Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies *NLM ID: 101716117*

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr Indian Citation Index (ICI) Index Copernicus value = 100

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Case Report

Unveiling the variability in odontogenic myxoma presentation: A case series exploration

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ABSTRACT:
Odontogenic myxoma is a rare, benign, yet locally aggressive tumor arising from odontogenic ectomesenchyme within the jawbones. It accounts for 3–20% of all odontogenic tumors, with an incidence of 0.07 cases per million annually. Most commonly seen in females during their second and third decades of life, it is characterized by progressive bone destruction, cortical expansion, tooth displacement, and resorption. Radiographically, odontogenic myxomas typically present as multilocular radiolucencies with patterns described as "soap bubble," "honeycomb," "tennis racket," or "sunbeam." Their variable clinical and radiographic features often complicate diagnosis and management.Here, we present three cases illustrating the diverse presentations of this tumor.
Keywords: Odontogenic myxoma, multilocular, ectomesenchyme

Received: 30 May, 2025 Accepted: 24 June, 2025 Published: 28 June, 2025

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This article may be cited as: C Thara, Sreela LS, Sivaprasad T, Mathew P, Nair AK. Unveiling the variability in odontogenic myxoma presentation: A case series exploration. J Adv Med Dent Scie Res 2025; 13(6):171-177.

INTRODUCTION

Odontogenic myxoma (OM) is a rare, benign tumor that arises from mesenchymal stem cells associated with developing tooth structures, such as tooth bud, dental follicle, dental papilla, or periodontal ligament. Despite its benign nature, it can exhibit locally aggressive behavior.[1]. It accounts for 3–20% of all odontogenic tumors and was first described by Thoma and Goldman in 1947[2]. The World Health Organization (1992) classifies OM as a benign intraosseous tumor of ectomesenchymal origin, with or without odontogenic epithelium, most commonly affecting the mandible[3].

OM typically presents during the second or third decade of life, with a slight female predilection[4]. Clinically, it may be asymptomatic or present with signs such as painless swelling, facial asymmetry, or jaw expansion. Radiographically, OM appears as a unilocular or multilocular radiolucency, often described using patterns like “soap bubble,” “honeycomb,” “tennis racquet,” or occasionally “sun-ray”[3].

Histologically, OM is composed of a myxoid stroma with scattered spindle-shaped cells and shows infiltrative behavior. Due to its locally aggressive nature, complete surgical resection is essential to reduce the risk of recurrence,[5] which can be as high as 25%[6]. Long-term follow-up is therefore recommended.

This case series presents the varied clinical and radiographic features of OM, including cases with atypical presentations, to enhance recognition and aid in early, accurate diagnosis.

CASE REPORTS

Case 1

A 62-year-old female patient reported to the Department of Oral Medicine and Radiology with a six-year history of a painless swelling in the lower right posterior region of the jaw.Theswelling was

initially small but showed a rapid increase in size within the last month. The patient also reported the onset of pain in the same region over the past twodays.

Intraoral examination revealed a dome-shaped swelling measuring approximately 5 × 4 cm, extending anteroposteriorly from the mesial aspect of tooth 43 to the region of tooth 48. Superoinferiorly, the swelling extended from the attached gingiva and rose above the occlusal plane, particularly in relation to tooth 46. The superior margin of the lesion impinged upon the palatal aspect of the 14 and 15 region. The surface appeared erythematous compared to the adjacent mucosa, with prominent dilated veins. No visible pulsations were observed.On palpation, the swelling exhibited variable consistency, was tender to touch, and showed no signsof discharge.The patient had no significant medical history.

Radiographic investigations were performed, including a panoramic radiograph, which revealed a multilocular radiolucent lesion measuring approximately 3.5 × 2 cm, extending from tooth 43 to 48. The lesion exhibited straight internal septations.

Further evaluation with cone beam computed tomography (CBCT) demonstrated a well-defined multilocular hypodense lesion with multiple internal septa. Significant buccal and lingual cortical plate expansion was noted, along with areas of cortical thinning and discontinuity.

Routine blood investigations were within normal limits.A provisional diagnosis of odontogenic myxoma was made based on the clinical and radiographic findings.Fine-needle aspiration cytology (using an 18G needle) yielded negative results.

