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Odontogenic Myxoma of Mandible: A Rare Case Report with Detailed Computed Tomographic Analysis

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ABSTRACT

The benign tumours known as odontogenic myxomas (OMs) are generated from the mesenchymal components of the dental anlage in the embryo.[1,2] Dental papilla, follicle, or periodontal ligament appear to be the source of OM. Its virtually exclusive placement in the jaw regions that support teeth, its sporadic relationship with missing or unerupted teeth, and the presence of odontogenic epithelium are all indications that it is of odontogenic origin.[1,3] OM is a benign tumour of ectomesenchymal origin with or without odontogenic epithelium, according to the World Health Organization (WHO).[1] OM has a high rate of recurrence. Owing to inadequate followup and lack of information, a precise and exact recurrence rate is currently missing. The high recurrence rate of 25% is documented when more conservative therapies are applied. In view of its rarity, vast size including body and ramus of the mandible, and diagnostic and surgical challenges faced while managing, the present case is herewith reported.

Keywords: Odontogenic myxoma; mandible

INTRODUCTION

The benign tumours known as odontogenic myxomas (OMs) are generated from the mesenchymal components of the dental anlage in the embryo.[1,2] D]tal papilla, follicle, or periodontal ligament appear to be the source of OM. Its virtually exclusive placement in the jaw regions that support teeth, its sporadic relationship with missing or unerupted teeth, and the presence of odontogenic epithelium are all indications that it is of odontogenic origin.[1,3] OM is a benign tumour of ectomesenchymal origin with or without odontogenic epithelium, according to the World Health Organization (WHO).[1] Other authors have questioned the odontogenic nature of the myxomas because, despite the appearances being compatible with odontogenic ectomesenchyme, they could alternatively be a more primitive fibroblastic or undifferentiated tissue.[4]

The majority of OMs that were documented afflicted predominantly young adults in their second and third decades of life, with a clear preference for women.[1,3,5] Both soft tissue and bone can develop OM. Although there have been reports of intraosseous myxomas in a number of different anatomical locations, the mandible and maxilla are where these tumours are most common.[1,2,5,6] Clinically, OMs are site-aggressive, slow-growing tumours that cause no discomfort. Lesions may grow to a significant size before the patient realises they exist and seeks treatment because pain and hypoesthesia are uncommon. Bigger lesions may result in cortical bone expansion and tooth displacement.[4,6]

Radiologically, the appearance may vary from a unilocular radiolucency to a multicystic lesion with well-defined or diffused margins with fine, bony trabeculae within its interior structure expressing a “honey coumbed,” “soap bubble,” or “tennis racket” appearance.[1,7] A unilocular appearance may be seen more commonly in children and in anterior parts of the jaws. Root resorption is rarely seen, and the tumor is often scalloped between the roots.[1,6]

Because OMs are not encapsulated, they significantly infiltrate the nearby medullar bone.[4] The tiny spindle-shaped cells in the OM show significant extracellular synthesis of ground material and fine fibrils. These undifferentiated mesenchymal cells can also develop into fibroblasts. The histological makeup of the tumour varies depending on the pattern of differentiation. It could consist entirely of myxomatous tissue or could have different amounts of both myxomatous and fibrous tissue.[1,4] Some people view OM as a modified type of fibroma in which the connective tissue is divided by myxoid intracellular material.[1,8] The preferred course of treatment for OM is surgical excision using block resection, curettage, or enucleation. OM has a high rate of recurrence. Owing to inadequate followup and lack of information, a precise and exact recurrence rate is currently missing. The high recurrence rate of 25% is documented when more conservative therapies are applied.[9] In view of its rarity, vast size including body and ramus of the mandible, and diagnostic and surgical challenges faced while managing, the present case is herewith reported.

