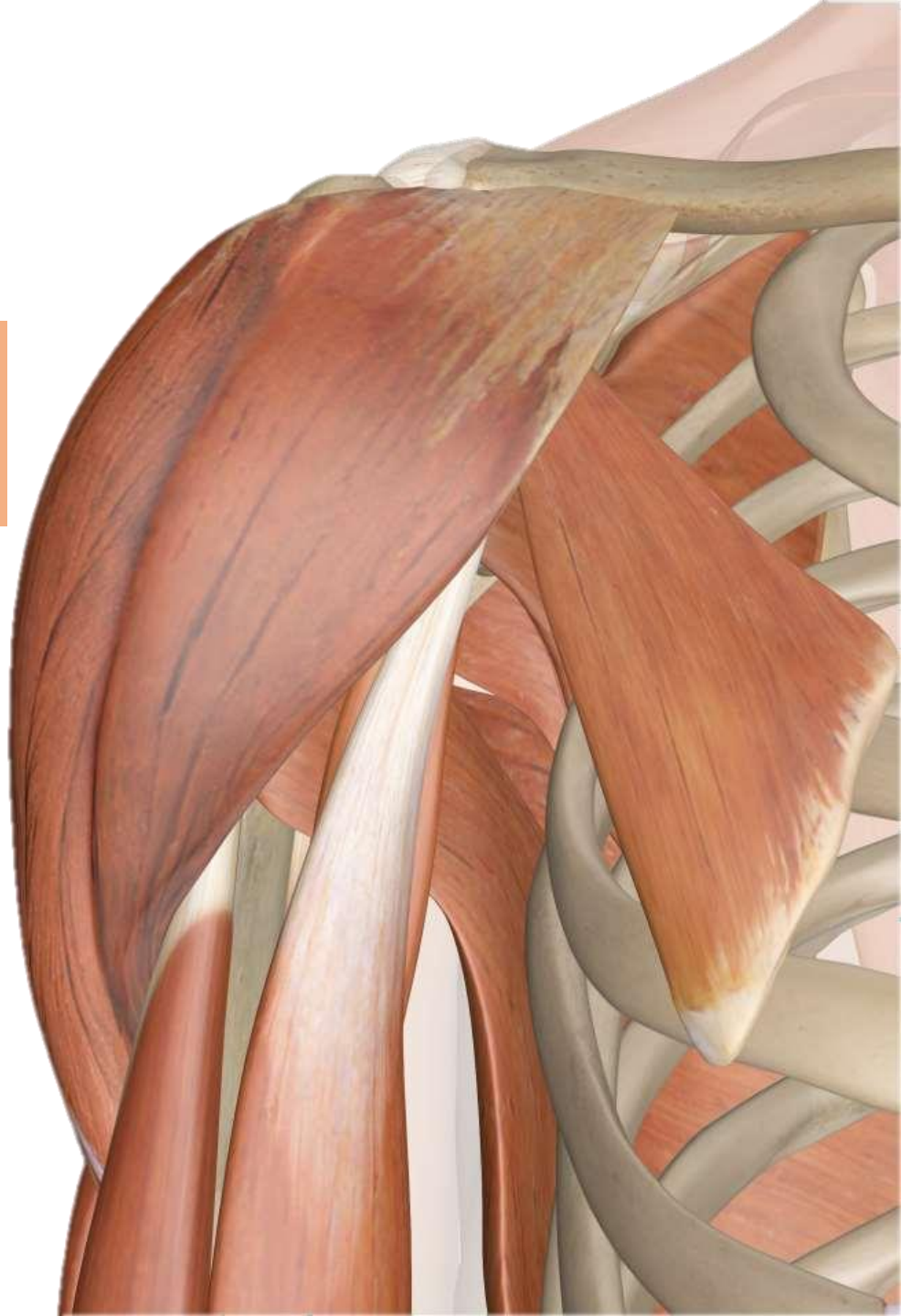
PLEASE CLICK ON THE FOLLOWING LINK TO WATCH THE LECTURE ONLINE:-

https://www.youtube.com/watch?v=otKZUjWqVFA&list=PLuBRb5B7fa_eLlhgRt2DFNKetmQ5nDLZJ&index=2