An excisional biopsy was performed, and histopathological examination revealed parakeratinized stratified squamous epithelium overlying a fibromyxoid connective tissue stroma. The stroma contained randomly arranged stellate and spindle-shaped cells, scattered odontogenic epithelial rests, and focal areas of calcification.These characteristics confirmed the diagnosis of odontogenic myxoma.

Case 2

A 39-year-old male patient presented with a swelling in the right lower gingival region, persisting for the past four years. The swelling was initially small andgradually enlarged over time to reach its present size. The patient reported no history of pain, paresthesia, or pus discharge. Both medical and dental histories were non-contributory.

Extraoral examination revealed a diffuse swelling over the right parasymphyseal region, extending superoinferiorly from the level of the lip commissure to the lower border of the mandible. The overlying skin appeared normal. Palpation revealed that the swelling was firm in consistency and non-tender.

Intraoral examination showed a diffuse swelling measuring approximately 3.5 × 2 cm, extending from teeth 41 to 45, involving the buccal gingiva and vestibule. Buccal cortical plate expansion was noted from 41 to 45, with obliteration of the mucobuccal fold. On palpation, the lesion was non-tender and predominantly firm, with a cystic consistency toward the superior aspect.Based on clinical findings, a provisional diagnosis of a benign odontogenic cyst, such as a dentigerous cyst, was considered.

The mandibular occlusal radiograph revealed a mixed radiolucent-radiopaque area associated with an impacted tooth 43, accompanied by loss of cortical bone in the interdental region between teeth 42 and 44. Displacement of teeth 41 and 42 was also observed.The panoramic radiograph showed an ill-defined radiolucent lesion measuring approximately 3.5 × 2.5 cm, crossing the midline and extending from tooth 34 to 45, with multiple loculations noted toward the distal aspect.

Cone beam computed tomography (CBCT) images demonstrated a multilocular lesion in the anterior mandible crossing the midline, containing a few straight septa and a hyperdense structure consistent with the impacted tooth 43. There was significant buccal cortical plate expansion extending from tooth 45 up to the level of the displaced tooth 41. Additionally, faint septa extending beyond the lesion's peripheral margin at right angles were noted on the buccal aspect.

Routine blood investigations were within normal limits. Histopathological examination of the specimen revealed delicate collagenous connective tissue with moderate cellularity, predominantly stellate cells, giving a myxomatous appearance. Clusters of odontogenic epithelial cells, osteoblast-lined bony trabeculae, and osteolytic lacunae were also observed.These findings confirmed the diagnosis of odontogenic myxoma.

Case 3

A 58-year-old female patient presented with a swelling over the chin region, present for eight years. Initially, the swelling was very small and barely noticeable but had suddenly increased in size over the past two months without associated pain. The patient had a history of tuberculous osteomyelitis of the left forearm eight years prior and was not currently on any medication. She was otherwise in normal health.

Extraoralexamination showed a well-defined, solitary swelling of about 4 × 3 cm in size, projecting from the lower border of the mandible.. The overlying skin appeared normal, with a smooth surface. The swelling was tender on palpation.

Intraoral examination showed no odontogenic infection or intraoral swelling. Given the patient's history, a provisional diagnosis of tuberculous lymphadenitis was considered.

The panoramic radiograph revealed an ill-defined, multilocular radiolucent lesion along the anterior border of the mandible, extending below the inferior cortex and resembling a periosteal reaction.Cone

beam computed tomography (CBCT) demonstrated an expansile lytic lesion with an exophytic component and cortical breach, accompanied by an exuberant soft tissue mass.

Fine-needle aspiration cytology (FNAC) showed non-caseating granulomatous inflammation, consistent with lymphadenitis.

Routine blood investigations were within normal limits. Due to the aggressive features observed on imaging, a wide excision was performed. Histopathological examination revealed a mucoid-rich extracellular matrix with scattered spindle-shaped and stellate cells, connective tissue fibers, and bony trabeculae. The cells exhibited small, irregular, hyperchromatic nuclei with cytoplasmic processes interspersed among collagen and reticulin fibers. These findings established the diagnosis of odontogenic myxoma.

