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LARGEST AND PYRIFORM SHAPED SUPRASCAPULAR FORAMEN WITH THICKEST AND COMPLETELY OSSIFIED SUPRASCAPULAR LIGAMENT

Anatomy

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ABSTRACT

In order to observe ossification of suprascapular ligament 200 adult human scapulae were studied. Only in one scapula complete ossification of thickest suprascapular ligament forming superior boundary of a largest suprascapular foramen was found.

KEYWORDS

Scapula, Suprascapular Ligament, Suprascapular Foramen, Ossification.

INTRODUCTION

Ticker, et. al. (1998)1 reported variations of the suprascapular ligament including its calcification partial or complete ossification and multiple bands. Callahan et al. (1991)2 described that in the diagnosis of suprascapular nerve entrapment syndrome, these variations in the anatomy of suprascapular ligament sometimes feature in the hierarchy of possible etiologic factors. However suprascapular nerve entrapment syndrome is reported without ossification of suprascapular ligament also. Khan, (2006)3, noticed complete ossification of the suprascap ular ligament in an Indian male adult with a small suprascapular foramen. Keshaw Kumar (2013)4, observed large suprascapular foramen with complete ossification of thick suprascapular ligament in north Indian male adult. Present study was conducted to observe largest Suprascapular foramen with thickest and completely ossified suprascapular ligament which is not available in the literature as yet.

MATERIAL AND METHODS

200 adult male scapulae were collected in the department of Anatomy, M.L.N. Medical College, Allahabad. Suprascapular notch, suprascapular ligament,suprascapular foramen and ossification of suprascapular ligament was observed. Vertical and transverse measurements of suprascapular foramen were also recorded.

OBSERVATIONS

During study of general features of scapulae of North Indians belonging to Allahabad district only in one out of 200 scapulae there was a pyriform shaped largest suprascapular foramen bounded by bony margins all around due to complete ossification of a thickest suprascapular ligament (superior transverse scapular ligament) (Fig.1) in place of suprascapular notch. This scapula was of right side in which suprascapular foramen measured 13mm vertically and 7mm transversely (Fig.2). Thickness of completely ossified suprascapular ligament was 4mm. Well defined deep muscular impressions were preset in subscapular fossa and supraspinatus fossa of this adult male scapula of right side.

Fig. 1 (Inferoventral view of human right scapula showing suprascapular foramen)

fig. 2 (Superodorsal view of human right scapula showing suprascapular foramen)

DISCUSSION

In some animals, suprascapular notch is bridged by a bone instead of a ligament therefore complete ossification of suprascapular ligament in this case supports theory of evolution of human beings from lower animals. In human being the conversion of suprascapular notch into a bony foramen as a result of ossification of suprascapular ligament was seen in 3 out of 60 scapulae i.e. (5%) by Poirer and Charpy (1911)5. Kajava (1924)6 found bony suprascapular foramen in 2 out of 133 scapulae i.e. (1.5%). Vallois (1925)7 observed occurrence of foramina 13 times in 200 Frenchmen scapulae i.e. (6.5%) Vallois (1926)8 noticed that in Italian scapulae foramina were 6.1% and in a series of scapulae from various sources the incidence varied from 0% to 3.3%. Gray (1942)9 reported foramina in 73 out of 1151 scapulae i.e. (6.34%) but no supracapular foramina were present in 87 Indian scapulae. Cohen et.al. (1997)10 described a familial case of calcification of suprascapular ligament affecting a 58 years old man and his son who had ossification of superior transverse scapular ligament causing entrapment neuropathy of the suprascapular nerve and its associated clinical symptoms of pain, weakness, atrophy of supraspinatus muscle. Osuagwu, et. al. (2005)11 also reported a case of complete ossification of the supracapular ligament in a Nigerian male adult. There are description in the literature of bifid (Alon, et. al. 1998)12 and trifid (Ticker, et. al. 1998)1 suprascapular ligament, with the former including an account of ensuing suprascapular nerve entrapment. Rengachary et. al (1979)13 have reported six different types of anatomical variations in suprascapular notch. They also reported that these anatomical variations of the suprascapular notch and suprascapular ligament constitute potential predisposing factors to suprascapular nerve entrapment.

In the present study incidence of complete ossification of suprascapular ligament was only in one out of 200 Indian scapulae i.e. (0.5%). Well defined deep muscular impressions situated in subscapular fossa and supraspinatus fossa revealed that this was a scapula of adult male. Largest size of suprascapular foramen (13mmx7mm) indicated that perhaps not only suprascapular nerve but also suprascapular vessels passed through it. Superior bony boundary

of suprascapular foramen was thickest (4mm) which must be due to complete ossification of a thickest suprascapular (superior transverse scapular) ligament probably due to continuous friction of thick and well developed suprascapular nerve and vessels with the margins of suprascapular foramen while passing through it to supply supraspinatus and infraspinatus muscles in this labour class/ physically active muscular man using these muscles frequently for moving his upper limb at right shoulder joint.

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