

FREQUENCY OF TORUS PALATINUS AND TORUS MANDIBULAR IN PATIENTS VISITING A TERTIARY CARE HOSPITAL IN PESHAWAR

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ABSTRACT

Objective: The objective of the study was to determine the frequency of torus palatinus and torus mandibularis in patients visiting the outpatient department of Sardar Begum Dental Hospital, Peshawar.

Materials and Methods: A descriptive study was conducted on dental patients attending the OPD of Sardar Begum Dental College (Hospital), Peshawar, KPK, Pakistan. The study included 236 patients, who attended the outpatient department (OPD), Sardar Begum Dental College (Hospital), Gandhara University, Peshawar for their dental problems from November 2012 to April 2013. The presence or absence of torus palatinus (TP) and torus mandibularis (TM) were examined by clinical inspection and palpation.

Results: The frequency of TP and TM in the current study was 12 (5.10%) and 13 (5.50%), respectively. Both TP and TM were found only in 03 (1.30%). TM was found in 07 males and 06 females, respectively. Whereas 05 male and 07 females respectively.

Conclusion: This study indicated that the prevalence of TP and TM in Peshawar was 5.10% and 5.50% respectively in our population. Results showed a significant relationship between the occurrences of tori with gender.

Keywords: Torus palatinus, Torus mandibularis, benign bone tumours, age, gender

INTRODUCTION

The tori are exostoses that are formed by a dense cortical bone and a limited amount of bone marrow, and they are covered with a thin and poorly vascularized mucosa. It represents an anatomical variation rather than a pathological condition, and they usually become apparent during the second or third decade of life.^{1,2} Torus palatinus (TP) is usually

located along median palatine suture involving both palatine processes. Torus mandibularis (TM) occurs most commonly in small size. They are often located at the canine to premolar area.³

There is no specific aetiology, but a number of predisposing factors have been reported by many researchers such as genetic, environmental and nutritional.^{3,4}

The discovery of these exostoses usually occurs incidentally during a routine clinical examination, as they usually do not produce any symptom, except in case of significant growth or in edentulous patients,

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in which case they may hinder the construction of the prosthesis. The prevalence of tori with respect to ethnic groups, sex and age, has also been observed. The prevalence of the tori, according to the study by Al-Bayaty et al. is 12.3% very close to that of Bruce et al. with 14.6% while Jankittivong et al. reported a prevalence of 26.9%.⁵⁻⁷

The growth of the tori is gradual, being greater in the second decade of life. Among the studies reviewed, there is no consensus on how to classify the growth; each study classifies the growth differently.^{8,9} There is a lot of variety in terms of shapes; the TP can be flat, nodular, lobular or spindle-shaped, and the TM are usually nodular, unilateral or bilateral and single or multiple.^{10,11}

In most cases, the finding is usually incidental and observed during a clinical examination at the dental office. This is because they are asymptomatic for the most part, and those who have torus are not aware of it.^{12,13} Sometimes patients may present phonatory disturbances, limitation of masticatory mechanics, ulcerations of the mucosa, food deposits, prosthetic instability, and some patients may experience cancer phobia, and consult a professional to look for a solution.¹⁴

Radiographic features include radiodense images with a slightly higher density than that of the surrounding bone.¹⁵ Carrying out radiographs (periapical, occlusal, and panoramic) is not very useful, given the simplicity of the diagnosis during a clinical examination.¹⁶ Histopathological examination reveals that it is similar to the compact structure of the normal bone, having a slightly spongy structure with marrow spaces.¹⁷ Removal of the tori is not always necessary. The most frequent cause of extirpation continues to be the need for prosthetic treatment or that of being a potential source of autogenous cortical bone for grafts in periodontal Surgery, cyst surgery or implant surgery although long-term stability of the grafts is uncertain.^{18,19} Other authors do not recommend the removal of tori except in very extreme cases, and they recommended the removal of the prosthesis in these areas or the use of soft acrylics on the edges of the prosthesis.¹⁹

The patient must be informed that the signs and symptoms that may occur during the postoperative period will be those that are most commonly associated with surgical procedure, such as oedema,

hematoma, mild pain, etc. Postoperative medication will consist of antibiotics, analgesics and anti-inflammatory drugs, as well as stressing that it is important for the patient to continue with appropriate personal hygiene so that the wound may heal properly. Considering the clinical importance of TP and TM, this study was planned to determine the frequency of TP and TM in patients visited the Sardar Begum Dental Hospital Outpatient Department.

