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Suprascapular Nerve Entrapment by Labral Cyst Associated with Labral Lesion: A Case Report

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ABSTRACT

Background: The suprascapular nerve is a mixed motor and sensory nerve originating from the brachial plexus. It passes between the suprascapular notch and superior transverse scapular ligament into the posterior surface of the scapula, which dominates the supra- and infraspinatus muscles. Suprascapular nerve entrapment is an uncommon but significant cause of shoulder pain.

Objective: We report a 30-year-old man who had a complaint of right shoulder pain and external rotation weakness that lasted for 4 years which was diagnosed as labral lesion associated with suprascapular nerve entrapment.

Conclusion: Patient underwent surgical repair of labral lesion with debridement of the cyst. Follow-up for 12 months postoperatively showed that patient shoulder pain improved significantly and external rotation improved (45-50°).

Keywords: Labral cyst, Labral lesion, SLAP, Suprascapular nerve entrapment.

INTRODUCTION

Suprascapular nerve entrapment can be a consequence of direct trauma [1-3], anterior dislocation or fractures of the scapula and overhead sports activities [3]. Direct compression of the nerve can occur by progressive compressive masses of suprascapular notch or spinoglenoid notch as a consequence of malignant tumors [1,4,5], hematomas or ganglion cysts [1, 2, 6].

Suprascapular nerve compression is a rare cause of shoulder pain. Shoulder pain is among the most common musculoskeletal complaints in the general population. Often, it is due to rotator cuff pathologies such as tendonitis and/or tears, labral pathologies such as superior labral anterior to posterior (SLAP) lesions or instability, capsular pathologies such as adhesive capsulitis, or articular pathologies such as acromioclavicular or glenohumeral arthritis. On rare occasions, suprascapular nerve compression may be the cause of such shoulder pain or weakness. Because of its rarity, this condition is unfortunately often not diagnosed until a magnetic resonance imaging (MRI) scan is performed on the patient who fails to respond to therapy [7].

Suprascapular nerve entrapment is characterized by deep, diffuse posterolateral shoulder pain, which may radiate to the neck, arm, or upper chest wall. Entrapment syndrome is diagnosed on the basis of the clinical history, physical examination and electromyography[8].

CASE REPORT

A 30-years-old male known to have hypertension presented with a 4-year history of right shoulder pain and decreased range of motion. Four years back, he threw a heavy object and had his 1st shoulder dislocation. His last shoulder dislocation was 1 years ago. Patient was managed conservatively for right shoulder pain with non-steroidal anti-inflammatory drugs, and physiotherapy and these techniques provided no benefits. After then, he visited our Department of Orthopedic, King Abdullah Medical City Specialist Hospital.

Physical examination showed painful arc limited to 160° of right shoulder active flexion, 90° of right shoulder abduction and external rotation of 10-20°. Weak right infraspinatus muscle (power: 3/5). O'Brien's test for SLAP lesion was positive. External rotation lag sign was positive in right shoulder plain radiographs of right shoulder were unremarkable (Figures 1-2).

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Fig. (1): Right shoulder AP view showed no abnormality.

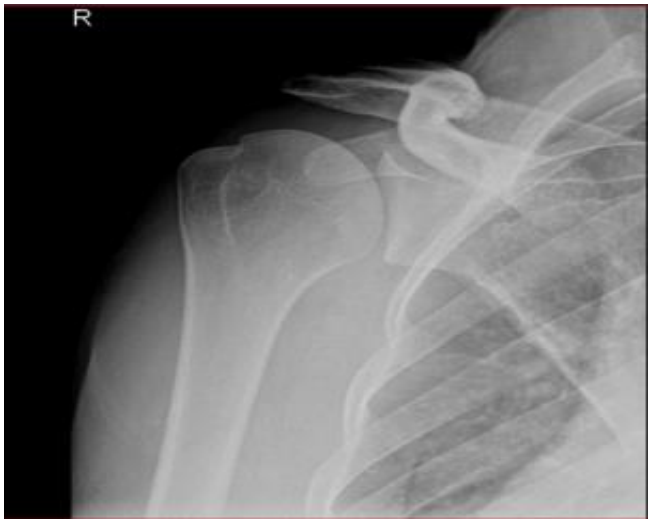

Fig. (2): Right shoulder Grashey view (anteroposterior oblique shoulder radiograph) showed no abnormality

Electromyography (EMG) and Nerve Conduction Study (NCS) showed moderately decreased interference pattern of right supraspinatus muscle, right suprascapular nerve showed reduced amplitude (3.4 mV) with moderated partial injury, the right infraspinatus looks more affected than supraspinatus with evidence of actively healing motor units, diminished recruitment and decreased interference pattern.