CASE 1

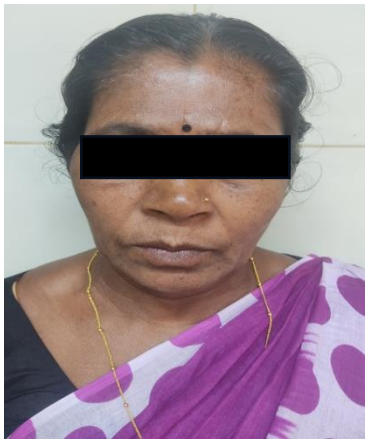

Figure 1: Extraoral clinical photograph

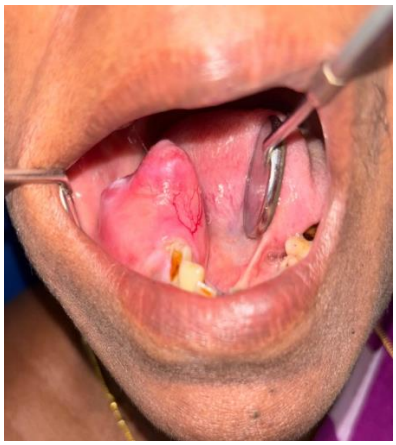

Figure 2: Dome shaped swelling noted irt posteriorright teeth region intraorally

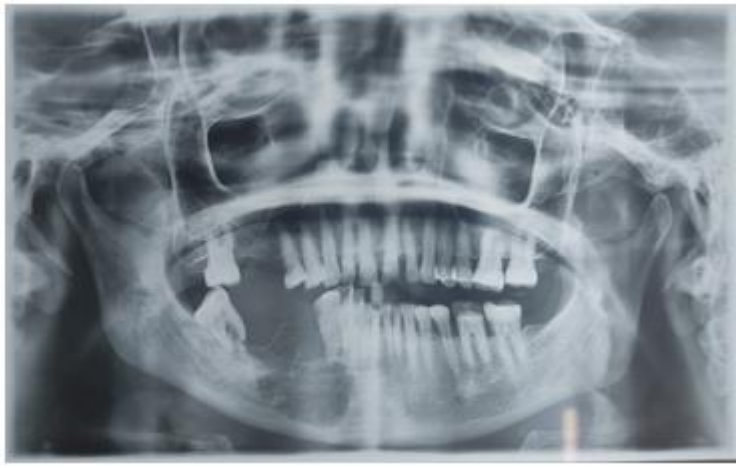

Figure 3: Panoramic radiograph showing a multilocular radiolucent lesion extending from 43 to 48

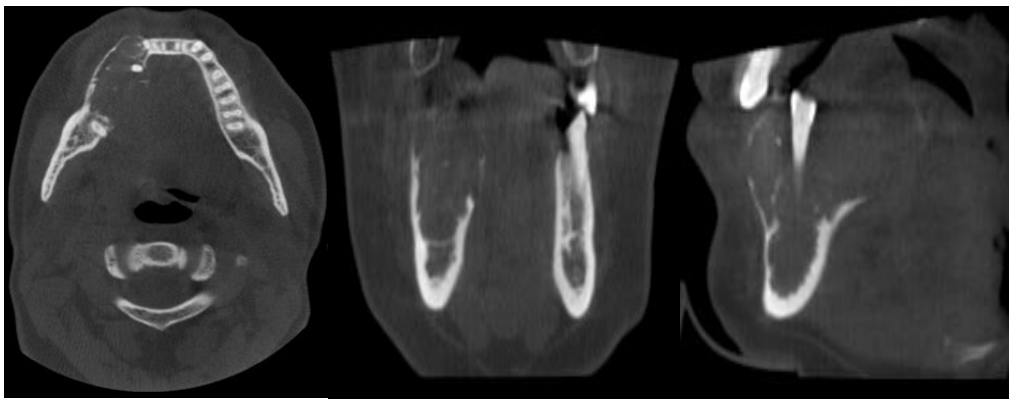

Figure 4: CBCT images showing well defined multilocular hypodense lesion with multiple septations

