

# Management of Oral Bony Exostosis: A Report from a Teaching Hospital Northwest, Nigeria

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## ABSTRACT

**Background:** An oral exostosis is a benign growth of bone that protrude outward from the bone surface. It is a localized bony growth of insidious onset. It may be a nodular, sessile or pedunculated protuberance located on the alveolar surface of the jaw bones, and in the midline of the palate. Genetical factors, trauma, infection, bony disorder, and disorders of calcium metabolism have been implicated in the etiology. When occurred in the jaws, depending on the anatomic location they are named as torus palatinus (TP), torus mandibularis (TM), or buccal bony exostoses (BBE) and palatal bony exostosis (PBE).

**Aim:** The aim of this study was to present the management of oral bony exostosis in our Centre

**Methods:** This was an observational study of patients that presented to our Dental/Maxillofacial unit at the Barau Dikko Teaching hospital, Nigeria with various forms of exostosis. The study period spanned from June, 2024 to March, 2025. Patients were screened for oral exostosis routinely. Structured questionnaires were fill for each patient that had any form of this condition. The Information that was collected includes patient demography, location of the growth, associated symptoms, size at presentation, treatment received and complications observed. This data obtained were analyzed using statistical package for social sciences (IBM SPSS) version.

**Results:** 54-Patients were noted to present with oral exostosis during the period of study. 33 (61.11%) were females while 21 (38.89%) were males. The ratio of females to males was 1.57 to 1.00. The age ranged from 26 years to 74 years, the mean age is 50 years SD  $\pm 13.86$ . It affected the fourth and fifth decade of life most. Mandibular torus was the commonest 21 (34.5%), then palatal tori. Site of occurrence of this growth include buccal and lingual alveolar process of mandible and maxillae, and midline palate. The treatment giving for 15-patients was excision of the growth and smoothening of the bone surface. Indications for treatment include interference with swallowing, denture placement, pains and irritation of adjacent mucosa. The complications of the surgery were recurrence, tissue retraction, and gingival recession.

**Conclusion:** The commonest exostosis was mandibular torus; surgical excision was the treatment of choice. Denture placement and discomfort were the major reasons for the excision. Adult females were more affected. All the surgical excision procedures were done under local anaesthesia.

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**Keywords:** Oral, exostosis, alveolar process, mandible, maxillae, palate, tori.

## INTRODUCTION

An oral bony is a benign, localized, peripheral overgrowth of jaw bones. It may be a nodular, sessile or pedunculated protuberance located on the alveolar surface of jaw bones. It affects other bones such as long bones and ear bones (Adeyemo et al., 2009; Limongelli et al., 2019) When occurred in the jaws, depending on the anatomic location, they are named as torus palatinus (TP), torus mandibularis (TM), buccal bone exostosis (BBE), palatal bony exostosis (PBE). TP occurred along the midline of the hard palate, could be sessile or pedunculated, nodular mass of bone. TM is a bony overgrowth located on the lingual aspect of the mandible, most commonly seen in the canine and premolar area and they often occurred bilaterally. BBE occurred along the buccal aspect of the maxilla and mandible, usually in the premolar and molar areas and few times in the anterior region. Palatal bony exostosis is found on the alveolar palatal aspect of maxilla, and the most common location is the tuberosity area (Dosumu et al., 1998; Maduakor et al., 2017). Multiple exostoses occasionally occur in the same individual. This may be related to Gardener's syndrome.

The aetiological factors implicated in the formation of oral exostosis include genetic disorder, trauma, infection, bone disorder, and disorders of calcium and phosphorus metabolism. Oral exostosis may be associated with symptoms such as pains, discomfort when swallowing and talking, ill-fitting denture and facial protuberance (Shafer et al., 1983; Medsinghe et al., 2015). The victims oftentimes were not aware of the presence of this bony growth until it becomes big enough to interfere with oral functions.

