CASE REPORT

Maxillary sinus osteoma: From incidental finding to surgical management

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ABSTRACT

Due to the frequent use and availability of the orthopantomogram (OPG), dental practitioners are more frequently confronted with incidental findings such as osteomas located in the maxillary/–mandibular bone or inside the maxillary sinuses. Osteomas are benign slow-growing osteogenic tumors, which frequently develop in the mandible. In the midface, osteomas appear frequently in the frontoethmoidal sinuses. Maxillary sinus osteoma is a rare entity. Also in asymptomatic patients, cranio-facial osteomas need to be further investigated for a precise diagnosis. The clinical importance of osteomas lies in their differentiation from a malignant lesion such as the osteosarcoma. In patients with multiple osteomas, Gardner's syndrome (GS) as an underlying disease needs to be excluded. In this report, we present the case of a solitary maxillary sinus osteoma, incidentally found on the OPG. The surgical technique for the removal of the osteoma is presented. In this case, the patient was free of the stigmas associated with GS.

Key words: Gardner's syndrome, maxillary sinus osteoma, osteosarcoma, peripheral osteoma

INTRODUCTION

Craniofacial osteomas are slow-growing benign osteogenic neoplasms, which can develop as a peripheral (periosteal) tumor attached to the cortical plate, or as a central bone tumor arising from endosteal bone surfaces.[1-3] The clinical importance of osteomas lies in their differentiation from a malignant lesion such as the osteosarcoma and exclusion of Gardner's syndrome (GS) as an underlying disease. Maxillary sinus osteoma is a rare entity. A case of incidentally found maxillary sinus osteoma, its surgical management, and histopathological diagnosis are reported.

CASE REPORT

A 39-year-old man was referred by his general dental practitioner for an incidentally found round radio-opaque tumor in the left maxillary sinus on the orthopantomogram (OPG) [Figure 1]. The patient was asymptomatic, but very concerned about the nature of the tumor. Otherwise he was in good health, particularly he did not complain of any gastrointestinal or skin symptoms. The extra- and intraoral examinations were unremarkable. The dentition, especially in the upper left quadrant was unremarkable and vital on cold test. Computed tomography (CT) of the head and paranasal sinuses was performed, which revealed a solitary exophytic osseous tumor that was pedunculated and attached to the dorsolateral wall of the maxillary sinus [Figure 2]. We removed the tumor from the left maxillary sinus by "modified Caldwell–Luc" approach under general anesthesia [Figures 3 and 4]. The osseous tumor was visible after the bony window from the anterior wall of the maxillary sinus was lifted [Figure 3]. The stalk of the tumor was separated from the dorsal aspect of the sinus by a chisel and the tumor was mobilized. Because of its large size, it had to be divided inside the sinus cavity. The osseous tumor measuring 2.1 cm in diameter was finally removed in three parts [Figure 4]. The defect of the anterior wall was easily closed by suturing back the bony window of the maxillary sinus with absorbable sutures. The final histopathology report confirmed the diagnosis of the maxillary sinus osteoma with no signs of malignancy [Figures 5 and 6]. Our patient remained asymptomatic at his 3rd-month of follow-up.

DISCUSSION

Osteomas grow independently, unrelated to the site of occurrence, by an average of 0.79 mm per year.[4] The

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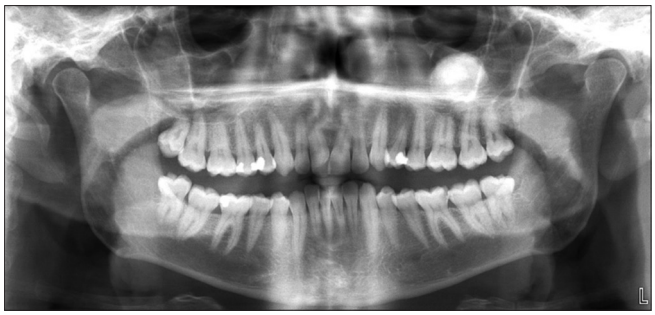

Figure 1: The orthopantomogram demonstrating a well-circumscribed radio-opaque lesion in the left maxillary sinus

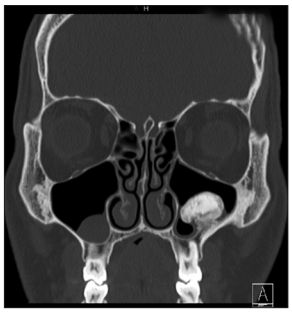

Figure 2: The coronal view of the computed tomography demonstrating, a pedunculated osseous tumor attached to the dorsolateral wall of the left maxillary sinus. The tumor measures 2 cm in diameter and is partially covered by mucosal lining of the maxillary sinus, which is slightly thickened. There is a polypoid mucosal thickening of the right maxillary sinus

Figure 3: The bony window of the anterolateral maxillary sinus wall lifted and retracted, which is still attached to the periosteum. The osseous tumor is mobilized from the dorsolateral wall of the maxillary sinus

