

Prevalence of torus palatinus Among Saudi population in Abha

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Abstract

Aim: To assess the prevalence of torus palatinus (TP) in relation to age, gender and site among Saudi people in Abha.

Materials and Methods: A total of 326 subjects, including 150 male and 167 female, were included in the study. A self-administered questionnaire followed by clinical examination was performed. The data was collected and analyzed in excel spread sheet. Results were displayed in tables and bar charts.

Results: The total number of patients with torus palatinus were 3 (0.92%) among the total 326 patients screened. The prevalence of torus palatinus was more frequent in women than in men. Age group 19-45 years had the maximum prevalence of torus palatinus and all the patients presented with flat shaped tori.

KEYWORDS: palate, torus palatinus, exostosis

Introduction

Torus palatinus (TP) may be defined as an exostosis of the hard palate localized along the median palatine suture, involving both the processi palatini and the os palatinum. Tori are nodular protuberances of mature bone, the exact designation of which depends on anatomic location¹. It contains compact and cancellous bone and is formed by the hypertrophy of the spongy and oral compact layers, the nasal compact layer remain unchanged². It is generally accepted as an anatomical variation rather than a pathological condition³. Torus palatinus is usually asymptomatic, grows slowly and is more common during the second and third decades of life. Although, not pathologically significant, torus palatinus very often needs surgical removal as it causes chronic trauma, interfere with oral function or with the replacement of a denture base or framework³.

Materials & Methods

A detailed self-administered questionnaire was designed. A total of 326 dental patients who visited the dental clinics at College of Dentistry, maxillofacial clinic of Asir Central Hospital and Asir dental center were included in this study. All these patients were examined for the presence of Torus palatinus. The subjects were stratified into five age groups: 18- 29, 30 -39, 40 -49, 50- 59 and 60 years and older. The examination of the Torus palatinus was performed by clinical inspection and palpation. Patients with questionable Torus palatinus were excluded from the study. For the diagnosis, Torus palatinus was defined as a raised bony exostosis in the midline of the hard palate. The shape of Torus palatinus was classified as flat, nodular, spindle and lobular.

Data collected was entered into a spreadsheet (Excel 2000; Microsoft, US) and analyzed subsequently using Statistical Package for Social Sciences (SPSS) version 16.0.

Table I: Torus Palatinus in relation to Age Group

Age Group	Total		
	Number of Patients	Number of Tori	Percentage of Tori(%)
1 (20-25 years)	140 43%	0	0
2 (26 -30 years)	37 11.3%	3	100%
3 (31 -35 years)	104 32%	0	0
4 (36 – 40 years)	44 13.5%	0	0
Total	325 100%	3 100%	100 100.0%

Table II: p value for Tori Occurrence

	Value	Df	Asymp. Sig. (2-sided) (p value)
Pearson Chi-Square	9.699	3	0.021

Table III: Torus Palatinus in relation to Gender

Gender	Tori Occurrence	
	Number of Patients	Percentage
Male	150	46%
Female	175	54%
Total	325	100%

P value 0.200

The prevalence of torus palatinus in relation to age, gender and type was assessed and displayed by frequency and percentage. The p value was analyzed by using the Pearson Chi-square test.

Results

The study sample comprised of 325 patients. A total of 3 torus palatinus were identified (0.9%) ($p=0.021$) (Table 1). The male to female ratio with torus palatinus was (1:2) and the ratio for patients with torus palatinus was (108:1). Age group 2 and 3 (i.e., 30 to 39 years and 40-49) (Table I) had the highest prevalence of torus palatinus (100%) and this decreased to nil prevalence with increasing age.

Table 2 shows distribution of torus palatinus according to the site. 66.6% prevalence of torus palatinus was found at the pre-molar – molar region followed by 33.3% in the molar region. There was no occurrence of torus palatinus at the anterior teeth region.

Table 3 shows distribution of torus palatinus according to the shape. All the three cases (100%) were flat in shape with absence of other shapes.

Discussion

Torus palatinus is a bony protrusion on the palate. Palatal tori are usually present on the midline of the hard palate.⁽⁴⁾ Most palatal tori are less than 2 cm in diameter, but their size can change throughout life. Palatal tori are more common in Asian and Inuit populations, and twice more common in females. Although some research suggest palatal tori to be an autosomal dominant trait, it is generally believed that palatal tori are caused by several factors.⁴ They are more common in early adult life and can increase in size. In some older people, the size of the tori may decrease due to bone resorption.

