Prevalence and pattern of presentation of mandibular and palatine tori in a Nigerian population

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Abstract

Objective: To determine the prevalence and pattern of presentation of mandibular and palatal tori in a Nigerian population.
Method: A prospective observational study of mandibular and palatal tori among adolescents and adults subjects, attending the Oral and Maxillofacial Clinic of the Lagos University Teaching Hospital, Lagos, Nigeria, from January to December 2008 was conducted. Patients were examined by visual inspection and digital palpation for the presence of torus palatinus and torus mandibularis.
Results: A total of 1004 subjects (424males, 580females) were examined during the period of the study. The subjects were aged 15-90 years, (mean 32.7 ± 13.5 years). The prevalence of mandibular and/or palatal tori was 13.6% (136 of 1004). Of the 136 subjects, 24 had both mandibular and palatal tori, 48 had palatal tori only and 64 had mandibular tori only. Both the mandibular and palatine tori were commonly seen in female subjects. The most common location was the lingual surface of the mandible around canine-premolar region. The prevalence of mandibular torus was 8.8% and that of palatal torus was 7.2%. There was no statistically significant difference in the prevalence of mandibular tori in both sexes (P=0.48), whereas palatal tori were significantly commoner in females than males (P=0.00). Tori were commonly seen in the 3rd and 4th decades of life and were asymptomatic in 97% of subjects examined.
Conclusion: The prevalence of tori in this study was higher than previously reported in Nigeria. Fourteen percent of those examined in the present study were found to have mandibular and/or palatal tori. Tori located on the lingual surface of the mandible around canine-premolar region were the most commonly seen tori in agreement with the previous study from Nigeria.

Keywords: Torus mandibularis; torus palatinus; Nigerians

Introduction

Tori are bony exostosis commonly found on the midline of the hard palate or the lingual aspects of the mandible above the mylohyoid line [(1)]. They are slowly growing non-neoplastic and non-pathological osseous projections [(1-4)]. Torus mandibularis (TM) and torus palatinus (TP) are the two most common intraoral osseous outgrowths as compared to exostosis [(2-4)]. The difference between tori and other exostosis of the jaws is the location. The reason why tori occur in the specific area of the jaws is yet unknown.
Although, aetiology of torus is unknown, various factors such as genetic, evolutionary process, functional stress, infectious process and developmental growth process have been suggested as causes [(4,5)]. However, the current accepted view is that tori arise from interplay of both genetic and environmental factors [(5)].
Racial differences in the prevalence of oral tori have been well documented [(5-7)]. The reported prevalence of tori varies among studies, probably because of racial or ethnic differences [(5-8)]. Tori have been reported to be less common in blacks (Negroes) than in whites (Caucasians) [(5-8)].
Tori are benign and in most cases asymptomatic, and their presence is compatible with life. The clinical importance of tori lies in being prominent in the oral cavity and may impede insertion of dentures [(2,3)]. Tori can also be a source of bone graft for jaw augmentation (sinus lifting) [(9-11)].
Various reports have documented the prevalence of tori in the regions of Europe, America and Asia [(4-8)]. Information on the prevalence of tori in black Africans is however, scanty [(1)].
Therefore, the aim of this study was to determine the prevalence and pattern of presentation of mandibular and palatal tori in a Nigerian population.

Materials and method

A prospective observational study of mandibular and palatal tori among adolescents and adults subjects, attending dental/oral and maxillofacial clinics of the Lagos University Teaching Hospital, Lagos, Nigeria, was

conducted. The study was conducted between January and December 2008. Subjects were examined by visual inspection and digital palpation for the presence of torus palatinus and torus mandibularis. A proforma containing the following information was filled for each subject: age and sex of subjects, presence and location of tori, and presence/absence of symptoms related to the tori. Those who were found to have either or both tori were asked if they had ever noticed their presence, and duration of the growth. Subjects were also asked for their opinion regarding the tori, and were given options of either "a normal growth" or an abnormal growth".

Result

A total of 1004 subjects (male=424, female=580) were examined during the period of the study. The age range of subjects was 15-90 years (Mean 32.7 ± 13.5 years). The prevalence of mandibular and/or palatal tori was 13.6% (136 of 1004). Ninety-eight (72.1%) of these were females. Of the 136 subjects (female=98, male=38) with tori, twenty-four patients had both mandibular and palatal tori, 48 had palatal tori only and 64 had mandibular tori only. The prevalence of mandibular torus (TM) was 8.8% (88 of 1004) and that of palatal torus (TP) was 7.2% (72 of 1004). Females were more frequently affected than males (Table 1). There was no statistically significant difference in the prevalence of mandibular tori in both sexes (P=0.48), whereas palatal tori were significantly commoner in females than males (P = 0.00) (Table 1). Tori were commonly seen in 3rd and 4th decade of life (Table 2).

