



CONSERVATIVE MANAGEMENT OF ODONTOGENIC MYXOMA IN THE MANDIBLE OF A TEENAGE FEMALE – A CLINICAL CASE REPORT

Maxillofacial Surgery

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ABSTRACT

Background: Odontogenic myxoma is a benign, locally invasive, aggressive, nonmetastasizing neoplasm of the jaw bones, comprising of 3-16% of all Odontogenic tumors. It has variable radiological and clinical presentations which entails thorough and prudent evaluation of the lesion. Several of these characteristics overlap with those of other benign and some malignant tumors. Owing to the absence of a capsule and the gelatinous nature of the ground substance, a high degree of recurrence is seen. We present a clinical case report of a teenage female diagnosed with Odontogenic myxoma of mandible. **Methods:** A 19 year old female patient presented with a complaint of facial asymmetry in the left side of the jaw with occasional pain since three months. Radiological investigations revealed large expansile lesion involving 34,35,36,37 and impacted 38. A Conservative Surgical management was performed comprising of Surgical enucleation of the lesion followed by Chemical cauterization. **Results:** 1 year follow up of the patient revealed no clinical or radiological evidence of recurrence and prosthetic rehabilitation was done at the end of 10 months with planning of implants at a later stage. **Conclusion:** Long term follow-up with radiologic surveillance is advocated in order to recognize a possible recurrence.

KEYWORDS

Benign, Gelatinous, Chemical cauterization, Odontogenic myxoma, Recurrence, Surgical enucleation

INTRODUCTION:

Odontogenic myxoma is a rare, slow growing, non metastasing, locally invasive tumor of the jawbones, accounting for 3.3 -15.7% of all odontogenic tumors in adults and 8.5-11.6% in children. It was first identified by **Thoma and Goldman** in 1947^[1]. This tumor has an incidence of affecting 0.07 new patients per million people and is thought to originate from the mesenchyme of a developing tooth or the periodontal ligament. Odontogenic myxomas typically develop during the second and third decades of life, with a higher prevalence in females and most commonly affect the molar regions of the maxilla and mandible^[1]. It is a non-encapsulated benign tumor composed mainly of mucoid ground substance with minimal collagen and the collagen content can determine if it is termed a myxofibroma^[2]. It is considered to be an Odontogenic fibroma with myxomatous degeneration.

On imaging, odontogenic myxomas usually appear as radiolucent, multilocular structures with coarse bony trabeculae resembling 'soap bubble' or 'tennis racket' on X-ray and CT scans^[3]. MRI findings typically show intermediate signal intensity on T1-weighted images and high signal intensity on T2-weighted images, effectively illustrating any extent of resorption. CT and MRI correlate well with histological features and are valuable diagnostic tools^[4].

The management of odontogenic myxomas depends on the tumor's location and size, the patient's age and clinical experience, ranging from minimally invasive excisional biopsies to en bloc resection of multiple structures. Due to their variable radiological and clinical presentations, careful evaluation of these lesions is crucial. Several characteristics overlap with other benign and some malignant tumors. The absence of a capsule and the gelatinous nature of the ground substance contribute to a high recurrence rate.

Case Report

History and Clinical examination:

A 19-year-old female reported to the Oral and Maxillofacial Surgery department with the chief complaint of facial asymmetry with painless, gradually progressive firm swelling over the lower left side of the jaw of 3 months duration. Medical and Family history were non

contributory.

Clinical examination revealed a diffuse swelling, measuring about 3x2 cm (approximately) with non delineated borders, over the left body and angle of the mandible. Skin over the swelling was normal. Intraoral examination revealed a diffuse swelling of size 1.5 x 1 cm (approximately) over the left mandibular buccal mucosa in relation to 36,37 region with obliteration of buccal vestibule. On palpation, the swelling was firm, nontender and resilient to touch. Expansion of the buccal and lingual cortical plate was palpable in relation to 36,37. No clinical evidence of paresthesia.

Investigations :

Orthopantomography (OPG) and Computed Tomography (CT) showed a large, expansile mixed density lesion of size 4.8x2.8 cm with buccal and lingual cortex disruption. The lesion involved periapical region of 34,35,36,37 with impacted 38. Routine laboratory investigations (hematological and serological) were normal. Differential diagnosis included Ameloblastoma, Ameloblastic fibroma and Odontogenic fibroma. Incisional biopsy was performed under local anesthesia and the report revealed stroma resembling odontogenic ectomesenchyme with myxomatous areas and few epithelial cells suggestive of Odontogenic Myxoma.

