

Surgical management of palatine Torus - case series

Tratamento cirúrgico de Tórus palatino - série de casos

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Resumo

Introdução: *Torus palatinus* é um nome específico usado para identificar exostoses no palato duro ao longo da sutura palatina mediana. Apesar de não ser considerado uma condição patológica, sua presença requer atenção e conhecimento no que diz respeito ao seu tratamento. A remoção cirúrgica de exostoses é indicada quando o paciente traumatiza frequentemente a área do *Torus palatinus* durante a mastigação e a fala, ou quando for necessária a reabilitação da arcada dentária superior com próteses totais. **Objetivo:** O objetivo deste trabalho é apresentar três casos de *Torus palatinus* e discutir os seus respectivos tratamentos. **Caso clínico:** O primeiro caso era de um homem leucoderma e com maxila edêntula que procurou reabilitação dentária, porém apresentou um nódulo no palato duro. O segundo caso era de uma mulher, leucoderma e de 40 anos que foi encaminhada devido ao trauma frequente na mucosa do palato durante a mastigação, insatisfação com a estética e desconforto causado pelo trauma na língua. O terceiro caso era de uma mulher de 45 anos de idade, leucoderma com uma lesão no palato e dificuldade pra engolir. Uma vez que o *Torus palatinus* estava prejudicando as funções fisiológicas básicas dos pacientes, todos os casos foram cirurgicamente tratados, melhorando a qualidade de vida dos mesmos. **Consideração final:** O dentista deve estar preparado para selecionar a técnica cirúrgica mais indicada para cada caso buscando o melhor resultado e evitando possíveis complicações.

Descritores: Exostose; palato duro; diagnóstico bucal.

Abstract

Introduction: *Torus palatinus* is a specific name to identify exostoses developed in the hard palate along the median palatine suture. Despite of not being a pathological condition, its presence requires attention and knowledge regarding its management. Surgical removal of exostoses is indicated when the patient frequently traumatizes the area of palatine torus during mastication and speech or when it is necessary for the rehabilitation of the upper arcade with complete dentures. **Objective:** The aim of this article is to present three cases of *Torus palatinus* and to discuss the management of them. **Case report:** In the first case, a 57-year-old Caucasian man sought oral rehabilitation of his edentulous maxilla but presented a hard nodules in the hard palate; in the second case, a 40-year-old Caucasian woman was referred for frequent trauma of palatal mucosa during mastication, aesthetic complaint, and discomfort caused by the trauma of her tongue in this area; and in the third case, a 45-year-old Caucasian woman presented with a lesion on the palate that caused difficulty swallowing. When the *Torus palatinus* was impairing the basic physiological functions of the patients, all cases were surgically treated, improving the patients' quality of life. **Final consideration:** The dentist should be properly prepared to choose the best from among the existing surgical approaches for each individual lesion in order to improve the results and avoid possible complications.

Descriptors: Hyperostosis; palate, hard; diagnosis, oral.

INTRODUCTION

Torus palatinus (TP) is a specific name to identify exostoses developed in the hard palate along the median palatine suture. It is constituted by normal compact and cancellous bone¹. About 12-30% of the population has TP and it is often accidentally detected in young adults and middle-aged patients^{2,3}. Despite not being considered a pathological condition, the detection of a palatine torus requires attention

and knowledge of its management. Surgical removal of exostoses is indicated when the patient traumatizes the area of TP during the mastication and speech or when it is necessary for the rehabilitation of the upper arcade with complete dentures.

The aims of this article are to report three distinct cases of *Torus palatinus* and to discuss the management of each of them.

CASE REPORT

CASE 1: A 57-year-old Caucasian man sought oral rehabilitation of his edentulous maxilla. Oral examination revealed a hard nodule at the midline of hard palate of approximately 1.5 cm, covered by healthy mucosa (Figure 1A).

Medical history did not reveal any comorbidity. The presence of the TP was impairing the confection of the upper complete denture, so surgical removal of the exostosis under local anesthesia (articaine 4% with epinephrine 1:100.000) was performed. A single “Y” incision was performed to expose the bone, followed by segmental osteotomy under plentiful irrigation, removal of bone fragments with chisel, nylon sutures, and compression. Microscopical examination of the specimen confirmed the diagnosis of *Torus palatinus*. Post-operative was uneventful. Four months later, the patient did not experience any sign of recurrence and he was rehabilitated with complete dentures.