Mandibular and palatal tori are often obvious, and may require removal for prosthetic reasons. Prichard et al., noted that discrete osseous nodules are often found on the palatal side of maxillary molars and may require removal during corrective periodontal surgery. He further stated the importance of avoiding damage to the structures in the region of the greater palatine foramen while removing these exostoses. These exostoses could serve as a donor site for autograft in

periodontal surgery and any bone augmentation procedures (Puttaswamaiah et al., 2011). Therefore, they should be preserved if there is no symptom associated with it. This study was done to present our line of management of these oral bony exostoses.

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## MATERIALS AND METHODS:

This was an observational study of patients that presented to our Dental/Maxillofacial unit at the Barau Dikko Teaching hospital, Kaduna, Nigeria with various forms of oral exostosis. The study period spanned from June, 2024 to March, 2025. Patients were screened for oral exostosis routinely. Structured questionnaires were filled for each patient that had any form of this condition. The information that was collected includes patient demography, location of the growth, associated symptoms, size at presentation, treatment received and complications observed. This data obtained were analyzed using statistical package for social sciences (IBM SPSS) version.

## RESULTS

54-Patients were noted to present with oral exostosis during the period of study. 33 (61.11%) were females while 21 (38.89%). The ratio of females to males was 1.57 to 1.00. The age ranged from 26 years to 74 years, the mean age is 50 years SD  $\pm 13.86$ . It affected the fourth and fifth decade of life most. Mandibular torus was the commonest 21 (34.5%), then palatal tori. Site of occurrence of this growth include buccal and lingual alveolar process of mandible and maxillae, and midline posterior palate. The treatment given for 15-patients was excision of the growth and flattening of the bone surface. Indications for treatment include interference with swallowing, denture placement, pains and irritation of adjacent mucosa. The complications of the surgery were recurrence, tissue retraction, and gingival recession.

Table 1: Demographic characteristics of patients

Age (years)	No of Male	No of Female	Total	Percentage/%
21 – 30	4	5	09	16.67
31 - 40	7	11	18	33.33
41 – 50	7	9	16	29.63
51 – 60	2	5	7	12.96
≥ 61	1	3	4	7.41
Total	21	33	54	100.00

Table 2: Location of the exostosis

Site	Number		Total	Percentage
	Male	Female		
Lingual Mandible	6	11	17	31.48
Buccal alveolar Mandible	2	4	6	11.11
Lingual & Palate	5	3	8	14.82
Anterior Maxillae	3	4	7	12.96
Midline Palate	3	8	11	20.37
Buccal alveolar maxillae	2	3	5	9.26
Total	21	33	54	100.00

Table 3: Reasons for surgical excision of bony exostosis

Reasons	Number of Patients	Percentage.
Denture placement	7	46.67
Esthetics	2	13.33
Functional impairment.	5	33.33
Pains	1	6.67
Total	15	100.00

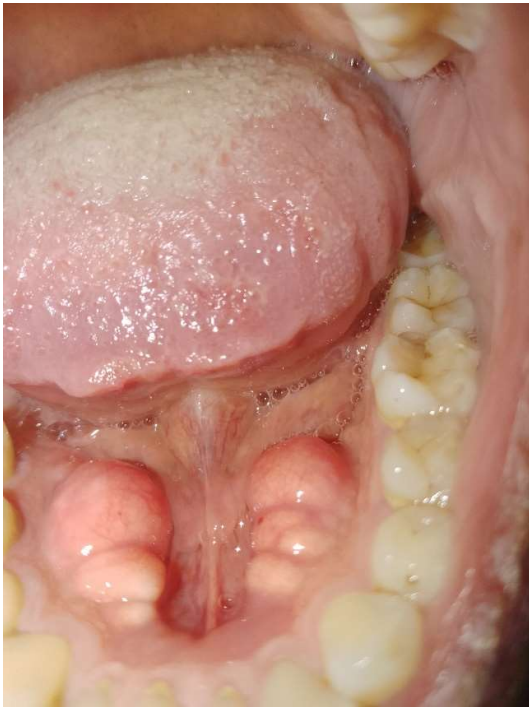


Figure 1. A 45-years old woman with mandibular torus



Figure 1b. A 48-years old at excision of mandibular torus



Figure 2a. A 36-year-old woman with palatal bilateral exostosis



Figure 2b. Surgical excision of the torus in figure 2a



Figure 2c. Surgical site closed with catgut 2/0 suture.

