Inner Spaces
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Points

- Patients with instability, recurrent anterior dislocation and suspected SLAP tears need an MRI study for evaluation of the capsule, labrum and ligaments.
- Plain MRI has a significantly low sensitivity for identification of labral and capsular pathologies
- MR-arthro after injection of gadolinium into the gleno-humeral joint is the gold standard for the evaluation of labral and capsular lesions.

MRI Arthrography Shoulder (MR-Arthro)

MRI of the shoulder is now an accepted method of investigation for multiple conditions including rotator cuff tears, impingement, infection and tumors.

However, in the presence of instability, and specifically capsular and labral lesions, plain MRI of the shoulder has reduced accuracy. In this situation, if we distend the joint with fluid and then perform an MRI, we can increase the accuracy of MRI in the shoulder significantly. This procedure is called an MRI arthrogram (MR-arthro).

In an MRI arthrogram, the following steps occur

1. Under fluoroscopy, a combination of saline, iodinated contrast media and gadolinium is injected into the gleno-humeral joint
2. Within 30-45 minutes, the patient undergoes an MRI targeted to the capsule and labral structures, using specific sequences.

The gadolinium and saline distend the joint allowing exquisite visualization of the capsule and labrum. Since gadolinium is white, it outlines various structures very well (Fig. 1).

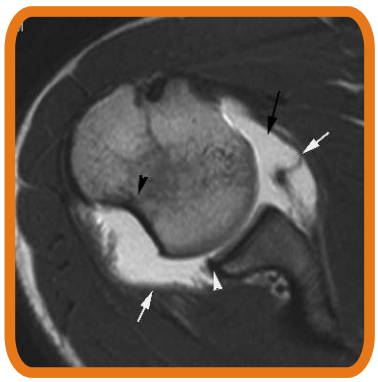

Fig. 1

Fig. 1: MR-arthro in the axial plane shows a well-distended joint, filled with hyperintense gadolinium and saline (arrow). Note the Hill-Sach's lesion (arrowhead) in this patient with recurrent anterior dislocation. The capsular structures (white arrows) and labrum (white arrowheads) are very well delineated.

Fig. 2A

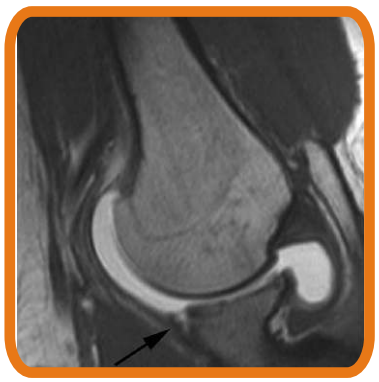

Fig. 2B

Fig. 2 (A, B): Recurrent anterior dislocation. MR-arthro in the axial plane (A) shows an ALPSA lesion (anterior labro-ligamentous periosteal sleeve avulsion) with displacement of the labrum (white arrow). MR-arthro (B) in abduction and external rotation (ABER view) shows a mildly displaced labral tear (arrow) with an intact periosteum. This is typical of a Perthe lesion. Both these are Bankart subtypes.

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Indications:

1.Recurrent anterior dislocation of the shoulder (RAD)

In RAD patients, MR-arthro allows accurate characterization of the various types of labral tears and the extent of ligamentous injury (Fig. 2)

2.Instability

In patients with instability, MR-arthro allows us to look at the extent of capsular pathology (Fig. 3)

3.Suspected SLAP (superior labrum anterior posterior) lesions

SLAP injuries are now becoming increasingly common as more and more people take to gymming and other sports activities. SLAP tears are best appreciated on MR-arthro (Fig. 4)

When faced with patients who have any signs and symptoms suggestive of instability of a possible SLAP tear, it would be best to perform an MR-arthro directly, rather than as a 2-step procedure. There is adequate data in literature which supports this - upto 50% of labral and SLAP tears are missed on plain MRI as compared to MR-arthro.

Fig. 3

Fig. 3: Multi-directional instability. This patient with a history of trauma came with evidence of multi-directional instability. MR-arthro in the axial plane shows a tear of the posterior capsule (arrow) with evidence of injury to the anterior labrum, seen as a shaggy, irregular structure (arrowhead).

Fig. 4

Fig. 4: SLAP lesion. MR-arthro in the coronal plane shows a bucket-handle tear of the superior labrum (arrow). This tear was seen from anterior to posterior, hence the name SLAP (superior labrum anterior posterior).

Designed by

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