Large Multinodular Torus Palatinus with a Case Report and Histopathological Observation

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Abstract

We experienced a case of a large torus palatinus (TP) in a 59-year-old Japanese woman, her chief complaint being that of speech interference. The lesion consisted of three pieces of nodular hard masses. The largest nodule was 34.5 mm in max diameter. Histopathologically, the lesion contained an exophytic overgrowth of cortical and/or a trabecular bone-like hard tissue with adipose marrow-like and fibrous tissues between the trabecular bone-like structures indicating hyperplastic features of the bone. After reviewing literatures, the larger and multinodular case was not so many, therefore, the present case was rare, and should be removed if it interferes exceedingly with speech.

Keywords:
torus palatinus, multinodular, interference of speech, histopathology

Introduction

Torus palatinus (TP) is a kind of exostosis that is predominantly formed by a dense cortical bone and sometimes by a spongy bone with a limited amount of bone marrow towards the posterior of the midline of the palate (1-3). Although TP, generally asymptomatic, is noticed as a small protuberance, we experienced a relatively rare case of a large, multinodular TP with a significant interference of speech. Then, we reported the TP with clinical summary and histopathological features of the lesion, and reviewed the past research.

Case report

A 59-year-old Japanese woman noticed the mass lesion in the midline of the palate region for more than 10 years and felt interference of speech. The patient’s private dentist recommended an examination in the Department of Oral Surgery, Nihon University Hospital at Matsudo because the mass gradually grew larger. There were three pieces of a multinodular bony protuberant lesion on the midline and molar parts in both sides of the palate (Fig.1). Their sizes were 31.8 mm, 26.6 mm and 10.0 mm, respectively. It was covered by normal mucosa. There was no particular with familial and medical histories, and no concurrence with torus mandibularis. The lesion was enucleated under general anesthesia. There is no evidence of recurrence or other medical problems up to this date (Fig.2). The patient has not worn a denture up to this date.

Consideration was given to the patient’s privacy, diagnosis, management and prognosis of the lesions (Nihon University School of Dentistry at Matsudo, Ethics committee recognition number: EC 11-004).

Results

Computer tomography (CT)

Three foci of a high density area, measured around 34.5 × 13.0 mm in max diameter, and the lesions adjacent to the cortical bone on the palate were observed (Fig.3a, b). The coronal plane of CT showed that the process of complete removal could be accomplished without fear of nasal or oral-nasal fistulas (Fig.3b).

Histopathological findings

The excised materials (Fig.4) were fixed in 10% neutral formalin solution. After decalcification with 10% neutral
formic acid formalin solution, the specimen was embedded in paraffin by the usual standard method. The paraffin embedded blocks were cut into 4μm thick sections for histopathological examinations, and the sections were then stained with hematoxylin and eosin staining (HE) (Fig.5a-d).

Histopathologically, the lesion consisted of an exophytic overgrowth, predominantly made up of cortical bony tissues,
and partly of a trabecular bone-like hard tissue in the deeper area with an irregular reversal line, the lining of flattened osteoblastic cells in the periphery and also an appearance of osteoclasts in part. The adipose marrow-like and fibrous tissues were identified between the trabecular bone-like structures.

Discussion

TP is an exophytic nodular bone mass that generally arises along the midline suture of the hard palate, and the general features are described in textbooks and review articles (1–3). García-García et al. (3) summarized and reviewed the current status of TP. According to the review, the average age of the patients was 30.7 years, and they were predominantly female. The present case was also a female but relatively an elder. The reason for female predominance in TP is believed to be that there may be a dominant type linked to the X chromosome (3).

There is no consensus on how to classify the size and growth of TP. In a review of the past research (4–7), García-García (3) described that the majority was classified into “small,” that was less than 2 mm. Another classification of the size divided grade 1 as small up to 3 mm; grade 2 as moderate up to 6 mm; and grade 3 as marked above 6 mm. The study also concluded that the majority was small up to 3 mm; therefore, the present case was a markedly larger size.

We reviewed English research of large cases of TP, over than 20 mm, proving them as possible (8–15) (Table 1). From review of this research, the mean age was 53.8 within the ranges of 40 to 80 years, and the male to female ratio was 1:3.5, indicating that these cases were likely general features of TP as mentioned above. In addition, the present case

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Fig. 5 Gross appearance of the excised materials from the center area (a), the right side (b) and the left side (c) of the palate. The lesion, comprising of the overgrowth of cortical and/or trabecular bone with adipose marrow or fibrous tissues (d) (hematoxylin-eosin staining) (original magnification, a-c, x1; d, x100).
showed three pieces of nodules with a lobular surface (Fig. 1). The multinodular lesion was only in one case among the reviewed 8 cases; therefore, the present case showing three nodules was a rare entity from the research as far as we know (8-15). Several types of TP shapes are known such as spindle, flat, nodular, lobular or irregular (1, 3, 13). The present cases showed the lobular type in each nodule (Fig. 1).

Pathologically, TP is a kind of exostosis that arises from the cortical bone and sometimes from the spongy layer in the midline of the palatal features. Although there are controversies about pathogenesis, it is hypothesized that the cause of the lesion is associated with genetic and environmental factors, including functional (masticatory hyperfunction), nutritional, behavioral, and, possibly, climatologic factors. Among these factors, the most widely accepted theory today is genetics (3, 13). In addition, although a concurrence case with TP and torus mandibularis (TM) was also reported, there was no evidence of TM in the present case.

Histopathologically, the overgrowth of the bone is similar with mainly a cortical bone, and sometimes a spongy bone with limited marrows. The present case also showed the relatively uniform bony structure with the lining of the flatten osteoblasts and it involved osteocytes. These findings suggested that TP corresponded to a progressive change of an almost normal bone formation rather than a neoplastic lesion.

Generally, although TP is an asymptomatic lesion, there are some possibilities of the appearance of symptoms depending on the size and presence of the associated lesions such as a squamous cell carcinoma and an ulcer arising in overlying mucosa, according to past research (8-15). In the many cases of larger-sized lesions, the patients noticed the existence of the lesion and felt the interference of speech and eating, just as in the present case. The symptoms of the present case are remarkable because they are larger and also contain multinodular lesions.

Although surgery is not needed for TP if it does not show significant symptoms, not noticed until the patient is middle-aged, and is small in size, the large-sized cases should be extirpated. Surgically, the edge of the chisel is placed against the base of the TP with the bevel approximating the palatine bone, and when the chisel is tapped with the mallet, a planning action results (1). However, there should not be perforating and it is essential to avoid the perforating of the nasal cavity due to a split that is too deep (1) (Fig. 3b). In review of the studies of large cases, the prognosis was almost good including a case with squamous cell carcinoma (8-15). As mentioned above, because the present case showed a significant interference of speech, the lesion was surgically extirpated. The prognosis was good and there was no recurrence or notable disturbance after surgery (Fig. 2). If it interferes not only with the fitting of the dentures but also with speech, it should be removed.

### Conclusion

A case of TP in a 59-year old Japanese woman is reported from clinical and histopathological viewpoints with review of the past research suggesting that, large sized, multinodular TP was a rare entity and the pathogenesis was associated with hyperplastic rather than true neoplastic. In addition, TP should be removed if it interferes not only with the fitting of the dentures but also with speech.

### References


