

# Concurrence of Torus Palatinus, Torus Mandibularis and Buccal Exostosis

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## ABSTRACT

Torus palatinus (TP), torus mandibularis (TM), and buccal exostosis are localised, benign, osseous projections, occurring in maxilla and mandible. Etiology is multifactorial and not well established. Tori and exostoses have been associated with parafunctional occlusal habits, temporomandibular joint (TMJ) disorders, migraine and consumption of fish. Concurrence of TP, TM, and exostosis in the same individual is very rare. Concurrence of TP and TM has not been reported from Pakistan. We report a case of a 22-year female patient manifesting concurrence of TP, bilateral TM, and maxillary buccal exostoses; with possible association of abnormal occlusal stresses and use of calcium and vitamin D supplements.

**Key Words:** *Torus palatinus. Torus mandibularis. Exostoses.*

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## INTRODUCTION

Torus palatinus (TP) is a localised, benign, osseous projection in midline of the hard palate. Torus mandibularis (TM) is a benign, bony protuberance, on the lingual aspect of the mandible, usually bilaterally, at the canine-premolar area, above the mylohyoid line. Exostoses are multiple small bony nodules occurring along the buccal or palatal aspects of maxilla and buccal aspect of mandible.<sup>1,2</sup> Their precise designation depends on their respective anatomic locations.<sup>3</sup>

Bruxism, malocclusion, TMJ disorders, migraine and increased consumption of fish, calcium and vitamin D have been suggested as the possible causes of tori and exostoses.<sup>4,5</sup>

Tori are more frequently seen in the Asians (particularly Mongols) than in the Caucasians.<sup>6-8</sup>

We report a 22-year female patient manifesting coexistent TP, bilateral mandibular tori and buccal exostoses with possible etiological factors being occlusal stresses and consumption of calcium and vitamin D supplements.

## CASE REPORT

A 22-year female patient, reported to Military Dental Centre, Gujranwala, Pakistan, in December 2015; complaining of stained teeth, occasional bleeding from gums and unusual irregular growth in the area above her

upper teeth, for the last one year. She noticed a gradual increase in the severity of her symptoms. The patient denied any associated pain or ulceration. She had remained under orthodontic treatment for 2 years for correction of her crooked teeth. After completion of the treatment, she was advised to wear removable retainer appliance; but owing to her admittedly non-compliant attitude towards treatment, malalignment of her teeth recurred within the next 2 years. She had been taking oral calcium and vitamin D supplements of different brands, in random doses, for about 18 months on the advice of one of her class fellows. Currently she was not taking calcium or vitamin supplements and denied allergy to any medication. Family history was unremarkable. She had strong appetite for non-vegetarian spicy food, but denied excessive consumption of fish. She was neither a smoker nor alcoholic. She had a positive history of occasional clenching of teeth during sleep. She was happily married and a housewife.

On clinical examination, she was a young female of average built and height with dolichofacial profile. She had a gummy smile with incompetent lips at rest, however, she was able to close her lips together with conscious effort. The upper lip was found to be fuller as compared to the lower one. TMJ examination was normal. Intraoral examination showed buccal maxillary exostoses, bilaterally, involving the entire buccal cortex, TP in the midpalatal region measuring about 2.5 x 2 cm and bilateral mandibular tori in the premolar region lingually (Figure 1). Mandibular tori were almost of the same size measuring about 1.5 x 0.8 cm each. Tori and buccal exostoses were non-tender, and covered with pale appearing mucosa with no discharge or ulceration. Occlusion was found to be Angle's class II division 2 with slight rotation of upper incisors. No signs of bruxism were found. The patient had satisfactory oral hygiene status. Gingival inflammation was found in posterior region of oral cavity and revealed bleeding on probing.

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**Figure 1:** Buccal exostoses involving the entire buccal cortex of maxillary alveolar process (Left), Palatinus in midline of the hard palate (Middle), Bilateral mandibular tori (Right).

There was extrinsic staining on lingual surfaces of lower anterior teeth. Tongue movements were normal with no significant hindrance offered by tori. There was no cervicofacial lymphadenopathy.

