular ligaments which consists of two ligaments, the **conoid** and the **trapezoid** ligaments.

Treatment



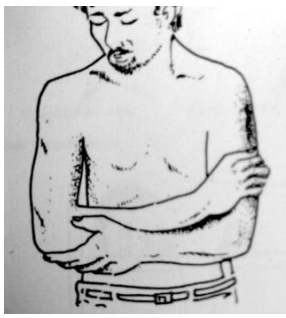
- **Non-surgical Treatment**
  - Rest , avoid weightlifting and push-up
  - Pain medications and NSAID to reduce pain and inflammation
- **Surgical**
  - Number of different approaches involving AC/CC ligament reconstruction or screw/hook plate insertion
  - Distal clavicle resection

Dislocation of the Shoulder

★ **Mostly Anterior** > 95% of dislocations very imp
★ Posterior Dislocation occurs < 5 %
★ True Inferior dislocation (luxatio erecta) occurs < 1%
★ **Habitual Non traumatic dislocation** may present as **Multi** directional dislocation due to generalized ligamentous laxity and is Painless اللي يخلعها بنفسه بس لا تركزون عليها مرة

Mechanism of anterior shoulder dislocation

★ Atraumatic (بنفسه يخلعها)
★ Traumatic: يلعب كرة طائرة وطاح على يده، حادث، ضربه أحد من وراء وانخلع كتفه
  - Usually **Indirect** fall on **Abducted** and **extended shoulder** (external rotation)
  - May be **direct** when there is a blow on the shoulder from behind humerus pushed anteriorly.

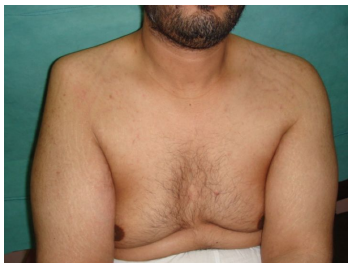


Anterior Shoulder dislocation

★ Usually also inferior and there are superior and posterior also.
★ **Bankart's Lesion it is detachment of inferior Labrum (fibrocartilage) from the glenoid**

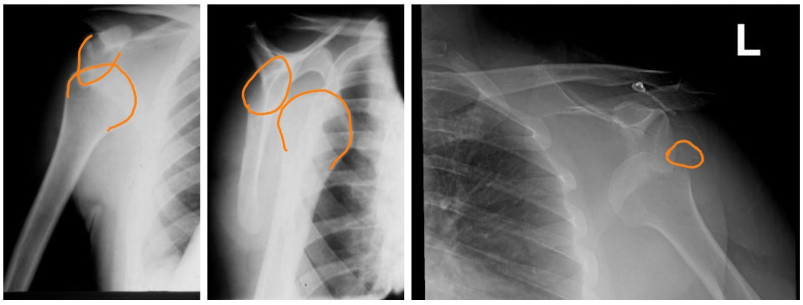
Clinical Picture

★ Patient is in severe **pain** they come screaming
★ **Holds the injured limb with other hand close to the trunk**
★ The shoulder is abducted and the elbow is kept flexed
★ There is **loss of the normal contour of the shoulder** (Deltoid).
★ Loss of the contour of the shoulder may appear as a step Expose the pt it is very clear.
★ Anterior bulge of head of humerus may be visible or palpable
★ A gap can be palpated above the dislocated head of the humerus

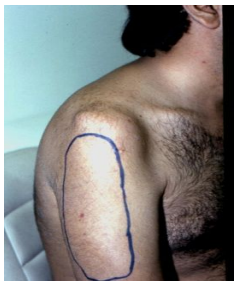


X-ray anterior shoulder dislocation

Anterior dislocation and Greater trochanter fracture



Associated injuries of anterior Shoulder Dislocation



- ★ Injury to the neurovascular bundle in axilla
- ★ Injury of the **Axillary Nerve** (Usually stretching leading to temporary neuropraxia)
- ★ Associated fracture

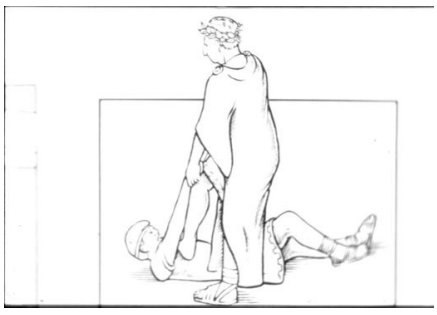
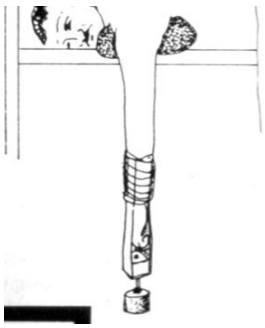
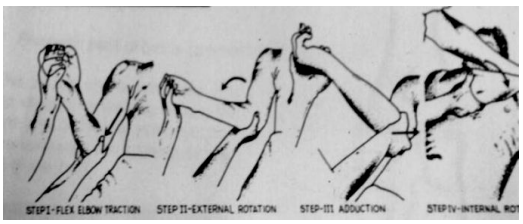
Axillary Nerve Injury "neuropraxia" usually resolves with time.

- ★ It is a branch from posterior cord of Brachial plexus, It is sensory and motor so, you have to examine both, sometimes only the sensory part is affected or only the motor part is !!!!
- ★ It hooks close round neck of humerus from posterior to anterior
- ★ It pierces the deep surface of **deltoid** and supply it and the part of **skin** over it "If there is dislocation or fracture" To check the integrity of the nerve ask the pt to contract in place **(isometric contraction)** if you see a twitch it means it is intact.