Magnetic resonance imaging (MRI) scans of the right shoulder revealed SLAP lesion and Bankart lesion with atrophy of supraspinatus and infraspinatus muscles (Figures 3-7).

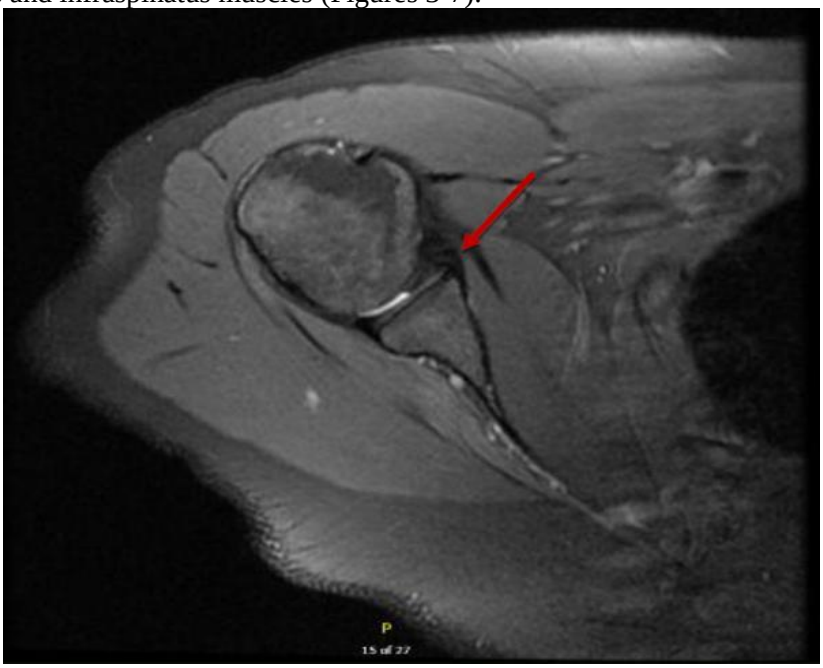

Fig. (3): MRI of Right shoulder (axial) showing a SLAP lesion.

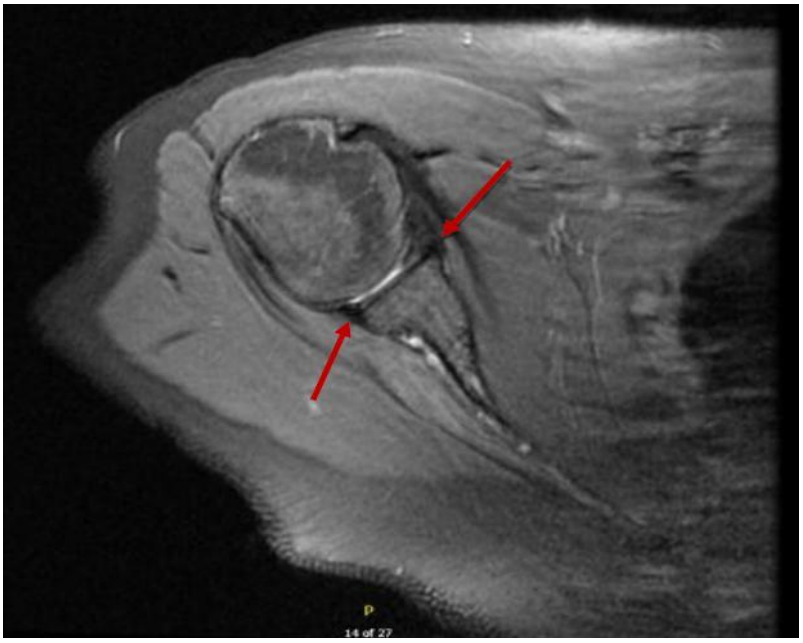

Fig. (4): MRI of right shoulder showing a SLAP lesion with reverse Bankart lesion.