Sometimes, the tori are categorized by their appearance. Arising as a broad base and a smooth surface, flat tori are located on the midline of the palate and extend symmetrically to either side. Spindle tori have a ridge located at their midline. Nodular tori have multiple bony growths that have their own base. Lobular tori have multiple bony growths with a common base.

Palatal tori are usually a clinical finding with no treatment necessary.⁵ It is possible for ulcers to form on the area of the tori due to repeated trauma. Also, the tori may complicate the fabrication of dentures.

In the present study, only 3 torus palatini were found among the 325 patients screened with a prevalence of only 0.92% ($p=0.021$) which was statistically significant. A Turkish study performed in 80 dry skulls, reported a high prevalence (45.4%) of TP. Cagirankaya *et al.*,⁶ reported a prevalence of 20.9% in consecutive 253 subjects (17–49 years old) they screened. The TP prevalence in our study (0.92%) was lower in comparison to most of the other studies.² A similar low TP prevalence was found in a study conducted in Gizan region, Saudi Arabia (1.4%)⁷. The results in this study are closest to our study and the geographical area of this study is in

the same province of our study. These two results reveal that the racial differences are much more important for the prevalence.

In the present study, the TP prevalence was significantly higher in females (1.1%) than in males (0.6%). The findings of our study regarding the prevalence of TP in relation to gender are consistent with the results in other studies^{3,7}. There is no specific explanation for this difference, but genetics may be suggested as a major factor.

Earlier studies^{8,9,10} revealed higher TP prevalence's during the second and third decades of life, whereas in our present study, it was higher during the 4th decade (30-39 years of age group).

In the present study, most of TP was smaller than 2 cm (66.6%), and located in premolar-molar area (66.6%). Yildiz *et al.*¹¹, reported that 91.5% of TP smaller than 2 cm, and 62% located in molar area in 5–15 age group. King and More¹² who studied 400 individuals from the United States and United Kingdom reported that 67% of TP smaller than 2 cm. Therefore, the prevalence of Torus Palatinus is variable according to the geographic location which can be ascertained to the ethnicity.

Conclusion

- a) The prevalence of totus palatinus is low
- b) Females had a higher prevalence of tori than males with more prevalence in the fourth decade of life.
- c) Premolar-molar region of the hard palate was the most common site of tori with flat shape as the common clinical form
- d) Long term prospective studies are required for better assessment of the prevalence of torus palatinus.

References

1. Regezi JA, Sciubba JJ. Clinico-pathologic correlations. Philadelphia: WB Saunders. Oral pathology 1994;376–378.
2. Vidic B. Incidence of torus palatinus in Yugoslav skulls. J Dent Res. 1966;45:1511–1515.
3. Woo JK. Torus palatinus. Am J Phys Anthropol 1950;8:81–111.
4. Neville BW, Damn DD, Allen CM, Bouquot JE. Oral and maxillofacial pathology. 2nd ed. 2002;20.ISBN0-7216-9003-3
5. Tori Mandibular,maxillary,Palatal Study guide for oral pathology student at the university of Oklahoma college of Dentistry. <http://dentistry.ouhsc.edu/internet-web/courses/OD8502/tori>
6. Cagirankaya LB, Kansu O, Hatipoglu MG. Is torus palatinus a feature of a well-developed maxilla. Clin Anat 2004;17:623–625.
7. Salem.G, Holm SA, Fattah R, Basset S, Nasser C. Developmental oral anomalies among schoolchildren in Gizan region, Saudi Arabia. Community Dent Oral Epidemiol 1987;15:150–151.

8. Bernaba JM. Morphology and incidence of torus palatinus and mandibularis in Brazilian Indians. *J Dent Res* 1977;56:499–501.
9. Apinhasmit W, Jainkittivong A, Swasdison S. Torus palatinus and torus mandibularis in a Thai population. *Sci Asia* 2002;28:105–111.
10. Haugen LK. Palatine and mandibular tori. A morphologic study in the current Norwegian population. *Acta Odontol Scand* 1992;50:65–77.
11. Yildiz E, Deniz M, Ceyhan O. Prevalence of torus palatinus in Turkish school children. *Surg Radiol Anat* 2005;27:368-371
12. King DR, Moore GE. An analysis of torus palatinus in a transatlantic study. *J Oral Med* 1976;31:44-46