

Prevalence of Torus Palatinus among Iraqi Population in Samawah City

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ABSTRACT

Localized, benign, asymptomatic overgrowth of cortical bone, it sometimes discovered by chance during routine oral cavity examinations, which can affect fabrication of prosthesis. The aim of the study is to assess the prevalence and the shape of the torus palatinus and determine the age and gender relation to the torus palatinus among the Iraqi population in AL-Samawah city. Clinical examination include 523 patients (10 over 60 years) were divided into 6 groups. The total number of patients with tori is 54 (10.33%). Females show higher percentage (14.29%) than males (6%). The prevalence of torus palatinus is highest in the second group (20-29 years old) with 14.12%. No significant relationship was found between prevalence of palatal tori and age group. The flat type which was the most frequently present with a percent of 5.5% in relation to total population and counted for more than the half (53.7%) of total tori.

Key words: Torus palatinus, Prevalence, AL-Samawah city, Gender

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INTRODUCTION

Torus palatinus is a benign bony projections that appear in the center of the hard palate, in general these tori are asymptomatic, but in some cases and for prosthetic purposes they are indicated for surgical removal [1-2].

The torus palatinus can be flat, spindle-shaped, nodular, unilobular, and polylobulated. They have a delicate and limited vascularized mucosa and are made up of dense cortical bony structure and a little amount of bone marrow [3].

There has been no definitive etiology for the existence of tori to date. Recent studies suggest that environment and genes interact together and result in the development of the bony protuberances, these suggestions are supported by the study of Johnson et al who noticed that the majority of children with some type of torus palatinus or torus mandibular is had at least one of their parents with some type of these anomalies [4-5].

Those exostoses are asymptomatic, they discovered in clinical practice. The need for a clinical assessment is primarily determined by the size: in this scenario, they may cause phonation problems, mucosal ulcers, prosthesis instability, or pain [6].

The path of placement of stock impression trays is frequently obstructed by torus palatinus, as well as the traumatization of soft tissue mucosal lining over the prominences, making the treatment uncomfortable for the patient, and difficult to obtain accurate details. The alveolar ridge resorbs continually after teeth are extracted, while the tori do not. Complete denture patients may experience rocking of the dentures at the torus area, which can be a concern [7].

Several studies investigated the prevalence of torus palatinus in Baghdad and in cities southern of Iraq but as appears no study investigated the prevalence in Samawah city [8-11]. So, the aim of this study is to investigate the prevalence and shape of torus palatinus in Al-Samawah city population and to determine the sex and age-related changes of torus palatinus.

MATERIALS AND METHODS

The study was conducted in the educational clinics in college of dentistry Almutahana University, between February and March 2019. Torus palatinus shapes were divided into four categories flat, nodular, spindle-shaped, and lobular, and the existence of tori was assessed by visual inspection and by palpation.

Patients of five hundred and twenty three (523) were randomly selected among the patients visiting educational clinics.

Subjects were divided into 6 groups (10-19, 20-29, 30-39, 40-49, and 50-59 and 60-over years). Brief medical history

was taken; clinical examination was done by only one examiner to reduce the bias between different examiners. In case of questionable tori it was recorded as not present.

The statistical package for social science (SPSS version 16.0) was used to analyse the results.

RESULTS

Prevalence of torus palatinus in relation to gender can be seen in Table 1 the total number of subjects were 523 among them 54 had torus palatinus, total number of males was 250 about 15 (6%) of them had torus palatinus, this percentage rises in females where 39 (14.29%) from a total number of 273 had prevalence of torus palatinus, the total number of subject with positive tori finding is 54 (10.33%) of 523 total number of research subjects.

Torus palatinus presence in relation to age can be observed in Table 2, in first age group (10-19 years old) total subjects were 60 with 5 of them only with palatal tori, while the second group (20-29 years old) 25 subjects out of 177 had palatal tori with 14.12% which was the highest percentage among all age groups, regarding the third group (30-39 years old) total number of subjects were 146 with only 14 subjects with positive findings regarding palatal tori and prevalence percentage

is 10.96%. The fourth group (40-49 years old) the positive findings were 4 out of 74 total numbers of subjects with a percentage of 5.41%. Regarding the fifth group (50-59 years old) total number of subjects were 40 and only 3 of them were found with palatal tori making the prevalence percentage 7.5%, the final age group was the 60 and above years old in which the total amount of subjects were 26, among them only 1 subject was found with positive finding regarding palatal tori. No significant relationship was found between prevalence of palatal tori and age group.