CASE 2: A 40-year-old Caucasian woman was referred for frequent trauma of palatal mucosa during mastication, aesthetic complaint and discomfort caused by the trauma of her tongue in this area. Oral examination revealed a nodular and hard swelling covered by healthy mucosa at the midline of the hard palate extending from the height of the first molars to the middle of the third ones, with an approximated dimension of 2 cm (Figure 1B). Medical records were not contributory. The clinical diagnosis was palatine torus. Due to the functional impairment, we decided on surgical excision under local anesthesia with the same technique employed in the first case (Figures 2A-D). Microscopical analysis of the removed specimen confirmed the diagnosis of *Torus palatinus*. The four-month follow-up was uneventful.

CASE 3: A 45-year-old Caucasian woman presented with a lesion on the palate that caused difficulty to swallow. Oral examination revealed a lobulated and hard nodule with a 5 cm diameter, located in the midline of the palate and covered by healthy mucosa (Figure 1C). The swelling was painless and presented slow growth, without signs of inflammation. Medical history did not reveal any comorbidity. Total maxilla occlusal radiography was performed to rule out the presence of neoplasia and to examine the shape and size of the bony prominence. It showed a radiopaque lobular lesion on the hard palate midline (Figure 3).

Due to the functional discomfort, we decided for surgical excision under local anesthesia with the same technique employed in the previous cases. Microscopical analysis of the specimen confirmed the diagnosis of *Torus palatinus*. The post-operative period of 4 weeks showed good healing of the surgical area.

DISCUSSION

Some lesions of the oral mucosa do not receive the necessary attention because of its high frequency and outward indolent behavior. *Torus palatinus* (TP) is an exostoses of the hard palate usually discovered during a routine clinical exam. It may present significant growth, impair swallowing and prosthesis fitting². Therefore, it is important to highlight and discuss the management of TP.

The first report of exostotic changes of the hard palate was written by Fox in 1814⁴. Although this anatomical variation had been described earlier under various names, the term *Torus palatinus* was determined by Kupffer and Bessel-Hagen in 1879⁵.

TP etiology remains unclear^{6,7}. Efforts to link its occurrence to third molar agenesis⁸, bone density⁹ and elongation of styloid process¹⁰ have been made, but these relationships remain a source of debate. Nowadays, the most widely accepted theory is that TP represents genetic traits^{6,7,11-15}, but it has not always been possible to show the autosomal dominant nature of these structures¹⁵. Others^{16,17} have considered that the development of TP results from an interplay of genetic and environmental factors, especially those related to occlusal stress².

The average age of our patients was 47.3 years old, similar to other studies, which show incidence of palatine torus at age ranging from 30 to 50 years old^{14,15}. MacInnis et al.¹⁸ asserted that TP appears during puberty and slowly grows until adulthood, with the possibility of continuing growth until the seventh decade. This slow development of palatine torus associated to the asymptomatic nature of this variation can explain the relatively old age of diagnosis.

In the presented study, we reported one male and two female cases of TP. The literature shows the majority frequency of TP in women^{19,20}, probably because it seems to be a dominant type of TP linked to the X chromosome².

The TP may display a wide variety of shapes. It can be flat, nodular, spindle and lobular or spindle-shaped^{2,21}. In all of our



Figure 1. Clinical aspect of the palatine torus. A. Case 1, B. Case 2, C. Case 3.

