



Original Research Article

A Study of Double Foramen Transversarium in Dried Cervical Vertebra

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ABSTRACT

Objectives: The aim of the present study is to know the incidence of double foramen transversarium in the dried cervical vertebra and its morphological importance.

Methods: A total number of 100 dried cervical vertebrae were collected from the department of anatomy to investigate the double foramen transversarium. The occurrence of double foramina was observed on both sides.

Results: In the present study out of 100 cervical vertebrae, noticed double foramen transversarium in 3 (3%) vertebrae, among them double foramen seen unilaterally in 2 (2%) vertebrae and bilaterally in 1(1%) vertebra.

Conclusion: In the present study observed Unilateral double foramen transversarium was more common than bilateral. This anatomical knowledge is clinically important since the course of the vertebral artery may be distorted in such situations. This study may be useful to neurosurgeons and radiologists.

Keywords: Cervical vertebra, Vertebral artery, Foramen transversarium.

INTRODUCTION

The foramen transversarium of cervical vertebra is a result of the special formation of the cervical transverse processes. It is formed by the costal element fused to the body and the true transverse process of the vertebra. The foramen transversarium transmits the vertebral artery, vertebral veins and sympathetic nerves.^[1] An accessory transverse foramen is seen smaller in size than the primary foramen and generally found in the sixth cervical vertebra, and less frequently in the adjacent vertebrae.^[2] Double foramen transversarium

is a rare anatomical variation and this may affect the course of the vertebral artery and may be distorted.

MATERIALS & METHODS

The present study was conducted in the department of anatomy, Bhaskar Medical College, Yenkapally, Moinabad, Ranga Reddy District, Andhra Pradesh. A total number of 100 dried cervical vertebrae were collected for this study. All the collected cervical vertebrae were examined macroscopically for the existence of the

double foramen transversarium on both sides.

RESULTS

In the present study out of 100 dried cervical vertebrae, the incidence of double foramen transversarium is (3%). We have observed double foramen transversarium in 3 cervical vertebrae total. Bilateral double



FIGURE: 01: Bilateral double foramen transversaria.

foramen was seen in 1 vertebra (1%) (FIGURE: 01) and unilateral double foramen transversarium was seen in 2 vertebra (2%), one on right side (FIGURE: 02) and another one on left side (FIGURE: 03) transverse process of vertebra. So in the present study unilateral incidence of double foramen transversarium was more than bilateral one.



FIGURE: 02: Right Unilateral double foramen transversaria.



FIGURE: 03: Left Unilateral double foramen transversaria.

DISCUSSION

Pretty Rathnakar et al (2013)^[3] reported, the incidence of double foramen transversarium as a total of 5.7% (unilateral 3.6%, bilateral 1.42%) out of 140 vertebrae. Laxmi Chandravadiya et al (2013)^[4] reported, the incidence was 4.76% total

(unilateral 3.80%, bilateral 0.95%) out of 140 vertebrae. Archana Sharma et al (2010)^[5] reported double foramen transversarium both unilaterally and bilaterally in 16 vertebra out of 200 typical cervical vertebra. B.V. Murlimanju et al (2010)^[6] reported, the incidence was 6 (1.6%) out of 363 vertebra, among them double foramina seen 5 (1.4%), three foramina were seen in 1 (0.3%) and bilateral on only 1(0.3%), unilateral 5 (1.4%) (4 on right side and only 1 on left side). Taitz C et al (1978)^[7] reported double foramen transversarium in 34 vertebra out of 480. Shaarawy et al (2010)^[8] observed that, the occurrence of double foramina transversaria were most common at the lower cervical vertebra level (C5, C6 and C7) and frequently seen in C6 vertebra. Seventh cervical vertebra shows the maximum variability in foramen transversarium among

cervical vertebra.^[9] The anatomy and morphology of double foramen transversarium is helpful to the radiologists and spine surgeons in the interpretation of radiographic films and CT scans. Maintaining the vertebral artery intact constitutes an important concern during cervical surgical procedures.^[10]

CONCLUSION

In the present study we observed 3 out of 100 cervical vertebrae consist of double foramen transversaria and the incidence was 3%. A unilateral existence of double foramen was more common than bilateral. This study may important for radiologists and spine surgeons during cervical procedures.

REFERENCES

1. Das S, Suri R, Kapur V: Double foramen transversaria. An osteological study with clinical implications. *Int Med J.* 2005; 12: 311-313.
2. Bergman RA, Thompson SA, Afifi AK, Saadeh FA. *Compendium of Human Anatomic Variation.* Germany: Urban & Schwarzenberg, 1988:197.
3. Pretty Rathnakar, Remya K. Swathi. Study of accessory foramen transversaria in cervical vertebrae. *NUJHS.* 2013; (3): 4. 97 -99.
4. Laxmi Chandravadiya, Shailesh Patel, Jatin Goda, Vipul Chavda , Srushti Ruparelia, Shamin Patel. Double foramen transversarium in cervical vertebra: morphology and clinical

- importance. *int j res med.* 2013; 2(1);103-105.
5. Archana Sharma, Kuldeep singh, Vishnu Guptha, Subha Srivastava. Double foramen transversarium in cervical vertebra an osteological study. *J. Anat. Soc. India.* 2010; 59 (2): 229-231.
6. B.V. MurlImanju, Latha V. Prabhu, K. ShIlpa , Rajalakshmi RaI, K.V.N. Dhananjaya, P.J. JjI. Accessory Transverse Foramina in the Cervical Spine: Incidence, Embryological Basis, Morphology and Surgical Importance. *Turkish Neurosurgery.* 2011; 21: 3. 384-387.
7. Taitz C, Nathan H, Arensburg B. Anatomical observations of the foramina transversaria. *J Neurol Neurosurg Psychiatry* 41; 19:170–176.
8. El Shaarawy EAA, Sabry SM, El Gammaroy T, Nasr LE: Morphology and morphometry of the foramina transversaria of cervical vertebrae: A correlation with the position of the vertebral artery. *Aini Medical Journal.* 2010. Accessed December 10, 2010.
9. Taitz C, Nathan H, Arensburg B: Anatomical observations of the foramina transversaria. *J Neurol Neurosurg Psychiatry.* 1978; 41:170–176.
10. Riew K. Microscope assisted anterior cervical decompression and plating techniques for multilevel cervical spondylosis. *Operative Techniques in Orthopaedics.*1988; 8:22-33.

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