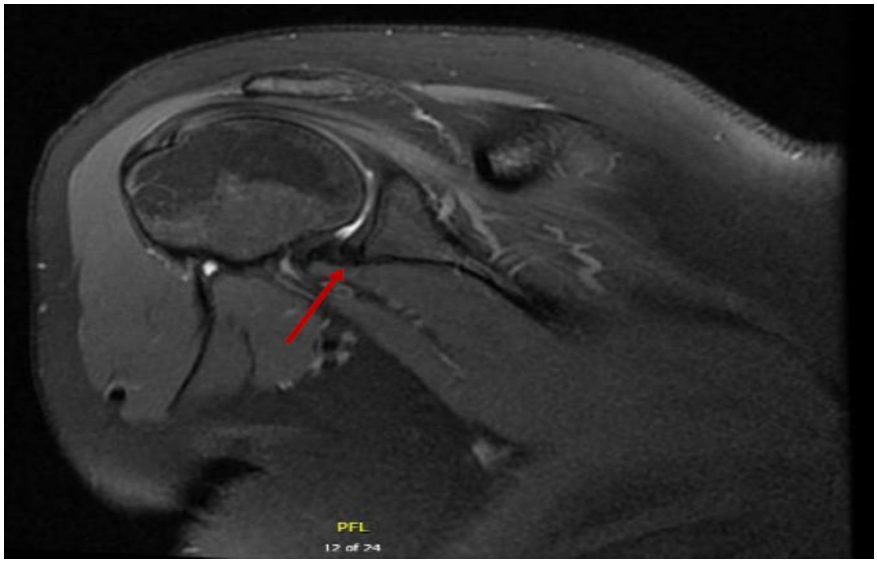

Fig. (5): MRI of right shoulder (Coronal) showing a Bankart lesion.

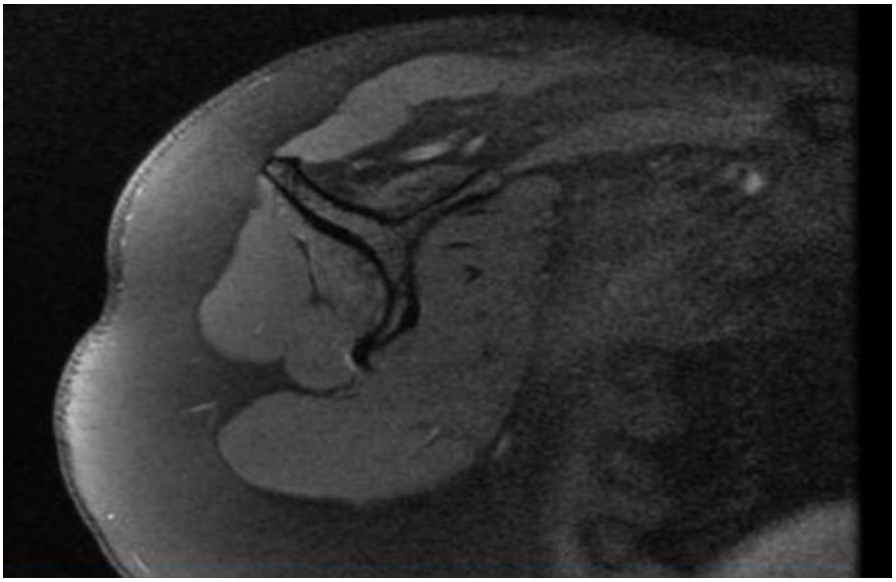

Fig. (6): MRI of right shoulder (Sagittal) showing supraspinatus and infraspinatus atrophy.