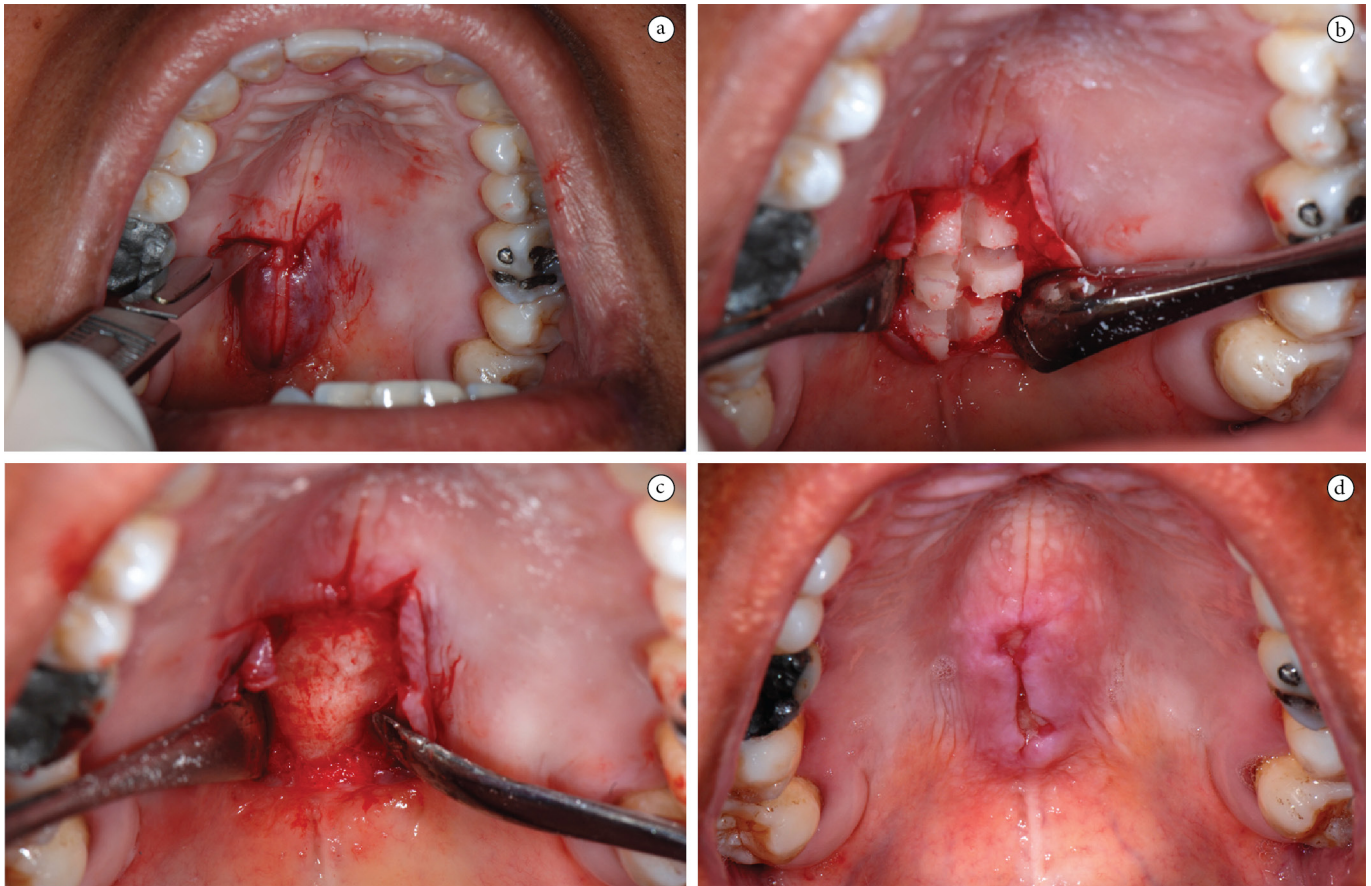


Figure 2. Surgical technique. A. Single Y incision, B. Trans-operative view of the segmental osteotomy, C. View of the hard palate after the surgical removal of the palatine torus, D. Seven-days post-operative.

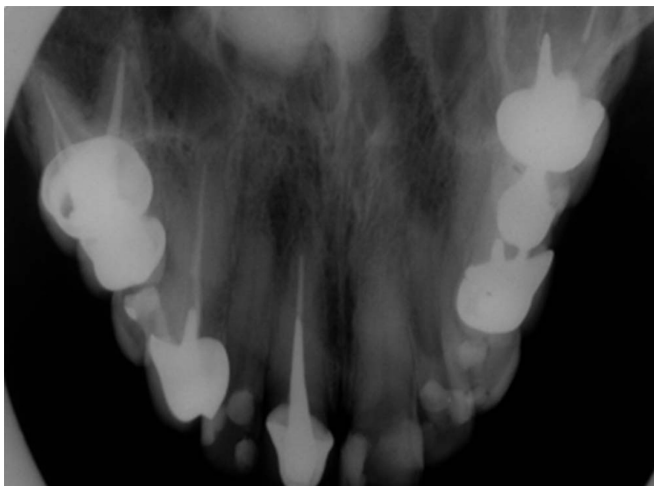


Figure 3. Radiograph aspect of the palatine torus, showing a radiopaque lobular image in the midline of hard palate.

cases the TPs were nodular and 1.5-2 cm in size (Figures 1A-C). This corroborated with Haugen²² who reported that the most common shape was nodular. However, Sisman et al.¹⁰ (2009) showed that the flat TP is the most common type. These differences might be due to different classifications of palatine torus employed by the authors though comparisons are difficult to conduct.

