

CLINICAL FEATURES AND ULTRASOUND IMAGES OF SUPRASPINATUS TENDONITIS AT THAI BINH MEDICAL UNIVERSITY HOSPITAL

ABSTRACT

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Objective: To describe the clinical features and ultrasound images of supraspinatus tendonitis at Thai Binh Medical University Hospital.

Study subjects and methods: Study subjects: The study involved patients who had examinations at Thai Binh Medical University Hospital and were diagnosed with supraspinatus tendonitis based on symptoms such as shoulder pain during abduction, pain upon palpation of inferior and lateral point of the acromial, a positive Jobe's test. In addition, ultrasound can show increased tendon thickness, hypoechoic tendons, discontinuity of tendon fibers, and tendon calcification. Study design: This was a descriptive, cross-sectional survey. Pain levels were assessed using the Visual Analog Scale (VAS). Shoulder function was evaluated using the Oxford Shoulder Score (OSS). OSS is a questionnaire consisting of 12 questions, each scored from 1 to 5, with a total score ranging from 12 (best) to 60 (worst).

Results: Among 34 patients with 35 shoulders diagnosed with supraspinatus tendonitis, we found that supraspinatus tendonitis was most common in individuals aged 45 and older (97.1%). Females were more affected than males (females 64.7%). The right shoulder (dominant side) was more commonly affected (70.6%). The average shoulder abduction angle was 143.4 degrees. Functional limitations of the shoulder were observed, with an average OSS score of 46.7. Regarding ultrasound findings, hypoechoic tendons were observed in 68.6%, increased tendon thickness in 28.6%, tendon discontinuity and calcification were rare. The average tendon thickness was 7.8mm.

Conclusion: Supraspinatus tendonitis is commonly found in individuals over 45 years old, with a higher prevalence in females than males. The disease tends to affect the dominant shoulder more, with an average shoulder abduction angle of 143.4 degrees and an average OSS functional activity score of 46.7. On ultrasound imaging, supraspinatus tendinitis mainly presents as

hypoechoic changes and tendon thickening. The average thickness of the supraspinatus tendon is 7.8 mm.

Keywords: Clinical features, ultrasound imaging, supraspinatus tendonitis, Thai Binh Medical University Hospital.

I. INTRODUCTION

Rotator cuff pathology is a common condition. The incidence of symptomatic or asymptomatic rotator cuff disease diagnosed by surgery or imaging increases with age, from 9.7% in those under 20 years old to 62% in those over 80 [1]. In the general population, rotator cuff disease is the most common cause of shoulder pain. Any rotator cuff tendon can be damaged, but the supraspinatus tendon is the most frequently affected. The term "supraspinatus tendon disease" refers to primary damage to the supraspinatus tendon, including inflammation or degeneration. This condition is also referred to as "supraspinatus tendonitis."

Currently, at Thai Binh Medical University Hospital, shoulder pain is a common complaint, with a significant number of cases being diagnosed as supraspinatus tendonitis. There are also other diagnoses, such as biceps tendonitis or subacromial bursitis. To understand more about the characteristics of supraspinatus tendonitis, thereby supporting the diagnosis of the disease. Therefore, we conducted a study on the clinical features and ultrasound images of supraspinatus tendonitis at Thai Binh Medical University Hospital.

II. SUBJECTS AND METHODS

2.1. Study Subjects:

The study included patients who had examinations at Thai Binh Medical University Hospital from June 2023 to July 2024 and were diagnosed with supraspinatus tendonitis based on the following symptoms: pain on shoulder abduction; pain upon palpation of inferior and lateral point of the acromial; positive Jobe test; ultrasound can show increased tendon thickness, hypoechoic tendons, discontinuity of tendon fibers, and tendon calcification.

2.2. Study Methods:

Study design: This is a descriptive cross-sectional study. Pain intensity was measured using the VAS (Visual Analog Scale). Shoulder function was

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evaluated using the OSS (Oxford Shoulder Score). OSS is a questionnaire with 12 questions, each scored from 1 to 5. The total score ranges from 12 (best) to 60 (worst).

Sample size and Selection method: The sample size included all eligible patients. We selected all 34 patients with 35 affected shoulders who met the inclusion criteria.

III. RESULTS

Table 1. Age characteristics of supraspinatus tendonitis patients (34 research subjects)

Age	Number of patients	Percentage (%)
30 - <45	1	2.9
45-60	14	41.2
> 60	19	55.9
Mean ± SD	60.9 10.1	

The majority of the study subjects were aged 45 or older (97.1%), with an average age of 60.9 years. No participants were under 30 years of age.

Table 2. Gender distribution

Gender	Number of patients	Percentage (%)
Male	12	35.3
Female	22	64.7
Total	34	100

The study sample included a higher proportion of females (64.7%) compared to males (35.3%).

Table 3. Occupation characteristics (34 participants)

Occupation	Number of patients	Percentage (%)
Workers	10	28.6
Farmers	12	34.2
Civil Servants	3	8.6
Housewives	10	28.6

The study subjects were predominantly farmers, workers, and housewives (34.2%, 28.6%, and 28.6%, respectively).

