

# Classification of glenohumeral instability

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**Traumatic** : unidirectional; involuntary; surgery is usually successful.

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**Recurrent traumatic anterior instability**

History Traumatic shoulder dislocation is the commonest of all dislocations, usually first presenting in patients under 25. The shoulder usually dislocates anteroinferiorly and initially there is a notable traumatic event. Subsequent dislocations usually require less force. The shoulder may sublux and relocate, or actually dislocate (complete separation of the joint surfaces).

Examination Assuming that the patient presents with a history of instability following a previous anterior dislocation (after which the joint was reduced), examination of the shoulder reveals a full range of motion. However, with forced abduction and external rotation the patient experiences apprehension (a sense of impending doom as the patient feels the shoulder about to re-dislocate!) ( Figure 38.23 ).

Investigations On computed tomography (CT) or MR arthrography ( Figure 38.24 ) detachment of the anteroinferior labrum (Bankart's lesion) ( Figures 38.25 and 38.26 ) and damage to the humeral head (Hill-Sachs lesion) can often be seen. On CT without arthrography only the bone lesions will be seen, which can also include a marginal fracture of the anteroinferior glenoid margin (bony Bankart).

Arthur Sydney Blundell Bankart , 1879–1951, orthopaedic surgeon, The Middlesex Hospital, London, UK. Harold Arthur Hill , 1901–1973, radiologist, San Francisco, CA, USA. Maurice David Sachs , 1909–1987, radiologist, San Francisco, CA, USA.

Treatment The relative indications for surgery are repeated dislocations, or symptoms of instability that persist after reduction of the first dislocation, that are interfering with the patient's quality of life. Anterior instability can be treated with arthroscopic or open repair of the Bankart lesion with retensioning of the stretched anterior/inferior capsule, which prevents further dislocations in up to 90–95% of patients. Bony defects of the glenoid, and occasionally large Hill-Sachs lesions, may have to

Figure 38.23 Apprehension test for anterior instability. A B Figure 38.25 Schematic representation of Bankart's lesion, which forms a spectrum of pathology from minor labral detachment (B) to large detachments with glenoid rim fractures (bony Bankart; E). Bankart lesion (b) Posterior labral injury Figure 38.24 (a) Magnetic resonance (MR) arthrogram showing an anterior Bankart lesion. (b) MR arthrogram showing a posterior labral injury. C D E

be grafted. For the less common recurrent posterior instability, repair of the damaged labrum and tightening of the posterior capsule is needed. Posterior dislocation of the shoulder This is a relatively rare event and is easy to miss. The clue is often in the history, as the patient will often have had either an electric shock or an epileptic fit or been subject to severe restraint when their arm has been forced up their back

Recurrent traumatic shoulder instability

/uni25CF /uni25CF /uni25CF (a half-Nelson) – all are mechanisms producing forced internal rotation of the glenohumeral joint. The patient may be in severe pain but can be difficult to examine properly if they are post-ictal or are recovering from an electric shock. For the same reason, the radiographer may only be able to get an anteroposterior view of the shoulder; on this view, the shoulder may look normal to the unwary (Figure 38.27). It is the high 'index of suspicion' from the history that gives the best chance of making the diagnosis. Treatment This dislocation may be difficult to reduce if the posterior margin of the glenoid is embedded in the humeral head (a 'locked' posterior dislocation), so that open reduction is needed. A number of techniques are available, such as gently abducting the internally rotated arm above shoulder height while maintaining axial traction then externally rotating the arm before returning it down to the side – the reduced shoulder

Figure 38.26 An end-on view of the glenoid labrum, demonstrating anteroinferior labral detachment (red) with the rotator cuff muscles (brown), long head of biceps tendon and labrum (grey). (b) (a) (c) (d) An appreciable force leads to the first dislocation or subluxation Subsequent dislocations/subluxations require less force The commonest direction of dislocation is anteroinferior There is a positive apprehension sign Surgical treatment repairs the labral lesion and reverses traumatic laxity of the capsule Figure 38.27 Posterior dislocation of the shoulder. (a) Anteroposterior view; (b) origin of the light bulb sign; /uni00A0 (c) axial projection demonstrating how much easier it is to visualise the injury on this view; (d) axial projection highlighting this joint and further demonstrating the impacted fracture in the humeral head, or anterior Hill-Sachs lesion.

