

Peripheral Osteoma of the Mandible Mimicking a Mandibular Torus: A Rare Presentation and Reappraisal of its Terminology

Pedro Henrique Mattos de Carvalho¹, Jorge Esquiche León², Cássio Edvard Sverzut¹ and Alexandre Elias Trivellato^{1*}

¹*Department of Oral and Maxillofacial Surgery and Periodontology, School of Dentistry of Ribeirão Preto (FORP/USP), University of São Paulo, São Paulo, Brazil*

²*Oral Pathology, Department of Stomatology, Public Oral Health, and Forensic Dentistry. School of Dentistry of Ribeirão Preto (FORP/USP), University of São Paulo, São Paulo, Brazil*

***Corresponding Author:** Alexandre Elias Trivellato, Department of Oral and Maxillofacial Surgery and Periodontology, School of Dentistry of Ribeirão Preto (FORP/USP), University of São Paulo, São Paulo, Brazil.

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Abstract

Osteoma is a benign osteogenic lesion of compact or cancellous bone, that arises most frequently in the craniomaxillofacial region. Osteoma variants include central, peripheral and extra skeletal. The etiology of osteomas is still unclear. Interestingly, some studies have reported juxtacortical, parosteal or periosteal osteomas, creating a certain difficulty in terminology and correct diagnosis; however, all these cases seem to represent peripheral osteomas. The differential diagnosis of peripheral osteoma includes exostosis, osteochondroma, peripheral chondroma, osteoblastoma, benign fibro-osseous lesion and parosteal osteosarcoma. The present study reports a rare case of peripheral osteoma affecting the right mandibular body in a 58-year-old man, clinically mimicking a mandibular torus, and emphasizing their differential diagnosis and surgical approach.

Keywords: *Peripheral Osteoma; Juxtacortical Osteoma; Parosteal Osteoma; Periosteal Osteoma; Mandible; Mandibular Torus; Surgical Approach*

Introduction

Osteoma is a benign osteogenic lesion, in which the proliferation of well differentiated mature bone tissue, that can be cancellous or compact, creates a tumor mass [1]. It is a rare lesion, affecting around 0.4% to 4% of the population and are found almost exclusively in the skull and craniofacial bones [2]. In spite of their typical clinical and radiographic features, their pathogenesis remains unclear. Some authors have been advocating that infection or trauma is the most favored hypothesis for its pathogenesis [3,4]. However, embryologic, metaplastic and genetic pathways are also cited as probable causes [5]. Osteoma variants include peripheral, central and extra skeletal. To the best of our knowledge, approximately 20 cases of peripheral osteoma affecting the jaws have been reported so far. Interestingly, some studies have reported juxtacortical, parosteal or periosteal osteomas in the craniomaxillofacial region, creating a certain difficulty in the terminology used, as well as arrive at the correct diagnosis [4,8]. In fact, after careful review of the literature, to date, we have found one parosteal osteoma arising arising in a iliac bone graft used for mandibular reconstruction and one periosteal osteoma on the buccal aspect of the mandible.

Purpose of the Study

The purpose of this study is to report a rare case of peripheral osteoma, clinicopathologically mimicking a mandibular torus, emphasizing their differential diagnosis and surgical approach.

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Case Report

A 58-year-old man was referred at the Oral and Maxillofacial Surgery Clinic of the School of Dentistry of Ribeirão Preto, for pre-prosthetic surgical evaluation, presenting an asymptomatic, expansive lesion in the lingual surface of the mandible. The associated teeth showed a poor periodontal condition and a large root exposure, not being able to function as a prosthetic abutment. Therefore, surgical removal of them was indicated. Intraoral examination revealed a flesh-colored, firm and pedunculated, irregular osseous prominence measuring approximately 3 cm in its greatest diameter, arising on lingual cortical bone near the region of the tooth 43. The covering oral mucosa was intact with normal coloration (Figure 1a). According to the patient, the lesion appeared 10 years ago and that brought no discomfort. No previous history of facial, surgery or local trauma, as well as infection, were associated with the lesion. Medical history was noncontributory. The periapical radiograph (Figure 1b) showed a well-defined radiopaque mass in close association with the apex of the tooth 43. The periphery of the lesion did not show a radiolucent rim. The occlusal radiograph (Figure 1c) showed a pedunculated radiopaque mass attached to the lingual cortex by a broad base near to region of the tooth #43. There were no symptoms or neurologic deficits associated with the lesion. Detailed clinicopathological examination excluded Cowden syndrome. By considering the clinical features, surgical removal of the whole lesion was performed under local anesthesia, without complications. The surgical approach was performed via an intraoral intra-sulcular lingual incision with periosteal elevation, to preserve the noble structures around the floor of the mouth (Figure 1d). After the exposure of the lesion and protection of the surrounding tissues with retractors, a bone bur (no 703) was used to predict the amount of bone remotion, seeking to involve the entire lesion. After this, a hammer and chisel were used to remove the lesion (Figure 2a). A carbide bur (no 8) was used for promote regularization of the alveolar bone (Figure 2b), the site was abundantly irrigated with saline solution, hemostatic control was achieved and them suture was made. The lesion was removed completely together with the tooth due to prosthetic planning (Figure 2b). Histopathological examination revealed large areas of compact lamellar bone containing small and irregular medullary cavities (Figure 2c and 2d). The clinicopathological correlation favored the diagnosis of peripheral osteoma. The patient is well, and after 1 year of follow-up none alteration or recurrence was observed.