CASE REPORT

A 19-year-old male patient reported to the Department of Oral Medicine and Radiology for treatment. He presented a one-month history of a minor pain and swelling in the left posterior jaw. Pain is intermediate and usually noticed on mastication. Initially, the bulge was tiny in size and exhibited a progressive development to its present dimensions. Clinical examination indicated a firm, non-tender swelling expanding the buccal and lingual cortices of the jaw, reaching from left first premolar region to third molar region, and completely obliterated the buccal vestibule (Figure 1). The skin surrounding the edoema was normal, and there was no history of paresthesia. In addition to showing first molar mesial root resorption, the panoramic radiograph revealed a massive, well-defined, multilocular radiolucent lesion with a "soap bubble" appearance that extended from the lower left canine to 1 cm distal to the third molar (Figure 2). The buccal and lingual cortices have expanded in the multilocular radiolucent lesion as observed in CT scan images (Figure 3,4,5). Odontogenic cysts were ruled out via fine needle aspiration, and the results were unfavourable. Benign odontogenic tumours were examined, and incisional biopsy was taken and a histological analysis of the tissue sample demonstrated rounded, stellate, and spindleshaped mesenchymal

cells organised in a loose, myxoid stroma with few collagen fibrils. These findings pointed to OM (Figure 6). Under general anaesthesia, the left side mandible was surgically removed in segments. Microvascular iliac bone grafting was used for reconstruction, and titanium plates were used for fixation.

Rejection of the iliac bone transplant was one of the postoperative consequences, and the sequestrated bone graft was taken out three months later. There were no clinical or radiological evidence of recurrence 30 months after the surgery, and the patient had no interest in rehabilitation.

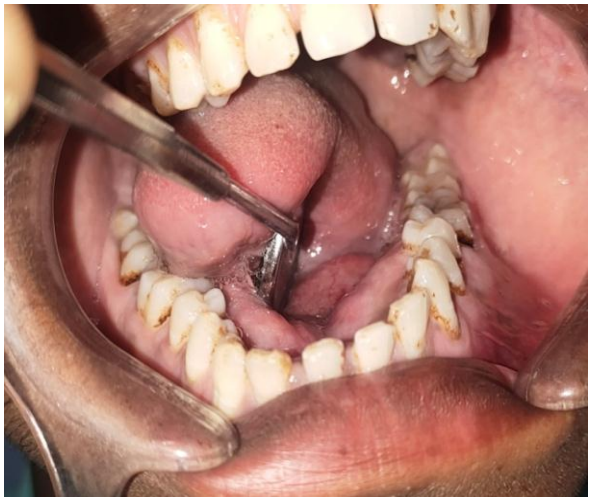

Figure 1: Intraoral photograph showing expansion of buccal and lingual cortical plates at left side.

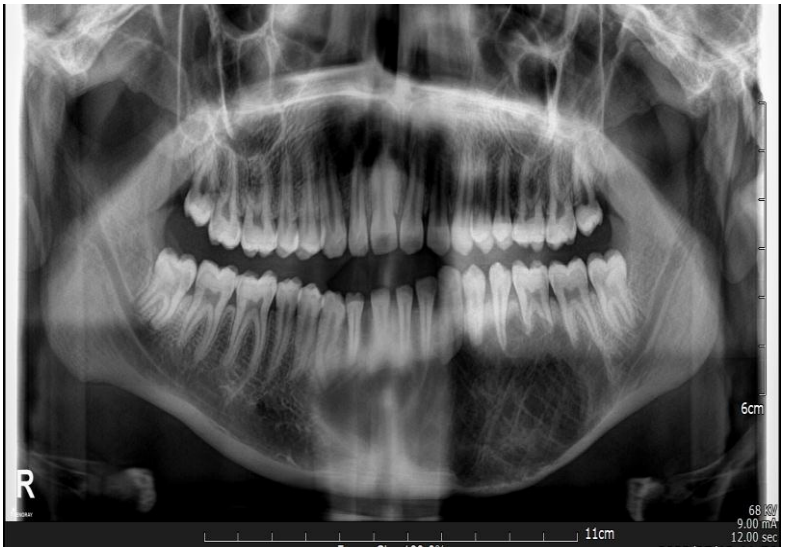

Figure 2: Orthpantomograph showing mixed radiolucent- radiopaque lesion with classical "tennis racket appearance".

