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Anatomical Study of Abnormal Odontoid Process for Crowned Dens Syndrome

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ABSTRACT

Axis is the second cervical vertebra which is atypical. Dens or odontoid process of the axis forms the median atlantoaxial joint and also gives attachment to apical and alar ligaments. Apical ligament of dens is the remnant of embryologic notochord which may sometimes calcify causing compression, pain and restriction of neck movements as seen in crowned dens syndrome. 68 dried cervical vertebrae have been observed after excluding broken ones. 24 Atlas and axis vertebrae were examined where one axis showed a prominent dens. Morphometric measurements recorded with vernier calipers were 24.2 X 10.4 X 11.1 mms. The present study showed lengthier dens when compared with other studies. Etiology of crowned dens syndrome should be suspected in such cases. The apical ligament may be calcified at its attachment with the dens contributing to the lengthy odontoid process. Calcified apical ligament due to granular deposition gives crown like appearance of the crowned dens syndrome which commonly affects aged individuals. The present study reports an abnormal dens of the axis vertebra which may be due to crowned dens syndrome.

KEYWORDS: *Dens, axis, crowned dens syndrome, vertebrae*

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INTRODUCTION

MATERIALS & METHODS

Dried cervical vertebrae from the department have been separated for observation. After removing broken vertebrae, 68 cervical vertebrae have been examined. Atlas and axis vertebrae were separated and 24 bones were evaluated for any morphological abnormalities. One axis vertebra was found to have abnormal odontoid process. Measurements were taken with a vernier calipers. Photographs were captured comparing with a normal dens.

RESULTS

The following pictures depict the abnormal dens of the axis vertebra.

Fig: 1 Anterior and posterior views of axis with abnormal dens

Fig 2: Compared with normal axis vertebra anterior and posterior views

Graph 1: measurements of dens when compared with those of other studies