

IDIOPATHIC EXOSTOSIS: RARITY ON MAXILLARY SINUS

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Palavras-chave: Exostose. Radiografia Panorâmica

RESUMO

Introdução: Exostoses nos seios paranasais têm sido muito mais relatados na literatura radiológica odontológica, apesar da extensa citação na literatura otorrinolaringológica. **Objetivo:** Neste relato de caso, encontramos uma exostose idiopática rara, que cresceu no seio maxilar. **Relato de caso:** Paciente negra de 68 anos, BGS, acompanhada pelo Serviço de Odontologia do Hospital do Câncer para tratamento de lesões orais (mucosite) e outras condições decorrentes da radioterapia e terapia hormonal (Tamoxifeno), apresentou neoplasia maligna da mama direita em 2015. Não foi realizada biópsia da exostose, pois a paciente está em tratamento e está sendo acompanhada pelo serviço do hospital. Realizaram-se radiografia panorâmica e exame clínico. Ao examinar os exames, foi possível notar uma imagem com dupla radiodensidade, mais radiopaca numa parte externa e menos radiopaca na parte interna, com aspecto de osso trabecular, circunscrito, unilocular, na região do pré-molar pediculado, no interior do seio maxilar esquerdo. Para melhor avaliação e hipótese diagnóstica, foi realizada uma tomografia computadorizada, aplicou-se uma ferramenta para mensuração da densidade do perfil da lesão, evidenciando-se que a suposta lesão invagina para o interior do seio maxilar e tinha densidade óssea semelhante ao osso da crista alveolar. **Conclusão:** Simultaneamente a outras lesões, as exostoses são lesões benignas, apresentam baixa agressividade e rara sintomatologia, sendo indicada exérese somente quando acomete a função, ou por motivos estéticos, ou quando não é possível a confecção de próteses. Muitos dos casos são diagnosticados de modo incidental e a partir de exames radiográficos de rotina em consultórios médicos ou odontológicos e devem ser acompanhados para análise e verificação de seu crescimento.

Keywords: Exostosis. Panoramic Radiography.

ABSTRACT

Introduction: Exostoses in the paranasal sinuses have been reported in a greater number in the dental radiological literature, despite the extensive citation in the otorhinolaryngology literature. **Objective:** This case report was a rare idiopathic expression that grew in the maxillary sinus. **Case report:** A 68-year-old black patient, BGS, followed up by the Odontology Service of Cancer Hospital for treating oral lesions (Mucositis) and other conditions resulting from radiation therapy and hormone therapy (Tamoxifen), presented malignant neoplasm at the right breast in 2015; an exostosis biopsy was not performed, since the patient is being treated and followed up by the hospital service. Panoramic radiography and clinical examination were performed. By analyzing the tests, it was possible to notice an image with double radiodensity, more radiopaque in the external portion and less radiopaque in the internal portion, with an aspect of trabecular bone, circumscribed, unilocular, in the region of pedunculated premolar, inside the left maxillary sinus. In order to have a better assessment and diagnostic hypothesis of the case, a CT scan was performed, a tool was applied to measure the density of the profile of the lesion, thus evidencing that the supposed injury invaginates to the interior of the maxillary sinus and had bone density similar to the alveolar crest bone. **Conclusion:** Simultaneously to other lesions, exostoses are benign lesions, present low aggression and rare symptomatology; exeresis is indicated only when it prevents functioning, or for aesthetics reasons, or when it is not possible to make prostheses. Many cases are incidentally diagnosed from routine radiographic review in medical or dental offices and should be followed up for analysis and verification of their growth.

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INTRODUCTION

Despite the extensive citation in otorhinolaryngology literature, exostoses in the paranasal sinuses have been very few described in dental radiological literature. Exostoses are benign growths, which affect 20% to 25% of native bones, what is called torus, and 5% to 29% of long bones. Although they may appear in any bone of the human skeleton, they rarely appear in facial bones, except for the mandible and maxilla.⁴ These bone changes are most often found in adulthood. Within the age group of subjects who are 60 years old or more, the rate is 21.5%; in comparison with a group of subjects aged 13 to 19 years old, the rate is 7.8%. The other age groups—20 to 29 years old, 30 to 39 years old, 40 to 49 years old, and 50 to 59 years old—have demonstrated a similar frequency. When it comes to sex, prevalence is higher among men.²² Some authors have reported cases of exostoses in patients undergoing nasal irrigation therapy, thus correlating a cold temperature with a possible onset of exostosis.²³

The etiology and mechanisms of oral exostoses are unclear and there is no consensus among the investigators. Various authors have suggested several etiological factors such as genetic traits, environmental factors, mastication and occlusal stress, inflammation, systemic diseases, and the post-menopausal period. Some authors emphasized a possible autosomal dominant inheritance with a lower penetrance, whereas other authors have reported a correlation between oral exostoses and bruxism, temporomandibular dysfunction and inflammation of gingival tissue.¹⁹