Shoulder

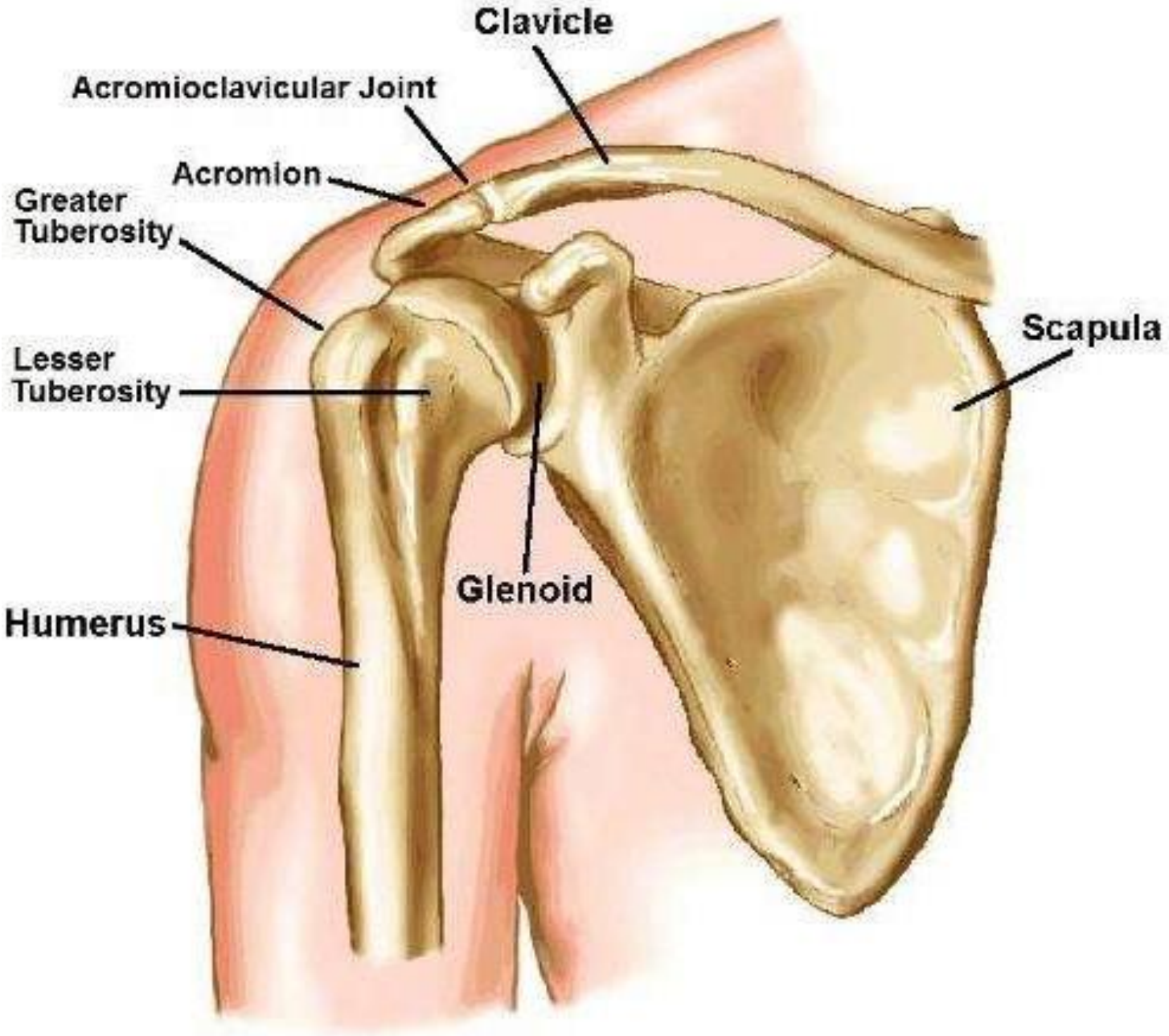
sport injuries

NUR HANISAH ZAINOREN

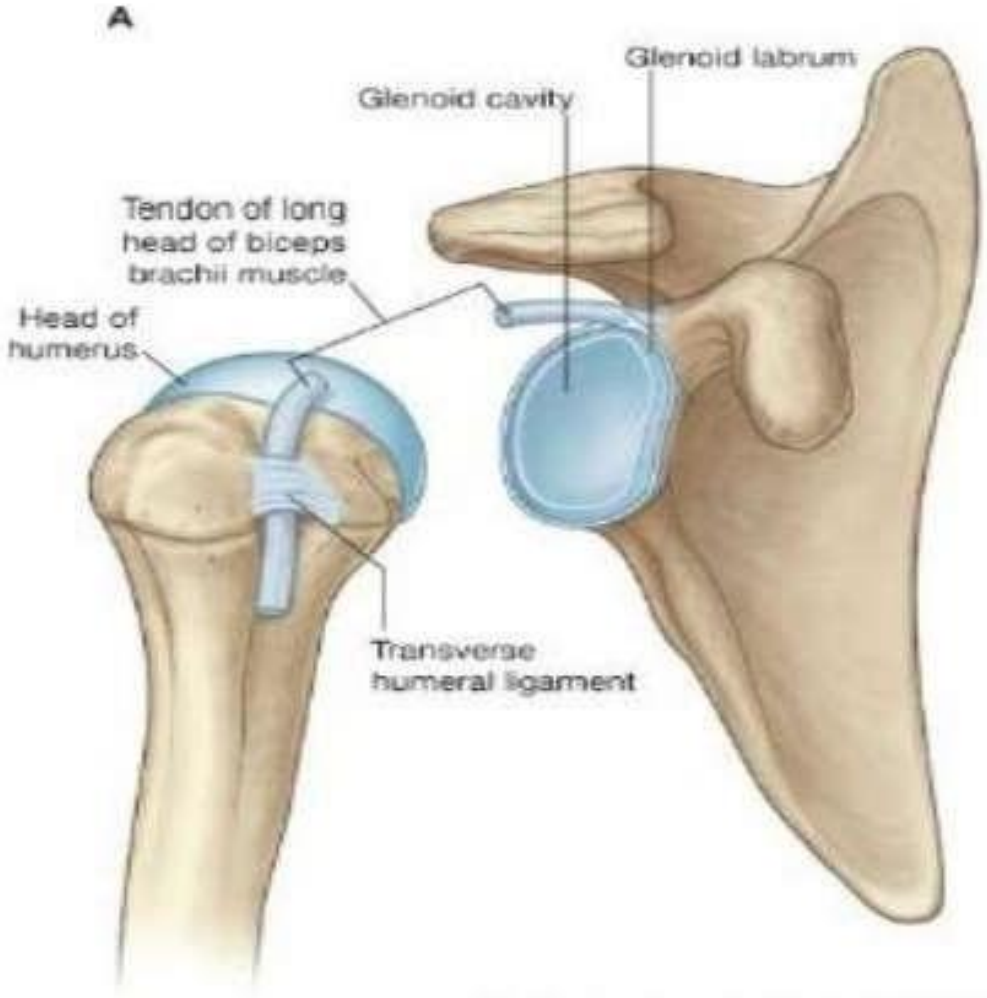


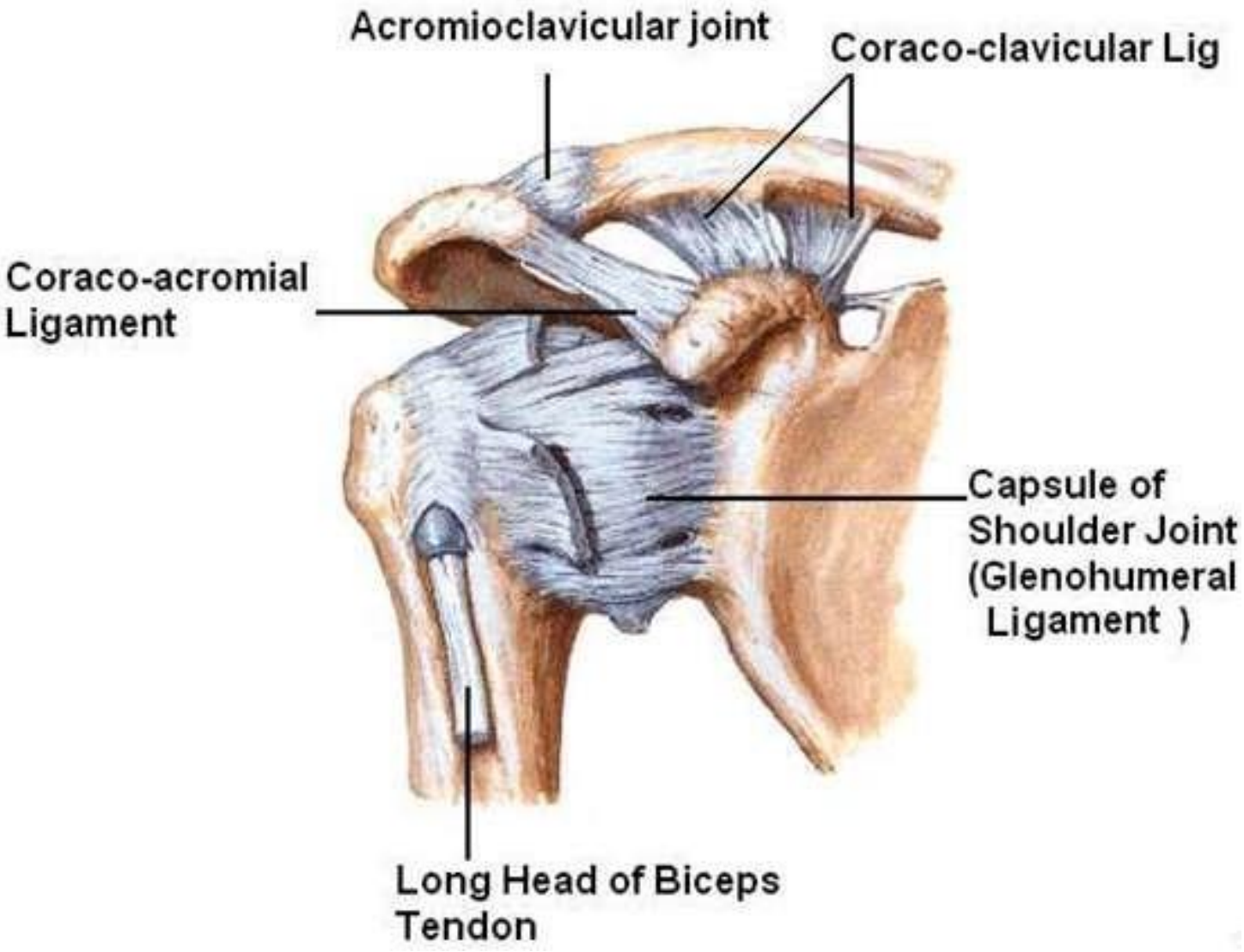
CONTENTS

- Sternoclavicular injury
- Acromioclavicular injury
- Biceps tendon injury
- Superior labral injury
- Shoulder instability

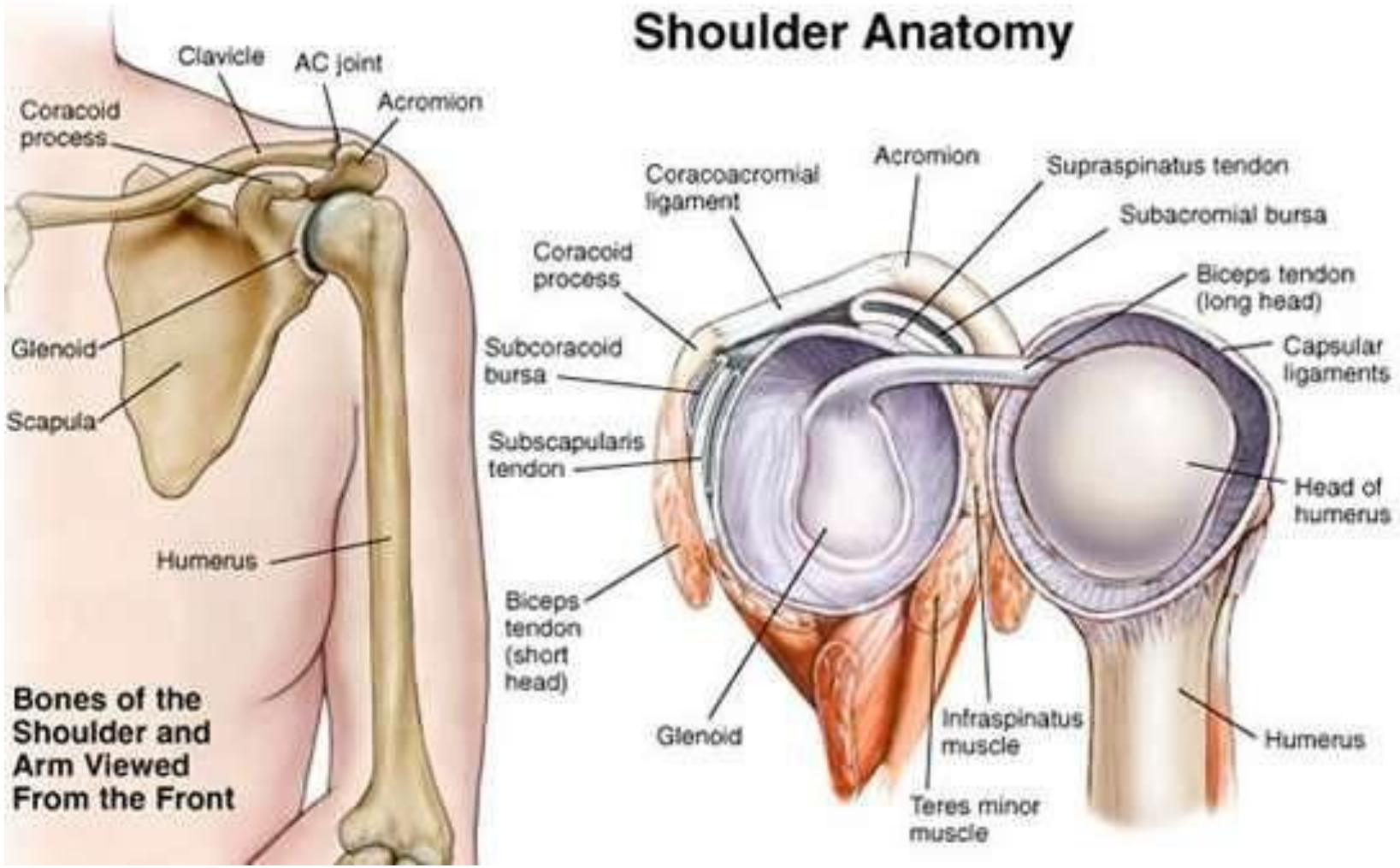

Clavicle
Acromioclavicular Joint
Acromion
Greater Tuberosity
Lesser Tuberosity
Scapula
Glenoid
Humerus

