

Bilateral Mandibular Tori- A Case Report and Review of Literature

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ABSTRACT

Mandibular tori are usually asymptomatic bony protuberances present unilaterally or bilaterally. They are formed by dense cortical bone externally and covered with a thin layer of poorly vascularized oral mucosa. They usually present as a very slow and progressive growth that can stop spontaneously. Treatment is not usually advocated unless it hinders prosthetic treatment or if any complication occurs.

Keywords: Mandibular tori, Asymptomatic, Bilateral

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Introduction

A 45-year-old woman presented with the chief complaint of bleeding from gums for the past 7 months and mobility of the lower anterior teeth for the past 4 months. Intraoral examination revealed that the gingiva was bluish red in colour, swollen and bleeds upon probing with grade I mobility of lower anterior teeth in, pocket formation, missing 35, 36, 37, 46 and bilateral mandibular tori (figure 1). The exostosis extended bilaterally from canine to the second premolar on right side and from canine to the first premolar on the left side. The torus was covered with a thin, intact mucosa with normal colour and consistency.

Scaling was done followed by root planning in the lower teeth. After 10 days, a full thickness mucoperiosteal flap was raised from the lower left side of the canine till the premolar under local anaesthesia.

The exostosis was then surgically removed with chisel and mallet and the flap was sutured. Coe-pak was placed and post-operative medications consisting of antibiotics, analgesics and anti-inflammatory medicines were prescribed. Patient follow-up was done after 10 days.

After the surgical site has healed, removable prosthesis for 35,36,37 and 46 was delivered.

Review of Literature

Tori which are bony protuberances or localized bony outgrowth means "to stand out" or "lump" in Latin¹. Castro Reinoet al defined tori as a congenital bony protuberance with benign characteristics, leading to the "overworking" of osteoblasts and bone to be deposited along the line of fusion of the palate or on the hemimandibular bodies².

They are formed by dense cortical bone externally with a limited amount of bone marrow internally, and are covered with a thin layer of poorly vascularized oral mucosa³.

Tori are present usually at the longitudinal ridge of the half palatine, at the union of the palatine apophysis of the maxillae or on the internal side of the horizontal branch of the jaw, above the mylohyoid line and at the level of the premolar and canine areas.

They present as a slow, progressive growth that can stop spontaneously⁴⁻⁸.

Eggen and Natvig, proposed that the number of functional teeth are important for the maintenance of tori suggesting that (abnormal) mechanical loading can be associated with the formation of tori⁹.

Tori are seen as lobular, nodular, or spindle shaped bony overgrowths which begin to develop in early adulthood and enlarge slowly¹.

Mandibular tori are usually a clinical finding with no treatment necessary until there is complain of pain, speech defect and in interference with prosthesis or cases of cancer phobia where verbal counselling does not have an effect¹⁰.

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DOI: 10.31173/bomj.bomj_2113_18



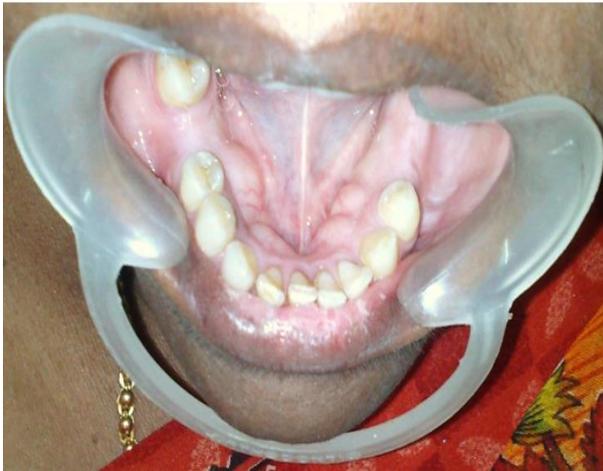


Figure 1: Bilateral mandibular tori

Classification of tori

Based on location tori can be classified into:

1. Palatal Tori which are present in the middle of hard palate.
2. Mandibular Tori which are present on lingual aspect of mandibular bicuspid and are usually bilateral.
3. Bony Exostosis which are present on buccal aspect of maxilla more common than mandible and thus also called as buccal exostosis. The size of tori ranges from few millimetres to few centimetres in diameter^{11,12,13}.

Grading of tori

Kalaiganan *et al* established a grading system of tori so that Prosthodontists can have an idea of tori-prosthesis relationship when faced with such patients during practice.

1. Width of tori
2. Length of tori
3. Height of tori

In each category (length, width and height) of tori, numbering from 1,2,3,4,5 should be designated to a range of values for each of the measurements, and separately for each category³.

Prognosis Final Grading of tori

Age

Tori develop in the 2nd or 3rd decade of life, with an initial phase of rapid growth and the growth rate then decrease with age, but never stops³⁰. According to Al-Bayaty *et al*, the average age is 30.7 years old

Good	Grade 1
Moderate	Grades 2 & 3
Poor	Grades 4 & 5

Etiology

The exact cause for the formation of mandibular tori is not clear, but genetic and environmental factors can influence its formation. Environmental factors include diet, presence of teeth, occlusal stress, bruxism and clenching^{14,15,16}. The most widely accepted and recent theory is based on genetics but it has not possible to show the autosomal dominant nature of its appearance always^{9,17,18,19,20}. Eggen *et al* postulated that it was only possible to estimate the genetic origin of mandibular tori only in 29.5% of the cases²¹. Superficial injuries or its occurrence as a functional response in individuals with well-developed chewing muscles, or in patients with abraded teeth due to occlusion can also result in formation of mandibular tori^{9,22}.

