

Original Research Article

Prevalence of Torus Palatinus and Torus Mandibularis among Dental Patients in Riyadh Elm University, Saudi Arabia.

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Introduction: Oral torus is a bony growth present in the oral cavity, it is benign exostosis that is formed by a dense cortical bone and a limited amount of bone marrow and is covered with a fragile and limited vascularized mucosa. **Materials and Methods:** This is a cross-sectional study which was carried out among 500 patients visiting the REU clinics in Riyadh, Saudi Arabia. **Results:** Torus palatinus was found in 14 patients, the frequency for the males was 11 patients and its percentage 2.5%, and the females were 3 patients and its percentage 0.9%. Torus mandibularis was found in 12 patients, the frequency for the males was 11 patients and its percentage 2.5%, the females were 1 patient and its percentage 0.3%. **Conclusion:** The results of the present study show that the prevalence of torus palatinus and mandibularis in Riyadh Elm University (Munesiyah campus) is low, the incidence of tori is higher in females when compared to males.

Keywords: Torus palatinus, Torus mandibularis, Prévalence.

INTRODUCTION

Oral tori are bony growths present in the oral cavity, they are benign exostoses that are formed by a dense cortical bone and a limited amount of bone marrow and are covered with a fragile and limited vascularized mucosa. Tori usually appear during the second or third decade of life. Tori may develop at the midline of the palate (torus palatinus [TP]) or the lingual aspect of the mandible (torus mandibularis [TM]). There is no specific aetiology but there are many predisposing factors according to many researchers such as genetic, environmental and nutritional (Al-Sebaie & AlWrikat, 2011).

Although tori are not pathologically significant, they may obscure radiographic details of maxillary sinuses and lower premolars. They may also interfere with the construction and function of removable dentures, as well as oral functional movement. The prevalence of tori varies widely in different populations, ranging from 0.4 % to 66.5% for TP3-17 and 0.5% to 63.4% for TM. The aetiology of tori has been investigated, however, no consensus has been found. The postulated causes include genetic factors environmental factors masticatory hyperfunction and continuous growth. Recently, the aetiology of tori has been postulated to be the interplay of multifactorial genetic and environmental factors (Apinhasmit, Jankittivong & Swadison, 2001).

Numerous theories on the origin of torus mandibularis have been proposed, the functional and the hereditary being the most prominent. Frequency differs among racial groups, the incidence being generally higher among those in the northern hemisphere who exist principally on animal food. Age at onset varies among populations. Early appearance has been reported in few patients but tori generally do not appear before the age of 40 (Axelsson & Hedegard, 1981).

With regard to shape, torus palatinus (TP) is divided into flat, spindle-shaped, nodular and lobular, whereas torus mandibularis (TM) is divided into unilateral solitary and bilateral solitary, unilateral multiple, bilateral multiple and bilateral combined. Their size can range from millimetre to centimetre. In terms of eating, speaking and swallowing, as well as planning of complete and partial dentures, smaller tori do not cause a problem in the majority of cases, whereas larger tori can cause significant problems. The prevalence of TP was 29.8% and of TM was significantly higher (42.6%). However, the same authors did not find significant differences in the prevalence of tori between males and females. The prevalence of TM among whites and blacks ranges from 8–16% and shows no sex difference (Simunkovic et al, 2011).

A study conducted on German patients with TP showed a mild exostosis in 94.9%, a moderate form in 2.8%) and a marked type of TP in 2.2% of the cases. In men, only the mild type of TP could be observed. This type of TP was seen in 84.9% of Thai patients. The moderate form was diagnosed in 13.3% and the marked form in 1.8%, there was a significant difference between the prevalence rates of the mild form, which was more prevalent in Germans (Reichart, Neuhas & Sookasem, 1988).

AIMS OF THE STUDY

To determine the prevalence of torus palatinus and torus mandibularis among Saudi patients visiting Riyadh Elm University, Riyadh.

MATERIALS AND METHODS

This is a cross-sectional study which was carried out among 500 patients visiting the REU clinics in Riyadh, Saudi Arabia. Regarding the sample selected, all adult male and female patients will be included. Patient's documentation was done by recording file number, gender, age, nationality, medical status and if the patient is edentulous or not.

Each patient was examined for the presence of tori by using visual as well as palpation method. No description was stated if there was no tori and size, shape, location was mentioned if tori were present.

RESULTS

Five hundred patients were included in this study, 446 males and 54 females. The patients' age ranged from 4 years old to 70 years old and the average was 20-30 years old. Torus palatinus was found in 14 patients, the frequency for the males was 11 patients and its percentage 2.5%, and the females were 3 patients and its percentage 0.9%. Torus mandibularis was found in 12 patients, the frequency for the males were 11 patients and its percentage 2.5%, the females were 1 patient and its percentage 0.3%(table 1).

Spindle-shaped was the most common shape of Torus palatinus found (42.9%), while the most common size was 3-6 mm (Table 2). Torus mandibularis presented bilaterally in 75% of patients and the most common size was 1-3 mm (table 3)

Comparison between gender was done using Chi-square test, which revealed that no statistically significant difference was noted among males and females towards the prevalence of torus palatinus and mandibularis. Pearson Correlation test was conducted to achieve any correlation between age and prevalence of torus palatinus and mandibularis. No significant correlation was found between age and torus palatinus.