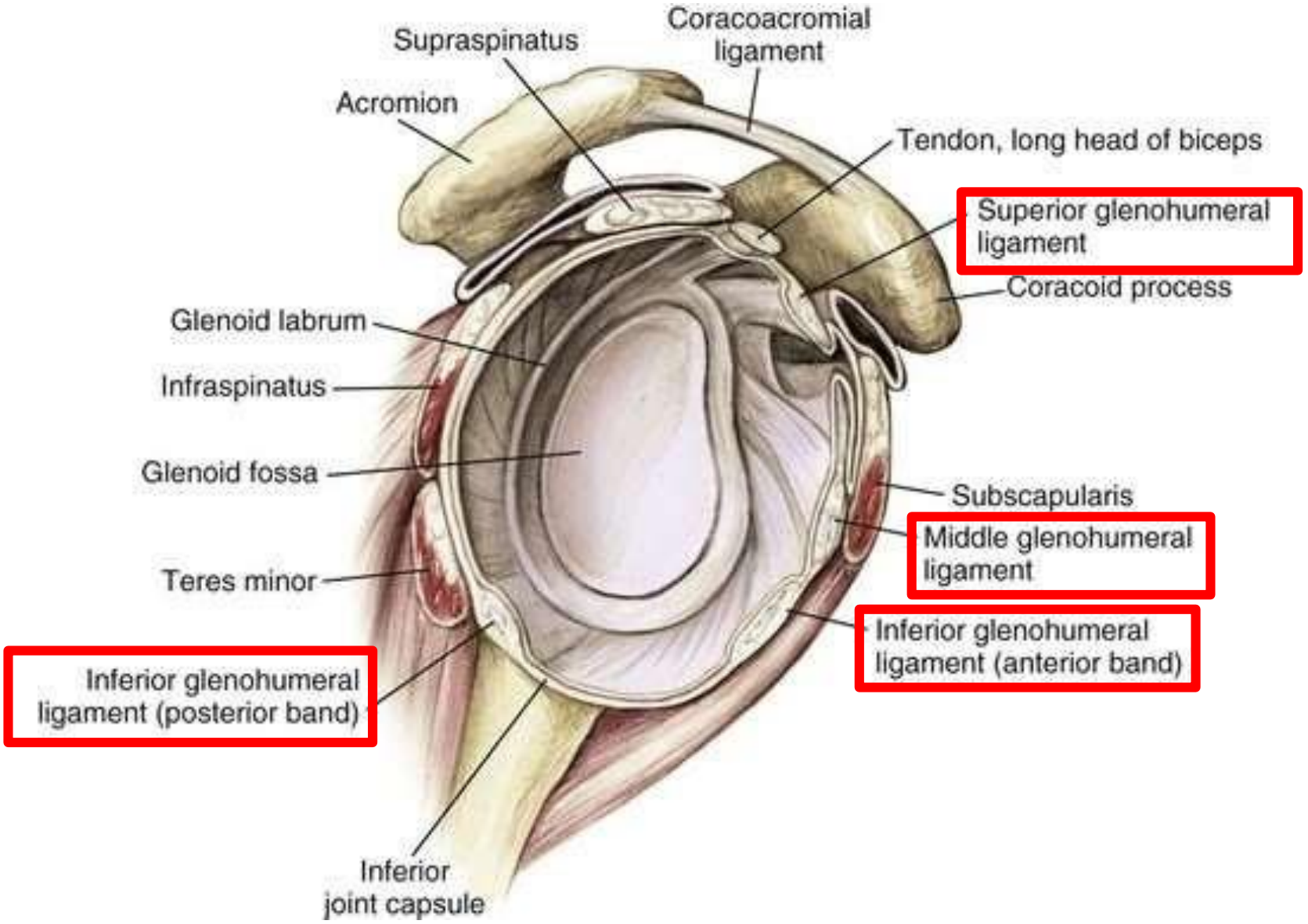
GLENOHUMERAL JOINT




Acromioclavicular joint
Coraco-clavicular Lig
Coraco-acromial Ligament
Capsule of Shoulder Joint (Glenohumeral Ligament)
Long Head of Biceps Tendon

Shoulder Anatomy




Supraspinatus
Coracoacromial ligament
Acromion
Tendon, long head of biceps
Superior glenohumeral ligament
Coracoid process
Glenoid labrum
Infraspinatus
Glenoid fossa
Subscapularis
Middle glenohumeral ligament
Teres minor
Inferior glenohumeral ligament (anterior band)
Inferior glenohumeral ligament (posterior band)
Inferior joint capsule

SHOULDER INSTABILITY

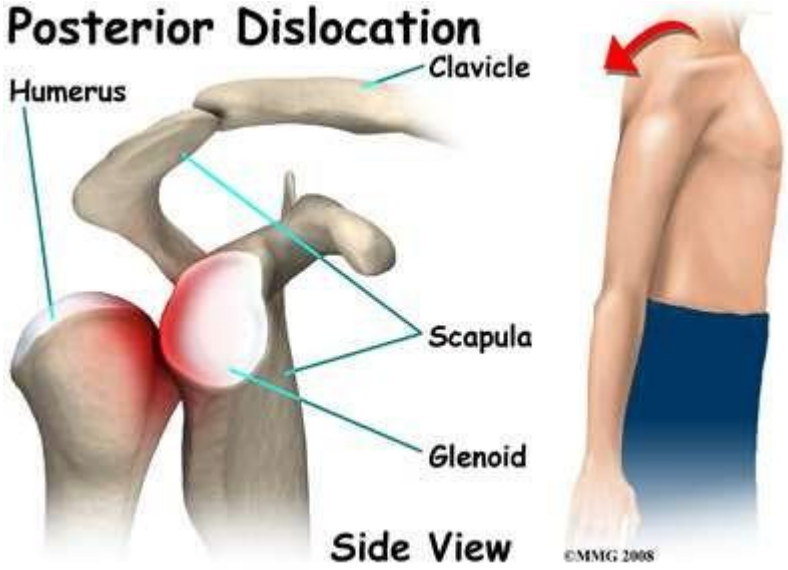
SHOULDER INSTABILITY

A **BROAD** term used for shoulder problems, where the **head of humerus is not stable in glenoid**

It has a **WIDE SPECTRUM** –
From **minor instability** (loose shoulder) → **frank dislocation**

- The shoulder by virtue of its anatomy and biomechanics is one of **most unstable** and **frequently dislocated** joints in body

- Its account nearly 50% of all dislocations


Posterior Dislocation
Humerus
Clavicle
Scapula
Glenoid
Side View
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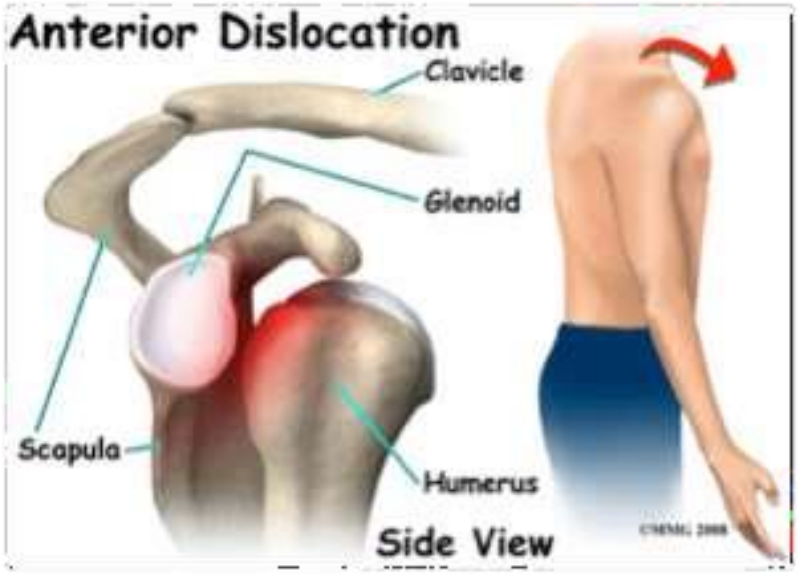
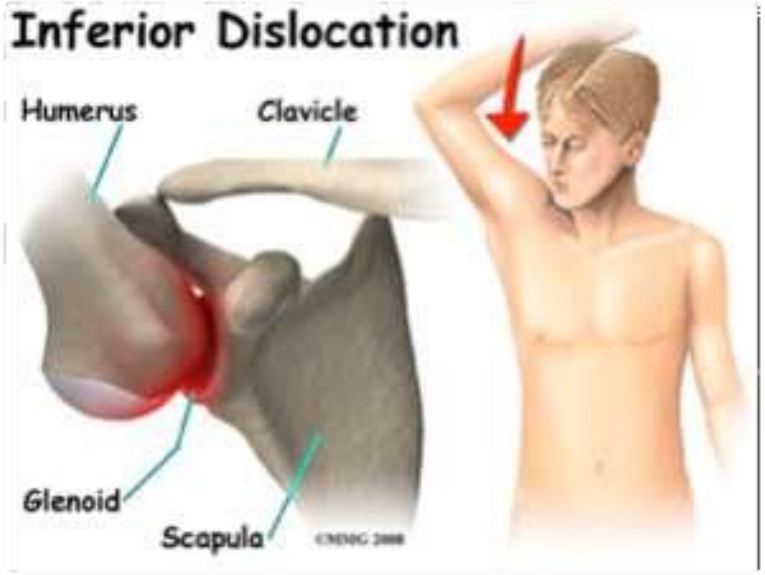

Anterior Dislocation
Clavicle
Glenoid
Scapula
Humerus
Side View


Inferior Dislocation
Humerus
Clavicle
Glenoid
Scapula

Why shoulders become unstable?

