

Shoulder Dislocations

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Introduction

Shoulder dislocations occurs in **1.7%** of the general population. Among all the joints in the body, the shoulder has the highest incidence of dislocation followed by the elbow. *Anterior shoulder dislocation* accounts for more than 90% of shoulder dislocations. In some patients, dislocations can become recurrent and would require frequent visits to the emergency room for relocation.



Figure 1 Xray of Shoulder Dislocation

Anatomy of the Shoulder

The shoulder joint is composed of the static and the dynamic stabilizers. The static stabilizers comprise the shoulder bony anatomy as well as the ligaments and capsule. The dynamic stabilizer are the muscles around the shoulder.

The static stabilizers are the following:

1. **Glenoid and the humeral head** - the glenoid and humeral head comprise the shoulder joint. Unlike the femoral head and the acetabulum which has a good ball and socket fit, the glenoid is a flat surface articulating with a ball - humeral head. This configuration has been likened to a golf ball and golf tee. This configuration makes the shoulder very mobile and accommodate extremes of motion but it also make is prone to instabililty.



Figure 2 - Golf and Tee

2. **Glenoid labrum** - the glenoid labrum is a tough tissue surrounding the glenoid. It function in deepening the shoulder joint by 50%. Pathology in the labrum has been found in shoulder dislocation.
3. **Glenohumeral Ligaments** - The glenohumeral ligaments are folds found on the shoulder capsule. They add to the stability of the shoulder depending on the position of the arm.
 - a. **Superior glenohumeral ligament-** provides restraint with the arm at the side
 - b. **Middle glenohumeral ligament** - provides restraint with arm at 45 degrees of abduction and external rotations
 - c. **Inferior glenohumeral ligament** - provides restraint with the arm at 90 degrees of abduction and external rotation. This is the main restraint to shoulder dislocation.

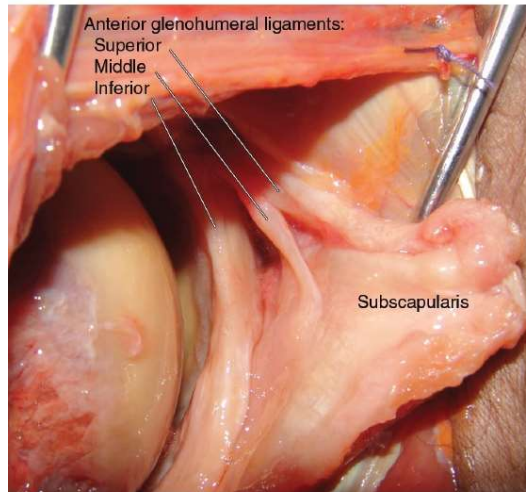


Figure 1 Glenohumeral ligament anatomy.

Figure 3 - Glenohumeral Ligaments

Shoulder Pathology with Dislocations

Shoulder instability results in identifiable damage inside the shoulder joint. It primarily affects the static stabilizers of the shoulder. These pathology include:

1. Anterior Inferior Labral tear (Bankart Lesion)

- The anterior inferior labral tear is the most common lesion seen with shoulder dislocations.
- It corresponds to the location of most dislocations (anterior and inferior).

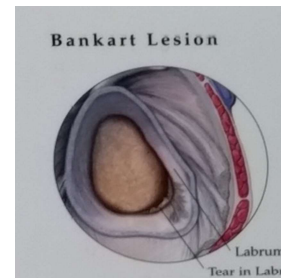


Figure 4 Bankart Lesion

2. Posterior Humeral Head Bone Loss (Hill Sachs Lesions)

- The Hill Sachs lesion is created when the posterior humeral head makes contact to the anterior glenoid. It creates a bone loss which prones the humeral head to further dislocations.

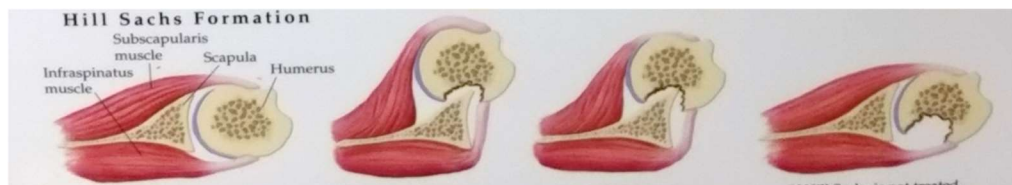


Figure 5 Hill Sachs Lesions

3. Anterior Glenoid Bone Loss

- Similar to the Hill Sachs Lesions, the anterior glenoid can have some bone loss when it has repetitive contact with the posterior humeral head.

