Suprascapular Nerve Entrapment Syndrome

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Abstract

**Background:** Suprascapular nerve entrapment syndrome is due to compression of the Suprascapular nerve at Suprascapular notch. This is secondary to repetitive strain as in Volley ball players or a notch narrowed by a cyst or fracture of superolateral region of scapula. They usually present with vague pain and fatigability of the shoulder girdle.

Diagnosis is confirmed by nerve conduction study of suprascapular nerve with EMG of supraspinatus and infraspinatus. Treatment is conservative in the early stages. Surgery is performed when conservative treatment fails or when there are prominent neurological symptoms.

**Materials and methods:** The author presents the results of a prospective study of this clinical problem done at Govt. Medical College, Thrissur during the period 2004 - 2011. All case patients were initially treated conservatively. Subsequently, all the patients underwent surgical release of the suprascapular ligament.

**Results:** All the patients got satisfactory results following surgery.

**Conclusion:** Surgery is performed when conservative treatment fails or when there are prominent neurological symptoms. The results of surgery are good.

**Keywords:** Suprascapular nerve, Suprascapular ligament, ganglion, shoulder pain, shoulder fatigue

Introduction

Suprascapular nerve arises from upper trunk of Brachial plexus. It lies in the posterior triangle of neck, passes under the Omohyoid muscle and anterior border of Trapezius to the scapular notch. It traverses the scapular notch passing below the superior transverse ligament and enters supraspinous fossa, where it supplies the Supraspinatus. It passes around the lateral border of the spine of the scapula (Spinoglenoid notch) into the infraspinous fossa where it sends branches to infraspinatus muscle, shoulder joint and scapula (1). The nerve may be entrapped at suprascapular notch, secondary to narrowed neck, by cyst (ganglion), repetitive strain (volley ball players) (2), thick transverse scapular ligament, fracture of superolateral area of scapula, or at spinoglenoid notch by space occupying lesion such as ganglion or tumor. They usually present with vague pain radiating across scapula, dull shoulder ache, limitation of shoulder joint movements and wasting of supraspinatus and infraspinatus (3,4,5,6).

It is usually confirmed by nerve conduction study of Suprascapular nerve with EMG of supraspinatus and infraspinatus.

**Differential diagnosis**

1. Fascio scapular muscular dystrophy
2. Neuralgic amyotrophy
3. Disuse wasting of shoulder
muscles in a painful shoulder joint (7).

**Treatment**

1. Rest, NSAIDS.
2. Avoiding strenuous overhead activity.
3. Physiotherapy.
4. In the absence of wasting of the Suprascapular and infrascapular muscles, steroid injection can be tried with varying success.
5. Surgical decompression is advised when there are persistent symptoms, wasting of supraspinatus and infraspinatus (6).

**Case study**

During the period 2004 – 2011 in the Department of Orthopaedics, Govt. Medical College Hospital, Thrissur, we had 5 manual workers in the age group of 25 to 40, who presented with pain and fatigability of the shoulder region.

On examination, there was wasting of supraspinatus and infraspinatus in 4 cases (Figure 1). In one case, there was wasting of infraspinatus alone. Terminal range of abduction was slightly restricted. X-ray of shoulder joint and routine blood investigations were within normal limits. Nerve conduction velocity specifically for suprascapular nerve with EMG of the supraspinatus and infraspinatus was done in all cases. These showed conduction delay in the suprascapular nerve.

**Figure 1.** Clinical photograph showing wasting of supraspinatus and Infraspinatus muscles

**Treatment**

All patient were treated initially with NSAIDS, restriction of strenuous overhead head activity and physiotherapy. As symptoms did not improve, it was decided to operate in all cases.

**Surgical Steps (Swafford and Lichtman)**

1. Prone position.
2. Oblique incision 3 cm superior and parallel to spine of Scapula (Figure 2).
3. Elevate the Trapezius subperiosteally and expose the Supraspinatus muscle.

**Figure 2.** Per operative photograph showing the incision and superficial dissection.

**Figure 3.** Per operative photograph. Suprascapular muscle is elevated.
(Figure 3).

4. Identify the Suprascapular nerve and vessel by elevating the muscle and dissecting superior and inferior to the muscle.

5. Identify the suprascapular notch and transverse scapular ligament.

Operative findings
Ganglion was the cause of entrapment in two cases, one at the suprascapular notch and other at the spinoglenoid notch. In one case transverse scapular ligament was found to be thickened. In the other two cases no specific findings were detected. In all cases, the transverse scapular ligament was divided. In the two cases, where there were no specific findings, the scapular notch was enlarged with a rongeur.

Post operative care
Cuff & collar sling was given for 2 weeks followed by physiotherapy.

Results
Follow up periods varied from 5 months to 5 years. All of them had relief of their symptoms. There were no recurrences.

Discussion
Suprascapular nerve entrapment syndrome is due to compression of the suprascapular nerve at suprascapular notch secondary to narrowed notch, repetitive strain or due to fracture of superior lateral region of scapula. They usually present with vague pain in shoulder with fatigability of shoulder girdle.

Bilateral cases have been reported in weight lifters (8,9). Asymptomatic paralysis or painless paralysis may be seen, if the sensory branch is not involved (10). Active abduction and posterior elevation of shoulder is slightly restricted in most cases. Diagnosis is usually confirmed by nerve conduction velocity of suprascapular nerve. MRI may be helpful in diagnosing cyst, tumor or when there is uncertainty regarding the cause of shoulder pain (11).

Surgical approaches
Posterior approach is more popular. (Swafford and Lichtman) Anterior approach is through the medial aspect of coracoid process.

Fabre et. al (12) have analysed 35 operated cases of supra scapular nerve entrapment syndrome. They found that the results of suprascapular nerve decompression were satisfactory (Figure 4).

Best results are obtained when the surgery is performed within 6 months of the onset of symptoms.

Conclusion
Suprascapular nerve entrapment syndrome can easily be missed in a busy out patient department. A high index of suspicion is needed for early diagnosis of this lesion. A sound protocol is available to guide the management of this clinical condition. Results of surgical treatment are good.

References


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