Original Research Article

Assessment of the rotator cuff on MRI focussed on supraspinatus tendon

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Abstract

Background: Shoulder pain is the third most common musculo-skeletal complaint after low back pain and knee pain. The most common cause of shoulder pain is rotator cuff disease. For the evaluation of shoulder joint, MRI is the modality of choice and is considered over USG. MR imaging is the global assessment of all shoulder structures.

Materials and methods: A prospective study of 65 patients were conducted, who were referred to the Department of Radiodiagnosis, Dhiraj General Hospital with shoulder pain. All the scans were done on Philps MR systems Achieva 1.5 tesla. T1 and T2 weighted images in the sagittal, coronal, axial planes were obtained in each patient.

Results: In a retrospective review, 50 patients referred to our institution for diagnostic workup for shoulder complaints from June 2016 to December 2016. Out of these, only 7 had no visible pathology. Rotator cuff tendinopathy accounts maximum in which supraspinatus tendinopathy was found in 60% cases (26 patients), subscapularis tendinopathy were in 10% (4 patients), infraspinatus tendinopathy and rotator cuff tendinopathy was not found in any patient. Rest of the pathologies included soft tissue pathology, subacromial-subdeltoid bursitis.

Conclusion: MRI provides elaborate diagnosis thus it replaces other investigations. Thus MR imaging is the standard among the imaging methods for optimal depiction of almost all shoulder pathology.

Key words

MRI, Supraspinatus tendon, Rotator cuff.

Introduction

Pain around the shoulder with or without reduced range of motion is commonly referred to the radiologist for evaluation. Clinical examination and plain radiographic assessment help in providing proper choice of subsequent investigation modality. MRI because of its excellent soft tissue contrast, imaging has replaced all other tests and considered as screening modality of investigation. It has replaced all other tests and considered as screening modality of choice in evaluation of shoulder problems [1-4].

Aim and objectives

- To identify the common pathologies of the shoulder joint.
- To study the anatomy of the shoulder joint.

Materials and methods

A retrospective study of 50 patients was conducted, who were referred to the Department of Radiodiagnosis, Dhiraj General Hospital with shoulder pain, from July 2016 to December 2016. All the scans were done on Philps MR systems Achieva 1.5 tesla. T1 and T2 weighted images in the sagittal, coronal, axial planes were obtained in each patient (**Photo – 1 to 4**).

Photo – 1: T2 weighted fat supressed coronal image. Partial thickness tear of the supraspinatus tendon at the articular surface.

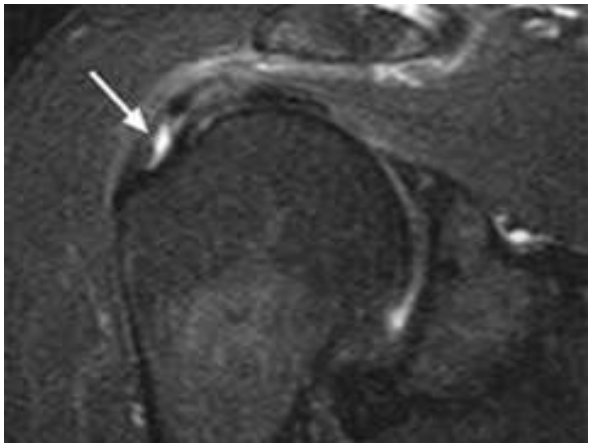


Photo – 2: T2 weighted fat supressed coronal image. Interstitial type of partial tear of the supraspinatus tendon.

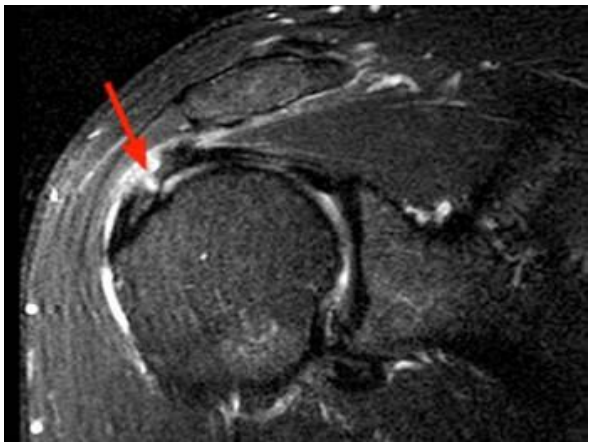


Photo – 3: T2 fat supressed coronal image. Supraspinatus tendinosis.