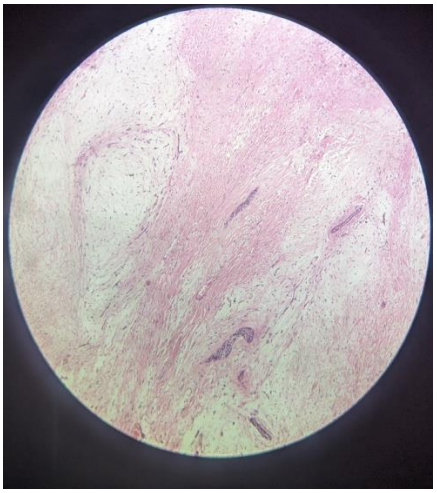

Figure 5: Photomicrograph revealing parakeratinized epithelium over fibromyxoid stroma with scattered stellate and spindle cells, odontogenic rests.

CASE 2

Figure 6: Clinical photograph showing a diffuse swelling over the right parasymphyseal region.

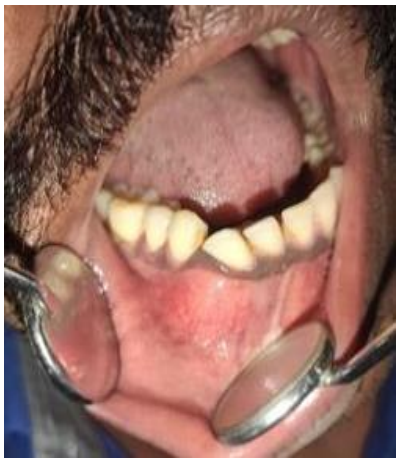

Figure 7: Intraoral photograph showing diffuse swelling involving buccal gingiva and vestibule irt 41 of 45

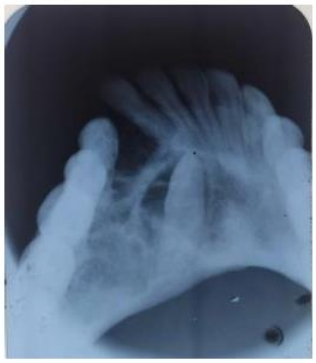

Figure 8: Mandibular occlusal radiograph with a mixed radiolucent radiopaque area associated with impacted 43

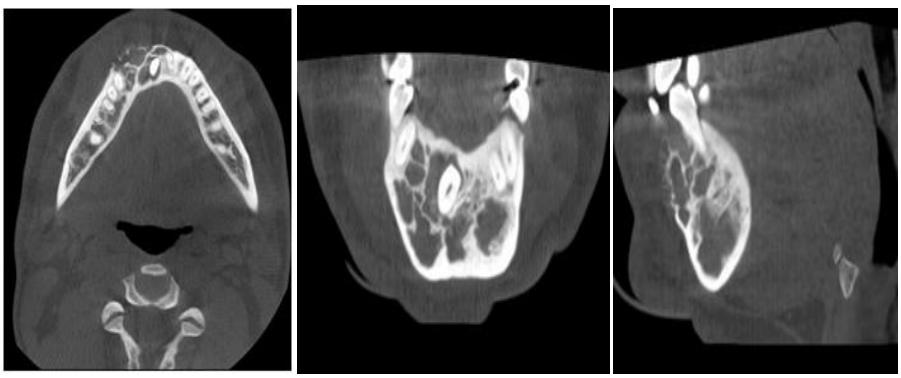

Figure 10: CBCT images showing multilocular lesion in the anterior mandible with faint septa extending beyond the peripheral margin of the lesion at right angles

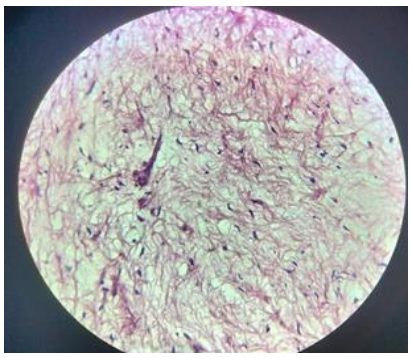

Figure 11: Histopathological view showing mixed area of fibrous tissue and inconspicious strands of odontogenic epithelium in a myxoid stroma

