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CASE REPORT

Peripheral Osteoma of Mandible: Case Report

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Abstract

Background: Osteoma is a rare non-odontogenic lesion of the jaws. There is insufficient knowledge regarding its etiology, actual prevalence, and demographic distribution due to the limited number of reported cases in the literature. This article aimed to report a case of peripheral osteoma located on the buccal aspect of the inferior border of the mandible.

Case report: This article reports a 25-year-old female with the chief complaint of a hard, slow-growing mass at the posterior buccal inferior border of the mandible for the past 12 months. Radiographic evaluation of the lesion showed a sclerotic round mass. Excisional biopsy was performed under general anesthesia with provisional diagnosis of osteoma and osteoblastoma. The microscopic examination revealed normal lamellar bone with no signs of malignancy. Accordingly, the diagnosis of peripheral osteoma was made. The patient was asked and evaluated for the symptoms of Gardner's syndrome, which were negative. After 6 months of follow-up, the patient is event-free.

Conclusion: Peripheral osteoma is a sclerotic lesions of the outer surfaces of the jaws. It might be linked to trauma in this region or excessive use of muscles. Despite their rarity, dentists need to be aware of this lesion. It is advised that patients with peripheral osteomas should be evaluated for Gardner's syndrome.

Keywords: Osteoma; Mandible;Bone Neoplasms; Gardner Syndrome

Introduction

Osteoma is a benign, slow-growing, non-odontogenic tumor of osteogenic origin that consists of mature bone. The exact cause of osteomas is still unclear. Various theories have been proposed, ranging from reactive lesions in response to trauma, infection, or inflammation to being classified as true neoplasms; however, none of these theories have been universally accepted to date (1-3). Osteomas of the jaws are usually asymptomatic and discovered incidentally on radiographs. Large osteomas may cause facial asymmetrical swelling or a palpable hard mass (1,2). Mandibular cases typically occur in the angle region and condyle, followed by the ramus and the molar-premolar area. No malignant transformation has been documented for this lesion. (2, 3) Radiographically, osteomas typically appear as well-defined radiopaque lesions (1). Based on microscopic evaluation osteomas are classified into two main types: compact and cancellous. Compact osteomas consist of mature normal lamellar bone, featuring well-organized Haversian systems and minimal marrow. Whilst cancellous osteomas display more fibrofatty marrow spaces. Conservative excision is the appropriate treatment for large or symptomatic osteomas of the mandibular body (1). Central osteomas originate from the endosteum, peripheral type derives from the periosteum, and the extra-skeletal type develops in soft tissues (4).

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Osteomas are rare lesions of the jaws, and due to the small size and often asymptomatic nature of many osteomas, there is a lack of reliable data regarding their prevalence and demographic distribution (1,2,4). The purpose of the present article was to report a case of peripheral osteoma in buccal aspect of the posterior inferior border of the mandiblein a female patient due to its rarity.

Case presentation

A 25-year-old female patient without any systemic disease was referred to an oral surgeon with the chief complaint of a hard mass under her lower jaw. This painless mass has been noticed by the patient for the past 12 months and she has stated that the lesion is growing slowly. In the extraoral examination, a hard, palpable and immobile lesion was detected at the inferior border of the posterior buccal site of her mandible. The lesion was attached to the surface of the mandibular bone with a broad base. Regional lymph nodes were within normal limits. No intraoral findings which could be related to the lesion were noticed. In radiographic evaluation of the lesion, a sclerotic round mass was observed near the angle of the mandible (Figure. 1)

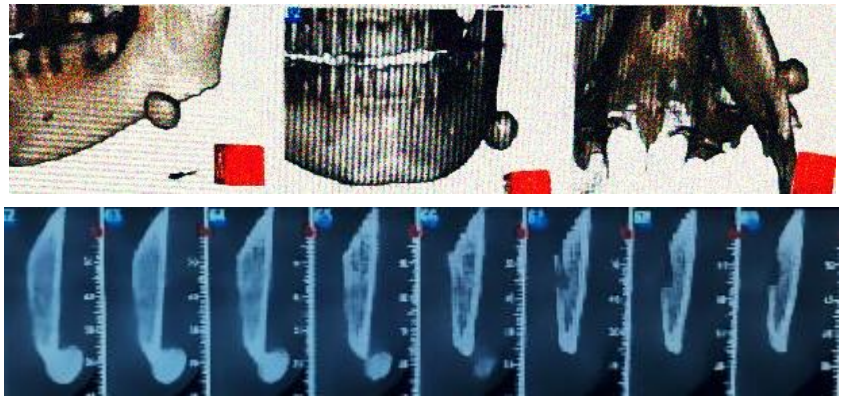


Figure1. CBCT image of the lesion showing a sclerotic mass arising from the surface of the posterior mandible

With clinical provisional diagnosis of osteoma and differential diagnosis of osteoblastoma and peripheral ossifying fibroma the lesion was excised under general anesthesia and submitted to the oral pathology laboratory in a 10% buffered formalin solution. The submitted hard tissue was kept in nitric acid 20% for 10 days to demineralize and soften. After the ideal softening of the hard tissue routine pathology processes were performed and the Hematoxylin and Eosin-stained slides were prepared.Microscopic evaluation showed normal looking mature lamellar bone admixed with some immature woven bone.No osteoblast or osteoclasts were seen. The central part of the lesion showed bone marrow spaces with Haversian system around the outer border.(Figure 2) Accordingly, the diagnosis of peripheral osteoma was confirmed.