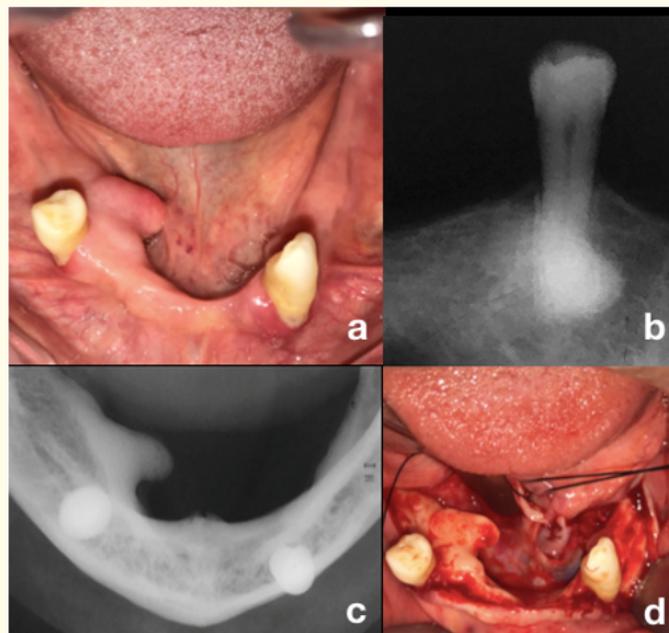


Figure 1: (a) Clinical aspect; (b) Periapical radiography; (c) Occlusal radiography; (d) Surgical intervention to remove the lesion.

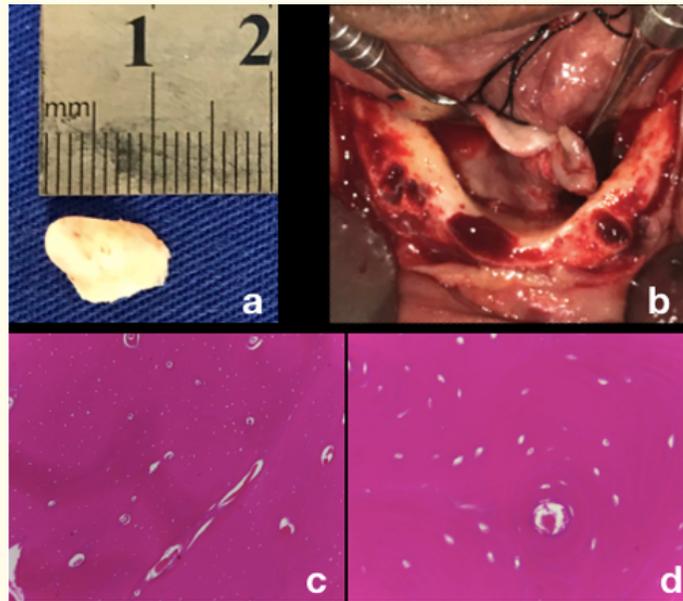


Figure 2: (a) Specimen aspect; (b) Surgical removal of the lesion; (c) Histopathological analysis showing lamellar compact bone tissue. (H&E staining, x10). (d) Close-up view of osteocytes, concentric lamellae and Haversian canal (H&E staining, x40).

Discussion

The literature review supports three variants of solitary osteoma, they are: peripheral (periosteal), when arising from the periosteum, central (endosteal), when arising from the endosteum and extraskeletal, when arising in soft tissue [6]. Moreover, regarding the peripheral osteoma, some cases diagnosed as juxtacortical or parosteal osteoma [8] affecting the jaws have been reported.