The need for diagnostic evaluation is essential because exostosis becomes, depending on the clinical planning of the case, a limiting and impeding factor, such as for the preparation of a prosthesis or implant. It is important to make the differential diagnosis of exostosis with osteoma and bone sclerosis.^{2,3,5,6}

A panoramic radiography is the main resource to obtain a view of the entire mouth, including the maxilla and mandible, as well as the surrounding bone structures. It is quite often the first-choice test to evaluate the maxillary sinuses, as it enables one to evaluate the size, pneumatization and findings inside them.^{7,28} Despite its importance as a diagnostic aid, radiographic examination must not be indistinctly performed for all individuals, only when the patient's history or their signs and symptoms suggest this need and when the information it offers is of great use.^{9,13,14} However, a three-dimensional image may be necessary, such as CBCT obtained in axial sections (the interval between the cuts is variable), in order to increase the accuracy of the images, enabling better diagnosis and planning.^{11,14,15,30}

With the use of panoramic radiography in the daily dental practice, many alterations are incidentally discovered (radiographic findings), especially the silent ones. This raises the diagnostic hypothesis wherefrom it is necessary to further research the patient's history, performing complementary

tests, such as volumetric tomography which will show size, the relation with adjacent structures, and limits in the three axial, coronal and sagittal projections. This leads to a more accurate planning, and a better assessment of the need for a biopsy, in order to interfere or not in the clinical planning of the case. This article aims at describing an idiopathic and rare case of bilateral exostosis obtained by cone beam computed tomography—CBCT.^{1,12,23,24,25}

CASE REPORT

A black 68-year-old female patient, BGS, followed up by the Dentistry Service of Cancer Hospital to treat oral lesions (mucositis) and other conditions resulting from radiotherapy and hormone therapy (Tamoxifeno), presented malignant right-breast neoplasm in 2015. Surgery for tumor removal and axillary lymph nodes dissection was performed in 2016, followed by 12 sessions of radiotherapy, which were finished in January, 2017. The patient takes Tamoxifeno (initiated after the surgical treatment of the second tumor), Diazepam, Haldol, lithium, captropil, and insulin; she does not perform nasal irrigation, presents diabetes mellitus, depression, psychotic episodes, bipolar disorder, and hypertension; she has a complete upper denture and presents teeth 33, 32, 31, 41, 42, and 43 with indication of tooth extraction; the presence of mucositis in the palate was verified after a clinical examination.

As a treatment protocol, patients who will undergo cancer treatment at Cancer Hospital have a panoramic radiography performed, in order to care for their oral health and evaluate the general conditions of their teeth and maxillomandibular complex. This is done to preventively suggest a dental treatment that will improve their oral conditions to continue radiotherapy. After the panoramic radiographic examination (Fig. 1), it was possible to notice an image with a double radiodensity, more radiopaque in the external portion and less radiopaque in the internal portion, with an aspect of trabecular bone, circumscribed, unilocular, in the region of pedunculated premolar, inside the left maxillary sinus. The diagnostic hypotheses included: A dental element inside the sinus—it could simply be a residual root; calcified masses present in the paranasal sinuses, usually found in the maxillary or nasal cavities and often surrounded by inflamed mucosa,¹⁹ it was also possible that the origin was endogenous, such as bone sequestration; and it could yet be blood products, such as thrombus and teeth; or exogenous, such as foreign bodies, benign and asymptomatic;¹⁶ there was also the possibility of exostosis. To better define the diagnosis, a cone beam computed tomography (CBCT) was performed.

This raises the diagnostic hypothesis wherefrom it is necessary to collect further information on the patient's history, performing complementary tests, such as volumetric tomography to visualize size, the relation with adjacent structures and boundaries on all three axial, coronal and

sagittal projections, in order to plan more accurately and assess for the need of a biopsy. This may or may not interfere with in the clinical planning of the case.

Antral exostoses generally do not require surgical approaches. A biopsy examination is not usually suggested, unless the antral exostosis causes clinical symptoms and leads to sinonasal obstruction. However, a biopsy could be useful in some patients with an inconsistent history or noncharacteristic-appearing lesions.¹²

Radiographic Interpretation in CBCT

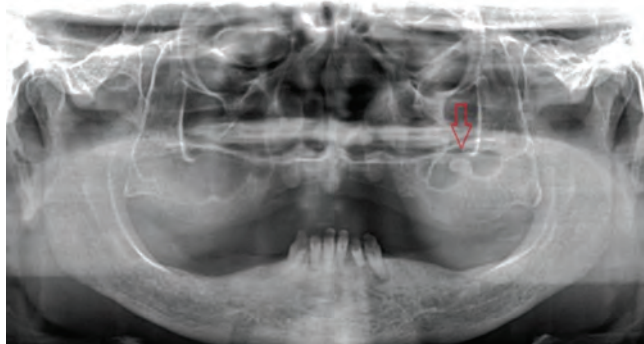


Figure 1: Panoramic radiograph in centric occlusion, occlusal plane parallel to the ground, and median line **upright** to the occlusal plane, where the pedunculated image is observed inside the left maxillary sinus.