Table 4. Side of affected shoulder (34 patients, 35 shoulders)

Affected side	Number of shoulders	Percentage (%)
Left	9	26.5
Right	24	70.6
Both sides	1	2.9
Total	34	100

Supraspinatus tendonitis was more commonly found in the right (dominant) shoulder (70.6%).

Table 5. Pain severity according to VAS (35 shoulders)

VAS Score	Number of shoulders	Percentage (%)
Mild (1-4)	0	0
Moderate (5-6)	5	14.3
Severe (7-10)	30	85.7
Mean ± SD	7.7 ± 1.1	

Most patients had severe pain, with a mean VAS score of 7.7.

Data analysis: Data was processed using SPSS software version 20.0.

2.3. Ethical Considerations

The study was conducted after approval from the Scientific Council of Thai Binh University of Medicine and Pharmacy. Participants' personal information was kept confidential.

Table 6. Shoulder function according to OSS and shoulder abduction angle (35 shoulders)

Parameter	Mean ± SD
OSS Score	46.7 ± 5.0
Shoulder Abduction Angle (degrees)	143.4 ± 16.9

The average OSS score indicating functional impairment was 46.7, and the average shoulder abduction angle was 143.4 degrees.

Table 7. Ultrasound findings in supraspinatus tendonitis (35 shoulders)

Ultrasound finding	Number of shoulders	Percentage (%)	Mean ± SD
Hypoechoic tendon	24	68.6	
Tendon thickening	10	28.6	
Loss of tendon continuity	3	8.6	
Calcification	1	2.9	
Tendon thickness (mm)			7.8 ± 0.5

The most common ultrasound finding was hypoechoic areas (68.6%), followed by tendon thickening (28.6%). Rare findings included loss of tendon continuity and calcification (8.6% and 2.9%, respectively). The average tendon thickness was 7.8mm.

IV. DISCUSSIONS

Supraspinatus tendonitis is a common condition, often seen in individuals who frequently raise their arms. Our study, involving 34 patients with 35 affected shoulders, shows similar findings to those of other studies. The characteristics of the study subjects are shown in tables 1 to 7. The condition was most prevalent in individuals aged 45 and older (97.1%), with no cases under 30 years old; the average age of the study subjects was high (60.9 years old). The majority of the study subjects were female (64.7%); male (35.3%). The study subjects were mostly farmers, workers and housewives (accounting for 34.3%; 28.6%; 28.6% respectively). Right-sided tendonitis was more common (70.6%). The results of our study are quite similar to the study of authors Le Van Hoc, Nguyen Viet Khoa, Nguyen Thi Thanh et al [2]. The study found that patients with supraspinatus tendinitis were more common in women than in men (women accounted for 55.6%); the age group with the highest proportion was 50-70 years old (accounting for 59.3%); among the 54 patients studied, the majority had supraspinatus tendinitis on one shoulder (accounting for 94.4%) and the right shoulder was dominant (accounting for 59.6%). The most prominent symptom was pain, which was severe in most cases. VAS pain score of severe level accounted for 85.7%. The average VAS score was 7.7. The OSS scale is an easy-to-assess and easy-to-answer scale for patients in research. This scale is also applied in many

studies around the world. This scale is a 12-item questionnaire designed to be applied to all shoulder pathologies, except for shoulder instability. It includes 4 questions related to pain and 8 questions related to function in daily activities. Specifically, the scale includes assessments of the worst level of shoulder pain, difficulty in dressing, difficulty in getting in and out of a car or public transport, ability to use a knife and fork simultaneously, ability to go shopping for the family independently, ability to carry a tray with a plate of food across the room, ability to comb hair with the affected hand, hang clothes in the closet with the affected hand, wash and dry forearms on both sides, the impact of shoulder pain on daily activities, and whether shoulder pain disrupts sleep at night. Each question is scored from 1 to 5, followed by calculating the total score. The total score ranges from 12 (best) to 60 (worst). In our study, the average OSS score was 46.7. The average shoulder abduction angle of study subjects was 143 degrees. Ultrasound imaging revealed hypoechoic areas in most cases (68.6%), with tendon thickening also frequently observed (28.6%). The average thickness of the supraspinatus was 7.8 mm.

V. CONCLUSION

Through a study of 34 patients with 35 shoulders affected by supraspinatus tendonitis, we obtained the following results: Supraspinatus tendonitis is most common in individuals aged 45 and older

(97.1%). It is more prevalent in women than in men (64.7% female). The condition typically affects the right shoulder (the dominant side) in 70.6% of cases. The average shoulder abduction angle was 143.4 degrees. Functional shoulder activities were limited, with an average OSS functional score of 46.7.

Regarding ultrasound imaging: hypoechoic tendon findings accounted for 68.6%, tendon thickening for 28.6%, while tendon fiber discontinuity and calcification were rare. The average thickness of the supraspinatus tendon was 7.8 mm.

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