CASE 3

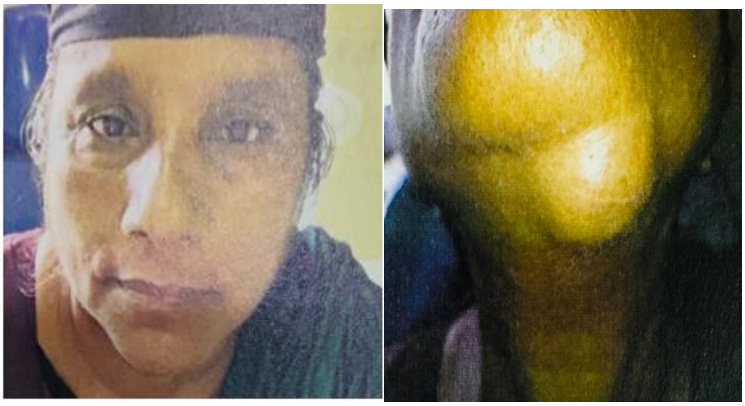

Figure 12: Extraoral image showing swelling projecting from the lower border of mandible

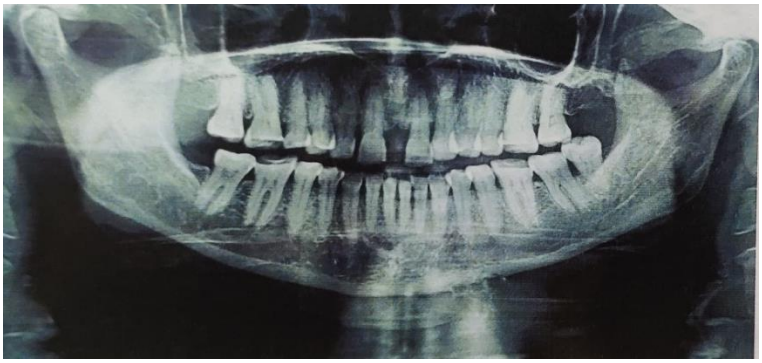

Figure 13: Panoramic radiograph showing ill defined multilocular radiolucent lesion on anterior border of mandible extending below inferior cortex

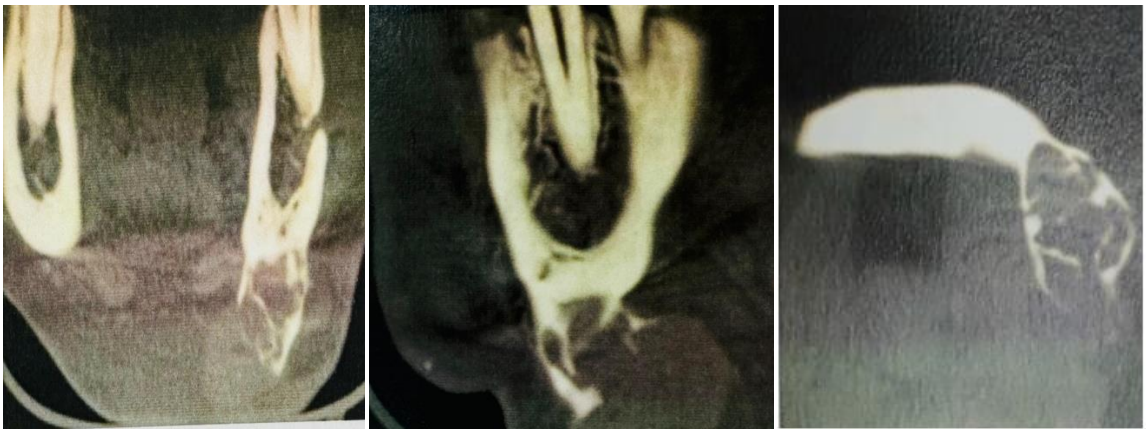

Figure 14: CBCT showing expansile lytic lesion with exophytic component and cortical breach with exuberant soft tissue component