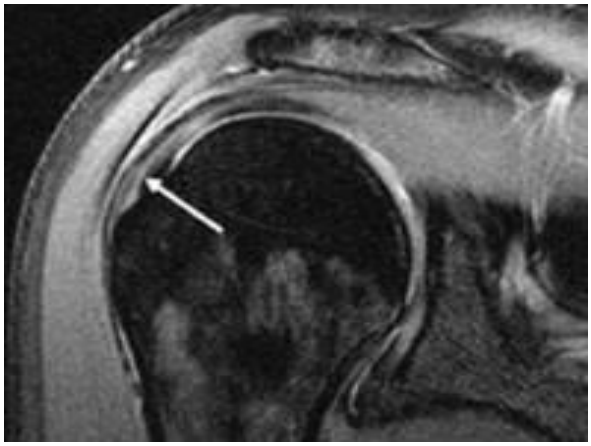
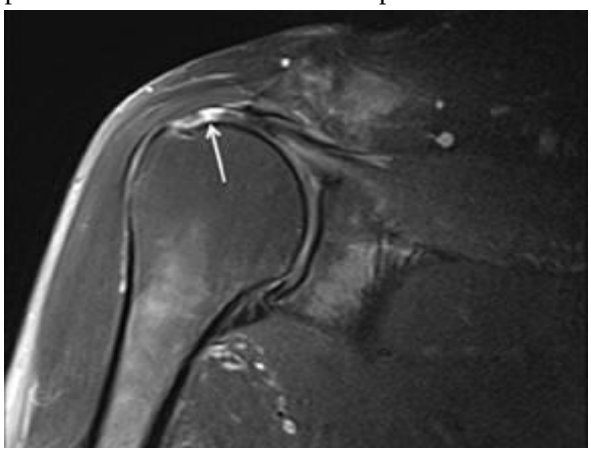


Photo – 4: T2 weighted coronal image. Showing partial thickness tear of the biceps tendon.



Results

In my study, supraspinatus tendinopathy was found in 60% cases (26 patients), subscapularis

tendinopathy were in 10% (4 patients). Rest of the pathologies included biceps tendinopathy, soft tissue pathology, subacromial-subdeltoid bursitis (30%). The peak incidence of pathology was found in individuals above the age group of 50 years which accounted for 70% of total cases (30 patients) as per **Table - 1**.

Discussion

Rotator cuff tears are one of the most common causes of shoulder pain mostly in older patients. Prevelence of tear increases with age. Supraspinatus tendinopathy is the most common pathology of the rotator cuff. The tendon of supraspinatus commonly impinges under the acromion as it passes between the acromion and the humeral head. This mechanism is multifactorial.

Important causes of rotator cuff tear include:

- Trauma(acute or chronic repititive)
- Subacromial impingement
- Tendon degeneration
- Hypovascularity.

Table – 1: MRI rotator cuff findings.

Diagnosis	**No. of patient**	**%**
Supraspinatus tear	10	23%
Supraspinatus tendinosis	16	37%
Supscapularis tear/ tendinosis	4	10%
Infraspinatus tear/ tendinosis	NIL	NIL
Biceps tendinosis tear/ tendinosis	5	11%
Joint effusion	10	23%
Subacromian-Subdeltoid bursitis	2	4%
Synovial thickening	NIL	NIL
Myositis	NIL	NIL

Conclusion

MRI of the shoulder joint has achieved wide acceptance as an imaging technique. This was initially due to sensitivity and specificity of MRI for the detection of rotator cuff pathologies. Supraspinatus tendinopathy is the most common pathology involving the rotator cuff. It is a common and disabling condition that becomes more prevalent after middle age and is a more common cause of pain in the shoulder.

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