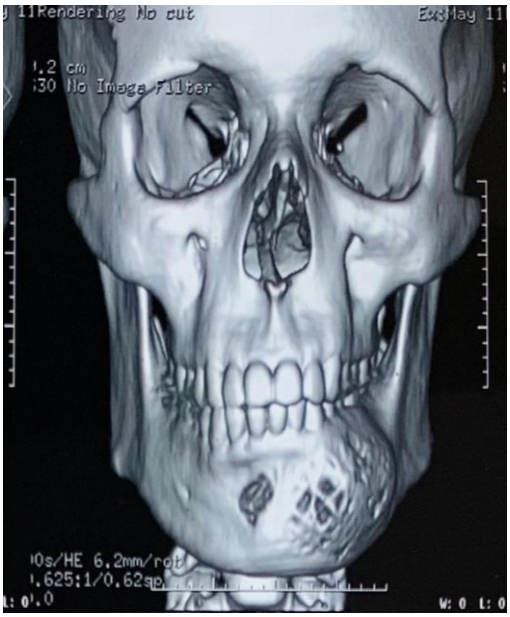

Figure 3: 3D reconstruction image of CT showing expansile lesion extending from anterior mandible extending upto ramus of mandible at left side.

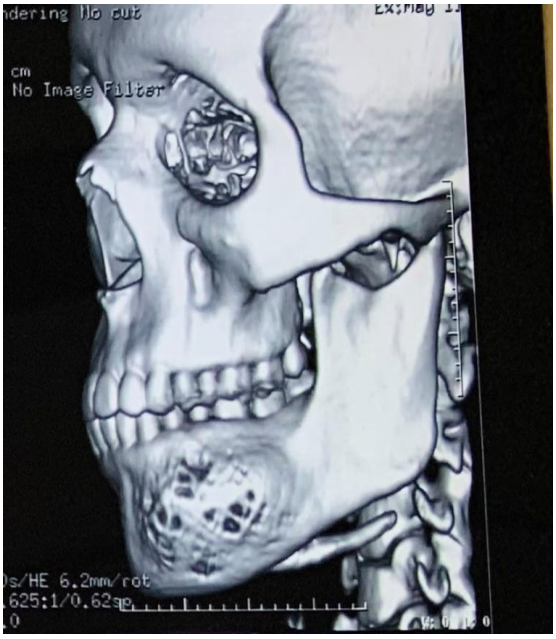

Figure 4: 3D reconstruction image showing tennis racket appearance of expansile bony lesion at left side body of mandible.

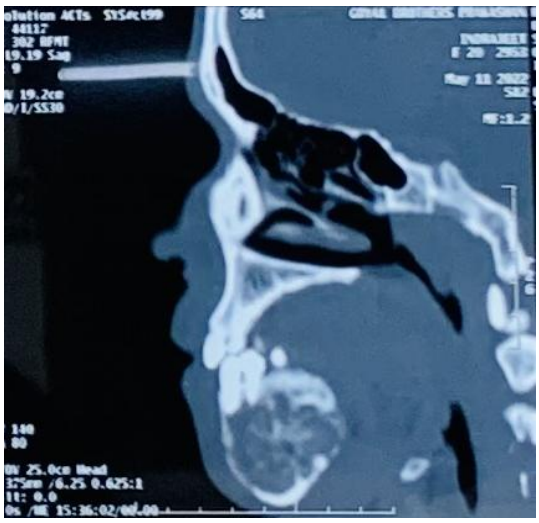

Figure 5: Sagittal CT section showing bucco lingual expansion of mandible with mixed radiolucent radiopaque lesion showing thiining of buccal and lingual cortical plate.