Surgical management :

Considering the patient's age and potential complications associated with surgical resection, Conservative surgical excision with curettage was planned under General Anesthesia. Complete Surgical enucleation and curettage of the lesion was done along with extraction of 34,35,36,37 and surgical removal of impacted 38. Chemical cauterization was done with Modified Carnoy's solution in order to prevent recurrence. Excised tissues were sent for histopathological examination. Intermaxillary fixation was done for a period of 6 weeks to support the remaining basal bone.

Histopathology:

Histopathological examination of the resected specimen with hematoxylin and eosin staining revealed spindle-shaped cells dispersed in a background of loose and abundant mesenchyme.

Collagen fibers were loosely arranged. Vascularity was sparse, mainly of fine capillaries. Nests or islands of odontogenic epithelium were not seen and thus confirming the final diagnosis of odontogenic myxoma.

Follow-up:

Post operative radiographs were taken at the following time interval – immediate, 6 weeks, 3 months, 6 months and 8 months. The patient's 1-year follow-up clinical examination was uneventful and revealed no evidence of recurrence. Post operative paresthesia was evaluated with neurosensory testing and it revealed normal scores. Prosthetic rehabilitation was given at the end of 10 months with soft liners. Endosseous implants are planned after 2 years following adequate bone regeneration with satisfactory bone density.

DISCUSSION

Odontogenic myxoma with associated unerupted tooth was first reported by Stafne and Parkhill in 1947 with no histological evidence of pleomorphism, hyperchromatism and mitosis. Macroscopically it appears as whitish grey glistening or gelatinous mass with minimal true encapsulation. Microscopic presentation includes spindled or stellate shaped cells in a mucoid rich intracellular matrix. The differential diagnosis of the lesion includes eosinophilic granuloma, histiocytosis, intraosseous hemangioma, ameloblastoma, odontoma, odontogenic keratocyst, aneurysmal bone cyst and central giant cell granuloma^[5].

The treatment of odontogenic myxoma (OM) is controversial due to its benign nature, infiltrative growth into adjacent structures and high recurrence rates, often caused by incomplete removal of the gelatinous lesion. Radiographically, OM can appear as either small unilocular radiolucencies or extensive multilocular lesions with well-defined or diffuse margins, resembling "honeycombs" or "soap bubbles". Accurate imaging is crucial for diagnosis and surgical planning, with cone-beam computed tomography being particularly useful. Sato et al in his clinical case report described a conservatively managed OM of mandible with nil recurrence over 100 month follow up period^[6-8].

Treatment decisions range from minimally invasive excision to block resection and are influenced by factors such as lesion size, location, patient age and surgeon experience. Conservative treatment, including enucleation followed by bone curettage is recommended for small lesions. Carnoy's solution (without chloroform) may be used as a cauterizing agent to reduce recurrence without being carcinogenic. This method preserves hard and soft tissues, maintaining masticatory function^[9].

Recent evidence suggests that conservative approaches lead to acceptable recurrence rates and lower patient morbidity in the long term, though more follow-up data is needed. Patients should be closely monitored for recurrence, especially in the first two years. Recurrence rates decreased from 24% to 8.3% with follow-up longer than 60 months^[10].

Radical treatment, such as block resection, is advised for extensive lesions or those unresponsive to conservative management, while some advocate for a safety margin in all cases due to recurrence risks. Bone freezing with liquid nitrogen eradicates residual neoplastic cells without extensive resection^[11,12]. Though complications may arise, they typically do not affect treatment success. Liquid nitrogen preserves bone structure, promoting new bone formation after tumor excision and curettage. Conservative management with liquid nitrogen cryotherapy offers a less invasive alternative to block resection, improving patient rehabilitation by preserving facial contour and reducing psychosocial impact. Additionally, this approach is more cost-effective than radical procedures^[13,14].

Current evidences suggest the usage of intralesional absolute alcohol irrigation for volume reduction of the lesion^[15].

CONCLUSION:

A high index of suspicion is to be maintained for accurate diagnosis and to rule out potentially malignant lesions. There is no consensus on the treatment protocol to be followed. In the present case of a growing patient, conservative surgery with strict clinical follow-up was recommended because the lesion has a significant chance of recurrence. Wider surgical excision should be employed in the case of recurrence.