It is a fact that solitary osteomas in the craniomaxillofacial region diagnosed as parosteal or periosteal osteomas, create a certain difficulty in the terminology used [6-8]. To date, we have found one parosteal osteoma arising in an iliac bone graft used for mandibular reconstruction and one periosteal osteoma affecting on the buccal aspect of the mandible. By considering the clinicopathological features of these two cases [6,8], as well as other extra-craniofacial osteoma cases [1,2], seems to be possible that they represent just peripheral osteomas, and should be termed as such.

The term parosteal osteoma was firstly introduced in 1951 by Geschickter and Copeland [7], who defined it as: "ossifying fibrous tissue arising in the region of the periosteum of a long bone. As such it resembles the osteomas found in the membranous bone of the cranium". However, although the authors emphasized a possible tendency to progressive growth and malignant change, it is evident that osteomas are benign osteogenic lesions. In fact, in a recent research in the literature, we did not find reports of malignant transformation of peripheral osteomas involving the jaws. To the best of our knowledge, to date, there is only one case report of parosteal osteoma involving the iliac bone graft utilized for the reconstruction of the left mandibular body after surgical resection of an odontogenic keratocyst [8]. On the previously commented, we believe that peripheral instead parosteal osteoma is more appropriate for this case. Similarly, we think that peripheral rather than periosteal osteoma is adequate. According some authors [4] periosteal osteomas, in view of the periosteum elevation and new bone formation, can be employed; however, we think that this may lead to confusion in the terminology of solitary osteomas.

The differential diagnosis of the current case includes exostosis, osteochondroma, peripheral chondroma, osteoblastoma, benign fibro-osseous lesion and parosteal osteosarcoma.

Bony exostosis such as tori, unlike osteomas, has a predilection for specific sites in the jaws, they are usually located at the longitudinal ridge of the palatine bone, on the union of the palatine apophysis of the maxillae or on the internal side of the lingual aspect of the mandible at the level of the premolar and canine area, usually above the mylohyoid line [9]. Most cases have bilateral presentation. In the present case, the lesion was mimicking a mandibular torus, although appeared in the fifth decade of life, it seems that the lesion has been growing slowly so far. Osteomas exhibit continuous growth, different from torus, which ceases growth in adulthood.

Osteochondroma is a benign tumor of bone, being more frequent in the mandibular condyle and coronoid process; its growth is slow and preferentially occurs in young adults. Radiography evidences a large bony mass. Histopathology reveals a benign cartilaginous cap associated with bony cortex [10]. Osteoblastomas and osteoid osteomas are true osseous neoplasms, showing rapid growth and, commonly, osteoid osteoma is associated with pain and discomfort. In the present case, the patient did not report pain and discomfort associated with the lesion and the growth was slowly and continuously. Moreover, these lesions have preferentially a central (intraosseous) origin.

Fibrous dysplasia lesion is most commonly confused clinically and radiographically with osteomas. It is usually possible to differentiate the two conditions on the basis of radiographic structure alone. Fibrous dysplasia does not often reveal the same homogenous density as osteomas and, while osteomas may present a suggestion of granularity, it is not likely to be so definite in fibrous dysplasia [6].

The juxtacortical osteosarcoma can be subdivided into parosteal and periosteal osteosarcomas. These tumors are often lobulated with well-defined borders. Radiographically, the cortex is intact but thickened. Microscopically, it is a tumor characterized by direct bone or osteoid formation in a predominant fibrous stroma (parosteal) or cartilaginous matrix formation (periosteal) surrounding by malignant bone-forming cells [9]. Unlike conventional osteosarcoma, this osteosarcoma variant most commonly occurs in patients between the 3th - 5th decades of life. Although a low-grade neoplasm, this osteosarcoma can infiltrate the underlying cortex and extend into the medullary cavity, as it can also has a propensity to recurs [8].

The treatment of the peripheral osteomas is determined according to the clinical and imaginological examinations. The surgical treatment is not recommended in asymptomatic lesions, which do not cause functional impairment for the patient. When the diagnosis of peripheral osteoma has been made, conservative surgical removal is indicated and the objective will be the conservative removal of the lesion, without harm important adjacent structures [9]. Recurrence is extremely rare and malignant transformation has not been reported [10]. In the present case, the surgery was performed with a prosthetic finality, where the entire lesion was removed preserving the anatomical structures.

Conclusion

In summary, we report a rare case of peripheral osteoma of the mandible mimicking a mandibular torus. Moreover, a careful review of the literature emphasizing the terminology used for peripheral osteoma was made. We recommended that the diagnosis of juxtacortical, parosteal or periosteal osteoma should be replaced by the peripheral osteoma diagnosis, avoiding confusion in the terminology used.

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