



Figure 2: Incidence of absence of suprascapular notch in different population

Table 3: Comparative statement of Incidence of absence of suprascapular notch in Indian population by different authors

Sl. No.	Author (year of study)	No. of specimen studied	Incidence (%)
1.	Rekha B. S. ^[16] (2013)		Single case report
2.	Vasudha T K et al ^[13] (2013)	115	6
3.	Muralidhar Reddy Sangam et al ^[10] (2013)	104	21.15
4.	Vandana and Sudha ^[12] (2013)	134	4.5
5.	Pragna et al ^[14] (2013)	80	6.25
6.	Usha Kannan et al ^[11] (2014)	400	20
7.	Present study (2014)	220	15.46

5. Conclusion

In this study, we report the incidence of absence of suprascapular notch in Indian population, which is one of the risk factors for suprascapular nerve entrapment neuropathy. This anatomical information is very helpful in better understanding of clinical and surgical practice in this region. It may be helpful in avoiding iatrogenic suprascapular nerve injury in different arthroscopic procedures. Since the present study is performed with a limited number of dry scapulae, so there is need of further more clinical, radiological and cadaveric studies.

6. Acknowledgement

We sincerely thank the Heads of the Departments of Anatomy & Forensic Medicine & Toxicology of Patna Medical College (Patna, Bihar, India) & Nalanda Medical College (Patna, Bihar, India) for granting the permission to carry out the study in the department.

References

- [1] Moore KL, Dalley AF. Clinical oriented Anatomy. 5th edition, Williams & Wilkins Lippincott, 2006. pp 730-732.
- [2] Khan, M. A. Complete ossification of the superior transverse scapular ligament in an Indian male adult. Int. J. Morphol. 2006; 24(2):195-6.
- [3] Standring S, "Pectoral girdle and upper limb" in Gray's Anatomy: The Anatomical Basis of Clinical Practices, Johnson D & Collins P. , Eds. Churchill Livingtone, New York, USA, 40th ed, 2008. pp. 793-821.
- [4] Poberaj B, Kovacic L. The presence of suprascapular neuropathy in rotator cuff tears. International Journal of Shoulder Surgery 2007; 1:58-63.
- [5] Rengachary, S. S.; Burr, D.; Lucas, S.; Hassanein, K.M.; Mohn, M.P. & Matzke, H. Suprascapular entrapment neuropathy: a clinical, anatomical, and comparative study. Part 1-Clinical study. Neurosurg., 1979; 5:441-46.
- [6] Rengachary, S. S.; Burr, D.; Lucas, S.; Hassanein, K.M.; Mohn, M.P. & Matzke, H. Suprascapular entrapment neuropathy: a clinical, anatomical, and comparative study. Part 2. Anatomical study. Neurosurg., 1979; 5:447-51.
- [7] Callahan, J. D.; Scully, T. B.; Shapiro, S. A. & Worth, R.M. Suprascapular nerve entrapment. A series of 27 cases. J. Neurosurg. 1991; 74: 893-6.
- [8] Wang HJ, Chen C, Wu LP, Pan CQ, Zhang WJ, Li YK. Variable morphology of suprascapular notch: an investigation and quantitative measurements in Chinese population. Clin Anat. 2011; 24: 47-55.
- [9] Sinkeet SR, Awori KO, Odula PO, Ogeng'o JA, Mwachaka PM. The suprascapular notch: its morphology and distance from the glenoid cavity in a Kenyan population. Folia Morphol (Warsz). 2010; 69:241-5.