MATERIALS AND METHODS

This descriptive cross-sectional study was conducted in Sardar Begum Dental College (Hospital), Gandhara University Peshawar. The Dental checkup was performed in OPD, and the structured proforma was filled. The ethical approval for this study was granted by the Institutional Review Board of Sardar Begum Dental Hospital.

A total of 236 subjects were included in the study. Informed consent was obtained from patients after explaining the study protocol. Consultant dentist examined the tori. The inclusion criterion stipulated the selection of patients who only needed oral examination for routine dental diagnosis and treatment planning. A standard form was prepared to detect the tori to age and gender of the patient. The tori which could be felt by palpation but not by the inspection were not being considered. Patients who were mentally retarded and non-cooperative were excluded. Surgical gloves, mirror, tweezer, retractor, liquid, OPD sheet and questionnaire were used for recording the data.

Inclusion criteria

- i. Male and female both will be included.
- ii. Range of age is 10 to 90 years of age.

Exclusion Criteria

- i. Mentally retarded. Patients.
- ii. Uncooperative patients
- iii. Less than ten years of age.

The study subjects were categorized into six age groups: <15, 15-25, 26-35, 36-45, 46-60, >60. The range of age was 10-90, and the average age was 37.54 ± 17.237 .

Statistical Analysis

The data was entered and analyzed using SPSS

20.0. The frequencies and percentages were calculated for quantitative variables. Cross-tabulations and Chi-square statistics were computed with the statistical significance set at $P \leq 0.05$.

RESULTS

A total of 236 dental patients during the study period were included in the study after taking informed consent. Out of these 236 patients, 126 were males and 110 females, respectively (Table 1), and they all were examined regarding the presence of tori. Frequency of TM was 07 in males and 06 females. Whereas TP was found in 05 males and 07 females respectively.

Both the genders were involved in the study, Table-IV shows that 53.4% were male, and 46.6% were female involved in the study attending Sardar Begum Dental College (Hospital), Gandhara University, Peshawar.

Patients were grouped into six age groups, with an age range of 10 to 90 years. The mean age was 37.54, with standard deviation ± 17.237 (Table 2).

Age stratification was also done in both gender and findings are presented in table 3, mentioning the number of male and female patients with a degree of freedom and p-value.

The overall prevalence of tori is expressed in table 4, with TM=13 (5.5%), TP=12 (5.1%), respectively.

The presence of both the tori (TM and TP) was also categorized in age groups. The findings are shown in table 5.

When the frequency of tori was compared in both genders, the association was found to be insignificant with a degree of freedom and chi-value 05, 17.95, respectively (Table 6).

Table 1: Gender distributions in study subject (N=236)

Gender	N	Percentage (%)
Male	126	53.4
Female	110	46.6

Table 2: Age stratification of study subjects (N= 236)

Age Groups	Frequency	Percentage (%)
(<15) Years	20	8.5
(15-25) Years	52	22.0
(26-35) Years	37	15.7
(36-45) Years	65	27.5
(46-60) Years	41	17.4
(>60) Years	21	8.9
Mean	37.54	
Standard Deviation	17.237	
Minimum	10	
Maximum	90	

Table 3: Age stratification in both gender (N=236)

Gender	(<15) Years	(15-25) Years	(26-35) Years	(36-45) Years	(46-60) Years	(>60) Years	Total
Male	13	31	16	29	22	15	126
Female	07	21	21	36	19	06	110
Total	20	52	37	65	41	21	236

