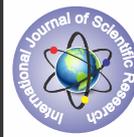


## Recurrent anterior dislocation of shoulder : Imaging in a series of young Indian patients


**RADIOLOGY**
**KEYWORDS:**
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**ABSTRACT**

Recurrent anterior dislocation of shoulder is a rarely encountered condition characterized by shoulder pain and movement restriction. In patients in whom conservative measures have failed, more invasive interventions such as arthroscopic repair can be very effective in relieving symptoms and improving range of movement. Radiological imaging plays an important role in these conditions. We present four cases referred to our institution where the diagnosis of recurrent anterior shoulder made, confirmed and managed by arthroscopic surgery. These cases highlight the importance of careful review of the radiology and the need for reconsideration of the diagnosis in case of recurrent shoulder dislocation.

**Introduction :**

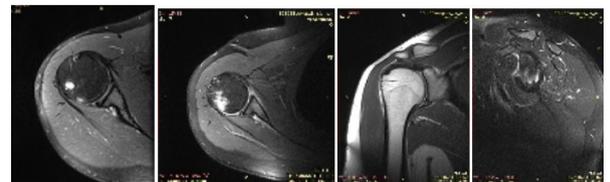
The unique property of the shoulder joint is its stability which is due to its joint tendon ligament and cartilage. The shoulder joint has the greatest range of motion of any major articulation in the human body. The trade-off for this mobility is vulnerability to injury and the development of shoulder instability. Dynamic stabilizers of the joint, including the cuff muscles, are insufficient to maintain normal glenohumeral location and function (1). Joint stability also depends on the passive constraints provided by intact static structures, especially the glenoid rim, glenoid labrum, and glenohumeral ligaments. Radiography of the shoulder is an inexpensive and is readily available technique. It should be performed as the initial imaging investigation in patients presenting with a clinical problem related to the shoulder. It can be AP X ML X CC view, axial view or Y view. It complements the other advanced techniques and provides an overview of the bony components of the shoulder joint. In some patients, radiography obviates further imaging. The vast majority of unstable shoulders demonstrate characteristic abnormalities of the labral-ligamentous complex on magnetic resonance (MR) images (2). MR arthrography is also a commonly used technique to assess labral tears in patients with recurrent shoulder dislocation. Although recurrent shoulder dislocation is known to be due to capsular laxity, no one has yet found an objective method with which to evaluate the abnormality by a clinical test or imaging. Examination with the patient under anesthesia is usually used as the standard for determining instability. The arthroscopic guided repair is the present day method of choice in such patients(9).

**Case Reports**
**Case 1**

A 34 year old man presented to the orthopaedician for right shoulder pain and restricted motion following a basket ball match. He was diagnosed anterior shoulder dislocation and reduced but again had recurrent episodes of the same. On the radiological imaging (Fig1) radiograph AP view shoulder appears normal. The Axial NCCT shoulder shows a broken bony fragment at the antero-inferior aspect of the glenoid suggests bony Bankart lesions, other section shows a depression at the posterosuperior aspect of the head of humerus suggestive of Hill Sachs lesion, the coronal CT shows and the 3d Recon image shows the bony Bankart, STIR MRI axial shows a Hills Sachs and Bankart lesion. The patient managed arthroscopically with confirmation of above findings.


**Figure 1**
**Case 2**

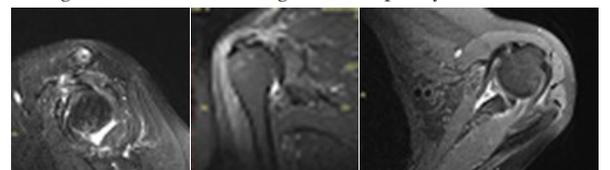
A 24 year old man presented to the doctor for recurrent dislocation of right shoulder following a road traffic accident. On the radiological imaging (Fig2 a) STIR MRI axial shows an area of hyperintensity suggestive of edema with flattening of the postero-superior aspect of head of humerus suggestive of Hills Sachs. The glenoid labrum is normal. This finding was also missed on the conventional radiograph. Managed arthroscopically and confirmed the findings.



(a) (b) (c) (d)

**Figure 2**
**Case 3**

A 32 year old man presented to the orthopaedician for recurrent dislocation of right shoulder following a slip during football match. On the radiological imaging (Fig2b) STIR MRI axial shows an area of hyperintensity suggestive of edema with flattening of the posterior superior aspect of head of humerus suggestive of Hills Sachs along with hyperintense at the antero-inferior aspect of the glenoid labrum suggestive of soft tissue Bankart lesion. The T1 Coronal images (Fig 2c) show the antero-inferior glenoid hyperintensity and the sagittal STIR MRI (Fig 2d) shows the same suggestive of soft tissue Bankart. These findings were also missed on the conventional radiograph. Managed and confirmed findings arthroscopically.



(a) (b) (c)

**Figure 3**
**Case 4**

A 27 year old female presented to the orthopaedician for recurrent dislocation of left shoulder following a slip during washing clothes. On the radiological imaging (Fig 3 a, b and c) STIR MRI (a: sagittal, b: coronal, c: axial) shows an area of hyperintensity suggestive of edema at antero-inferior aspect of the glenoid suggestive of soft tissue Bankart, with flattening of the posterior superior aspect of head of humerus suggestive of Hills Sachs. There is also edema at the

supraspinatous and subscapularis myotendinous junction seen in the form of hyperintense foci at these muscles. Managed and confirmed the findings arthroscopically.

### Discussion

Shoulder dislocation is a clinically important entity. The recurrent dislocation of the shoulder with radiologically proven signs suggests surgical intervention. Glenohumeral instability encompasses a broad spectrum of clinical complaints and presentations. The diagnosis can be obvious to the referring physician, but often it is unsuspected. Most unstable shoulders have never dislocated (3). Radiologists should also keep in mind that the history of one-time dislocation is not the equivalent of shoulder instability (3). Hill-Sachs fracture is an imaging marker of dislocation but should not be interpreted as a sign of instability without other supporting abnormalities (10). Imaging findings depend on the clinical scenario: acute first-time shoulder dislocation, chronic instability with repeated dislocation, or chronic instability without repeated dislocation. Imaging abnormalities that occur in the acutely traumatized shoulder are substantially different from those that typify the chronic unstable joint. The goal of imaging depends on the clinical scenario. Image interpretation and reporting may need to emphasize the identification of lesions for diagnosis, or the characterization of lesions for treatment planning. Therefore, the decision to use CT, CT arthrography, MR, or MR arthrography also depends on the clinical scenario and goal of imaging. The radiography also plays an important role in diagnosing the shoulder dislocation however the general condition of the patient is equally important for the compliance. It has been found that in painful or dislocated shoulder conditions it is not easy to acquire the ideal radiography. Similarly soft tissue involvement is better seen in MRI however bony lesions are better appreciated on CT. This study also elaborate that recurrent dislocation of shoulder is more common in the right side due to more use of the limb, similarly more common in male patients due to more outdoor activities. The muscle tear is also more common in the myotendinous junction of the muscles of the rotator cuff.

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