Three-dimensional CBCT reveals an aspect of bone trabeculation inside the pedicle, not different from the other aspects of the bone tissue of the region, wrapped in a supposed cortical bone (hyperdense sign). This image was seen in parasagittal sections (Figure 2), and axial, coronal and 3D sections (Figure 3). Imaging Studio - Anne Solutions Version 3.401.

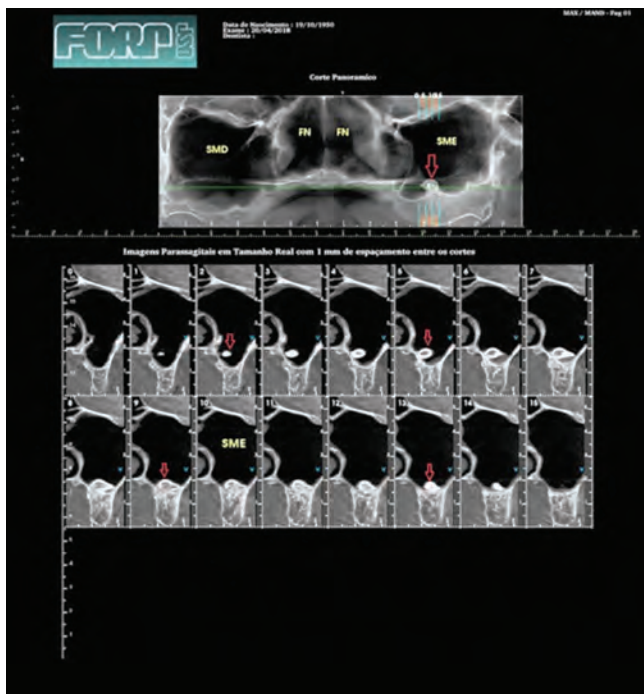


Figure 2: Tomography - Panoramic and Parasagittal Section and it is possible to see the pedunculated situation of the lesion.

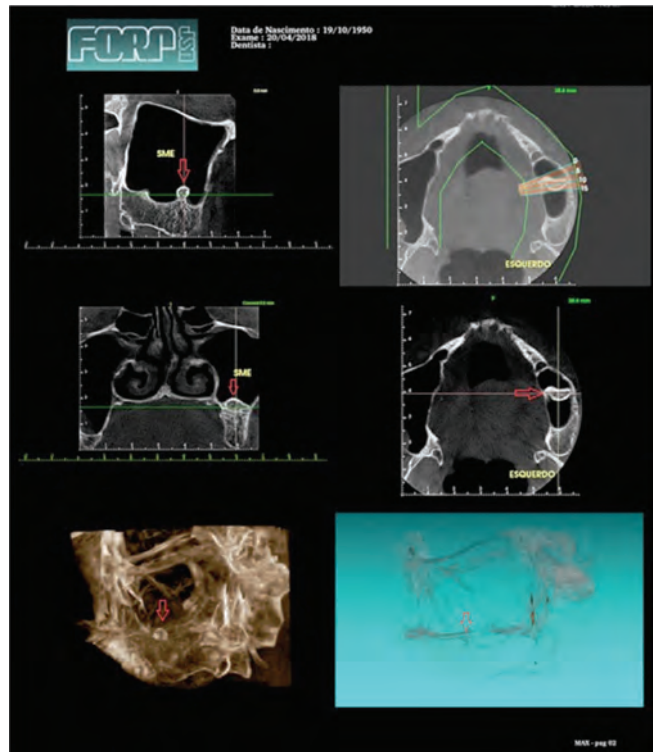


Figure 3 : Tomography - Axial, coronal and 3D sections and 3D images CTBC - axial section, coronal section and 3D section. Jaw, left side. CTBC - panoramic section and sagittal section, spaced 1mm between sections. Jaw, left side.