Table 4: Overall frequency of Tori (N=236)

Descriptions	Present (N)	Percentage (%)	Absent (N)	Percentage (%)
Torus mandibularis	13	5.5	223	94.5
Torus Palatinus	12	5.1	224	94.9

Table 5: Frequency of combine TP and TM in different age groups

Descriptions	TM Present	TM Absent	TP Present	TP Absent
(<15) Years	00	20	00	20
(15-25) years	02	50	01	51
(26-35) Years	05	32	03	34
(36-45) Years	05	60	05	61
(46-60) Years	01	40	02	39
(>60) Years	00	21	01	19
Total	13	223	12	224

Table 6: Comparison Gender with Tori (N=236)

Descriptions	Present (N)	Percentage (%)	Absent (N)	Percentage (%)
Male	07	119	05	121
Female	6	104	07	103
Total	13	223	12	224
Chi-Square 17.95				DF 05

DISCUSSION

The prevalence of TP ranges from 1.4 (KSA) to 66.0 % (Eskimos) in different populations.^{20,21} A famous study conducted in Turkey, conducted on 80 dry skulls, reported a high prevalence (45.4%) of TP.²² Cagirankaya et al. pointed out that the prevalence of TP was 20.9% in consecutive 253 subjects (17-49 years old).²³ In the present study, the prevalence of TP (5.1%) and TM (5.5%) in a total number of cases, i.e. 236 was lower in comparison to most of the other studies.^{2,24,25} It was seen that dietary and ethnic factors might be important in this study.

It was observed that there is a high prevalence of TP in other studies such as 21.0% in the young and adult population of Israelis. In 20.9% of the United States population and the Norway study (32.7%),^{2,26,27} It was thought that environmental, genetic and functional factors are essential for the prevalence of tori. A less TP prevalence was found in Gizan region, Saudi Arabia (1.4%), this study may reveal that racial differences are much more important for the prevalence.²⁸

It was reported that among similar ethnic groups living in different areas, or different ethnic groups living in the same areas have a various prevalence of TP.^{2,22,29,30} The formation of TP has been attributed to various factors by different authors. A huge number of investigators have evaluated the effects of environmental and genetic factors, including masticatory stress and nutritional factors.³¹⁻³⁵ The inconsistent

results of various authors possibly are due to the difference in the number of subjects, different geographic location, and standards.

With increasing age, the incidence of tooth loss increased, and forces that would influence the tori is also decreased. Our findings are in agreement with the literature, which showed that TM is more common in males as compared to females.^{36,37} TM was most frequently seen in the 26-45 years of age, which includes age group ranging from (26-35) to (36-45) years of age, and 53% of the total population are males who could explain the gender difference.

The prevalence of TP obtained from dry skulls was always higher than those from living subjects.^{38,39} This high prevalence may be due to a detailed and easy examination of dry skulls in terms of TP. In the present study, the TP prevalence was significantly higher in females than in males. Singaporean study is the only study that shows the same frequency of TP in both sexes.⁴⁰ The findings of our study that the prevalence of TP was higher in females than in males are consistent with other studies.⁴¹⁻⁴³ There is no certain explanation for this difference, but genetics may be suggested as a major factor.

Generally, the present study provides information regarding the prevalence of tori associated with age and gender in patients. Since this study was designed as a single-centre study, it does not represent the prevalence of tori in entire Pakistan. Furthermore, the minor sample size and short duration of study

might be considered as shortcomings of the present study. However, even within these limitations, the study has provided significant findings.

CONCLUSION

The prevalence of both the tori, i.e. TM and TP in our sample was low in comparison with other studies as seen in the literature. The findings of the current study show that the prevalence of TP and TM is significantly not too high, and there is a low trend in males when compared to females. There is a trend towards a higher prevalence of TP and TM with increasing age, although not significant. Long term prospective studies are required for better assessment of the prevalence of tori.

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