- [10] Muralidhar Reddy Sangam, Sattiraju Sri Sarada Devi, Karumanchi Krupadanam, Kolla Anasuya: A Study on the Morphology of the Suprascapular Notch and Its Distance from the Glenoid Cavity. *J Clin Diagn Res.* 2013; 7(2):189- 92.
- [11] Usha Kannan, N.S. Khannan, J. Anbalagan, Sudha Rao: Morphological study of suprascapular notch in Indian dry scapulae with specific reference to the incidence of completely ossified superior transverse scapular ligament. *J Clin Diagn Res.* 2014 March;8(3):7- 10.
- [12] Vandana R, Sudha Patil. Morphometric study of Suprascapular Notch. *National Journal of Clinical Anatomy.* 2013;2(3):140-44.
- [13] Vasudha TK, Ashwija Shetty, Sadashivana Gowd, Rajasekhar SSSN: Morphological study on suorascapular notch and superior transverse scapular ligaments in human scapulae. *J Med Res Health Sci.* 2013;2(4):793-798.
- [14] Pragna Patel, S V Patel, S M Patel, Badal Jotania, Sanjay Chavda, Dhara Patel. Study of variations in the shape of the suprascapular notch in Dried Human Scapula. *Int J Biol Med Res.* 2013;4(2):3162-4.
- [15] David A. Ofusori, Raymond A. Ude, Christina U. Okwuonu, and Olamide A. Adesanya. Complete absence of the suprascapular notch in a Nigerian scapula: A possible cause of suprascapular nerve entrapment. *Int J Shoulder Surg.* 2008 Oct-Dec; 2(4): 85–86.
- [16] Rekha. B. S. Complete absence of suprascapular notch- a case report. *Journal of Evolution of Medical and Dental Sciences.* 2013; 2(1):19-22.
- [17] Cummins CA, Anderson K, Bown M, Nuber G, Roth SI. Anatomy and histological characteristics of the spinoglenoid ligament. *J Bone Joint Surg Am.* 1998; 80:1622-1625.
- [18] Dunkelgrun M, Lesaka K, Park SS, Kummer FJ, Zuckerman JD. Interobserver reliability and intraobserver reproducibility in suprascapular notch typing. *Bull Hosp Joint Dis.* 2003; 61: 118-22.
- [19] Cohen, S. B.; Dnes, D.M. & Moorman, C.T. Familial calcification of the superior transverse scapula ligament causing neuropathy. *Clin. Orthop. Rel. Res.* 1997; 334:131-5.
- [20] Alon M, Weiss S, Fishel B, Dekel S. Bilateral Suprascapular nerve entrapment syndrome due to an anomalous transverse scapular ligament. *Clin Orthop.* 1988; 234:31-33.
- [21] Ticker, J. B.; Djurasovic, M.; Strauch, R. J.; April, E.W.; Pollock, R. G.; Flatow, E. L. & Bigliani, L.U. The incidence of ganglion cysts and variations in anatomy along the course of the suprascapular nerve. *J. Shoulder Elbow Surg.*, 1998; 7(5):472-8.
- [22] Garcia G, McQueen D. Bilateral suprascapular nerve entrapment syndrome: case report and review of the literature. *J Bone Joint Surg Am.* 1981; 63:491-492.
- [23] Polguy M, Jędrzejewski KS, Podgórski M, Topol M: Correlation between morphometry of the suprascapular notch and anthropometric measurements of the scapula. *Folia Morphol.* 2011; 70:109–115.
- [24] Thompson WAL and Kopell HP. Peripheral entrapment neuropathies of the upper extremities. *New England Journal of Medicine.* 1959; 260: 1261-1265.
- [25] Black KP and Lombardo JA. Suprascapular nerve injuries with isolated paralysis of the infraspinatus. *Am J Sports Med.* 1990, 18; 225-228
- [26] Natsis K, Totlis T, Tsikaras P, Appell HJ, Skandalakis P, Koebke J. Proposal for classification of the suprascapular notch: a study on 423 dried scapulae. *Clin Anat.* 2007; 20:135–9.
- [27] Khadija Iqbal and Rameez Iqbal. Classification of Suprascapular Notch According to Anatomical Measurements in Human Scapulae. *Journal of the College of Physicians and Surgeons Pakistan.* 2011; 21 (3): 169-170.
- [28] Michał Polguy, Kazimierz S. Jędrzejewski, Mirosław Topol. Special paper – Anatomical pathology Sexual dimorphism of the suprascapular notch – morphometric study. *Arch Med Sci.* 2013; 9, 1: 177-183.
- [29] Paolo Albino, Stefano Carbone, Vittorio Candela, Valerio Arceri, Anna Rita Vestri, Stefano Gumina. Morphometry of the suprascapular notch: correlation with scapular dimensions and clinical relevance. *BMC Musculoskelet Disord.* 2013;14:172.

Particulars of Contributors

Senior Resident, Department of Anatomy, Indira Gandhi Institute of Medical Sciences, Sheikhpura, Patna, Bihar (India).

Assistant Professor, Department of Anatomy, Lord Buddha Koshi Medical College, Saharsa, Bihar (India).

Address of Correspondence:

Dr. Md. Jawed Akhtar, Senior resident, Department of Anatomy, Indira Gandhi Institute of Medical Sciences, Sheikhpura, Patna-800014, Bihar, India.

Email: drjawedakhtarpmch@gmail.com,

Mobile: +919334242318

Financial or Other competing interests: None



Figure 3: Left side dry scapula with absence of the suprascapular notch (arrow)



Figure 4: Right side dry scapula with absence of the suprascapular notch (arrow)

Author Profile



Dr. Md. Jawed Akhtar received his MBBS as well as MS (Anatomy) degree from Patna Medical College, Patna, Bihar, India. At present he is working as senior resident in Indira Gandhi Institute of Medical Sciences, Patna, Bihar, India.



Dr. Premjeet Kumar Madhukar received MBBS degree from Government Medical College, Miraj, Maharashtra, India. He also did Diploma in Orthopedics from Dharbhanga Medical College, Bihar, India and MS (Anatomy) degree from Patna Medical College, Patna, Bihar, India. At present he is working as Assistant professor in Lord Buddha Medical College, Saharsa, Bihar, India.