

Fusion of Cervical Vertebrae, A Case Study on Dry Vertebrae

Muvva Vedavyas¹, Gokul Krishna Reddy Nune (Posthumous)²

How to cite this article:

Muvva Vedavyas, Gokul Krishna Reddy Nune (Posthumous). Fusion of Cervical Vertebrae, A Case Study on Dry Vertebrae. *Ind Jr Anat.* 2024;13(2):61-63.

Abstract

Anomalies of the cervical vertebrae affect their function. Fusion of vertebrae is one such anomaly in which the two vertebrae appear structurally and functionally as single one. This study, aimed to find the incidence of the fusion of the cervical vertebrae, examined 200 dry adult cervical vertebrae of either sex in the Department of Anatomy, NRI Medical College, Andhra Pradesh, India. The clinical significance of this study has been thus discussed.

Keywords: Cervical vertebrae; Fusion of vertebrae

INTRODUCTION

In the Human body there are 7 cervical vertebrae. The first (C1-Atlas), Second (C2-Axis) and Seventh (C7-Vertebrae Prominens) are considered as Atypical cervical vertebrae. The third, fourth, fifth and sixth (C3 to C6), which are generally almost identical with each other, are termed as Typical cervical vertebrae.

Axis vertebra is different from other cervical vertebra by the presence of odontoid process, which projects cranially from the superior surface of the body. The axis acts as an axle for rotation of atlas and head around the dens.

The fusion of cervical vertebrae is a congenital anomaly in which two vertebrae appear structurally and functionally as single one. Vertebral fusion anomalies are associated with alteration of Pax-1 and Pax-9 gene expression in the developing vertebral column.

The present study is to study the incidence in the fusion of cervical vertebrae & its clinical importance.

Author's Affiliation: ¹MBBS Student, ²Assistant Professor, Department of Anatomy, NRI Medical College, Chinakakani 522503, Andhra Pradesh, India.

Corresponding Author: Muvva Vedavyas, MBBS Student, Department of Anatomy, NRI Medical College, Chinakakani 522503, Andhra Pradesh, India.

E-mail: vedavyasmuvva@gmail.com

Received on: 09.04.2021

Accepted on: 11.10.2021

MATERIALS AND METHODS

The present study was conducted in 2021 on 200 dry adult cervical vertebrae of either sex in the Department of Anatomy, NRI Medical College, Andhra Pradesh, India. The fused vertebrae were found and carefully studied.

RESULTS

In the present study the incidence of fusion in C2 with C3 is 2% (4 out of 200).

Clinical importance:

The fusion of C2 - C3 is clinically important as helpful to rule out syndromes like Klippel-Feil syndrome, Crouzon's syndrome, etc in which there is abnormality in the neck movements with shortening of spine in the cervical region.



Fig. 1: Showing the posterior aspect of axis fusing with 3rd cervical vertebra



Fig. 2: showing the lateral aspect of axis fusing with 3rd cervical vertebra



Fig. 3: Showing the posterior aspect of axis fusing with 3rd cervical vertebra in which spinous process is not fused completely



Fig. 4: Showing the posterior aspect of axis fusing with 3rd cervical vertebra with continuous vertebral canal for both vertebra

Congenital Fused Vertebrae is the primary malformation seen in chorda dorsalis. Awareness of these types of anomalies in cervical vertebrae is of great importance to anatomists, surgeons, neurologists, orthodontists. Also anesthetists should be aware of this type of anomaly while performing endotracheal intubation, where extension of the neck is needed. The symptoms of cervical vertebrae fusion can mimic other conditions, leading to potential misdiagnosis or delayed diagnosis.

REFERENCES

1. Bohlman HH. Acute fractures and dislocations of the cervical spine. *J Bone and Joint Surgery* 1979; 61-A(8): 1119-1141.
2. Bryce TH. Osteology the skeleton - Vertebral calumn. In: Schaffer EA, Symington J, Bryce TH, Editors. *Quains elements of anatomy*. 11th edition. London: Longmans Green and Co; 1915; 5-34.
3. William M, Newell RLM, Collin P. The back: cervical vertebrae. In: Standring S, Ellis H, Haely JC, Johson D, Williams A, *Gray's Anatomy*. 39th edition. Edinburg, London: Elsevier Churchill Livingstone; 2005: 742-746. Landells CD
4. Grant JCB. Cervical vertebrae. In: *An atlas of anatomy by regions*. 2nd edition. Baltimore, USA: The Williams and Wilkins Company; 1948: 268-274.
5. Sivakamasundari, V., Kraus, P., Sun, W., Hu, X., Lim, S. L., Prabhakar, S., et al. (2017). A developmental transcriptomic analysis of Pax1 and Pax9 in embryonic intervertebral disc development. *Biol. Open* 6 (2), 187-199. doi:10.1242/bio.023218

