



79th



International
Scientific
Conference of
the University
of Latvia

Comparison of magnetic resonance imaging and arthroscopy in the evaluation of shoulder pathology in patients with chronic shoulder pain

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• Background

Most frequently, chronic shoulder pain is caused by impingement syndrome, however, patients often develop various types of joint component damage. Magnetic resonance imaging (MRI) is the most accurate non-invasive radiological examination method, nevertheless, mistakes sometimes occur while using it.

• Aim

To find out the sensitivity and specificity of MRI in diagnostics of shoulder joint pathologies, comparing it to the arthroscopy finding.

• Methods

- 50 patients aged 22–73 years,
- shoulder joint pain for at least 6 month
- MRI and the arthroscopy findings were compared.
- True positive (TP), true negative (TN), false positive (FP) and false negative (FN) values, sensitivity and specificity were calculated.

Results

- 66% out of 50 patients (n=33) were male and 34% (n=17) female.
- The average age was 47.1 ±10.9 years.

Table. Sensitivity and specificity of MR in diagnostics of most common pathologies.

Pathology	TP	TN	FP	FN	Sensitivity	Specificity
Subacromial bursitis	47	3	0	0	1	1
AC joint osteoarthritis	46	3	1	0	1	0,75
Labral tear	10	27	2	11	0,48	0,93
Rotator cuff tear	15	30	1	4	0,79	0,97

Rare findings:

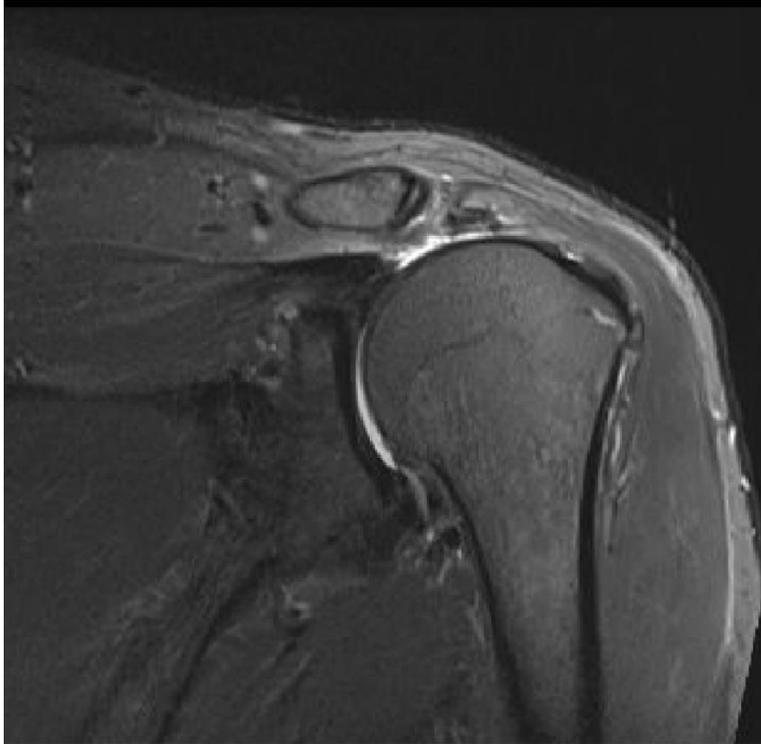
Calcinates in tendons (MR n=5, arthroscopy n=6),