Other causative factors include eating habits, vitamin deficiency or supplements rich in calcium diet^{9,23,24}. Sasaki *et al* determined that prolonged use of phenytoin, can lead to an increase in the size of the tori because it induces an increase in calcium homeostasis, functioning as an osteogenic agent²⁵. Eggen *et al*, found a relationship between the presence of torus and the number of teeth present in the mouth suggesting that it could be an influencing factor²⁶.

Frequency

Al Quran *et al* determined the prevalence of tori in Jordanian edentulous patients and found that the overall prevalence of tori was 13.9% and the prevalence of torus palatinus was 29.8%, while that of torus mandibularis was significantly higher 42.6%²⁷. Hassanabadi *et al* determined that the prevalence of mandibular tori in Iranian population was 53.77%²⁸. AlZarea *et al* found a prevalence of 9.80% among edentulous patients of Saudi Arabia²⁹. The incidence rate ranges from 9.2% to 66% for palatal torus and 0.5% to 63.4% for mandibular torus¹.

for patients with torus palatinusTM and 39.2 years old for those with Torus mandibularis (TM). The appearance of TM is rare before the first decade of

life⁹. Sonnier et al stated that the prevalence of TM is inversely proportional to age³¹.

Sex

With respect to sex, there is no significant differences between men and women. The study conducted by Nair et al, refers to the presence of torus in general, without differentiating between TP and TM, and does not find any significant differences between the two⁹.

Ethnic Groups

The appearance of tori is more common in certain ethnic groups and countries (Eskimos, Japanese and in the United States). A greater predisposition towards the appearance of TM has been observed among the Mongols³².

Size

The tori enlarge very slowly as the age progresses. Haugen and Eggen et al, have classified the growth in terms of small, medium and large, less than 2 mm, 2 to 4 mm and more than 4 mm, respectively^{9,33}.

Reichart et al proposed another classification which classifies tori as grade 1, small up to 3 mm; grade 2, moderate up to 6 mm; and grade 3, marked above 6 mm. The study conducted by Sirirungrojying et al attempted to link the size of the tori with the incidence of parafunction, but they were unable to find a relationship⁹.

Shapes

Tori are usually bosselated or multi-lobulated but the exostosis is typically a single, broad-based, smooth surfaced mass with central pointed projection of bone. Tori can be of four types on the basis of shape or appearance.

1. Flat tori are symmetrical bony growths with broad-base and smooth surface commonly seen on palate.
2. Spindle tori have ridge at midline.
3. Nodular tori having multiple round to ovoid bony growths with separate base, and
4. Lobular tori are similar to nodular but all bony growths have common base^{34,38}

Al-Bayaty *et al* found that the most common shape was nodular in 61% of the cases, and bilateral in 87% of the cases of TM. Reichart *et al* also found nodular to be the most common shape in German and Thai which were 52.2% and 87.35% respectively⁹.

Tori can frequently be confused with other conditions –

1. oral cancer-cancerous tumors are soft to touch, while Tori feel hard and bony impacted / unerupted teeth
2. tooth abscess
3. mouth ulcers /canker sores
4. salivary gland swelling³⁰.

Diagnosis

In majority of the cases tori are asymptomatic, and remain undisturbed over the patient's lifetime and discovered only during clinical examination at the dental clinic. Sometimes patients may present with phonatory disturbances, limitation of masticatory mechanics, ulcerations of the overlying mucosa, food deposits, periodontitis, prosthetic instability and some patients may have cancer phobia³⁰.

Torus mandibularis is diagnosed with clinical examination. Most of them are bilateral but unilateral cases have also been reported. X-rays taken reveal radio dense images with higher density than that of the surrounding bone. Histopathological examination reveals that it is similar to the structure of the normal bone, along with a slightly spongy structure with marrow spaces⁹.

Shubha Rajan Dutta *et al* suggested that TM are not associated with any pathological condition and they remain asymptomatic, slowly enlarging recurrent lesions are occasionally seen, but there is no malignant transformation potential³⁶.

Torus mandibularis can present many challenges while fabricating a complete denture for a patient. The mucosa tends to be thin and cannot tolerate the occlusal loading of a denture.

Large mandibular tori may prevent complete seating of impression trays and the finished denture. Large undercuts in a torus may lock the denture into place or preclude the fabrication of a lingual flange in the area³⁷.

Treatment

It is not always necessary to remove the tori. The most common cause of removal is the need for prosthetic treatment or act as a potential source of autogenous cortical bone for grafts in periodontal surgery, cyst surgery or implant surgery.

Castro Reino *et al* recommend using anaesthetic by means of infiltration in the lesion.



An incision made on the mandibular ridge, with an incision made above the torus, which provides a good operating field, or scalloped following the necks of the teeth, when they are present, along the tongue, sectioning the gingival ligament.

A piece of gauze placed between the lingual flap and the surgical space that extends under the torus can prevent the dried bone from becoming lost deep within the structures of the mouth.

Postoperative medication should be given consisting of analgesics, antibiotics and anti-inflammatory medicine along with appropriate personal hygiene instructions so that the wound heal properly.

Post-operative complications can include hematoma, oedema, opening of a suture, infection, bone and mucosal necrosis, neuralgia and poor scarring^{9,30}

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Cite this Article as: Karthik S, Shanmugam A, Jeevanandam³. Bilateral Mandibular Tori- A Case Report and Review of Literature. **Bo Med J** 2021; 18(1):1-5 **Source of Support:** Nil, **Conflict of Interest:** None declared

