Abstract

Introduction
Morphometric variations of the suprascapular notch and the ossification of the superior transverse scapular ligament bridging the notch and thus transforming it into the suprascapular foramen is the potential cause for the suprascapular nerve entrapment syndrome. We report here a rare occurrence of both suprascapular notch and suprascapular foramen together in a left scapula.

Case report
The notch was wide and blunt V shaped while the foramen was tiny and oval in shape.

Conclusion
Co-existence of both suprascapular notch and the foramen may aggravate the suprascapular neuropathy condition.

Introduction
The suprascapular notch (SSN) is situated at the superior border of the scapula close to the base of the coracoid process. The superior transverse scapular ligament bridges over the notch and converts it into a passage to allow the passage of suprascapular nerves. Occasionally a bony bridge resulting from the ossification of the ligament may form and convert the notch into the suprascapular foramen (SSF). This occurrence is frequently seen in animals, but its prevalence is said to be very low in humans.

The suprascapular nerve provides motor branches to the supraspinatus and infraspinatus muscles of the scapula, and sensory branches to rotator cuff structures and ligamentous structures of the shoulder joints. Hence, locating the topographic position of the SSN and or SSF marks an important landmark during arthroscopic shoulder operations.

Anatomical variations related to shapes and position of the SSN have been studied and documented in the literature. Very rarely, the SSN may be totally absent. Coexistence of SSN and SSF is the rare osteological anomaly in the scapula, in which a bony lamina intervenes between these two bony landmarks. We discuss the possible cause of coexistence of the SSN and SSF and its possible consequence in this case report.

Case report
During osteology demonstration classes for undergraduate medical students, we found a rare variation of the scapula. A left scapula showed the coexistence of a suprascapular notch and a suprascapular foramen. The suprascapular foramen was directed upward and laterally when viewed from the front (Figure 1 and Figure 2).

The foramen was vertically oval and measured about 5mm vertically and 2mm transversely. It was very close to the root of the coracoid process. The suprascapular notch was shallow and was situated superomedial to the foramen.

Discussion
The suprascapular nerve entrapment is a pathological condition wherein the affected nerve is compressed within the narrow passage of SSN/SSF. The compression of the nerve leads to mechanical irritation during shoulder movement which in turn may aggravate the condition. Deformities in the shapes of the SSN are said to play a major role in this regard. However, clinical studies indicate that, there is no direct co-relation between type of the notch and nerve entrapment condition.

A rare occurrence of both SSN and SSF with the intervening bony lamina may often increase the risk of suprascapular neuropathy.

Shapes of the SSN show a variety of types among the individuals. Various patterns of notches have been classified early in 1979 by Rengachary. This classification is being used by many researchers. According to this classification, the complete absence of the notch was categorised as type I, while wide blunt V shaped notch as type II. The U shaped notch with parallel lateral margins was included under type III and small V shaped notch when it persists, has been classified as type IV. U shaped notch with partial ossification was included under type V and that of complete ossified ligament was regarded as type VI. The present case does not fit into any of these classifications, as it presents both, notch as well as foramen together.

However, as far as type of notch is concerned, it may be regarded as type II, as it was wide and blunt V shaped. The prevalence of this type of notch (type II) in an Indian population is reported to be 8.65 to 10%.

The co-existence of SSN and the SSF is a rare condition. Very few such cases have been reported so far. The frequency of coexistence of SSN and SSF is variable and depend on the population. In estimation, it was found that, its occurrence is 0.33% in the Polish population and about 0.7% in German and Kenyan populations.
Michael et al. in their case series study have described as many as four hypothetical possibilities of the formation of bony bridge separating the suprascapular notch from the suprascapular foramen thus making their co-existence. According to their first hypothesis, it may be due to ossification of the single bundle of the anterior coraco-scapular ligament.

The second hypothesis explains the possibility of calcification of the inferior part of the bifid superior transverse scapular ligament. The third hypothesis seemed to be highly complicated and according to which, an incomplete ossification of the superior transverse scapular ligament (the middle band of trifid ligament) might be the cause for it. The fourth hypothesis stands on the fact of possible calcification of the superior band of the bifid anterior coracoscapular ligament.

**Conclusion**

Morphological alterations in the SSN or SSF are undoubtedly the predisposing factors for the suprascapular nerve entrapment. This condition becomes worse when there is a presence of both together. In conclusion, co-existence of the suprascapular notch and tiny suprascapular foramen as seen in current case increases the risk of neuropathy by causing nerve irritation against bony margins during its passage through the foramen.

Radiological examination of the scapula in the diagnosis of nerve entrapment syndrome helps the surgeons in understanding the exact reason and location of entrapment which in turn enhances the therapeutic procedures. The direction of the foramen in the current case was upward and laterally. Hence the foramen may go unnoticed in PA views of radiography.

**References**