1) **Structural changes** due to major traumaor recurrent micro-trauma

2) **Unbalanced muscle recruitment** resulting in humeral head being displaced upon the glenoid

TYPES

- **Traumatic structural instability**

Type I

- **Atraumatic (or minimally traumatic) structural instability**

Type II

- **Atraumatic non-structural instability**

Type III

PATHOGENETIC CLASSIFICATION

	TYPE 1	TYPE 2	TYPE 3
Type of disorder	Traumatic structural instability	Atraumatic (or minimally traumatic) structural instability	Atraumatic non-structural instability
Trauma	Yes	No	No
Articular surface damage	Yes	Yes	No
Capsular problem	Bankart lesion	Dysfunctional	Dysfunctional
Laxity	Unilateral	Uni/bilateral	Bilateral
Muscle patterning	Normal	Normal	Abnormal

TRAUMATIC ANTERIOR INSTABILITY

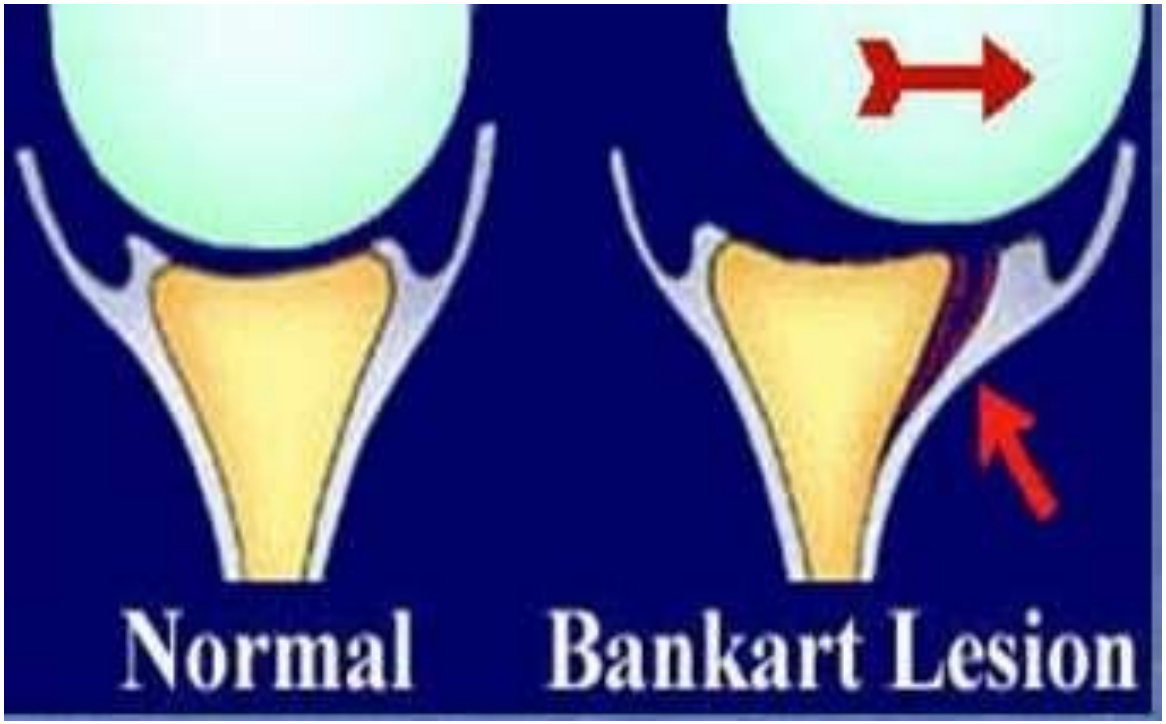
- **Commonest** type of instability (>95% cases)

- Recurrent dislocation may results in:
  - Bankart's lesion
  - Hill-Sachs lesion

- Recurrent subluxation alternately occur with dislocation

- Patient age >50, often associated with tears of rotator cuff

Bankart lesion (stripping of glenoid labrum & periosteum from the antero-inferior surface of the glenoid)


Normal
Bankart Lesion

Hill-sachs lesion

(depression on the humeral head in its posterolateral quadrant, caused by impingement by the anterior edge of the glenoid on the head as it dislocates)

Clinical features:

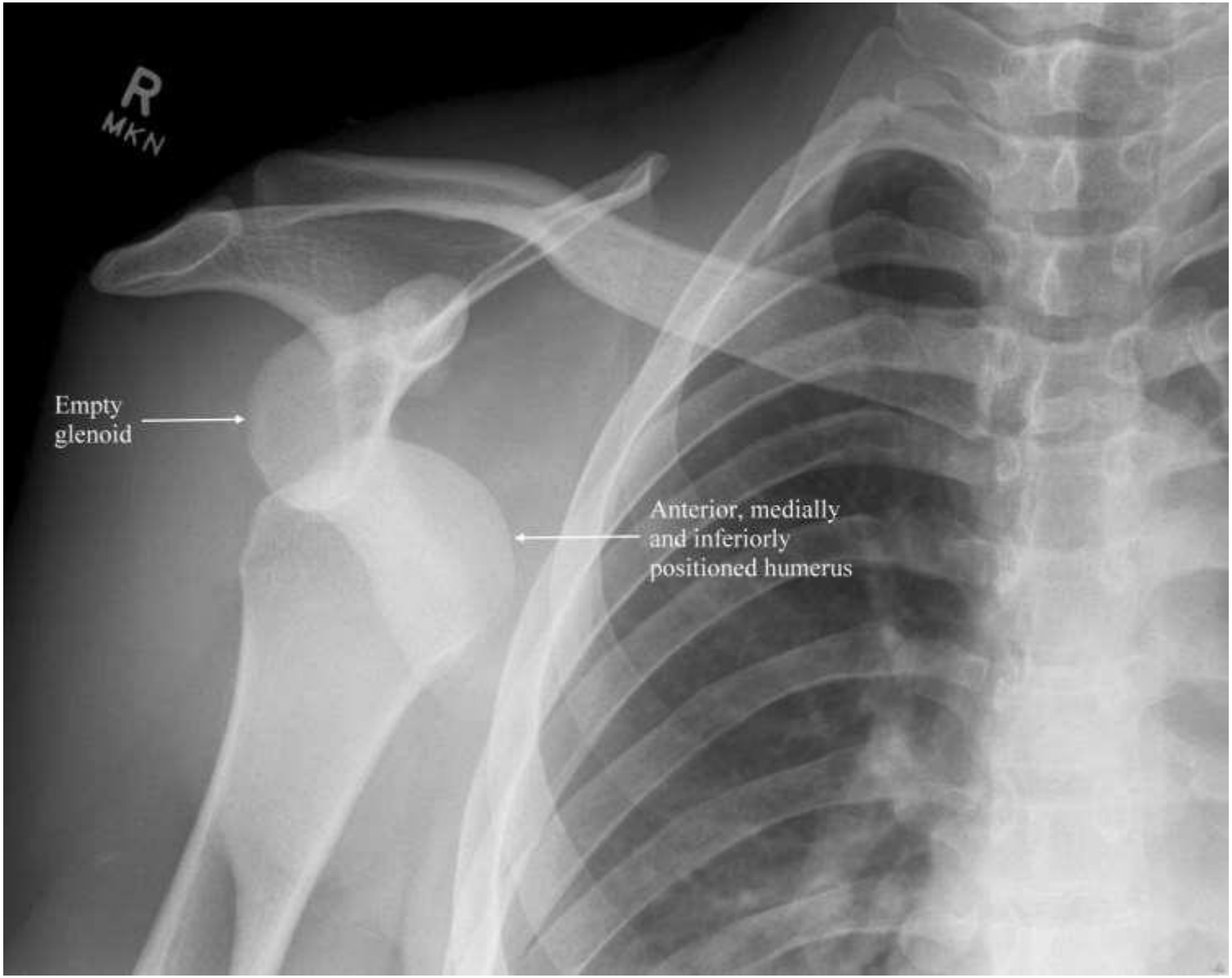
- History of the **shoulder "coming out"**, perhaps during a sporting event

- The 1st episode of acute dislocation: patient may be able to describe the mechanism precisely (ie: an applied force with the shoulder in abduction, external rotation and extension

Recurrent subluxation: symptoms and signs are less obvious

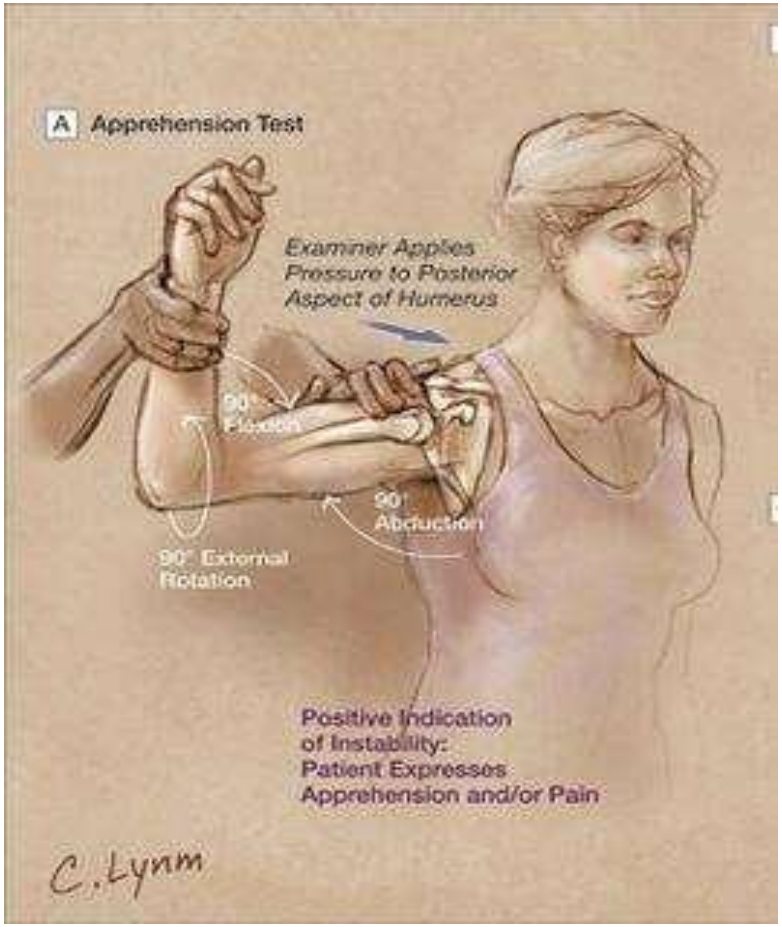
A catching sensation → numbness/weakness
("dead arm syndrome")