Management of Anterior Shoulder Dislocation

- ★ Is an **Emergency** (Always document especially before the surgery to protect yourself. (**Examine neurovascular → reduce → NVE → surgery → NVE**)
- ★ It should be reduced in **less than 24** hours or there may be Avascular Necrosis of head of humerus If you try in the ER and you cannot do it, take the patient to OR under GA
- ★ Following reduction the shoulder should be immobilised strapped (spling) to the trunk for 3-4 weeks and rested in a collar and cuff
- ★ Start physiotherapy to strengthen the muscles

Methods of Reduction of anterior shoulder Dislocation

Hippocrates Method	Stimpson's technique	Kocher's technique
(A form of anesthesia or pain abolishing is required)	(some sedation and analgesia are used but No anesthesia is required)	is the method used in **hospitals** under general anesthesia and muscle relaxation. That what we use in ER
		

- Put your foot in axilla to counteract and pull the elbow. - An old way used now by soldiers in wars.	-There is a lot of spasm in muscles after dislocation bc of pain which makes the reduction harder. -This technique need strong analgesia (midazolam..). -Put pt in Prone position and put Axillary pad to prevent brachial plexus strain put traction (3-4 kg or less) leave him (15-20 min) until muscles relaxes, most of the time it reduces by itself.	- Efficient and quick technique. - The dislocation in this case is inferior internal. - We need good muscle relaxation and good analgesia. **How to reduce?** Exaggerate the deformity by: Apply traction 'pull the arm down', hold arm and do external rotation then push up and internal rotation. (Need someone to support the axilla)

Complications of anterior Shoulder Dislocation

Early	Late
○ Neurovascular injury (rare) ○ Axillary nerve injury (brachial plexus) ○ Associated Fracture of neck of humerus or greater commonly or lesser tuberosities	○ **Avascular necrosis of the head of the Humerus** (high risk with delayed reduction) After 24h AVN (Anterior humeral circumference artery runs around the head of humerus so if there is anterior dislocation it will get kinked and thus resulting in decreased the blood supply to the humeral head) ○ **Recurrent shoulder dislocations** the younger the pt the more common. Scenario: 20y old pt, first dislocation from trauma there will be 90% chance of dislocate it again but the older they get the less likely they dislocate. ○ Dislocates the inferior glenohumeral ligament pulls the labrum causing **Bankart's lesion**. The younger the pt is the higher chance to have it.

★ **Alabhar *FYI :)*** : don't say aorta !!

- Very common in females to have neck pain, shoulder pain posterior medial scapular pain (in rhomboid minor and levator scapulae) **How does it happen?** scalene muscles are three but the most imp are the **anterior and middle** because the brachial plexus runs between them and they originate from cervical spine and attach to the first rib. Any pathology to the muscle like tightness, weakness put pressure on brachial plexus **what's the problem with it?** difficult to diagnose، pts have vague pain, weakness, numbness, easy fatigue, pain in weird places, clinically doesn't fit anything, but if the patient presents with posterior medial scapular pain, this is easy to diagnose. The first nerve in the brachial plexus is C5 (**dorsal scapular nerve**) supplies rhomboid minor and levator scapulae so if there is a tightness in the scalene muscles will compress C5 that will cause the pain in the muscles that the nerve supplies.
- If you ask the pt to push something there will be medial winging → bc the rhomboid minor and levator scapulae are weak كتوفهم على قدام
- The causes are usually: wrong sitting or posture and standing position - it also has a trigger point

MCQs

Q1 - 22-year-old came to the ER after a direct hit to his shoulder during a volleyball match his shoulder was abducted and his arms are flexed he mentioned that it has happened 4 times during this year -An x-ray was provided of shoulder dislocation What is the most likely diagnosis:

A. adhesive capsulitis.
B. <u>shoulder dislocation.</u>

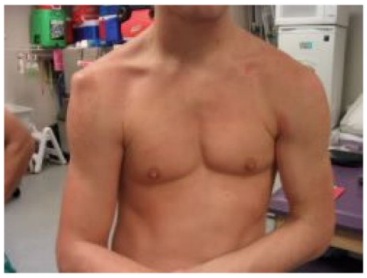
Q2 - **32 y/o banker went to the gym and he hears a "pop" sound in his shoulder after lifting very heavy dump before 3 weeks. It's painful and the abduction was restricted and positive empty can and job test no NV problems. The question about the treatment he wants to reduce his pain regain Rom, back to his work and back to strenuous training. What is the best treatment?**

A. <u>Open or arthroscopic fix.</u>
B. Physiotherapy.
C. reassurance and discharge.
D. control his pain by NSAID.

Q3 - Which nerve is the most likely to be injured in anterior shoulder dislocation?

A. **<u>Axillary</u>**.
B. Ulnar.
C. Median.
D. Anterior interosseous.

Q4 - Young male presented to the ER after falling on his outstretched hand. What is the most likely diagnosis:



A. <u>Shoulder dislocation.</u>
B. Clavicle fracture.
C. Glenoid fracture.
D. Sternoclavicular joint dislocation

SAQ: Mention 4 tests you do to diagnose impingement syndrome:

I. Empty can Test.
II. Belly lift off Test.
III. Hawkans Test
IV. Neers Test.