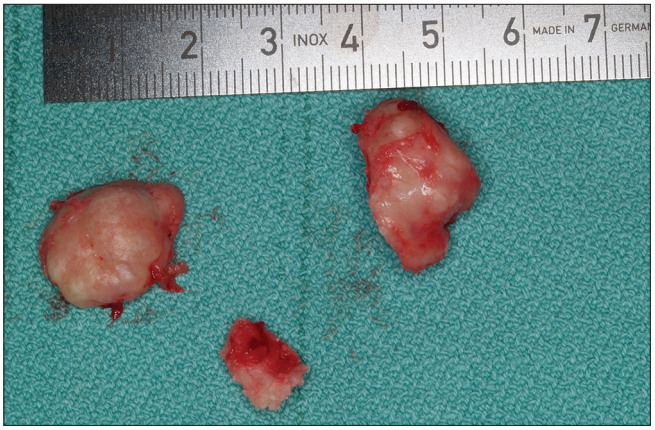

Figure 4: The osseous tumor divided, removed in three parts. Note the tumor is partially covered by mucosal lining

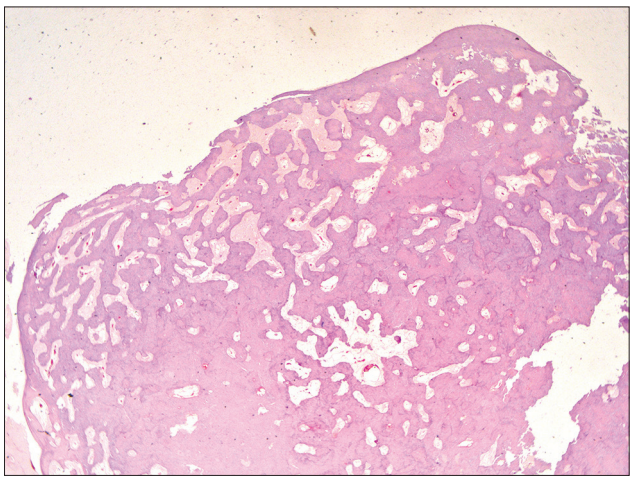

Figure 5: Hematoxylin and eosin stained, wholemount view of the lesion (×10 magnification) with peripheral trabecular bone and scattered fibrovascular connective tissue, filling the numerous intertrabecular spaces. The osteoma is comprised of cancellous bone, which contains numerous fibrovascular channels

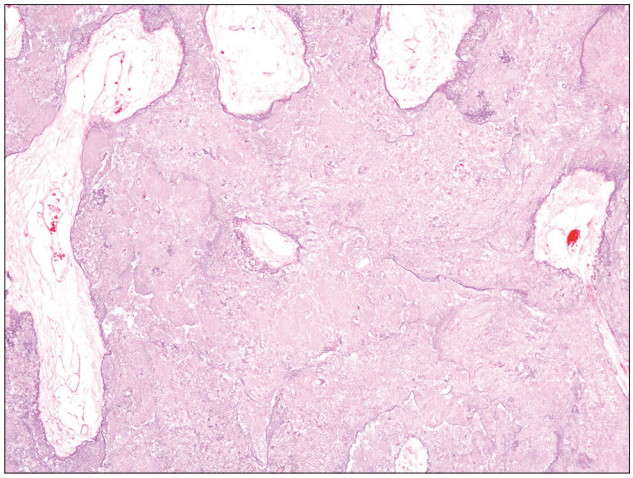

Figure 6: Hematoxylin and eosin stained section in ×100 magnification. Trabecular bone of the maxillary sinus osteoma and scattered fibrovascular connective tissue is demonstrated

etiology of osteomas is believed to be persistent embryogenic periosteum, which may be responsible for the initiation of new bone formation. Trauma, infection, or inflammatory conditions are advocated to cause osteoma formation.[5-7]

Neither trauma nor infection was reported in the presented case. The osteomas of the jaw are frequently located peripherally rather than in a central location, with a ratio of 14:1 in favor of the peripheral location.[3] According to a recent literature review, 70% of reported solitary central

osteomas arose in the mandible and 30% in the maxilla.[3] The same holds true for peripheral osteomas, which are more frequently seen in the mandible than in the midface.[8] The incidence for peripheral osteomas in the midface is reported to range from 0.01% to 0.43%, generally located in the frontal and ethmoidal sinuses.[9] Maxillary sinus osteoma is reported to be a rare entity.[5,7,10] Maxillary sinus osteomas may remain asymptomatic and undetected for a long period of time, if they have not reached a certain size to cause sinusitis or even eye symptoms due to orbital involvement. Precise diagnosis of central and peripheral osseous tumors, especially when these lesions grow inside anatomical cavities, is essential since other lesions such as osteosarcoma may have similar clinical and radiographic features, particularly during the initial phases.[10] The clinical importance of craniofacial osteomas lies in its association with the GS.[5,7,8,10] GS is a variant of familial adenomatosis polyposis with a triad of polyps of the gastrointestinal tract, multiple osteomas, and surface tumors of soft and hard tissues.[10] The gastrointestinal polyps begin to form at an average age of 22 years and patients become symptomatic at an average age of 39 years. The gastrointestinal polyps have 100% risk of undergoing malignant transformation. Formation of multiple osseous tumors precede that of polyposis.[10] Although a solitary osteoma is not pathognomonic for GS, a CT scan is recommended for detection of multiple osteomas, such as paranasal osteomas.[7,10] An early detection of multiple osseous tumors in the craniofacial region will raise suspicion of an underlying disease, such as GS. Due to the more frequent use of OPG in general dental practice, dentists may be the first health care givers, exposed to the extraintestinal manifestation of GS. An early detection of syndromic osteomas and appropriate referral for further investigation and treatment can be life-saving for patients with GS.

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