The prevalence of the tori varies from 12.3 to 14.6%^{14,15}. In the majority of the studies, palatine torus is more frequent than

mandibular torus^{6,11,14,20,22,23} and concurrence appears to happen in about 2-3% of cases²⁰.

The diagnosis of TP is usually incidental, during clinical examination, due to its asymptomatic nature^{2,14}. In some situations, however, the patient may present speech and masticatory disturbances, traumas and ulcerations of the mucosa, prosthetic instability, and even cancerophobia. In these cases, the patient should be reassured and depending on the severity, surgical removal should be studied. The removal of the tori is indicated when functional prejudice is detected². The most frequent cause of exeresis is the need for prosthetic treatment^{2,7} as presented in Case 1. A palatine torus may interfere with the design, retention and function of a complete denture. In addition, a TP under a prosthesis constitutes an additional source of trauma. In cases 2 and 3, the exeresis was indicated because the patient frequently traumatized the TP area during mastication and had aesthetic discomfort. Such situation was impairing her quality of life and the surgical approach was chosen. Despite being a widely accepted indication for surgery, some authors do not recommend the removal of tori except in very extreme cases². They advocate the accommodation of the prosthesis in these areas or relining them with soft acrylic resin²⁴. Another option to avoid the removal of TP is the use of dental implants². The bone of a torus may be source of autogenous cortical bone for grafts in periodontal, cyst and implant surgeries^{2,7}, although long-term stability of the grafts remains uncertain².

Unlike some reported excisions conducted in a hospital environment under general anesthesia^{25,26}, the TP excisions in our cases were conducted in the ambulatory, under local anesthesia. Different incisions can be made in order to remove the TP. The most common type of incision is the double Y incision, one linear incision at the middle line of the torus and two oblique anteroposterior at its both borders. Another technique used is the single Y incision which differs from double Y incision because the oblique incisions are made on just one side of the middle incision corner². We chose the single Y incision for all cases because it prevents injury of the nasopalatine and anterior palatine nerves². The excision should be done carefully because the mucosa that covers the torus is very thin and easy to tear².

Periotome was used for the detachment until the nodule was exposed. In cases of pedunculate base, the palatine torus can be easily removed with a hand osteotome by chisel². However, in all presented cases, the base was sessile so a segmental osteotomy with high speed rotation drill cooled with normal saline solution was performed first (Figure 2B) as advocated by García-García et al.². Although, there is the low risk of emphysema, we chose this technique because the use of a chisel and hammer involves a major risk of iatrogenic injury, and also to avoid bumping the patient with the chisel².

Mattress or simple sutures should not be too tight and surgical cement can be used to protect the wound during the healing process². In the presented cases, we chose simple sutures and did not use surgical cement. The patients were advised about post-operative cares and common signs and symptoms during this period (edema, hematoma, mild pain) and were medicated with analgesics and anti-inflammatory.

Complications can occur as a result of iatrogenic maneuvers of the surgeon such as perforation of the nasal cavities, nerve damage, bone necrosis due to poor refrigeration during surgical drilling, hemorrhage due to section of palatine arteries, dilacerations of the palatine mucosa, fracture of the palatine bone². Post-operative complications include hematoma, edema, suture opening, infection, bone or mucosa necrosis, neuralgia and poor scarring. Therefore, the dentist should be properly prepared as to the management of these surgical approaches and possible complications.

The present three cases demonstrate the surgical technique approach for TP exeresis in order to improve the quality of life of the patients. Despite of being a common lesion, the management of palatine torus is not widely known and requires attention in order to avoid complications.

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CONFLICTS OF INTERESTS

The authors declare no conflicts of interest.

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