Complete Absence of Suprascapular Notch: A Case Report

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Abstract:
Suprascapular Nerve Entrapment (SSNE) is an acquired neuropathy secondary to compression of suprascapular nerve in the Suprascapular Notch (SSN). Complete ossification of superior transverse scapular ligament may be a cause for suprascapular nerve entrapment. The absence of suprascapular notch is not a very common condition, though its prevalence was quoted by Indian authors to be varying from 1.36% to 32.46% in different parts of the country. It is considered to be a predisposing factor for suprascapular nerve entrapment neuropathy. We noticed a male scapula without suprascapular notch in osteology section of Forensic Medicine department. In this case we observed costal and dorsal surfaces of the left scapula of a male without suprascapular notch at its superior border. The details of the said scapula are discussed in this report.

Keywords: Suprascapular notch, Suprascapular nerve, Suprascapular nerve entrapment, Suprascpular neuropathy.

Introduction:
The scapula (shoulder blade) is a flat triangular bone situated at the posterolateral aspect of the thorax, overlying 2nd to 7th ribs. It consists of a concave costal and convex posterior surface. The triangular body (blade) of the scapula is thin and translucent, superior and inferior to scapular spine [1]. The suprascapular notch is situated in the lateral part of the superior border of the scapula just adjacent to the base of the coracoid process. It serves as a passage for to the suprascapular vessels and is converted into foramen by the superior transverse scapular ligament [2]. The suprascapular notch is an important landmark of suprascapular nerve during arthroscopic shoulder operations [3]. The first description of suprascapular nerve entrapment syndrome at the site of the suprascapular notch was made by Kopell and Thompson [4]. Suprascapular nerve entrapment is an acquired neuropathy secondary to compression of the nerve in the bony suprascapular notch [5]. The morphology of the suprascapular notch is considered to be a risk factor for suprascapular nerve entrapment either in combination with an anomalous superior transverse scapular ligament or as a narrowed notch. Complete ossification with formation of bony foramina is the most recognized predisposing factor for the compression at the suprascapular notch. The ossified superior transverse scapular ligament can be a risky factor at surgical explorations during a suprascapular nerve decompression [6]. In this case report, a complete absence of the suprascapular notch in left scapula of a male was found.

Case Report:
In osteology section of Forensic Medicine Department, it was found that there was a left scapula of a male without the suprascapular notch. (Fig. 1 and 2) Various parameters of the said scapula were measured with a sliding caliper. These are mentioned in a Table 1.
Fig.1. Costal Surface of Left Scapula showing Absence of Suprascapular Notch

Fig.2. Dorsal Surface of Left Scapula showing Absence of Suprascapular Notch

Table 1: Parameters of the left scapula (male)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Measurement</th>
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<tbody>
<tr>
<td>Length of superior border from the base of coracoid process to medial angle</td>
<td>7.3 cm</td>
</tr>
<tr>
<td>Length of medial border from medial angle to inferior angle</td>
<td>11.5 cm</td>
</tr>
<tr>
<td>Length of lateral border from infraglenoid tubercle to inferior angle</td>
<td>12 cm</td>
</tr>
<tr>
<td>Maximum length of scapula from superior angle to inferior angle of the scapula</td>
<td>15.4 cm</td>
</tr>
<tr>
<td>Maximum breadth of scapula from the middle of the dorsal border of the glenoid fossa to the end of the spinal axis at the vertebral border.</td>
<td>11.2 cm</td>
</tr>
</tbody>
</table>
Discussion:
The suprascalpular notch is normally present in every scapula. It is commonly bridged by the superior transverse scapular ligament and thus converted into suprascalpular foramen. Various factors have been identified as being the causes of suprascalpular nerve entrapment, including variation in the shape of suprascalpular notch. It could be postulated that complete absence of the suprascalpular notch may also be one of the cause for the suprascalpular nerve entrapment syndrome [7]. Variations in the morphology of suprascalpular notch have been studied previously by various anatomists. As per classification of Rengachary et al (1979), there are six different varieties of suprascalpular notch based on specific geometrical parameters. The author quoted that variation in the morphology of suprascalpular notch has a role to play in suprascalpular nerve entrapment [8]. Natsis et al studied 423 different scapulae. According to his study, there are five different varieties of the suprascalpular notches present in the various scapulae. Type–I suprascalpular notches are more prone for the suprascalpular nerve entrapment neuropathy. But according to study of Dunkelgrun et al on suprascalpular notch, V-shaped notches would more likely to be connected with nerve entrapment [9]. The absence of suprascalpular notch in some of the scapulae also suggests the possibility of compression of suprascalpular nerve by the superior transverse scapular ligament.

With the entrapment of the suprascalpular nerve atrophy of supraspinatus, infraspinatus muscles may occur. Paralysis, weakness, numbness, burning sensation in the shoulder region may be the initial symptoms; later there may be only weakness of abduction and external rotation, as is seen in suprascalpular nerve injury.

Conclusion:
The knowledge of an anatomical variation of suprascalpular notch may always be of a great help to the clinicians in dealing with the patients with suprascalpular nerve entrapment. It is important along the course of suprascalpular nerve in the source of entrapment neuropathy as well as injury to the suprascalpular nerve in arthroscopic procedures. To avoid suprascalpular nerve lesions during shoulder procedures, in rotator cuff tears, the variation at the suprascalpular notch may always be detected by radiological means. Such type of report may be useful in understanding the role of variation at the suprascalpular notch in causing entrapment and to prevent iatrogenic nerve injuries during shoulder surgery.
References