

Study of Morphological Variations of Suprascapular Notch

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Abstract: The suprascapular notch is located medial to the root of coracoid process of the scapula. Suprascapular notch presents various types, among which narrowed one looks like V shaped and is vulnerable for suprascapular nerve entrapment syndrome. Hence we attempted to define various varieties of shapes of suprascapular notch in 104 dried scapulae and compared with the previous studies.

Keywords: Suprascapular notch, suprascapular foramen, suprascapular nerve entrapment syndrome

I. Introduction:

Scapula also known as the shoulder blade is triangular in shape and is the fulcrum and basis of all the motions of the humerus. Its peculiar shape has always been a point of attraction to many Anatomists. The superior margin of the scapula is thin and sharp and is the shortest of the three. It is interrupted by the scapular notch, which lies very close to the medial side of the coracoid process. This notch is bridged by the superior transverse scapular ligament, thus converting it into a foramen. The suprascapular nerve, the solitary branch from the upper trunk of the brachial plexus passes through the suprascapular foramen and supplies supraspinatus descends lateral to the scapular spine with suprascapular vessels and supplies infraspinatus and gives a twig to the shoulder joint.¹

Cadaveric studies reveal that the suprascapular notch may be either U shaped or V shaped, and some physicians believe that this anatomic variation may be related to an individual's predisposition to SSN entrapment at this level.² Hence, the study of variations in the shape of suprascapular notch become important.

II. Objective

To observe the variations in suprascapular notch, because some particular type of such variations are a predisposing factor for suprascapular nerve entrapment syndrome.

III. Materials

104 dried scapulae from Deccan Medical College and KIMS, Narketpally were studied. Scapulae with deformed superior border were excluded from the study.

IV. Methods

These scapulae were studied for different shapes of suprascapular notch, its absence and ossification of the suprascapular ligament. This system classifies the suprascapular notch into two distinct types, namely the U-shaped suprascapular notch, defined as having approximately parallel sides with a rounded base, and a V-shaped suprascapular notch, defined as having medial and lateral sides which converge toward a narrow base.³



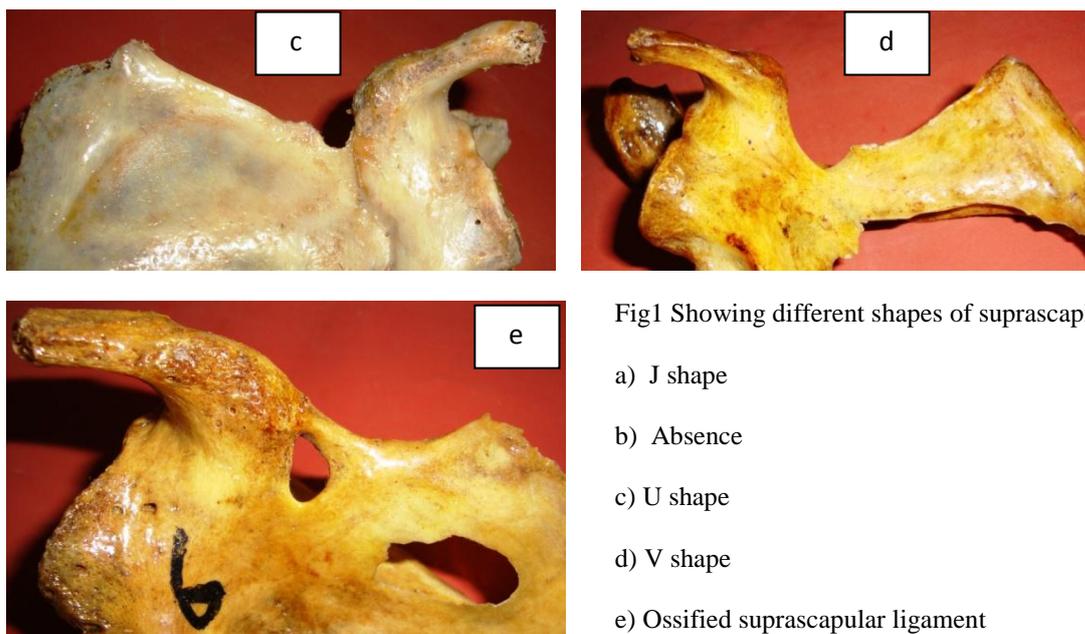


Fig1 Showing different shapes of suprascapular notches

- a) J shape
- b) Absence
- c) U shape
- d) V shape
- e) Ossified suprascapular ligament

V. Results

In the present study of 104 dried scapulae (as shown in Table1) we found 45 scapulae with J shaped suprascapular notch, 28 u shaped suprascapular notch and 2 v shaped suprascapular notch. There were 3 scapulae with indentation at the place of suprascapular notch while 24 scapulae showed the absence of suprascapular notch. We found 3 scapulae with ossification of superior transverse scapular ligament thus converting suprascapular notch into foramen

Table1 showing the different varieties of suprascapular notch- their number and percentage

N=104

Shape f Notch	Number of Scapulae	Percentage (%)
J shape	45	43.26
U shape	28	26.92
V shape	2	1.92
Indentation	3	2.88
Absent	24	23
Ossified suprascapular Ligament	3	2.88

VI. Discussion

The shape of the suprascapular notch was described and classified by various authors in the past. They are J shaped, U shaped V shaped, indentation at the suprascapular notch, absence of notch, and ossification of suprascapular ligament. The results of the present study compared with those of previous studies are tabulated as below.

Table 2 showing comparison of percentage of distribution of suprascapular notch of present study to that of previous studies

Shape	Previous studies (%)					Present study 2014
	Iqbal et al ⁴ 2010	Sinkeet et al ⁵ 2010	Polguy et al ⁶ 2011	Soni et al ⁷ 2012	Vasudha et al ⁸ 2013	
J shape	22	-	-	27	19.13	43.26
Symmetrical	-	29	2.3	-	34.7	-
U shape	13.2	21(shallow)	24.4 (deep)	58	6.08 (shallow) 6.08 (deep)	26.92
V shape	20	5.18	-	7	-	1.92
Indentation	33.5	-	-	3	7.82	2.88
Absent	22.5	2.12	-	2	6.08	23
Ossified SSL	-	-	-	14	6	2.88
Wide notch	-	-	57.7	-	6.95	-
Hockey stick	-	22	-	-	5.21	-

shape						
Groove	-	-	-	-	0.88	-

Among the total number, the J shaped suprascapular notch was maximum (43.26%). The least number was V shaped i.e. 1.92%. This finding of least V shaped being least common correlated with Soni et al and Iqbal et al. This study shows U shaped suprascapular notch as 26.92%. In 23% of scapulae suprascapular notch was absent. In 2.88% of scapulae an indentation was observed at the suprascapular notch. We also found completely ossified suprascapular ligament converting the notch into foramen in 2.88% scapulae. Dunkelgrun et al stated that ‘U’ shaped notches had a larger area than the ‘V’ shaped notches, leading to the assumption that a ‘V’ shaped notch is more likely to be connected with nerve entrapment.⁹

VII. Conclusion

The study of variations of suprascapular notch and ossification of suprascapular ligament is important to understand suprascapular nerve entrapment syndrome. Hence, our study attempted to define the various varieties of the suprascapular notch. This study is useful for anatomists, orthopaedicians, radiologists and neurosurgeons for a better diagnosis and management of the entrapment syndrome.

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