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PALATINE AND MAXILLARY TORUS ON THE BONY HARD PALATE

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ABSTRACT

The hard palate is formed anteriorly by the palatine processes of maxillae and posteriorly by the horizontal plates of palatine bones. The region of the median palatal intermaxillary suture is occasionally raised in whole or part of its length into a prominent ridge known as torus palatinus. A similar longitudinal maxillary torus may also appear on the palate. Torus palatinus is the most common exostosis of the maxillofacial skeleton. It usually does not cause symptoms, but removal may be required if it interferes with the function of oral cavity. Large variations in the prevalence of torus palatinus have been reported in different populations. However, not many studies have been reported on Indian population. The present study was conducted on human dry skulls to see the prevalence and dimensions of torus and maxillary palatinus.

Keywords: *Torus Palatinus, Maxillary Torus, Exostosis*

INTRODUCTION

The hard palate is formed anteriorly by the palatine processes of maxillae and posteriorly by the horizontal plates of palatine bones. The hard palate varies considerably in form- may be high vaulted or only a shallow concavity (Hamilton, 1976). Margins of the median palatal intermaxillary suture are sometimes raised into a palatine torus, variably smooth, pitted or rough. The torus may be present in whole or part of length of the intermaxillary suture. A similar longitudinal maxillary torus may appear on the alveolar process, palatal to the upper molar roots (Williams *et al.*, 2000, Breathnach, 1965).

Palatine torus occurs due to overgrowth of the bone of the palate and can be mistaken for a tumor. It does not require treatment unless it becomes very large and interferes with the normal functions of the oral cavity (McGregor and Plessis, 1969). The present investigation was conducted on dry human skulls to study the palate and find the incidence of palatine and maxillary tori.

MATERIALS AND METHODS

The osteological and morphological variations of the prominences in the bony palate of 67 skulls were studied. The present work was conducted to study the occurrence of palatine and maxillary tori in bony palate of dry human skulls. For this study, 67 skulls were examined from the department of Anatomy, Gian Sagar Medical & Dental College, Banur, Punjab, National Dental College, Dera Bassi, Punjab and Swami Devi Dayal Dental College, Barwala, Haryana.

The aim of this study is to investigate the prevalence, size, and location of palatine and maxillary tori. The skulls were observed carefully. Wherever a torus was present, it was photographed and its measurements were taken with the help of vernier calipers.

Observations

Out of the 67 skulls examined, palatine torus was observed in two skulls and maxillary torus was observed in one skull. These were referred as Skull I, II & III.

Skull I- Had a palatine torus present along the interpalatine suture (Figure1). The dimensions were different on each side of the interpalatine suture. On the right side, the torus was 8.26 mm in length and 4.24 mm in breadth while on the left side, the torus measured 9.87mm in length and 4.24 mm in breadth.

Skull II- The palatine torus was present medially along the interpalatine suture. It measured 7.38 mm in length and 6.78 mm in breadth.

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Skull III- Had a bilateral maxillary torus (Figure 2). Torus was present bilaterally, along the groove of greater palatine nerves and vessels. The right- sided maxillary torus measured 16.33mm in length and 3.89mm in breadth. The left- sided maxillary torus measured 12.46mm in length and 4.37mm in breadth.

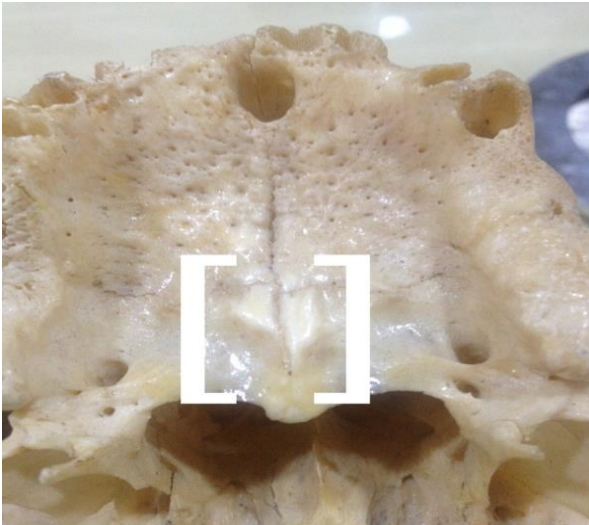


Figure 1: Palatine Torus



Figure 2: Maxillary Torus

RESULTS AND DISCUSSION

Discussion

The region of the median palatal intermaxillary suture is occasionally raised in whole or part of its length into a prominent ridge known as torus palatinus. Torus palatinus is the most common exostosis of the maxillofacial skeleton (Yildiz *et al.*, 2006). A maxillary torus provides a challenge when restoring an edentulous arch. Tori tend to have very thin mucosa and can be intolerant of normal pressures from a denture base. The tori tend to have large undercuts and at times extend to the junction with the soft palate, preventing the creation of a good palatal seal (Abrams and Hellen, 2006).

The present study was done on skulls of unknown age and sex. Some authors studied the prevalence of tori related to the sex of the case. In Jordanian edentulous patients, the torus was found in 29.8% (Quran and Dwairi, 2006). In another study (Skrzat, 2003), on 204 Cracovian skulls, 55 skulls showed torus. In both these studies, no statistical significance was found between the male and female palatine tori.

Various studies, conducted on different populations however show significant sex distribution. A study was done on bony palates of 160 Korean skulls, the palatine torus was found in 18.8% cases and the sex distribution of the palatine torus was significantly different (Lee, 2001). A sample of 956 North American Negroes showed torus palatinus in 19.65% and it occurred twice as often in females as in males (Schaumann, 1970). Among five thousand Norwegians, torus palatinus showed female predominance, with a sex ratio of 5:3 (Haugen, 1992).

Some studies have been conducted in young children to check the prevalence and sex distribution of torus palatinus. In a population of young Turkish schoolchildren (5 to 15 years), the prevalence of the palatine torus was 30.9% and the torus was significantly more in females than in males (Yildiz *et al.*, 2006). Out of 731 Chinese and Thai school children, 157 children had palatine torus and the frequency in the Chinese was twice as among the Thai children (Harris, 1962).

Some authors found a relation of palatine torus with the age. It was found in Norwegians that the tori were highest in the 35-to 65 year age group (Haugen, 1992). The prevalence of tori larger than 2 cm was much higher in the 21-year and older age groups than in the younger groups (Gorsky, 1996).

In European skulls, torus palatinus was discovered by (Zivanovic, 1980). In the present study, the torus was detected in only 4.1% skulls. In Kenya, the incidence of palatine torus was detected in 4.8% skulls

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(Hassanali and Mwaniki, 2009). However in the Germans, the incidence was 13.5% and 23.1% in Thai patients (Reichart *et al.*, 1988).

The aetiology of this common osseous outgrowth is probably multifactorial, including environmental factors acting in a complicated and unclear interplay with genetic factors (Gorsky, 1996). The torus seemed to be a dynamic phenomenon capable of growth and subject to resorption remodeling (Eggen, 1994). Torus palatinus usually does not cause symptoms, but removal may be required if it interferes with the function, denture placement, or suffers from recurring traumatic surface ulceration. . A maxillary torus provides a challenge when restoring an edentulous arch.

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