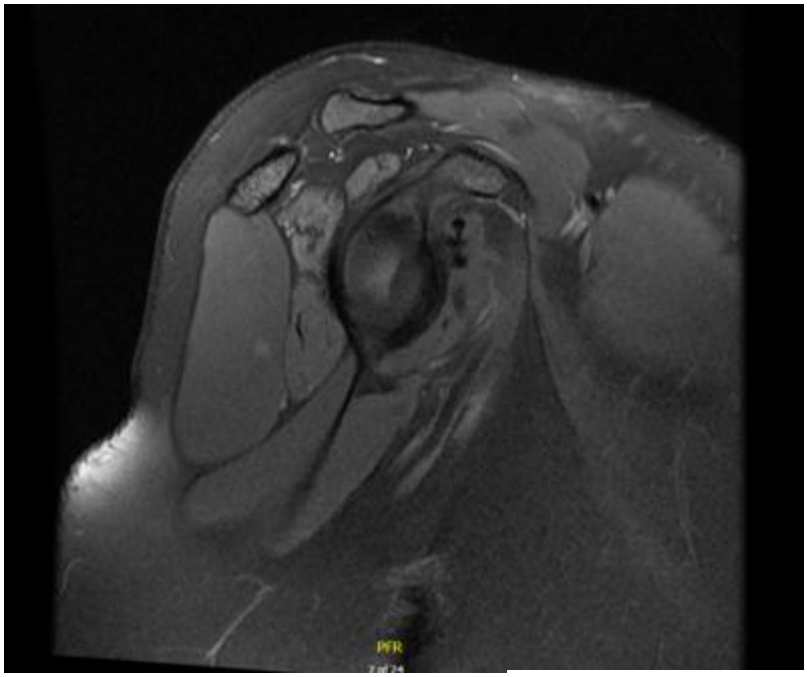

Fig. (7): MRI of right shoulder (Sagittal) showing a detached labrum at the 3-7 o'clock.

Ethical considerations:

An approval of the study was obtained from King Abdullah Medical City Specialist Hospital (Mecca, Saudi Arabia) Academic and Ethical Committee. The patient and his relative were informed that the case was taken as case report for publishing and he accepted. This work has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

Our patient booked for surgery for SLAP and Bankart repair and possible decompression of suprascapular nerve. Patient underwent arthroscopic repair which revealed labral tear from 8 o'clock to 3 o'clock, infraspinatus atrophy and a small labral cyst at the posterosuperior aspect of the labrum. Repair of labral lesion with 2 anterior suture anchors and 2 posterior suture anchors was done with cyst decompression and capsular augmentation.

In our patient's postoperative recovery was uneventful and he was discharged the same day.Patient was on arm sling for two weeks. Patient was followed after 2 weeks, sutures removed and physiotherapy started. Patient was followed 1 month postoperatively, he started physiotherapy and pain improved, so he was advised to continue for 6 weeks. Patient was seen 3 months postoperatively, range of motion improved but he still had weak external rotation. He was advised to continue physiotherapy and strengthening exercises. Patient was seen 12 months postoperatively, pain improved, he had finished physiotherapy strengthening program, and range of motion was near normal. External rotation also improved (45-50°).

DISCUSSION

Suprascapular nerve is a branch of the superior trunk of the brachial plexus. It runs laterally beneath the trapezius parallel to the omohyoid muscle, entering the supraspinous fossa through the suprascapular notch. There are many variations in the anatomy of the suprascapular notch: 6 anatomic variants of the suprascapular notch are described in literature [(9)]. This can be considered as potential etiologic factors for entrapment of the suprascapular nerve [(10)]. Superior labral anterior to posterior is an unusual cause of entrapment of the suprascapular nerve [(11)].

Although the underlying mechanism remains unclear, there is a strong association between SLAP lesions and the formation of accompanying ganglion cysts. Cysts that form at the spinoglenoid notch can compress the suprascapular nerve, leading to infraspinatus atrophy and contributing to the functional impairment caused by the labral injury. It has been hypothesized that performing a SLAP repair with a concomitant cyst decompression may alleviate the irritation of the suprascapular nerve and lead to superior outcomes compared with isolated SLAP repair [(12)].

Pillai *et al.* [(13)] found that concomitant cyst decompression was associated with a greater postoperative increase in external rotation strength compared with SLAP repair alone. **Kim *et al.*** [(14)] found no difference in postoperative pain or outcomes between patients who underwent combined SLAP repair and cyst decompression and patients who underwent isolated SLAP repair. **Chochole *et al.*** [(15)] reported on arthroscopic repair of the SLAP lesion without drainage of the cyst in one case showing total resolution of the cyst documented on MRI.

CONCLUSION

Patient underwent surgical repair of labral lesion with debridement of the cyst. Follow-up for 12 months postoperatively showed that patient shoulder pain improved significantly and external rotation improved (45-50°).

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