Biceps long head tendon tear or subluxation (MR n=4, arthroscopy n=4),

Calcinates in subacromial bursa (MR n=2, arthroscopy n=2),

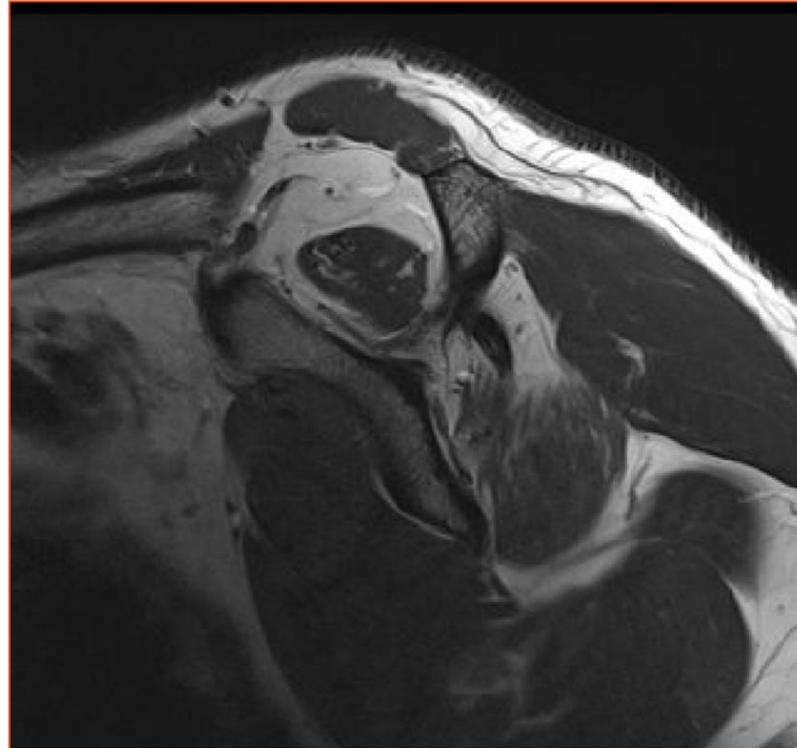
Adhesive capsulitis (MR n=1, arthroscopy n=2).

Patient – 52 years old men with left shoulder pain for two years.



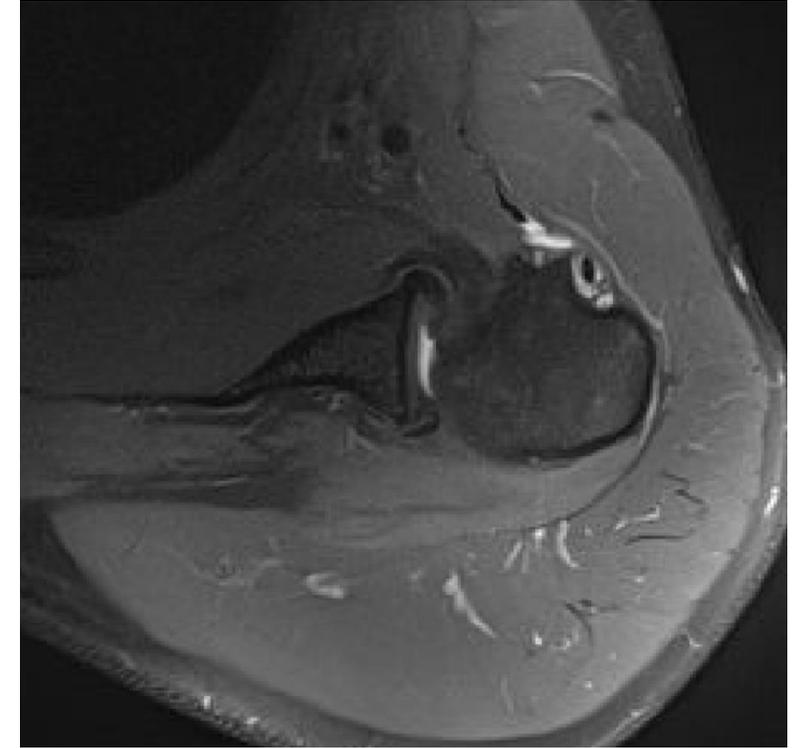
Coronar T2 weighted image with Fat Sat.

Rotator cuff full thickness tear with retraction 4,5 cm (grade II/III).
Subacromial effusion.
Labral tear?



Sagittal T2 weighted image.

Supraspinatus and infraspinatus muscles are atrophic with fatty degeneration.



Axial PD weighted image with Fat sat

Biceps long head tenosynovitis,
Effusion in glenohumeral joint.

Conclusion

- Magnetic resonance showed:
 - an excellent sensitivity in diagnostics of subacromial bursitis and AC joint osteoarthritis,
 - good sensitivity in rotator cuff tear case,
 - poor sensitivity in labral tear case.
- Specificity was high in detection of all of these pathologies, using MRI.
- The rest of the findings are relatively rare; therefore, it is not proper to evaluate sensitivity and specificity data.