Shape of torus palatinus and percentages are represented in Table 3, the first type of torus palatinus is flat type which was present in 29 subjects with a percent of 5.5% in relation to total population and counted for more than the half (53.7%) of total tori. The second type is nodular type with positive findings in 8 subjects and percentage of 1.5% in relation to total population and 14.8% in relation to total tori. Third type is spindle type which was found in 13 subjects and the percentage is 2.7% in relation to total population and 25.9% in relation to total tori. The fourth type is the lobular type with only 3 subjects and percentages of 0.6% and 5.6% in relation to total population and to total tori respectively.

Table 1: Distribution of torus palatinus in relation to gender.

Gender		Torus palatinus		Total
		Absent (%)	Present (%)	
Male		235 (94%)	15 (6%)	250
	Female	234 (85.71%)	39 (14.29%)	273
Total		469 (89.67%)	54 (10.33%)	523

Table 2: Distribution of torus palatinus in relation to gender.

Age	Torus palatinus		Total	
	Absent (%)	Present (%)		
19-Oct	55 (91.67%)	5(8.33%)	60	
20-29	152 (85.88%)	25 (14.12%)	177	
30-39	130 (89.04%)	16 (10.96%)	146	
40-49	70 (94.59%)	4 (5.41%)	74	
50-59	37 (92.50%)	3 (7.50%)	40	
60 and above	25 (96.15%)	1 (3.85%)	26	
Total		469 (89.67%)	54 (10.33%)	523

Table 3: Types of torus palatinus and percentages.

	Number of subjects	Percent in relation to total population	Percentage in relation to total tori
Flat Nodular	29	5.50%	53.70%
	8	1.50%	14.80%
Spindle Lobular	13	2.70%	25.90%
	3	0.60%	5.60%
Total	54	10.30%	100%

DISCUSSION

Torus Palatines (TP) is a benign, localized bony projection in midline of the hard palate. TMJ disorders, bruxism, malocclusion, migraine and increased fish consumption have been suggested as the possible causes of tori and exostoses.

This study reveals that the torus palatines prevalence is twice more in women (14.29%) in comparison to men (6%). Although the exact cause of tori is not clear, a combination of environmental, dietary, racial and genetic factors were thought to affect the tori occurrence and variability in prevalence. However, this result can be explained by the fact that tori expression is a sex related phenomena 12 in which a part of the genetic factor responsible for tori occurrence depends on the X-linked chromosome. This fact was also in agreement with another study, which reported that the genetics might propose is an essential contributing factor for tori variance between sexes. In contrast, a study conducted among Jordanian population showed no significant difference in tori prevalence between females and males.

The results also shows that the second age group (20-29 years old) exhibit the highest percentage of tori prevalence (14.12%) among all age groups followed by the third group (30-39 years old) which exhibit a percentage of (10.96%). This could be attributed to the functional factors and is directly related to the number of teeth presents inside the patient mouth. As the teeth number increased, the occlusal load accumulated on both sides of midpalatine sutures increased and result in bony overgrowth in this area [12]. This result was in agreement with other studies which reported that torus palatines are more commonly seen in 3rd and 4th decades [13-15].

A tendency for decreasing the prevalence of torus palatines was noted from the 40-49 years age group to the older age group in this study. This is mainly caused by the decrease in teeth number as the patient gets older, since most of the old patients are either partially or completely edentulous which result in a dramatic decrease in the masticatory function after teeth extraction leading to a spontaneous regression of torus palatines. Another study relates this decrease in torus size to the bone resorption which naturally occurs in old age group [15-16].

The flat type of torus palatines exhibit the highest percentage since it counted for more than the half (53.7%) of total tori. Followed by spindle nodular and lobular respectively. This result was in agreement with many studies which reported that the flat type was the most prevalent type among their population.

On the other hand, some studies reported that the most frequently observed type of torus palatines was spindle-shaped, followed by the nodular type. Lobular type was found with lesser frequency, while, the flat torus

palatines was the rarest. The cause of the variance in the type frequency of torus palatines could be attributed to the racial variance and ethnic groups.

CONCLUSION

The limitations of the present study; the following conclusions can be obtained by Torus palatines is a bony protuberance which showed a higher incidence among females in Iraqi population at Semawah city. The middle age groups showed the highest prevalence of torus palatines and this prevalence tend to decrease among older population. The flat type of torus palatines exhibits the highest incidence in Semawah city.

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