

CORRELATION OF ULTRASOUND EXAMINATION AND MAGNETIC RESONANCE IMAGING IN EVALUATION OF PATIENTS WITH ROTATOR CUFF TEARS

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INTRODUCTION

Shoulder pain is one of the most prevalent complaints in the general population, ranging from 6.9 to 20.9%. It is the third most frequently encountered reason for musculoskeletal visits in primary care, particularly among the elderly. It can lead to significant disabilities, job loss, high health care costs, and a diminished quality of life. Rotator cuff tears (RCT) are a prevalent cause of shoulder joint pain, occurring in approximately 85% of cases. According to Magnetic Resonance Imaging (MRI) studies, the prevalence of RCT rises with age and ranges from 5% to 39%.

The shoulder joint is a complex structure composed of osseous, articular, and soft tissue components. Clinically localizing the cause of pain is frequently difficult due to the overlap of clinical signs. Thus, imaging is crucial in the treatment of patients with shoulder pain because it identifies anomalies and improves diagnostic accuracy and treatment planning.

AIM OF THE WORK

The aim of the work was to compare the sensitivity and specificity of ultrasound and magnetic resonance imaging in the detection of rotator cuff tears.

SUBJECTS AND METHODS

This retrospective study included 20 patients referred for MRI by the primary clinician due to shoulder pain. Following MRI of the symptomatic shoulder, a high-resolution ultrasound examination of the involved shoulder was performed together with an examination of the contralateral normal shoulder, in all 20 patients. The ultrasound examination was done at no extra charges to the patients.

Inclusion criteria

- Patients referred for shoulder MRI.
- Patients referred for shoulder ultrasound.
- Patients above the age of 18 years who gave informed consent.

Exclusion criteria

- Patients with prior operation.
- Patients with fracture/dislocation of the shoulder.
- Patients below 18 years.

RESULTS

Table 1: Distribution of the studied cases according to MRI findings (n=20).

MRI Findings	No.	%
Supraspinatus		
No	4	20.0
Yes	16	80.0
If yes		
Partial tear	8	50.0
Full tear	8	50.0
Infraspinatus		
No	19	95.0
Yes	1	5.0
If yes		
Partial tear	0	0.0
Full tear	1	100.0
Teres minor		
No	20	100.0
Yes	0	0.0
Subscapularis		
No	16	80.0
Yes	4	20.0
If yes		
Partial tear	2	50.0
Full tear	2	50.0
Total tears	21	

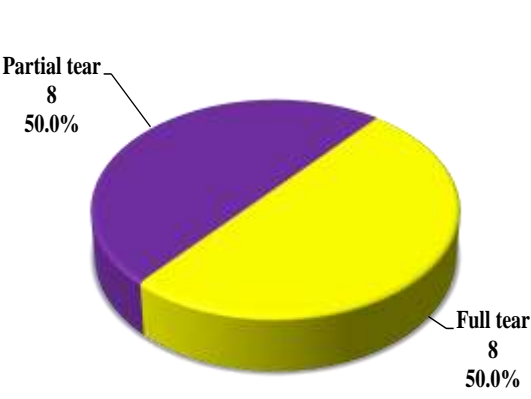


Figure 1: Distribution of the studied cases according to supraspinatus (n=20).

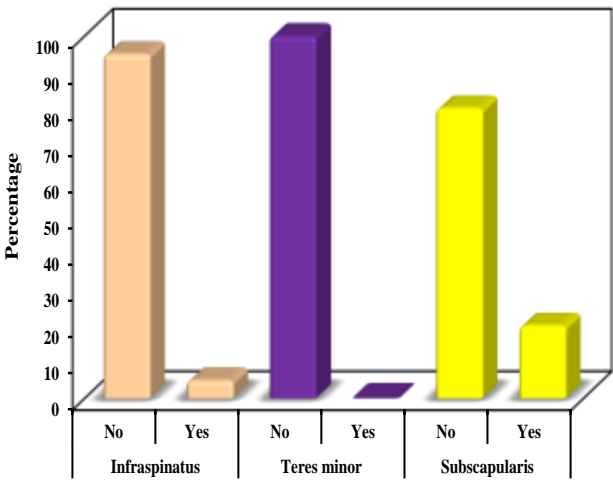


Figure 2: Distribution of the studied cases according to MRI findings (n=20).

Table 2: Distribution of the studied cases according to ultrasound findings (n=20).

Ultrasound findings	No.	%
Supraspinatus		
No	6	30.0
Yes	14	70.0
If yes		
Partial tear	6	42.9
Full tear	8	57.1
Infraspinatus		
No	19	95.0
Yes	1	5.0
If yes		
Partial tear	0	0.0
Full tear	1	100.0
Teres minor		
No	20	100.0
Yes	0	0.0
Subscapularis		
No	16	80.0
Yes	4	20.0
If yes		
Partial tear	3	75.0
Full tear	1	25.0

CONCLUSION

- US and MRI imaging is crucial for diagnosing and managing rotator cuff tears.
- The supraspinatus tendon is the most common involved tendon in rotator cuff tears.
- Generally, ultrasound is highly sensitive and accurate for both partial-thickness and full-thickness tears.
- MRI outperforms ultrasound in accurately defining and documenting a complete tear.