The coronal tomographic section was obtained using an Imaging Studio software – Anne Solutions Version 3.401 profile line tool under a longitudinal axis, covering from the thickened cortex of the maxillary sinus to the alveolar cortical bone; wherefrom we selected 4 points, from 1 to 4, as described below (Figure 4), evidencing that the supposed injury, which invaginates to the interior of the maxillary sinus, had bone density similar to the bone of the alveolar ridge:

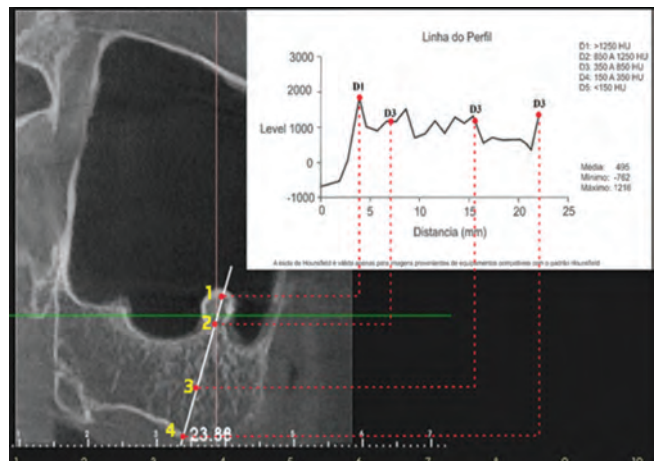


Figure 4: Tomography - Coronal Section – It is possible to see a tool to measure the density profile of the lesion, which evidences that the supposed injury, which invaginates to the interior of the maxillary sinus, had bone density similar to the bone of the alveolar ridge.

Tomography OP300. Voxel 0.16. FOV11x11. Imaging Studio – Anne Solutions Version 3.401. Profile Line tool

1. Density in the cortical region of the pedicle;
2. Density in the region of the interior of the pedicle;
3. Density in the bone trabecular region, premolar region;
4. Density in the cortical alveolar bone region.

DISCUSSION

Currently, the use of panoramic radiographic shots enables the discovery of radiographic findings and reveals the need for complementary tests. Volumetric tomography appears as the first choice after the panoramic radiography, showing anatomical aspects and assisting in the planning and outcome of the case. The different dental specialties already benefit from the CBCT method in the diagnostic routine, such as endodontics, surgery and implantology, oral diagnosis, surgery and orthodontics.¹⁰

Among maxillary sinuses inflammatory / infectious diseases, 10 to 12% are of dental origin¹⁸ and the majority is associated with pulp necrosis,³ periapical disease, advanced periodontal disease and bucco-sinusal communications.¹⁷ In this clinical case, we believe that exostosis is related to environmental factors, such as climate and nutrition, surgical sequelae, and masticatory tension.²¹

A panoramic radiography was initially performed to evaluate the dental and bone conditions of the maxillomandibular complex. Analyzing the test, it was possible to see that there was a change in the maxillary sinus. The radiographic presentation suggested the presence of a possible dental element, or even residual root. These are the most frequent possible conditions; therefore, they are proposed as a complementary examination to CBCT. In the parasagittal sections (Figure 2, sections 9-12) and coronal sections (Figure 3), the connection / bound of the lesion to the bone tissue of the left maxillary alveolar ridge is evident, where it is possible to verify the absence of the inferior cortex of the maxillary sinus (sections 9 to 12), exactly in the lesion pedicle. This has also defined the lesion as exostosis.

There are procedures performed by dental surgeons that may carry foreign bodies into the maxillary sinuses, resulting in infectious and inflammatory conditions, such as the extrusion of endodontic filling materials, endodontic irrigation, implants incidentally displaced to the sinuses, among others. These infections must be properly interpreted and investigated. It has been stated that it is important to identify and X-ray this condition to avoid unnecessary surgical procedures. It is difficult to clinically diagnose them, because of the asymptomatic nature of this condition, unless the approach is through the endoscope.²⁰ Although there is little information on antral exostoses, some characteristics

have been described by Ohba et al. The mean size reported by these authors (4.7 mm × 7.4 mm) was clearly lower than the individual exostoses, surpassing even the highest measurement of the presented cases (2 mm x 1 mm). In this case, surgical removal will not be necessary, because the dimensions are small, there is no impairment of the function of the maxillary sinus or its aesthetics. It should be followed, though, for some possibility of bone growth, which could compromise this sinus structure of the face.

In view of the clinical similarity of osteomata and exostoses, it is important to note that osteoma, as a benign neoplasm, tends to grow continuously. Thus, it may be suggested that such biological behavior differs from that presented by exostosis, which, because it is an anomaly of development, grows during a certain period and then becomes inactive.⁶

Exostoses are benign lesions that appear simultaneously with other lesions, present low aggressiveness and rare symptomatology. Surgical removal is indicated only when it affects the function or due to aesthetic reasons, or when it is not possible to make dentures. They are commonly found in the maxilla or mandible. Many of the cases are diagnosed incidentally and from routine radiographic examinations in medical or dental offices. They should be monitored for analysis and verification of their growth.

CONCLUSION

CBCT is able to identify exostosis through radiopacity. It is important that the image be monitored, in order to aid in the decision making of performing or not any surgical procedure.

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