Whenever shoulder is used with the arm in the **overhead position**



R
MKN
Empty
glenoid
Anterior, medially
and inferiorly
positioned humerus

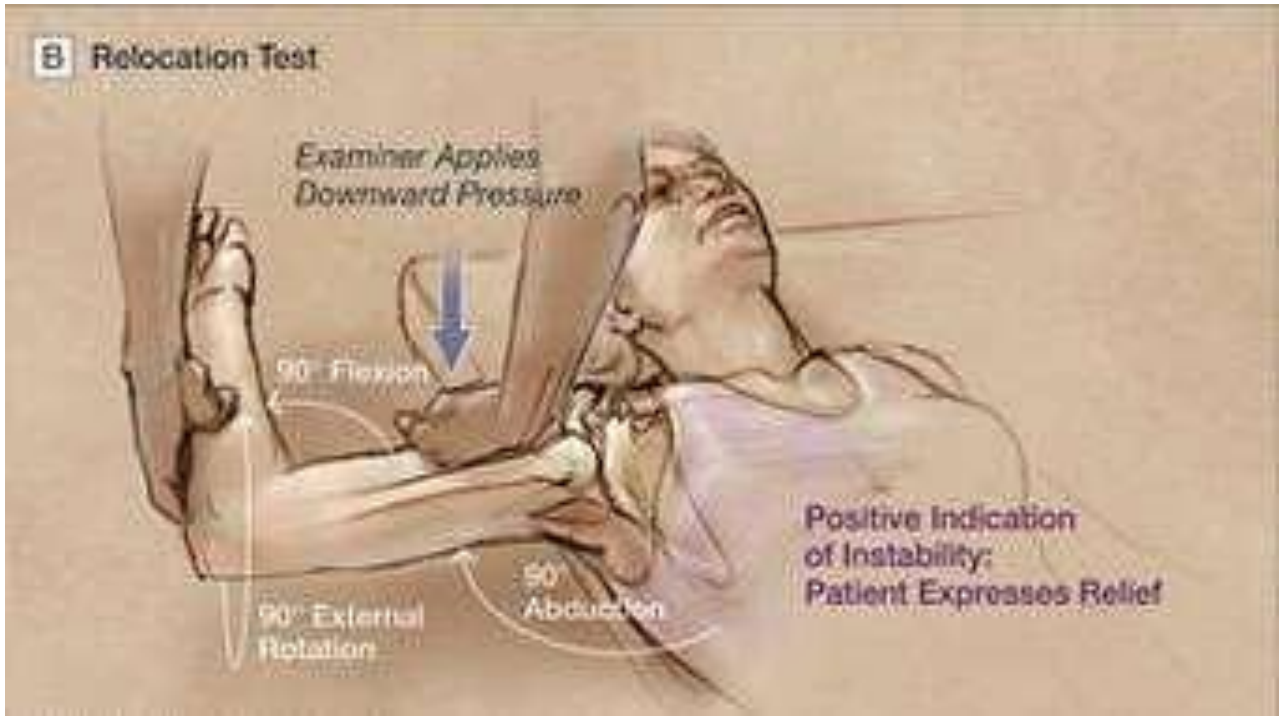
Clinical examination:

- Apprehension test



Patient senses that the humeral head is about to slip out anteriorly and his or her body tautens in apprehension

- Relocation test



Opposite to apprehension test

- Anterior drawer test

Investigations:

- Most cases ca be diagnosed from the **history and examination** alone

- Hill-Sach lesion (when it is best present) is best shown by an **AP X-ray** with shoulder internally rotated, or in axillary view

- **MRI or MR arthrography**: demonstration of bone lesions and labral tears

- **Arthroscopy:** to define labral tear

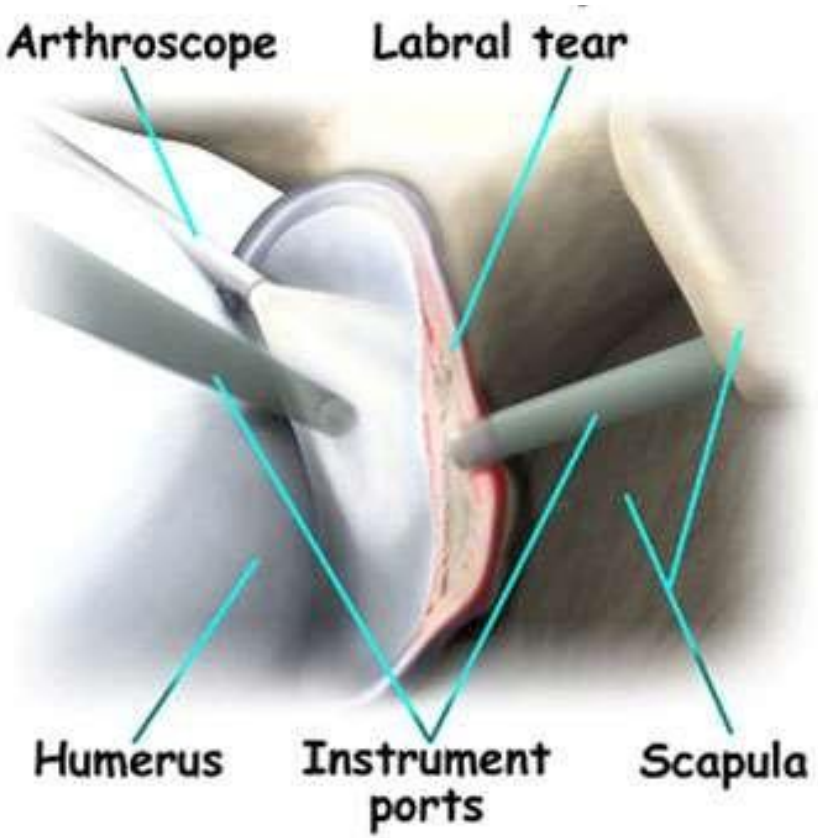
- **Examination under anesthesia:** to determine the direction of instability

Treatment:

- Indication for surgery:
  - Frequent dislocation
  - Recurrent subluxation
  - Fear of dislocation

- Two type operation are employed :
  - Anatomical repairs – **Bankart repairs**
  - Non Anatomical repairs – **Laterjet-Bristow procedure**

Bankart repair



Bankart repair

FIG. 1: SHOULDER LABRAL TEAR

FIG. 2: ANCHOR PLACEMENT

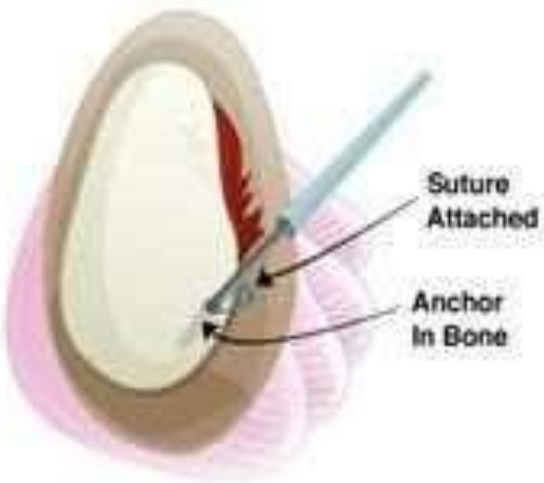
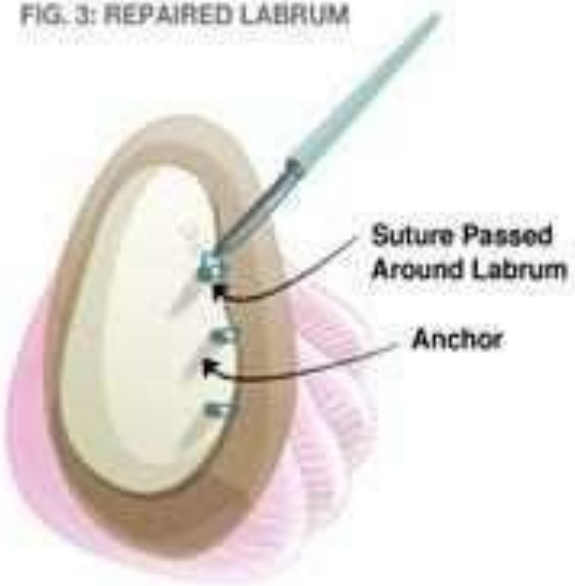


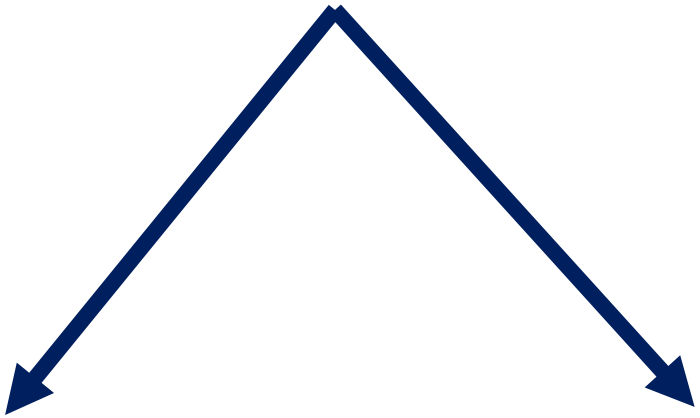
FIG. 3: REPAIRED LABRUM



Laterjet-Bristow procedure

Laterjet/Bristow Procedure
(Coracoid Transfer to anteroinferior Glenoid Rim

ATRAUMATIC OR MINIMALLY TRAUMATIC INSTABILITY



STRUCTURAL

NON-STRUCTURAL

ATRAUMATIC STRUCTURAL INSTABILITY

- Acquired multidirectional instability due to
  - Repetitive microtrauma
  - Forceful movement that lead to overall laxity

