Suprascapular Nerve Entrapment by a Trifid Superior Transverse Scapular Ligament

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Introduction

Suprascapular nerve (SSN) entrapment, although rare, is a well-recognized clinical entity, which is caused by the compression of SSN in the suprascapular notch. This notch is bridged by a ligamentous band (superior transverse scapular ligament [STSL]), which converts it into a foramen and permits passage of the suprascapular nerve. Alon et al first suggested that the morphologic variations in STSL might be one of the causes of the SSN entrapment. Ticker et al first reported the presence of trifid STSL in cadaveric studies. Polguj et al hypothesized that these morphologic variations of STSL reduce the size of suprascapular foramen and can promote SSN entrapment.

In this article, the author encountered a trifid STSL in a volleyball player presenting with SSN entrapment. Surgical decompression of the suprascapular notch by division of trifid ligament resulted in complete relief of symptoms.
Suprascapular notch (►Fig. 2). Suprascapular vessels coursing superficial to the ligament were taped and clipped. The suprascapular nerve, encased in a sleeve of fibrous connective tissue, was isolated in the fatty tissue just proximal to the suprascapular notch. The two thick bands of STSL extending along the superior border of scapula (►Fig. 3), across the suprascapular notch, were divided. This exposed a thinner, third band of STSL, in close contact to the SSN (►Fig. 4). This band was also divided, safeguarding the nerve. Fibrous tissue in the distal part of SSN was carefully removed (►Fig. 5). Contractions of supraspinatus muscle were observed on delivering a stimulus of 2 mA with a nerve stimulator. The trapezius muscle was sutured back to the spine of scapula using a 3–0 polyglactin suture. Finally, the skin incision was closed with a drain in subcutaneous planes.

Postoperatively, the arm was immobilized in a broad arm sling for 21 weeks. Thereafter, shoulder strengthening exercises were begun. The patient was followed-up on monthly interval. When reviewed at 15 months postsurgery, the shoulder pain had completely disappeared, and patient had restored the bulk of infraspinatus muscle (►Fig. 6), with shoulder abduction and external rotation strengths improved to M5 and M4, respectively.

Discussion

SSN entrapment is an uncommon compressive neuropathy, presenting with pain in the scapular and parascapular regions. With recent advances in radioimaging and electrophysiology, this condition is being increasingly recognized as a cause of shoulder pain and dysfunction. The condition is more frequently observed in sports which demand repetitive overhead activities such as volleyball and baseball. An atrophy of
the supra- and infraspinatus muscle may ensue, depending on the degree and duration of compression. The prevalence of suprascapular neuropathy in high-performance volleyball players has been reported to range widely from 12.5% to as much as 33%. This may be related to repetitive traction and microtrauma. The condition has been increasingly reported in newsreel cameraman, baseball pitchers, football players, and weightlifters. In these professions, SSN is frequently traumatized by repetitive shoulder depression and abduction. Rarely, space occupying lesions such as ganglion cysts around the suprascapular nerve may cause the entrapment.

The anatomy of STSL has drawn less attention in the etiopathology of SSN entrapment. Alon et al first reported SSN entrapment syndrome due to an anomalous STSL. Ticker et al first demonstrated the presence of a trifid STSL in cadaveric study. Polgj et al hypothesized that the presence of these anomalous ligaments may be a potential risk factor in SSN entrapment, because the space below the ligament through which the nerve passes is significantly reduced.

In the present case, we found a trifid STSL in a volleyball player, who was clinically diagnosed as a case of SSN entrapment. The first two bands were having two different superposed bundles, as described by Duparc et al. The third band was in a deeper plane and juxtaposed to the SSN. Division of the three bands with external neurolysis of SSN produced a complete relief from the shoulder pain, restored the muscle bulk, and improved the abduction and external strengths.

SSN decompression has been achieved with open and arthroscopic techniques. Open technique is relatively simpler but has disadvantage of inducing more local trauma. Recovery time is also delayed in view of more soft-tissue dissection. Arthroscopic decompression is a technically demanding surgical procedure with a steep learning curve.

We preferred an open technique, considering it safe and reproducible. Nonavailability of arthroscopic instruments and lack of expertise were other reasons to adopt an open decompression.

**Conclusion**

This article reported a case of SSN entrapment caused by a rare abnormality of superior transverse scapular ligament.

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**Conflict of Interest**

None declared.

**References**

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