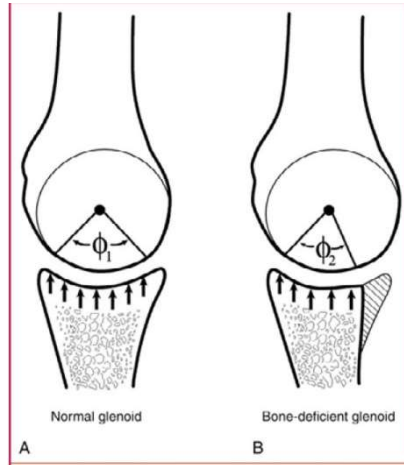


Figure 6 Glenoid bone deficiency

Physical Examination for Shoulder Instability

1. Apprehension test

- The patient is lying supine and the arm is placed in 90 degrees of abduction and external rotation. By moving the shoulder to more external rotation, it pushes the humeral head to dislocate anteriorly and causes an “apprehension” or feeling of giving way.

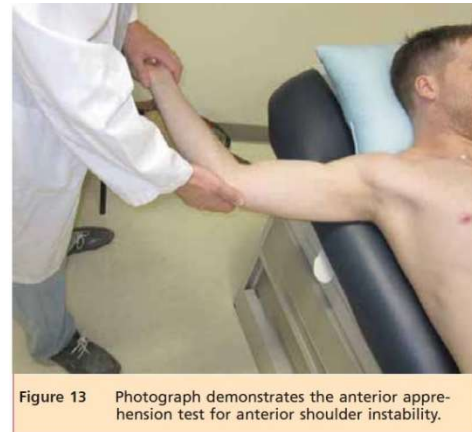


Figure 13 Photograph demonstrates the anterior apprehension test for anterior shoulder instability.

Figure 7 - Apprehension Test

2. Relocation test

- With the same position as the apprehension test (90 degrees abductions and ER), the examiner then pushes the humeral head backward to relocate the shoulder back into place. This maneuver eases the feeling of dislocation and the pain.



Figure 14 Photograph demonstrates the relocation test for anterior shoulder instability.

Figure 8 - Relocation test

3. Surprise Test

- After performing the Relocation test with the shoulder at 90 degrees abduction and ER, the examiner then removes their hand from the shoulder. This will move the shoulder back anteriorly and the patient will regain their feeling of instability. The patient will get a sudden feeling of dislocation, hence the “surprise”.



Figure 15 Photograph demonstrates the surprise test for anterior shoulder instability.

Figure 10 - Surprise Test

4. Sulcus Test

- This test is performed with the patient sitting and the examiner exerting a downward force on the elbow. The examiner will then look for an increase in the space between the acromion and the humeral head.
- The test is more of a test of ligamentous laxity and is positive for those with generalized ligamentous laxity.

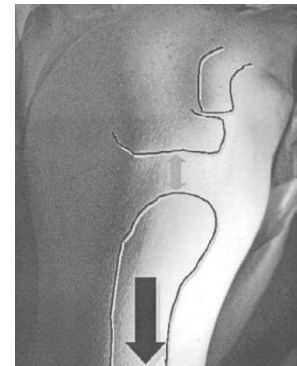


Figure 9 - Sulcus test

5. Beighton Score

- This scoring system is used to assess for generalized ligamentous laxity. A score of greater than or equal to 4 signifies generalized ligamentous laxity.

Specific joint laxity	YES		NO
1. Passive apposition of thumb to forearm	<input type="checkbox"/> Left	<input type="checkbox"/> Right	<input type="checkbox"/>
2. Passive hyperextension of V-MCP > 90°	<input type="checkbox"/> Left	<input type="checkbox"/> Right	<input type="checkbox"/>
3. Active hyperextension of elbow >10°	<input type="checkbox"/> Left	<input type="checkbox"/> Right	<input type="checkbox"/>
4. Active hyperextension of knee >10°	<input type="checkbox"/> Left	<input type="checkbox"/> Right	<input type="checkbox"/>
5. Ability to flex spine placing palms to floor without bending knees	<input type="checkbox"/>		<input type="checkbox"/>

*Each "YES" is 1 point. A score ≥ 4 out of 9 is generally considered an indication of JH. (MCP: metacarpophalangeal).



Figure 11 - Beighton Score

Diagnostics:

1. Plain xrays of the shoulder:

- Shoulder APL** – plain shoulder AP and lateral xrays are first line in detecting shoulder dislocation. The AP view will tell the superior or inferior direction of the dislocation. The lateral view will tell the anterior or posterior location of the humeral head.
- Stryker Notch view** – This view is taken with the patient supine and the hand on the head. This is designed to visualize **Hill Sachs lesions**.

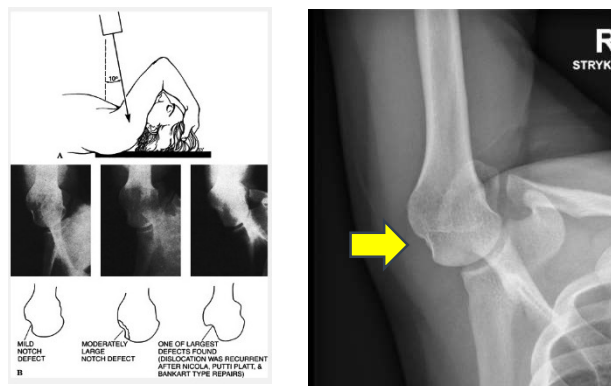


Figure 12 - Stryker Notch View

- **Westpoint view** – This view is taken with the patient supine and the xray directed caudally to the shoulder. This view best shows **Glenoid bone loss**.