Patient was treated for gingivitis and extrinsic dental stains by complete ultrasonic scaling and polishing under local anaesthesia and aseptic conditions, after taking informed written consent. Patient was fully explained about the benign nature of buccal exostoses, TP and TM. There was no indication for surgical removal of TP and mandibular tori. However, as the patient was conscious of the unusual irregular bumpy appearance of buccal alveolar cortical plate, she opted for surgical removal/contouring of buccal maxillary exostoses which was scheduled during subsequent appointments.

## DISCUSSION

Prevalence of appearance of tori has been investigated and found to be ranging from 12.3% to 14.6%.<sup>1-3</sup> Concurrence of TP and TM in the same patient is rare,<sup>2,3,9,10</sup> with reported prevalence and simultaneous presence of both tori in the same patient as 2% to 3%.<sup>1,5,8</sup> Exostoses were concurrent with TM more frequently than with TP (36.2% vs. 20.6%).<sup>3</sup> The highest concurrence of exostoses with tori was observed in subjects who had both TP and TM (42.6%).<sup>3</sup> Mirza *et al.* investigated a sample of 909 Pakistanis and observed that TP was present in 12 (35.3%) males and 22 (64.7%) females.<sup>9</sup> TP was found to be more prevalent in fifth decade of life (23.5%) and was least recorded in first decade of life (8.8%). While observing the prevalence of TM among various ethnic groups in Karachi, Pakistan, they found that out of 69 subjects showing TM, Urdu speaking community showed highest expression 51 (73.9%) whereas, Balochis showed lowest expression 1 (1.4%).<sup>9</sup>

TP is twice common in women than men, while TM is more common in men.<sup>1</sup> Tori tend to develop in early adult life and enlarges with the passage of time.<sup>5</sup> They are seldom seen in children under 10 years of age. The prevalence of tori tends to increase with age.<sup>1,5</sup> Review of the current literature shows a high prevalence of TM as compared to TP.<sup>2,5,7</sup> Concurrence of TM and TP has not been investigated in Pakistan.

The etiology of tori has been considered multifactorial and is attributed to genetic predisposition, environmental

factors, masticatory parafunctional activities, malocclusion, TMJ disorders, migraine, and increased consumption of fish (unsaturated fatty acids and vitamin D encourages bone growth), calcium and vitamin D.<sup>2,4</sup> Regarding genetic predisposition, this patient was not aware of occurrence of any tori or exostosis among her family members. She had no history of migraine, TMJ disorders and excessive intake of fish. However, she reported nocturnal bruxism and orthodontic treatment for her malaligned teeth with a degree of recurrence after completion of treatment. She also had been taking calcium and vitamin D supplements in the form of tablets, in random doses, for a duration of about 18 months. Presence of parafunctional occlusal activity, malocclusion and vitamin D supplements may be held responsible for simultaneous developments of TP, TM and buccal exostoses in this patient. Possible role of occlusal stresses and excessive intake of calcium and vitamin D supplements in the development of tori and exostoses, as observed in this case report, may be confirmed by further investigations.

Exostoses are usually discovered incidentally during a routine clinical examination, as they usually are a symptomatic.<sup>5</sup> Common indications for surgical removal of exostoses are pre-prosthetic surgery, to remove any hindrance prior to fabrication of dentures, traumatic ulceration of overlying friable mucosa, cancer phobia, functional problems such as difficulty in mastication and phonation, causing obstructive sleep apnea and offering difficulty in intubation,<sup>7</sup> poor oral hygiene and infection involving overlying mucosa, aesthetic concern and periodontal and implant surgery to provide bone for alveolar ridge augmentation.

In this patient, tori and buccal exostoses were not large enough to impede function. However, the patient was socially conscious and wanted removal of buccal exostoses to have a more socially presentable and pleasing smile. TP and TM were decided to be left *in situ* as they were asymptomatic, posing no esthetic challenge, with a potential to be used as a source of autogenous bone graft in future periodontal or implant surgery.<sup>6</sup>

Simultaneous occurrence of TP, TM and Buccal exostoses in the same patient is a rare occurrence. Possible role of occlusal stresses and excessive intake of calcium and vitamin D supplements in the development of tori and exostoses has been observed in this case report and may be confirmed by further investigations.

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