Location of mandibular and palatine tori
The most common location in the mandible was the lingual surface of the mandible around canine-premolar region (Figure 1). Torus mandibularis was found on both sides of the mandible in 83 (94.3%) subjects and found only on one side in 5 (5.7%) subjects. Palatine tori were found in the midline posterior part of the hard palate.

Pattern of presentation of tori
Palatal and mandibular tori in the studied subjects presented in various shapes and sizes, ranging from single round to lobular. Muscosal covering of tori were also found to be normal in colour and texture.

Symptoms associated with tori
Only 4 (3%) of those with tori (TM=2, TP=2) had ever experienced any symptoms from the growth. These symptoms included itching and mild pain. In one of these subjects, symptom from bilaterally located mandibular tori was the primary reason for attending the clinic. The tori were excised and the histopathology report of the excised TM showed it to be a normal (mature cortical and trabecular) bone.
Most subjects (87.5%) with tori were of the opinion that the growth was a normal growth, while 12.5% believed tori were abnormal growth.

Duration of growth
Only a quarter (n=35) of those with torus have ever

Table 1. Sex distribution of mandibular and palatal tori

Palatal Tori	Sex		Total (%)	P value
	M	F		
Present	9(12.5)	63(87.5)	72 (7.2)	0.000
Absent	415(44.5)	517(55.5)	932 (92.8)	
Mandibular Tori				
Present	34(38.6)	54(61.4)	88 (8.8)	0.48
Absent	390(42.6)	526(57.4)	916 (91.2)	
Total	**424(42.2)**	**580(57.8)**	**1004 (100)**	

Table 2. Distribution of mandibular and palatal tori with respect to age group of subjects

Age range (years)	Palatal tori	Mandibular tori
	Frequency (%)	Frequency (%)
15-19	4 (5.6)	5 (5.7)
20-29	43 (59.7)	40 (45.5)
30-39	15 (20.8)	24 (27.3)
40-49	7 (9.7)	11 (12.5)
50-59	2 (2.8)	1 (1.1)
60-69	0 (0)	5 (5.7)
70-79	1 (1.4)	2 (2.2)
⩾80	0 (0)	0 (0)
Total	**72 (100)**	**88 (100)**

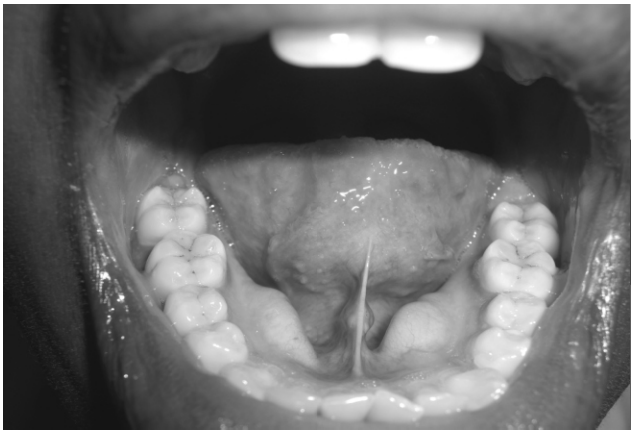

Figure 1: Typical location of torus mandibularis

noticed its presence. Of these, 9 subjects claimed it had been there since birth, 12 and 14 subjects claimed the tori were noticed <5 years and >5 years respectively.

Discussion

The present study showed a prevalence of 13.6% for tori among the Nigerian population studied. This prevalence was higher than previously reported in Nigerians [1], but similar to report in a Norwegian population [5]. Torus mandibularis was seen more commonly than its palatine counterpart. This agrees with previous report from Nigeria [1], and may give credence to the assumption that torus mandibularis is commoner than torus palatinus in Nigerian Africans. Previous reports in Mongoloid and Caucasian races showed that torus palatinus was commoner than torus mandibularis [5,6].

In the present study, a prevalence rate of 7.2% and 8.8% for palatine and mandibular tori respectively was recorded. This prevalence was higher than previously reported by Dosumu et al [1] (2% versus 3.2%) from Ibadan, Nigeria. Kolas et al[6] found a rate of 20.9 % and 7.5 % for torus palatinus and torus mandibularis respectively while Haugen [5] found a rate of 9.2 % and 7.2 % for torus palatinus and torus mandibularis respectively in a Norwegian population. Yaacob et al [12] found a higher rate of 24.4% of torus palatinus in Malaysians but the prevalence rate of torus mandibularis in the same population was low (2.2 %). Shah et al [13] reported similar findings in Indians.