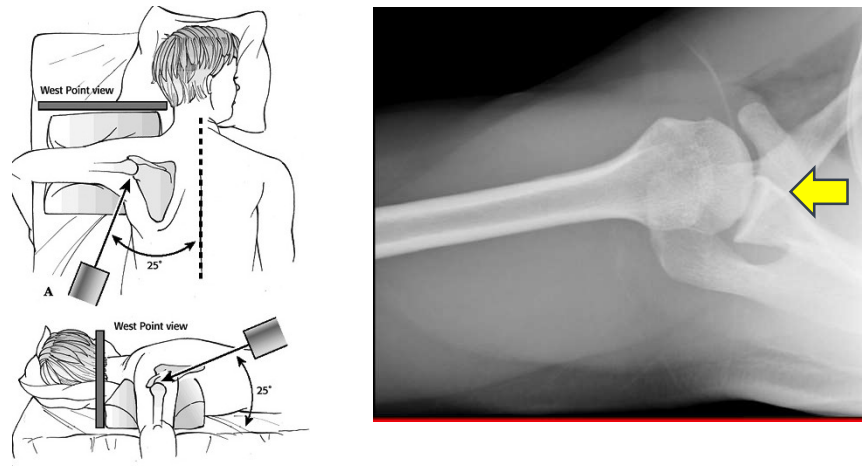


Figure 13 - Westpoint View

2. MRI of the shoulder:

- MRI is the modality of choice for Shoulder dislocation. It can visualize labral tears as well as bone defects on the humeral and glenoid area.

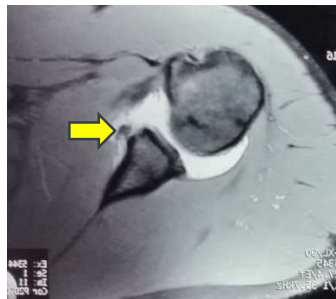


Figure 14 - MRI of Labral tear

Classification of Shoulder Instability

Shoulder Instability can be classified based on:

1. Direction

- Unidirectional – one direction
- Multidirectional – lose in all directions

2. Direction

- Anterior – most common type. It comprises more than 90% of dislocations.
- Posterior
- Inferior

3. Trauma

- a. Traumatic – most dislocations
- b. Atraumatic – associated with ligamentous laxity

Classification of Shoulder Instability by Matsen (Combination)

1. TUBS – **T**raumatic, **U**nidirectional, **B**ankart Lesions requiring **S**urgery
2. AMBRI: **A**traumatic, **M**ultidirectional, **B**ilateral shoulders, best treated with **R**ehab, surgery for failed rehab is **I**nferior capsular shift.

Treatment

1. Conservative Treatment

- Primary treatment for acute shoulder dislocation is immediate relocation.
- Relocation maneuver may be done using the traction and counter traction maneuver.



Figure 15 - Traction counter traction maneuver

- After relocation, patient are usually placed on an armsling for 2 to 4 weeks prior to starting Physical Therapy.

2. Operative Treatment

- It was found that the biggest predictor for recurrent dislocation is **Age**.
- The younger the patient is during their first dislocation, the more likely he or she will have a redislocation. These are the cited recurrence rates in literature:

Recurrence Rate

- Less than 20 – **90%**
- Younger than 22 – **66%**
- Age 23-29 years – **56%**
- Age 30-40 years - **20%**

Types of Operative treatment:

1. Open Bankart Repair
 - The gold standard of treatment of shoulder dislocation
 - Involves the repair of the anterior and inferior labrum back to the glenoid using sutures or suture anchors via an anterior shoulder approach.

2. Arthroscopic Bankart Repair
 - Fast becoming the procedure of choice for operative treatment of shoulder dislocation.
 - Arthroscopic aided repair of anterior inferior labrum using suture anchors.
 - Success rate is fast approaching that of the open bankart repair.

3. Latarjet Procedure
 - For instability caused by bony defects, the Latarjet procedure is the procedure of choice to treat shoulder instability.
 - It involves transfer of part of the coracoid to the anterior inferior glenoid defect to attain stability.
 - This procedure can also be used for Humeral head defects (Hill Sachs lesions).

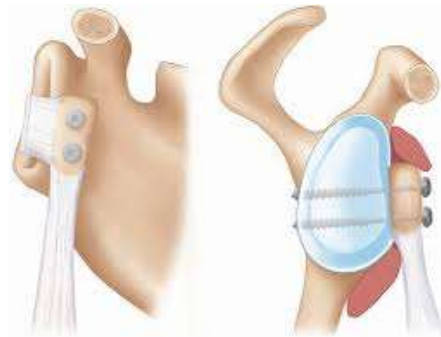


Figure 16 - Latarjet procedure

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