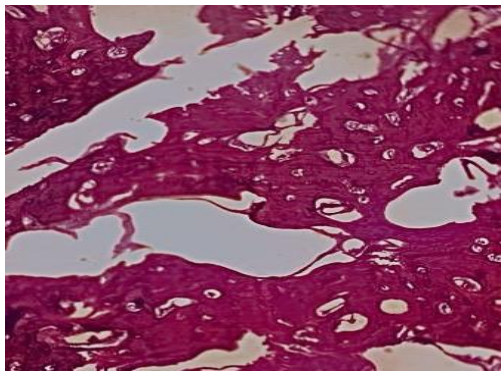


Figure 2. This figure shows normal bone marrow spaces and Haversian canals (H&E stain, magnification 40x)

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Discussion

The clinical, radiographic, and microscopic features of the case described in this article were compatible with the diagnosis of peripheral osteoma of the mandible. Osteomas of the jaw bones are rare. (4) Craniofacial osteomas tend to primarily affect the paranasal sinuses, followed by involvement of the jaws, skull base, and facial bones. Although the incidence of osteomas in the jawbones is infrequent, there is a higher occurrence in the mandible and are mostly of peripheral type (5). It is believed that peripheral osteomas predominantly affect bones that undergo membranous ossification. Peripheral osteomas are typically attached to the bone surface either by a broad base, as seen in our case, or by a narrow stalk and are pedunculated (6).

Peripheral osteomas are generally straightforward to diagnose; however, they can be confused with various other types of pathological lesions in the clinical differential diagnosis. These may include periosteal osteoblastoma, osteoid osteoma, and exostosis. Microscopically, osteoma shows significant similarities to exostosis, emphasizing the importance of clinic-pathological correlation for accurate diagnosis and assessment. Exostosis is characterized as a reactive or developmental bony outgrowth that typically ceases to grow after puberty. In contrast, an osteoma is classified as a true benign bone tumor that may continue to grow throughout adulthood, as evidenced by the case presented here (6). Periosteal osteoblastoma and osteoid osteoma are painful destructive masses with rapid growth, which is in contrast to biologic behavior of osteoma seen in our patient (5). Additionally, in histopathologic evaluation both osteoid osteoma and osteoblastoma show irregular trabeculae of osteoid or woven bone, which are surrounded by numerous osteoblasts with hyperchromatic nuclei, scattered osteoclasts and loose vascular fibrous stroma composed of dilated vessels and occasional hemorrhage (1).

Osteomas are most often seen in adults. The majority of authors report that the incidence is approximately equal between men and women. However, certain findings indicate a higher prevalence among men, while other studies suggest a greater prevalence among women (4). Osteomas of the jaws usually involve the mandible especially the body and condyle. Less common mandibular locations include the angle, ramus, and coronoid process. Lesions involving the mandibular body are frequently found on the lingual surface adjacent to the premolars or molars. In the presented case here, it happened at the buccal site of the mandible (4). Osteoma can happen as a single tumor or seen at multiple sites. Multiple osteomas are characteristic of Gardner's syndrome (1). Additionally, unilateral osteomas of the jaws have been reported in association with encephalocraniocutaneous lipomatosis or Haberland syndrome (1).

Some believe osteoma is a true neoplasm of osteoblasts, but the exact etiology of osteoma is unknown. It has been categorized as a reactive lesion in which trauma and infection may advocate the reactive mechanisms. Muscle traction might contribute to the formation of osteomas, particularly in areas where muscles attach to bone. This theory is the preferred theory for peripheral osteomas, as location of peripheral osteomas in mandibles revealed that almost all cases occurred in proximity to areas of muscle attachment, suggesting that muscle traction may play a role in their development (4,7,8).

The presence of multiple osteomas may lead to an early diagnosis of Gardner syndrome. Although it is also advised to evaluate patients with peripheral osteomas for Gardner's syndrome. Up to 90% of patients with Gardner syndrome demonstrate skeletal abnormalities, the most common of which are

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osteomas. Histopathologically, the osteomas are generally of the compact type and cannot be differentiated microscopically from a solitary osteoma (1). They usually arise around puberty and most commonly involve the skull, paranasal sinuses, and mandible. Osteomas are often evident before the intestinal polyps which become evident by the second decade of life. These colorectal polyps are precancerous and can progress to colorectal cancer in the future. Diarrhea, constipation, rectal bleeding, anemia, and abdominal pain are often included in the symptoms of Gardner syndrome (1). The patient reported here had solitary osteoma, and none of the associated symptoms were observed or complained by her (8,9,10).

The treatment of osteoma is to completely remove the lesion from its base by excisional biopsy. It is believed that osteomas do not recur after complete surgical removal. However, Shetty and Biddappa have reported a case of recurrence of an osteoma which happened 8 years after surgery. Therefore, clinical and radiographical follow-up of patients with peripheral osteoma is recommended. Osteomas do not have the potential for malignant transformation (11,5). In our case, after 6 months of follow-up, the patient is event-free.

Conclusion

Peripheral osteoma is a sclerotic lesion of the outer surfaces of the jaws. It might be linked to trauma in this region or excessive use of muscles. Despite their rarity, dentists need to be aware of this lesion. It is advised that patients with peripheral osteomas should be evaluated for Gardner's syndrome.

Conflict of Interests: The authors of this manuscript declare that they have no conflicts of interest, real or perceived, financial or non-financial, in this article

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