should then be placed in an external rotation brace to allow the stretched and torn posterior structures an opportunity to heal. Atraumatic instability History There is usually no history of an initial injury. Instability may be multidirectional and is usually associated with subluxation rather than dislocation. The patient is often able to reduce the shoulder without assistance. Examination Generalised ligament laxity is common (see Beighton score in Chapter 35). Apprehension tests are positive, but often in more than one direction. Anterior and posterior drawing of the humeral head allows laxity to be tested in these directions, whereas downward traction on the humerus may produce a 'sulcus sign' as the deltoid is sucked into the space created by inferior subluxation of the humeral head (Figure 38.28 Overactivity of muscle groups such as pectoralis major should be sought, as this gives an avenue of treatment through rehabilitation. Treatment Specialist physiotherapy should be tried first in these patients, aiming to improve both the proprioception and firing patterns of the muscles around the shoulder (for instance, biofeedback to control an overactive pectoralis major or strengthening of underactive muscle groups). If this fails then surgery may be considered, by way of capsular tightening. Habitual dislocation Habitual dislocators are patients who can sublux the shoulder at will, usually either anteroinferiorly or posteriorly. The manoeuvre is painless. Patients have generalised joint laxity and may subluxate the shoulder as a 'party trick'. which may then allow the capsule to tighten naturally with age. They may benefit from assessment and advice from a specialist physiotherapist. Surgery is associated with a high failure rate and should be avoided.

Figure 38.28 Generalised laxity can be appreciated by drawing the humeral head in anterior and posterior directions and feeling it slide up to, and possibly even over, the glenoid rim. A sulcus will be produced under the acromion if the humerus is drawn inferiorly (sulcus sign).

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**History** Traumatic shoulder dislocation is the commonest of all dislocations, usually first presenting in patients under 25. The shoulder usually dislocates anteroinferiorly and initially there is a notable traumatic event. Subsequent dislocations usually require less force. The shoulder may sublux and relocate, or actually dislocate (complete separation of the joint surfaces).

**Examination** Assuming that the patient presents with a history of instability following a previous anterior dislocation (after which the joint was reduced), examination of the shoulder reveals a full range of motion. However, with forced abduction and external rotation the patient experiences apprehension (a sense of impending doom as the patient feels the shoulder about to re-dislocate!) ( Figure 38.23 ).

**Investigations** On computed tomography (CT) or MR arthrography ( Figure 38.24 ) detachment of the anteroinferior labrum (Bankart's lesion) ( Figures 38.25 and 38.26 ) and damage to the humeral head (Hill-Sachs lesion) can often be seen. On CT without arthrography only the bone lesions will be seen, which can also include a marginal fracture of the anteroinferior glenoid margin (bony Bankart). Arthur Sydney Blundell Bankart, 1879–1951, orthopaedic surgeon, The Middlesex Hospital, London, UK. Harold Arthur Hill, 1901–1973, radiologist, San Francisco, CA, USA. Maurice David Sachs, 1909–1987, radiologist, San Francisco, CA, USA.

**Treatment** The relative indications for surgery are repeated dislocations, or symptoms of instability that persist after reduction of the first dislocation, that are interfering with the patient's quality of life. Anterior instability can be treated with arthroscopic or open repair of the Bankart lesion with retensioning of the stretched anterior/inferior capsule, which prevents further dislocations in up to 90–95% of patients. Bony defects of the glenoid, and occasionally large Hill-Sachs lesions, may have to

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**Posterior dislocation of the shoulder** This is a relatively rare event and is easy to miss. The clue is often in the history, as the patient will often have had either an electric shock or an epileptic fit or been subject to severe restraint when their arm has been forced up their back

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**Treatment** This dislocation may be difficult to reduce if the posterior margin of the glenoid is embedded in the humeral head (a 'locked' posterior dislocation), so that open reduction is needed. A number of techniques are available, such as gently abducting the internally rotated arm above shoulder height while maintaining axial

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Revision #1

Created 2025-12-31 15:15:29 UTC by Omar Ayman

Updated 2025-12-31 15:15:29 UTC by Omar Ayman