



CLINICAL AND RADIOLOGICAL CORRELATION IN THE REHABILITATION OF
SHOULDER PAIN: A CROSS-SECTIONAL STUDY AT PMCH, PATNA

Physical Medicine & Rehabilitation

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ABSTRACT

Background: Shoulder pain is the third most common musculoskeletal complaint after lower back and cervical spine issues. Despite several studies across India, limited data is available from Bihar that correlates clinical symptoms of shoulder pain with radiological findings. **Objective:** To evaluate the relationship between clinical and radiological findings in patients with shoulder pain, aiming to enhance rehabilitation strategies and diagnostic accuracy. **Methodology:** This cross-sectional study was conducted at the Department of Physical Medicine and Rehabilitation, Patna Medical College and Hospital, between December 15, 2022, and May 16, 2024. A total of 60 patients presenting with shoulder pain were assessed using clinical examination and imaging modalities, including X-rays, ultrasonography (USG), and MRI. **Results:** The most common condition observed was frozen shoulder, primarily affecting individuals aged 40–60. USG proved effective in detecting axillary pouch and ligament thickening, whereas MRI offered more detailed findings like capsular thickening and subchondral erosion. Radiological findings significantly varied with age and pathology type. **Conclusion:** While MRI remains the gold standard for diagnosing shoulder pathologies, USG emerges as a reliable and cost-effective alternative in resource-limited settings. The study highlights the importance of accessible imaging techniques to improve rehabilitation outcomes.

KEYWORDS

INTRODUCTION

Shoulder pain affects approximately 37.8 per 1,000 individuals annually and ranks third among musculoskeletal disorders. The shoulder comprises four key joints — acromioclavicular, scapulothoracic, sternoclavicular, and glenohumeral — with a complex interplay of bones, tendons, ligaments, and neurovascular structures. Due to this complexity, diagnosis can be challenging and necessitates both clinical and radiological inputs.

Advancements in imaging such as X-rays, USG, and MRI have significantly improved diagnostic capabilities. Rehabilitation aims to reduce pain, restore strength and mobility, and prevent long-term disability. This study was undertaken to correlate clinical assessments with radiological findings to better tailor rehabilitation programs for patients with shoulder pain.

Methodology

This was a cross-sectional observational study conducted on 60 patients presenting with shoulder pain at PMCH Patna's Physical Medicine and Rehabilitation Department. The study duration was from December 15, 2022, to May 16, 2024.

Inclusion Criteria:

- Patients above 10 years of age with shoulder pain
- All genders
- Willingness to participate

Exclusion Criteria:

- Age below 10 years
- Refusal to consent
- Presence of bony or soft tissue tumors

All patients underwent clinical evaluation, pain scoring (Numeric Pain Rating Scale), goniometric assessment of joint range, and muscle strength grading. Imaging modalities included X-rays (AP, oblique, axial views), USG, and MRI. Routine blood investigations were conducted to rule out systemic causes.

RESULTS AND OBSERVATIONS

Out of the 60 enrolled participants, 55 completed the study. The majority (42 patients) were in the 40–60 age range, where frozen shoulder was most prevalent. In individuals under 40, frozen shoulder and rotator cuff injuries were equally common, while patients over 60 exclusively had rheumatoid shoulder.

Pathology	X-Ray	USG	MRI
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Frozen Shoulder	Often normal	Axillary pouch thickening (18), Ligament thickening (14)	Capsular thickening (6), Ligament enhancement (5), Osteophytes (1)
Rotator Cuff Pathology	Calcific tendinitis (3), Cortical irregularity (2)	Biceps tendinitis (6), Tears (5)	Rotator cuff tear (8), Tendinopathy (7)
Myofascial Pain Syndrome	No findings	Muscle belly thinning (4)	Muscle belly thinning (2)
Osteoarthritis	Osteophytes (5), Joint space reduction (3)	Osteophytes (6), Joint space loss (4)	Similar findings as USG
Rheumatoid Shoulder	Subchondral erosion (5), Osteophytes (1)	Synovial proliferation (3), Erosion (2)	Subchondral erosion (7), Synovial proliferation (5)

DISCUSSION

The age distribution in this study showed that 70% of patients were aged 40–60, supporting the strong association between frozen shoulder and middle age. Among patients with diabetes (32.43%), most belonged to this same age group, which is consistent with other studies such as those by Madurwar et al.

Trauma was a reported cause in 60% of cases in the 40–60 group, suggesting that occupational or daily activity stress may contribute to shoulder pathology. Similar patterns were observed in studies by Kingston et al. and Braune et al., which also highlighted age-related prevalence of specific shoulder disorders.

USG findings were valuable in detecting soft tissue abnormalities like ligament and muscle changes, while MRI provided a more detailed picture, especially for internal derangements. X-rays had limited utility in soft tissue pathologies but were useful in identifying osteophytes and joint space narrowing.

Limitations

- Limited access to MRI due to cost
- Small, localized sample size
- No long-term follow-up
- Results may not be generalizable to the wider population

CONCLUSION

This study provides important insights into the clinical and radiological patterns of shoulder pain in the Bihar population. Frozen shoulder was found to be the most prevalent condition, especially in individuals aged 40–60. While MRI remains the definitive modality for diagnosis, USG presents as a valuable alternative where MRI is not accessible. Early and accurate identification of shoulder pathologies through a combination of clinical and imaging findings is crucial for effective rehabilitation.

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