#### Clinical features:

Oral bony exostosis is bony hard elevation on the lingual, buccal surfaces of the mandible, maxillae and midline palate, which could be sessile or pedunculated and the overlying mucosa appeared normal.

#### Surgical Procedure

Infiltration of the lingual nerve was done bilaterally with local anaesthesia, inferior alveolar nerve was blocked with 2% xylocaine with adrenaline. The lingual mucosa was incised through gingival incision, and retracted to expose the tori on one side (Figure 2a), surgical burr was used to cut the exostosis from the basal bone. The rough edges were smoothed with an acrylic burr. Palatal tori and exostosis were excised

under local anaesthesia infiltration of the greater palatine nerve on both sides. Greater palatine arteries were carefully protected from injury. The same procedure applied as for mandibular torus.

The same procedure was repeated on the other side. The surgical site was closed back with 2/0 silk suture to the cervical edges of the teeth. Post-operative medications were intravenous Ceftriaxone 1gm 12hourly for 48hours, tabs. Metronidazole 400mg 8hour, tabs. Dexamethasone 2mg 12hourly for three days, tabs. Diclofenac potassium 50mg 12hourly for 5days. The healing of the surgical sites was uneventful. Post-operative complications include gingival recession, recurrence and oedema.

## DISCUSSION

Torus have been described as a developmental bony disorder which may be due to disorder in calcium and phosphorus metabolism (Smitha & Smitha, 2015). Oral bony exostosis (OBE) is a common disorder affecting jaw bones. This study showed that individuals affected may seek medical care because of associated symptoms experienced. The common complaints from our patients were pains, disturbance of speech, swallowing difficulty, ill-fitting prosthesis and fear of it changed to a malignant lesion. Many of our patients were aware of the growth in their mouth. The aetiology of OBE is unknown, but several authors (Antoniades et al., 1998; Belloo et al., 2020; Agbaje et al., 2005) have documented genetic factors, environmental factors, occlusal stress, irritation, developmental growth process, and infectious process as possible aetiology. This study suggested an interplay of genetic factors and environmental factors in the aetiology, as during the study there were two siblings that had similar growth in the same location in their oral cavity. This study reported that tori affected more females than males, and third decade of life was most affected. The time of onset of the tori could not be determined as many of our patients did not know the actual time the growth commenced.

However, mandibular torus was the commonest oral exostosis encountered in this study, but palatal exostosis was the most symptomatic and necessitated surgical excision. These bony protuberances may cause pain during the impression making, as there is often only a thin oral mucous membrane covering these osseous protuberances which is easily irritated. Fifteen of the patients in this study had excision of the exostosis done. The surgical procedures were done under local anaesthesia. Pre-prosthetic reasons was the common reason for excision in the elderly, but pains, discomfort, difficulty in swallowing, and speech affectation were the reasons in the younger age groups. Other reasons were ill-fitting dentures and crowns. Several authors believed tori should be preserved for future use if there is need for osseous augmentation, and need for bone chips in implants and periodontal surgery (Neiva et al., 2006; Tran et al., 2007; Puttaswamaiah et al., 2011). Histological examination revealed the lesions were composed of a dense mass of mature bone with well-developed lamellae and haversian systems, viable osteocytes in lacunae and a few marrow spaces filled with loose fibrous connective tissue.

Mandibular tori can present significant challenges for endotracheal intubation and laryngoscopy (Seah 1995; Neiva et al., 2006). Lingual tori and palatal exostosis may be an impediment to deglutition. Surgical excision of torus can be justified as all our young patients that had the procedure because of the symptoms they

presented and the elderly that the excision was for prosthetic reasons.

The surgical procedure is safe and was done under local anaesthesia. Common complications observed were gingival recession, recurrence and tissue retraction.

## CONCLUSION

In conclusion, oral bony exostosis could be a source of irritation and discomfort to individuals such that excision of it will bring succour to individuals affected. Generally, majority of these exostosis were asymptomatic and should be preserved for future use in various bony augmentation.

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