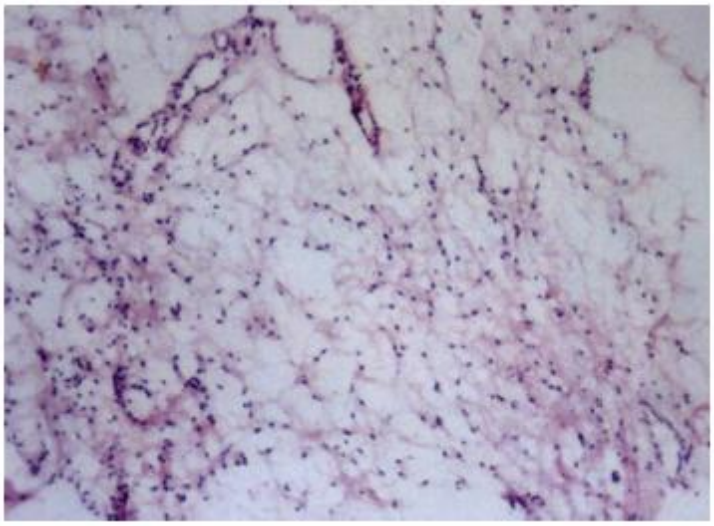

Figure 6: Microphotograph showing mixed area of fibrous tissue and inconspicuous stands of odontogenic epithelium in a myxoid stroma; magnification: ×40.

DISCUSSION AND CONCLUSION

Typically, estimates of OM prevalence range from 0.04% to 3.7%. There have been reports of relative frequencies in Asia, Europe, and America ranging between 0.5% and 17.7% [11]. It seems that the mandible is more frequently impacted than the maxilla.[1,2,5,6] Our case, affecting the posterior mandible and presented at the age of 19, almost matches the documented literature. Myxoma cannot be distinguished from odontogenic and nonodontogenic lesions using clinical or radiographic symptoms, although histological investigation reveals various lesions that could be mistaken for myxoma.[9] Whereas some individuals present with growing discomfort in lesions invading

surrounding structures and eventual neurological problems, the majority of myxomas are nearly invariably asymptomatic. Although it occurs less frequently, OM of the maxilla has more aggressive behaviour than that of the mandible.[14,15] Although being mandibular in origin, the current case is more aggressive and invading with intermediate discomfort. Multilocular or unilocular radiolucencies are how OMs show radiographically. The current example displayed multilocular radiolucency that appeared like a soap bubble. Based on the clinical and radiological features, a variety of differential diagnoses, such as ameloblastoma, ameloblastic fibroma, odontogenic fibroma, central hemangioma, or odontogenic keratocyst combined with OM, could be indicated as the initial diagnostic hypothesis.[5,9] The literature has a wealth of information about how aggressive OM is. Surgery is the preferred course of treatment because the tumour is not radiosensitive.[1,3,6,9] Due to the high probability of recurrence, concerns have been raised about the sort of surgical treatment method that should be used in each instance.[9]

When conservative treatments like enucleation, curettage, and cryotherapy are used, a high rate of recurrence is caused by the absence of a capsule and an infiltrative growth pattern. Compared to more drastic therapies, which would involve mandibular reconstruction with a fibular microsurgical flap, the conservative treatments have a number of advantages. The procedure's benefits were the possibility of intraoral access, the lack of a donor location, a shorter hospital stay, no interference with a child's ability to grow their facial features, and a low procedural cost.[16]

The majority of authors recommend block resection over conservative treatment due to the block's invasive nature, large size, and history of recurrence, even though this intervention causes patients post-treatment rehabilitation difficulties. We also concurred with the majority of the authors and treated the present case with block resection.[17]

An alternative approach to radical resection is the conservative care of myxoma with excision and curettage using liquid nitrogen cryotherapy. Liquid nitrogen will destroy any remaining cancerous cells by devitalizing the bone without damaging the inorganic structure, resulting in the creation of new bone.[18,19] Regardless of the therapeutic method used to treat OM, a minimum of five years of surveillance is necessary to demonstrate that the lesion has healed. Periodic clinical and radiological follow-up should also be continued continuously.

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