- Recognized problem in athletes, particularly swimmers and throwers

- They develop symptoms of instability due to overload and **fatigue in the stabilizing muscles** of the shoulder

- Dislocation may occur in **several different directions**

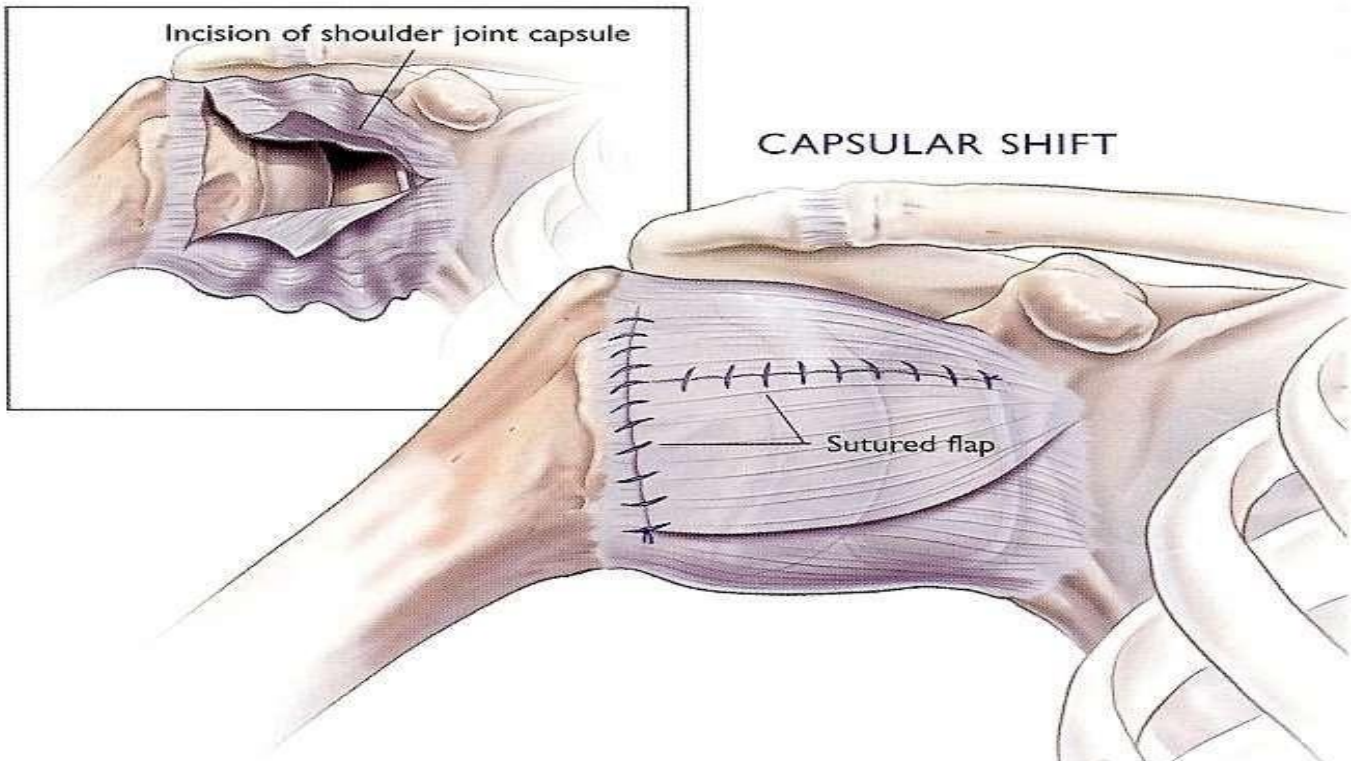
- Important to rule out the presence of any pathological conditions

Treatments :

- Rehabilitative measures (Physiotherapy)
  - Focus on strengthening the muscles that involved in stabilizing the shoulder
  - Aim at restoring muscular coordination and control

- Surgical treatment
  - Capsular shift

Capsular shift



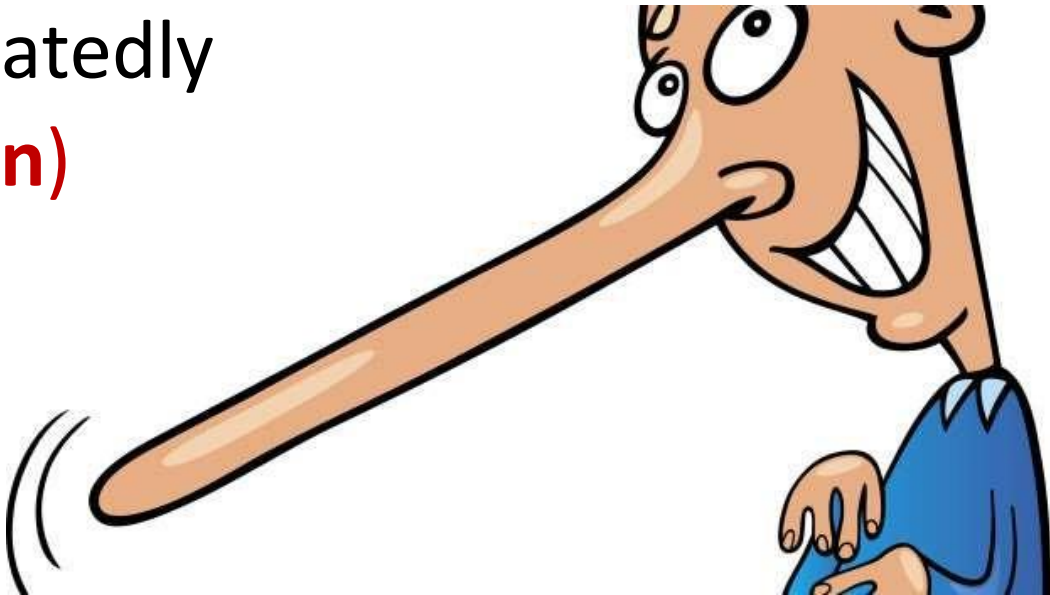
During a capsular shift procedure, the surgeon makes a flap in the shoulder joint capsule and then sutures the flap to tighten the joint.

ATRAUMATIC NON-STRUCTURAL INSTABILITY

- Instability of muscle pattern

- In younger patients who can voluntarily slip the shoulder out of joint as a **trick**, then it go on to dislocate repeatedly

  (habitual dislocation)



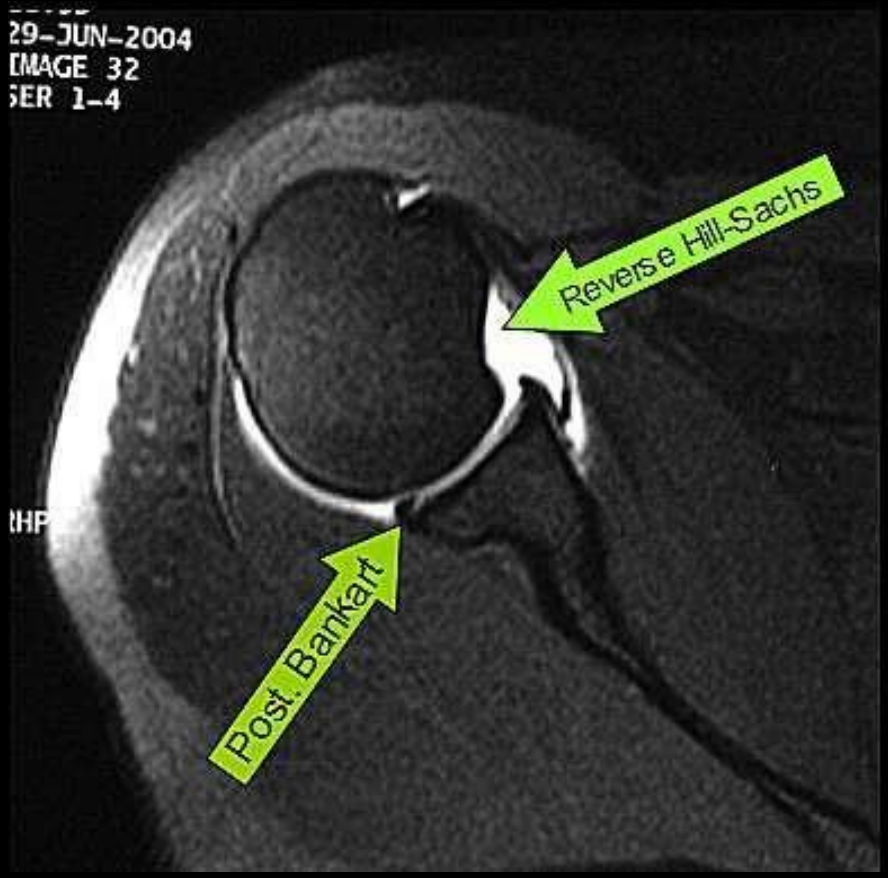
Treatment :

