

OSSIFICATION OF SUPERIOR TRANSVERSE SCAPULAR LIGAMENT OF HUMAN DRY SCAPULAE IN CENTRAL INDIAN POPULATION

Thammiseti Praveen¹, Mahesh Dhoot^{2*}, Naresh Thaduri³, Kiran Kumar P⁴ & Hemanth⁵

¹Tutor, Department of Anatomy, Rama Medical college hospital and Research Center, Kanpur (UP)

²Tutor, Department of Anatomy, RKDF Medical college & Research Center, Bhopal(M.P) India.

³Tutor, Department of Anatomy, L.N. Medical college & Research Center, Bhopal (M.P) India.

⁴Tutor, Department of Anatomy, Rama Medical college hospital and Research Center, Kanpur (UP)

⁵Tutor, Department of Anatomy, AIIMS, Bhopal (M.P) India.

*Corresponding Author Email: maheshdhoot12@gmail.com

ABSTRACT

The superior transverse scapular ligament (STSL) is a fibrous band connecting two borders of suprascapular notch (SNN) on the upper border of the scapula. Complete ossification of STSL with formation of bony foramina is the most recognized predisposing factor for the compression of suprascapular nerve at the suprascapular notch. The aim of this study was to see the incidence of the ossified superior transverse scapular ligament (STSL) on dried central Indian scapulae. 96 dried scapulae from the Anatomy Departments of RKDF Medical College & Research center and , L.N. Medical college & Research Center, Bhopal, were examined. The scapulae included in this study were 53 of right side and 43 of left side. Scapulae with damaged superior border were not considered for the study. 96 dry human scapulae were studied. Scapula with superior transverse scapular ligament (STSL) were recorded. It was found that complete ossification of superior transverse scapular ligament was found in 3 out of 96 scapulae. The incidence was 3.1% in Central Indian population. The anatomical knowledge of ossified STSL may be helpful for radiologists, neurosurgeons and orthopaedic surgeon and clinician dealing with suprascapular nerve entrapment neuropathy.

KEY WORDS

Scapula, superior transverse scapular ligament (STSL), suprascapular notch (SNN).

INTRODUCTION

Scapula also known as the shoulder blade which is triangular in shape .Its peculiar shape has always been a point of attraction to many Anatomists. Superior transverse scapular ligament (STSL) converts the suprascapular notch into osteofibrous suprascapular foramen and is attached laterally to the root of coracoid process and medially to the limit of the notch. The suprascapular nerve (SN) passes below the ligament through the opening¹ . While the suprascapular artery and vein usually pass

above the ligament². An anatomy textbook describes ossification of STSL³.

Suprascapular nerve is a branch from upper trunk of brachial plexus, supply the motor branches to supraspinatus and infraspinatus muscles and sensory branches to rotator cuff muscles and ligaments of shoulder girdle. Complete ossification of the superior transverse scapular ligament has gained increased attention over the past few years, because of it being one of the possible causes of suprascapular nerve entrapment.

Many researchers reported variable incidence of complete ossification of STSL which varies in different population. The documented variations of the STSL include calcification, partial or complete ossification and multiple bands. In the diagnosis of suprascapular nerve entrapment syndrome these variations in the anatomy of the STSL sometimes feature in the hierarchy of possible etiologic factors for supra scapular nerve entrapment syndrome. On the other hand, in some populations, the frequency of ossified STSL is estimated to be 30.56% and is not correlated with an increase of cases of suprascapular nerve entrapment⁴.

In Central Indian population as there is no data about STSL of dry scapulae. So we studied about this topic.

MATERIALS AND METHODS

In present study, dried 96 scapulae were analysed, irrespective of age and sex to see the



Fig.1: Anterior view



Fig.2: Superior view

DISCUSSION

The suprascapular notch is frequently bridged by bone rather than a ligament and thus converting in to foramen in some animals but incidence is much less in humans. The variations of superior transverse scapular

presence of ossified STSL from department of Anatomy of RKDF Medical college, and L N Medical College, Bhopal. The scapulae included in this study were 53 of right side and 43 of left side. Each bone was closely observed for the presence of suprascapular foramen. The bones showing suprascapular foramen (ossified STSL) were photographed. Scapulae with damaged superior border were not considered for the study.

RESULTS

96 dry scapulae were examined. The presence of suprascapular foramen (ossified superior transverse scapular ligament) was observed in three scapulae out of 96 human dry scapulae bones. Out of 3 scapulae Two scapulae of right side and one scapulae of left side showed evidence of ossification of STSL. This shows that incidence of ossified STSL is 3.1% in central Indian population (Fig No:1).

ligament (S.T.S.L) have been studied by various workers and these variations have been identified as possible predisposing factors to suprascapular nerve entrapment syndrome.

In present study, complete ossification of transverse scapular ligament (bony foramen) is

found in 3.1% (3 out of 96) scapulae. According to Silva et al⁵ studies the prevalence of complete ossified STSL on dry scapulae in Brazilian population was 30.76% which is quite high as compared to other studies. Vallois⁶ reports suggested that the incidence of complete ossified STSL in Italian population was 6.5%. According to Kajava⁷ studies the incidence to be 1.5% in Finnish scapulae.

The suprascapular nerve has long course and it travels under STSL and spinoglenoid ligament. Variations of these ligaments may irritate the SN. Irritation of the SN gives rise to pain which is deep and poorly localized and because of this the cause of the pain and tenderness is difficult to discover in any individual and the muscle atrophy starts⁸.

Now coming to Indian studies Sd Jadhav et al⁹ reported the incidence of 10.57% (37/350) in Maharashtra population which is alarming. According to Raj Kishore Mahato¹⁰ complete ossification of STSL is 4.92% and also he describes that ossification may be influenced by age, mechanical load on ligament, sex and genetic factors and can be one of the risk factors for suprascapular entrapment neuropathy. According to Mistry P¹¹ studies the incidence of ossified STSL is 19.44% in Surat population. Khan and Das et al¹² also reported a case of complete ossification STSL in Indian scapula.

Present study shows that the incidence of STSL ossification is lower than most of the populations of the India.

CONCLUSION

The present study report indicates that complete ossification of STSL can occur in central Indian scapulae also these will help to the clinicians in the diagnosis and treatment of suprascapular nerve entrapment syndrome.

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***Corresponding Author:**
maheshdhoot12@gmail.com