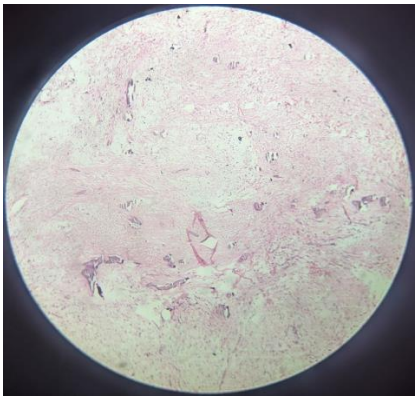

Figure 15: Histopathological view showing mucoid rich ECM with scattered spindle shaped or stellate cells & connective tissue fibres

DISCUSSION

In 1863, Rudolf Virchow first used the term myxofibroma to characterize tumors with a microscopic appearance similar to the mucous-like tissue of the umbilical cord.Odontogenic myxoma (OM) was first introduced by Thoma and Goldman in 1947. In 1948, Stout redefined myxomas histologically as "true neoplasms that do not metastasize and lack identifiable cellular components of other mesenchymal tissues," such as chondroblasts or lipoblasts. OM is a benign, locally aggressive, and invasive tumor of the jawbones, primarily arising in tooth-bearing regions and often associated with unerupted teeth.

Histologically, OM resembles dental mesenchyme, such as the dental papilla, follicle, or periodontal ligament, with occasional odontogenic epithelial islands[7]. It typically occurs in the second and third decades of life, more commonly affecting the mandible, especially the premolar and molar areas[3]. Clinically, OM presents as a slow-growing, painless expansile lesion causing local bone destruction, cortical expansion, soft tissue infiltration, tooth resorption, and displacement.

The cases in our series varied in age (25 to 62 years), gender, location, duration, and symptoms, highlighting OM's diverse clinical presentation. All patients exhibited some degree of swelling, though features such as site, tenderness, and consistency were variable, reflecting the tumor's nonspecific clinical nature.

OMs are often detected due to progressive swelling or facial asymmetry[8]. While generally painless, rapid growth can cause soft tissue infiltration. Maxillary OM may remain asymptomatic or present with heaviness, swelling, malocclusion, or tooth mobility.Tooth displacement is observed in approximately 9.5% of cases. Our series showed a predominance of mandibular involvement, consistent with existing literature.

Radiographically, OM exhibits diverse appearances. Zhang et al.[9] classified them into six types: Type I—unilocular; Type II—multilocular (tennis racquet, honeycomb, soap bubble); Type III—involving alveolar bone; Type IV—involving maxillary sinus; Type V—osteolytic destruction; and Type VI—mixed osteolytic and osteogenic features. Our cases demonstrated variability including ill-defined borders, mixed radiolucent-radiopaque areas, and association with impacted teeth. This variability can mimic other lesions such as ameloblastoma, central giant cell granuloma, or odontogenic keratocyst.

CBCT proved valuable in detecting cortical breaches and septal patterns, essential for treatment planning. The association with impacted teeth supports the theory that OM arises from dental papilla, follicle, or periodontal ligament[1].

One case showed a well-defined solitary swelling with periosteal reaction—an uncommon feature that can raise suspicion of malignancy, underscoring the importance of histopathological confirmation. Microscopically, OM consists of randomly oriented stellate and spindle cells in a loose myxoid stroma rich in glycosaminoglycans like hyaluronic acid and chondroitin sulfate[10]. Its gelatinous, unencapsulated nature contributes to local invasiveness and a high recurrence rate.

OM is not radiosensitive; therefore, surgery remains the treatment of choice[11]. Treatment ranges from conservative excision and curettage to radical resection depending on tumor size and extent[12]. Although generally slow-growing, OM's infiltrative nature leads to a notable recurrence rate of approximately 25%, particularly following conservative treatment[13].

CONCLUSION

Odontogenic myxoma exhibits a wide range of clinical and radiographic features, reflecting its complex and variable nature, which often complicates diagnosis. As demonstrated in this case series, no single clinical or radiological pattern is definitive, underscoring the need for a high index of suspicion. The diverse presentations call for thorough investigation and careful consideration in differential diagnosis, especially in atypical cases. Given this variability, treatment should be individualized based on the tumor's specific characteristics to optimize patient outcomes and prognosis.

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