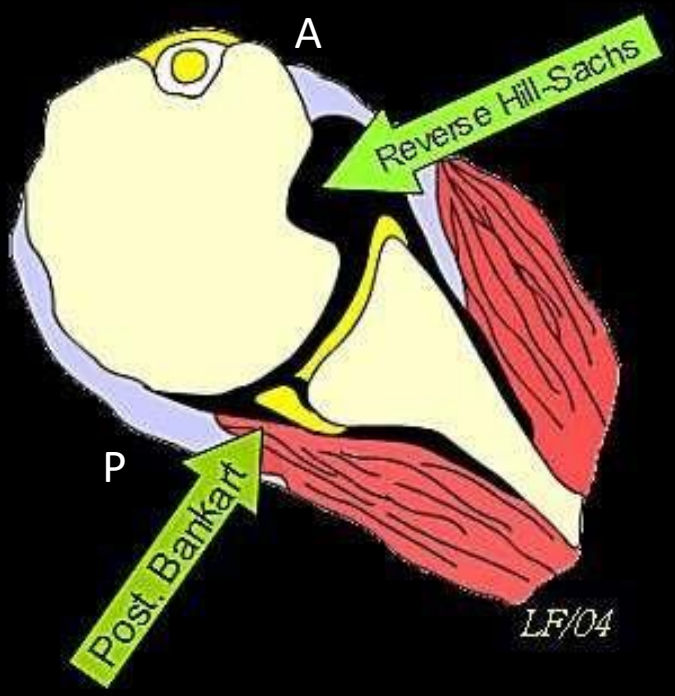
- Aim to regain normal neuromuscular control and patterning
- Rehabilitation programs
- Surgery need to be avoided if possible

POSTERIOR INSTABILITY

- Other name: *luxatio erecta*
- Humeral head riding back on the posterior lip of the glenoids
- Due to a **violent jerk in an unusual position** or following an **epileptic fit** or a **severe electric shock**

- Dislocation may be associated with:
  - Fractures of proximal humerus
  - Reverse Bankart’s lesion
  - Reverse Hill-Sach lesion


29-JUN-2004
IMAGE 32
SER 1-4
Reverse Hill-Sachs
Post. Bankart

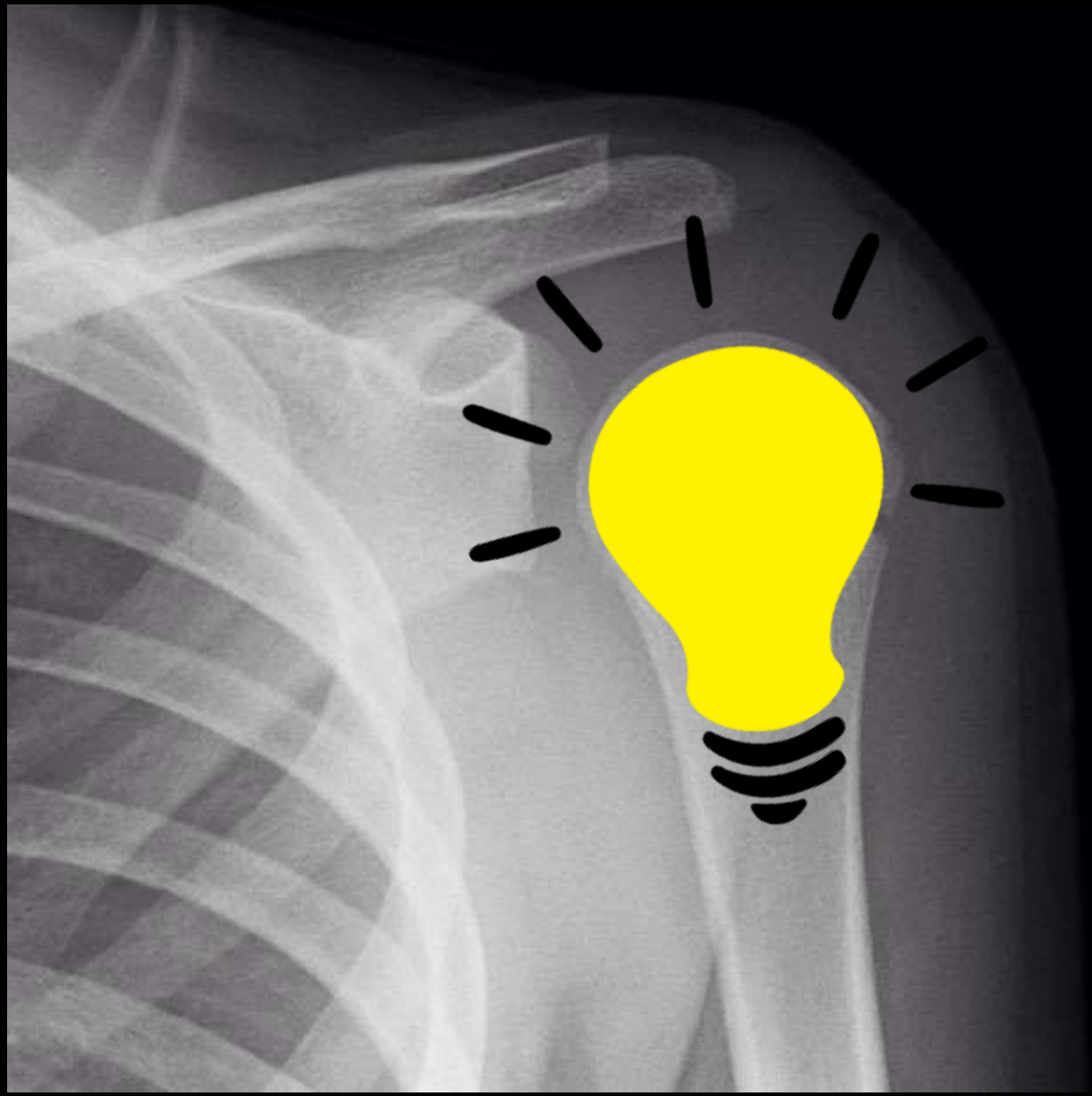

A
Reverse Hill-Sachs
P
Post. Bankart
LF/04

Humeral head looks globular

the so-called light bulb appearance

Humeral head looks globular

the so-called light bulb appearance



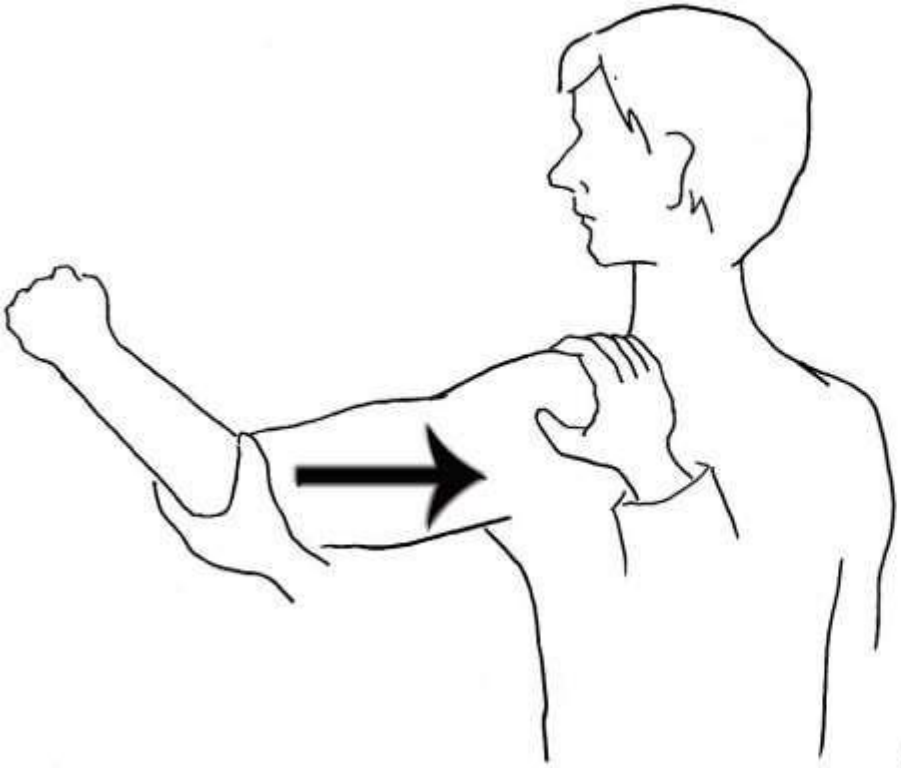
Examination:

- Posterior drawer test
- Jerk test

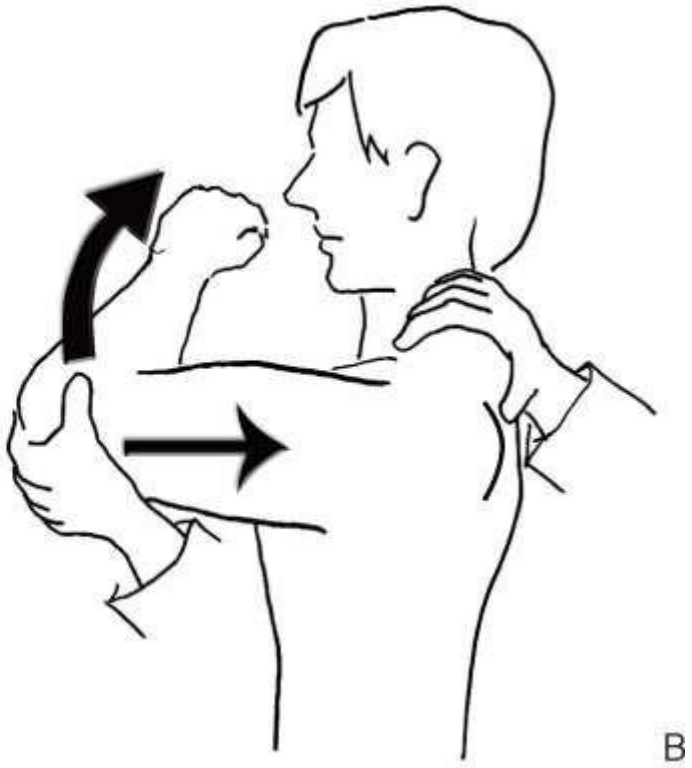
Posterior drawer test

Scapular spine and coracoid process in one hand,
Humeral head pushed backwards with the other

Jerk test



Stabilize the scapula with one hand, while the other hand holds the elbow with the arm in 90° abduction and internal rotation. Firm axial compression force is applied on the glenohumeral joint