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Declaration Of The Patient Consent:

Patients consented to clinical study and images been discussed as part of this publication.

Conflicts Of Interests:

We declared that no known competing financial interests or personal relationships appeared to influence the work reported in this paper.

Abbreviations:

CT – Computed Tomography

MRI – Magnetic Resonance Imaging

OM – Odontogenic Myxoma

OPG – Orthopantomogram

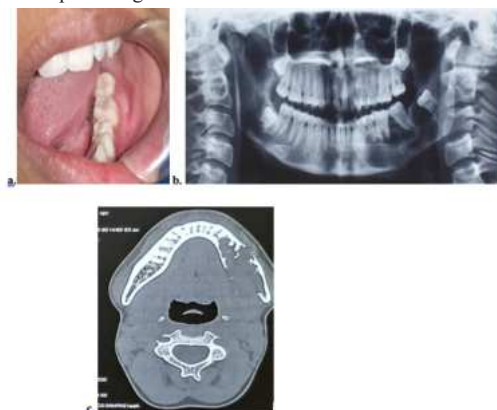


Figure 1. Pre operative photographs: (a) Clinical Intra oral photograph; (b) Preoperative Orthopantomogram revealing the extent of the lesion; (c) Preoperative Computed Tomography showing buccal and lingual cortical erosion.

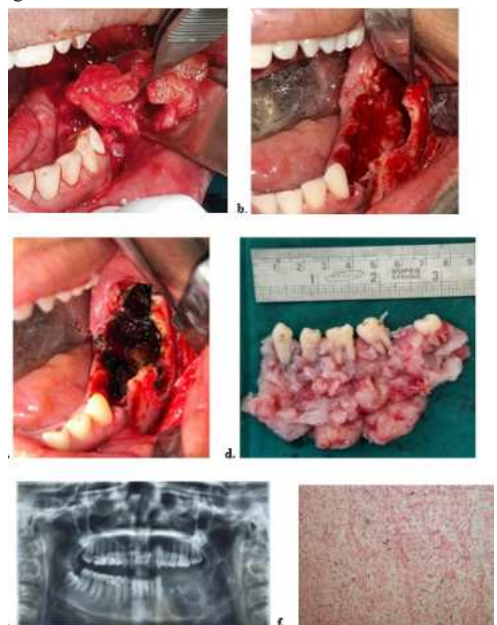
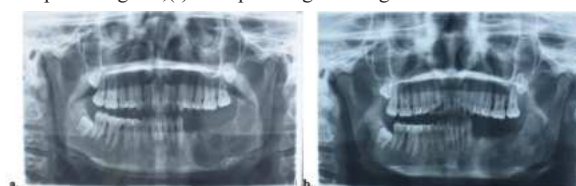


Figure 2. Intra operative photographs: (a) Surgical enucleation of the lesion; (b) Curettage done; (c) Chemical cauterization of the enucleated site; (d) Excised specimen; (e) Immediate post operative Orthopantomogram; (f) Histopathological image.



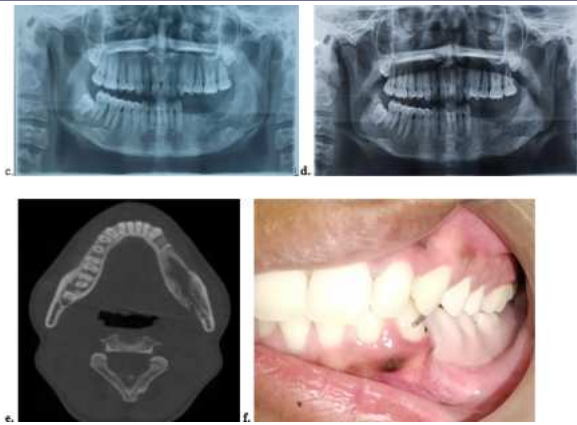


Figure 3. Post operative photographs: (a) 6 weeks postoperative Orthopantomogram;(b) 3 months postoperative Orthopantomogram; (c) 6 months postoperative Orthopantomogram; (d) 8 months postoperative Orthopantomogram; (e) 10 months postoperative Cone Beam Computed Tomography; (f) Prosthetic rehabilitation

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