However, a significant negative correlation was observed between age and torus mandibularis, which means that as the age goes up, the chances of torus mandibularis were low.

DISCUSSION

This study was conducted to determine the prevalence of torus palatinus and torus mandibularis among the patients visiting the outpatient department of Riyadh Elm University. The overall prevalence was on the lower side, which was then divided into groups according to the 2 types of tori. Furthermore, correlation between age and both tori was calculated, which revealed that there was no statistically significant correlation between age and TP. Also, the small-sized tori were identified to be 35.7% only. However, another study conducted in Turkey showed a statistically significant association between the above-mentioned variables. When compared based on size, small-sized tori were highly prevalent (91.5%) (Yildiz, Deniz & Ceyhan, 2005).

Another study conducted in Malaysia determined to assess the prevalence of different torus types was compared to our study. They noted that the prevalence of TP was 38–63% and that of TM was 1–10%. TP was frequently more common in females than males (90.9% versus 9.1%; $P < 0.05$) and was frequently found in medium sizes, spindle-shaped. The prevalence of TM was not significantly different in males and females (33.3% versus 66.7%; $P = 0.523$), occurred most commonly in bilateral multiple forms (Hiremath, Husein & Mishra, 2011). Our study showed that the prevalence of TP and TM were less than 3%, which is very low as compared to this Malaysian study. On the other hand, our findings showed a high prevalence of TP and TM among females, which was also the case in their study. Finally, we also observed the spindle-shaped TP and TM to be high in prevalence similar to their study.

It is most frequent for TP to appear in women than in men, and it is believed that there may be a dominant type linked to the X chromosome. In many studies reviewed, there is a higher presence of TP in females than in males, although not all the studies noted this difference to be significant. As for the TM, some authors have found no significant differences between men and women in their studies, although, in all of the studies, it is more common in males. As far as the size of torus is concerned, the growth of tori is gradual, being greater in the second or third decade of life. As for this section, among the studies reviewed, there is no consensus on how to classify the growth; each study classifies the growth differently. It can be classified in terms of small, medium and large, less than 2 mm, 2 to 4 mm and more than 4 mm, respectively (Garcia-Garcia et al, 2010).

Table1:

| Gender | Frequency | Percent |
|--------|-----------|---------|
| Male | 446 | 89.2% |
| Female | 54 | 10.8% |

Table 2: Information about the torus palatinus and torus mandibularis

| | Frequency | Percent |
|--------------------|-----------|---------|
| Torus palatinus | 14 | 2.8% |
| Torus mandibularis | 12 | 2.4% |
| No | 474 | 94.8% |
| Total | 500 | 100% |

Table 3: Information about the torus palatines

| Torus palatinus | Frequency | Percent |
|-----------------|-----------|---------|
| Yes | 14 | 2.8% |
| No | 486 | 97.2% |
| Total | 500 | 100% |

Continious...

| Shape | Frequency | Percent |
|---------------|-----------|---------|
| Flat | 3 | 21.4% |
| Spindle shape | 6 | 42.9% |
| Nodular | 4 | 28.6% |
| Other | 1 | 7.1% |

Continious...

| Size | Frequency | Percent |
|-----------------------|-----------|---------|
| Small (1-3mm) | 5 | 35.7% |
| Medium (3-6mm) | 7 | 50% |
| Large (more than 6mm) | 2 | 14.3% |
| Total | 14 | 100% |

Table 4: Information about torus mandibularis

| Torus mandibularis | Frequency | Percent |
|--------------------|-----------|---------|
| Yes | 12 | 2.4% |
| No | 488 | 97.6% |
| Total | 500 | 100% |

Continious...

| Shape | Frequency | Percent |
|--------------------|-----------|---------|
| Unilateral | 3 | 25% |
| Bilateral solitary | 9 | 75% |

Continious...

| Size | Frequency | Percent |
|-----------------------|-----------|---------|
| Small (1-3mm) | 8 | 66.6% |
| Medium (3-6mm) | 2 | 16.7% |
| Large (more than 6mm) | 2 | 16.7% |
| Total | 12 | 100% |

Table 4:

| Gender | Male | Female | P-value |
|--------------------|-------|--------|---------|
| Torus Palatinus | 2.46% | 5.55% | .184 |
| Torus Mandibularis | 2.46% | 1.85% | .622 |

Table 5:

| | Torus Palatinus | Torus Mandibularis |
|---------|-----------------|--------------------|
| Age | Pearson: .029 | Pearson: -.138 |
| p-value | .513 | .002 |

CONCLUSION

The results of the present study show that the prevalence of torus palatinus and mandibularis in Riyadh Elm University (Munesiyah campus) is low, the incidence of tori is higher in females when compared to males. There is a trend toward a higher prevalence of tori in approximate ages 20-30 years old. Although, tori were not pathological, they are bony overgrowths

very often need surgical removal, especially when prosthesis is indicated.

CONFLICT OF INTEREST

There was no conflict of interest among the authors of this research.

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