The reason for different prevalence rates of tori in different population is unknown and, an interplay of both genetic and environmental factors has been suggested [5].

The age and sex characteristics of patients in this study with tori do not differ significantly from previous reports from other races, as most patients with tori fell within the age group of 20-40 years while females were more frequently affected than males [1,5,6,8,12]. Tori are reported to be frequently observed in young adults and in middle-aged persons [1,5,6,14]. About 62% of those found to have tori in Ibadan, Nigeria were females [1], while 72.1% of those with tori in the present study were females.

Torus palatinus has been found more frequently in women, whereas torus mandibularis is more common in men [15]. However, both mandibular and palatine tori were commonly found in female subjects in the present study. In fact, about 88% of torus palatinus were found in females. Dosumu et al [1] reported that 63% of those with torus palatinus were females. Although, the reason for preponderance of tori in female is not clear, the role of female hormone may be speculated.

Most of the tori seen in the present study were asymptomatic. Tori are non-pathological bony growth and are usually asymptomatic [1,5,6,14,15]. Routine excision surgeries of tori should be avoided unless indicated by prosthodontic and aesthetic needs [14,15]. However, torus in rare circumstances, as seen in a case in this study may be symptomatic. In this instance, it is recommended that excisional surgery be performed.

This study has established the prevalence of tori in patients attending a tertiary health institution in Lagos, Nigeria. This may not be representative of the entire population served by the institution and Nigeria in general. However, this data in our opinion serves a baseline data for subsequent large scale population study.

Conclusions

The prevalence of tori in this study was higher than previously reported in Nigeria. Fourteen percent of those examined in the present study were found to have mandibular and/or palatal tori with 72% being females. Tori located on the lingual surface of the mandible around canine-premolar region were the most commonly seen tori in agreement with the previous study from Nigeria.

References

1. Dosumu OO, Arotiba JT, Ogunyinka AO. The prevalence of palatine and mandibular tori in a Nigerian population. Odontostomatol Trop 1998;21:6-8.
2. Safer WG, Hine MK, Levy BM. A textbook of oral pathology. 4th ed. Philadelphia. WB Saunders Co. 1983, 69-79.
3. Regezi JA, Sciubba JJ. Oral pathology: clinicopathologic correlations. Philadelphia. WB Saunders Co. 1989, 386-389.
4. Neville BW, Damm DD, Allen CM, Bouquot JE, editors. Oral and Maxillofacial Pathology. Philadelphia. WB Saunders Co. 1995, 17-20.
5. Haugen LK. Palatine and mandibular tori: a morphologic study in the current Norwegian population. Acta Odontol Scand 1992;50:65-67
6. Kolas S, Halperin V, Jefferis K, Huddlestone S, Robinson HBG. The occurrence of torus palatinus and torus mandibularis in 2,478 dental patients. Oral Surg 1953;6:1134-1141.
7. Summers CJ. Prevalence of tori. J Oral Surg 1968;26:718-720.
8. King DR, King AC. Incidence of tori in three population groups. J Oral Med 1981;36:21-23.
9. Proussaefs P. Clinical and histologic evaluation of the use of mandibular tori as donor site for mandibular block autografts: report of three cases. Int J Periodont Rest Dent 2006;26:43-51.
10. Neiva RF, Neiva GF, Wang HL. Utilization of mandibular tori for alveolar ridge augmentation and maxillary sinus lifting: a case report. Quintessence Int 2006;37:131-137.
11. Barker D, Walls AW, Meechan JG. Ridge augmentation using mandibular tori. Br Dent J 2001;12:474-476.
12. Yaacob H, Tirmsi H, Ismail K. The prevalence of oral tori in Malaysians. J Oral Med 1983;38:40-42
13. Shah DS, Songhari SJ, Chawda JD, Shah RM. Prevalence of torus palatinus and mandibularis in 1000 patients. Indian J Dent Res 1992;3:107-110.
14. Bukhari SGA, Qazi SS, Awan TM, Azad AA, Zeeshan M. Prevalence of torus palatinus among 300 Indonesian patients. Pakistan Oral Dent J 2007;27:89-92.
15. Seah YH. Torus palatinus and mandibularis: a review of the literature. Aust Dent J 1995;40:318-321.