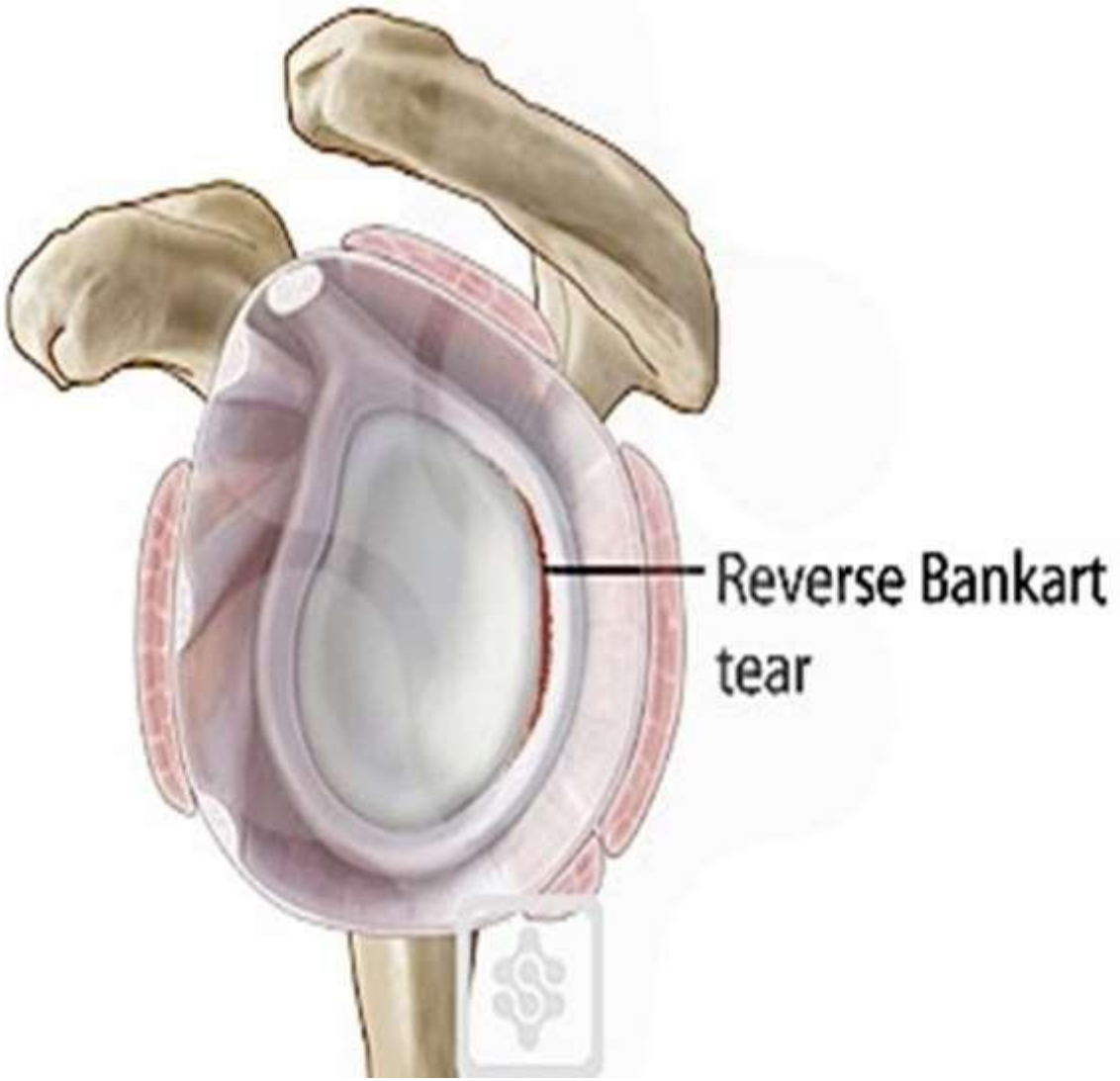
The arm is horizontally adducted while maintaining the firm axial load

Treatment :

- For posterior instability, the initial treatment should be **non-operative → physiotherapy**

- Surgery may be indicated
  - If at least 4-6month of an appropriate rehabilitation program has failed
  - dislocation has been ruled out
  - patient is emotionally stable and fit for surgery

- 'Reverse' Bankart procedure is done


Reverse Bankart
tear

INFERIOR INSTABILITY

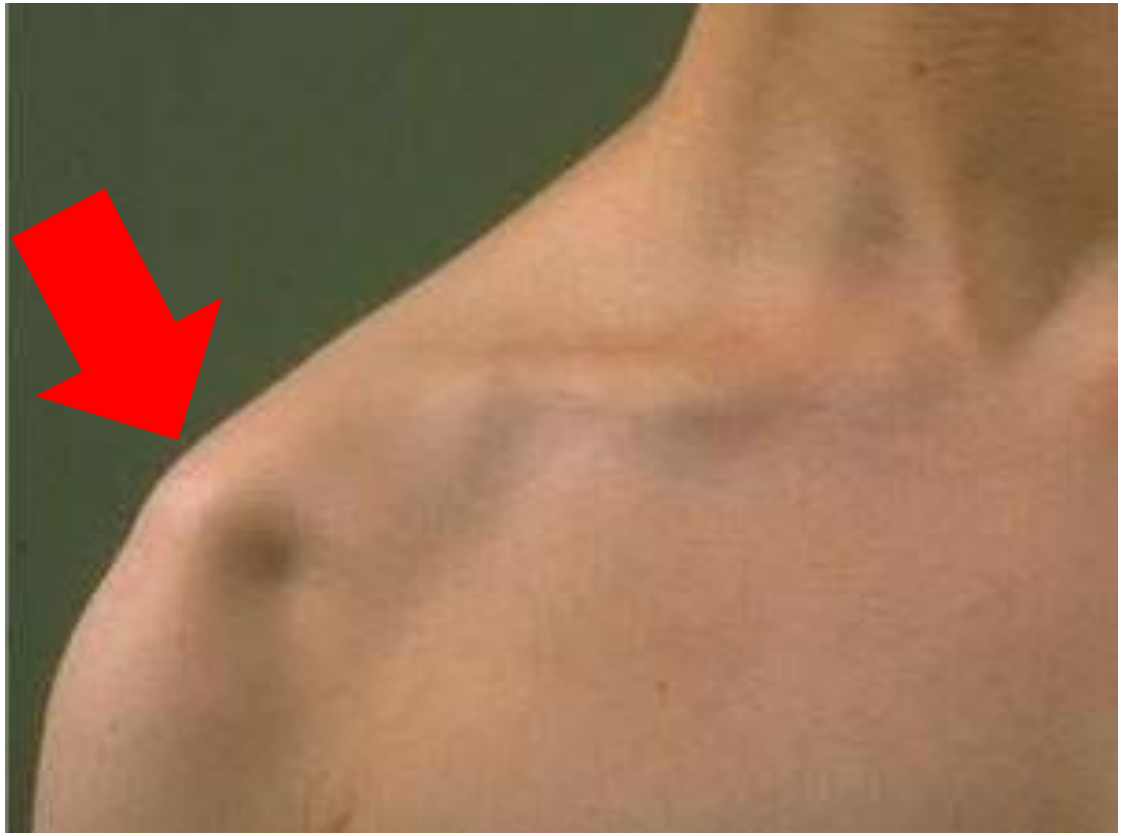
- Instability which occurs particularly when carrying something heavy with the arm
- Occur some weeks after injury to shoulder girdle
- Due to temporary weakness of the shoulder muscles, usually because of prolonged splintage of the arm and lack of exercise

- X-ray:
  - Head of humerus has subluxated inferiorly
  - Further views with patient carrying a 10kg weight, shows the head of humerus lying below the glenoid socket on the affected side

- Usually corrects by itself after a period of normal muscular activity, but physiotherapy will help to speed up the process

SULCUS TEST:

PATIENT STANDS WITH ARM BY THE SIDE AND SHOULDER MUSCLE RELAXED. THE EXAMINER GRASPS THE PATIENT'S FOREARM BELOW THE ELBOW AND PULLS THE ARM DISTALLY. THE PRESENCE OF SULCUS/INDENTATION INFERIOR TO ACROMIAN IS THE INDICATIVE.



MULTIDIRECTIONAL INSTABILITY

- The primary abnormality in multidirectional instability is a loose, redundant inferior pouch
- It is important to distinguish multidirectional instability from routine undirectional dislocation
- MDI can be define as **global** (anterior, posterior and inferior) or **at least two direction**

- Patient with MDI may have variety of symptoms including **pain**, **instability**, **weakness**, **paresthesia**, **fatigue** and **difficulty in throwing or lifting**

- The treatment for MDI is rehabilitation program that emphasizes the **strengthening of rotator cuff and scapular rotator**

- If rehabilitation fails to resolve patient symptoms most commonly **surgical procedure remains the inferior capsular shift**

CONCLUSION

1. Reduction

The shoulder should only be reduced, or put back into the socket by a trained professional in the medical field.

For most young adults who are less than 30 years old, reduction is the best course of action.

2. Immobilization

It should remain in a sling until the tissues are healed.

Rehabilitation is needed to get back the strength and mobility.

5 to 7 days or more.

NSAIDS (ibuprofen) can help to remove the inflammation and pain.

3. Exercises

To expand the range of motion.

Strengthen the muscles in rotator cuff so they are better able to support the shoulder and help to prevent another dislocation.

4. Surgery

Most surgical procedures are performed right after the dislocation if it has been determined there has been any damage to nerves, muscles, tendons or blood vessels.

If shoulder continues to become dislocated, need to have surgery to keep it stabilized.

5. Rehabilitation

Once the sling or splint is removed.

This will help to improve range of motion as well as the stability and strength to shoulder.

REFERENCES

- Apley's System of Orthopaedics and Fractures, 9th edition
- Campbell Operative Orthopaedics 10th edition, Volume Three
- Google images

Thank you.