**Silent Swell: A Case Report of Unmasking Ameloblastoma of the Right Posterior Mandible**

**ABSTRACT**

Ameloblastoma is a benign, locally aggressive odontogenic tumor that most commonly arises in the posterior mandible. Although typically painless in the early stages, it can cause significant destruction of bone and adjacent structures if untreated. This case presents a 31-year-old male with progressive swelling in the right mandibular body region. Detailed clinical, radiographic, and histopathological evaluation confirmed the diagnosis of ameloblastoma. Surgical resection with reconstruction was performed, followed by restorative and maintenance care. This report emphasizes the classic but often overlooked features of ameloblastoma and underscores the importance of timely diagnosis and multidisciplinary management.

**KEYWORDS**

Ameloblastoma, Bone grafting, Mandible, Multilocular radiolucency, Odontogenic tumor, Surgical resection.

**INTRODUCTION**

Ameloblastoma is a rare, benign epithelial odontogenic tumor that, despite its non-malignant classification, displays notably aggressive local behavior.[1] It arises from the odontogenic epithelium, which includes remnants of the dental lamina, enamel organ, or epithelium lining odontogenic cysts.[2] Although accounting for only about 1% of all tumors affecting the oral cavity and head and neck region, ameloblastoma constitutes approximately 11–13% of all odontogenic tumors, making it one of the most clinically significant entities within this group.[3]

The biological behavior of ameloblastomas distinguishes them from other benign lesions. They typically present as slow-growing, painless swellings, often discovered incidentally or after noticeable facial asymmetry or tooth displacement.[4] However, if left undiagnosed or untreated, these tumors can lead to significant bony expansion, cortical perforation, root resorption, and, in rare cases, soft tissue infiltration. These destructive tendencies contribute to considerable morbidity, even in the absence of metastasis.[5]

Most commonly affecting adults between 30 and 50 years of age, ameloblastomas have no marked gender predilection.[6] The mandible is the most frequent site of occurrence, particularly the posterior segment including the molar and ramus region, which is involved in nearly 80% of reported cases.[7] Radiographically, ameloblastomas may appear unilocular or multilocular, with the latter exhibiting a characteristic "soap bubble" or "honeycomb" appearance. Root resorption of adjacent teeth and expansion or perforation of the cortices are also frequently observed.[8]

Histologically, ameloblastomas are classified into several subtypes, the most common being follicular and plexiform. Less frequent patterns include acanthomatous, granular cell, basal cell, desmoplastic, and clear cell variants. Each variant has unique cellular characteristics and biological behavior, though all are associated with a risk of recurrence, especially when managed conservatively.[9]

The World Health Organization’s most recent classification system has emphasized the importance of correlating histopathologic patterns with clinical presentation, radiographic appearance, and biologic behavior to guide treatment planning.[10] Although malignant transformation is rare, the potential for extensive bone destruction and recurrence following incomplete excision necessitates a vigilant and often aggressive approach to management.[11]

This case report illustrates a classical presentation of ameloblastoma in a young adult male, highlighting the typical clinical features, radiographic findings, histopathological confirmation, and surgical management. The case emphasizes the importance of early detection, multidisciplinary evaluation, and long-term follow-up to minimize recurrence and functional impairment.

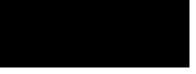
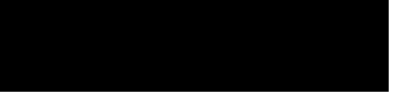
**CASE PRESENTATION**

A 31-year-old male presented to the Department of Oral Medicine and Radiology with a complains of swelling in the lower right back region of his jaw for the past six months. The patient reported that the swelling had appeared spontaneously and was initially small. Over time, the swelling had gradually increased in size. The associated pain was dull and intermittent, noted primarily upon touching the area. Additionally, the patient complained of progressive loosening of teeth in the affected region. There was no history of pus discharge, ulceration, fever, or weight loss.

On extraoral examination, facial asymmetry was noted on the right side, attributable to a single diffuse swelling involving the right mandibular body region. The swelling extended from the ala-tragus line superiorly to the lower border of the mandible inferiorly, and mediolaterally from the corner of the mouth to the angle of the mandible. The overlying skin was normal and freely mobile. Palpation revealed a bony hard, mildly tender swelling. Temporomandibular joint examination showed no abnormalities.**[Fig. 1]**

A person with a beard and mustache

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**Fig 1-Extraoral swelling seen on right side of face**

Intraorally, a localized swelling was observed from teeth 44 to 48, causing buccal and lingual cortical expansion and obliteration of the corresponding vestibules. The mucosa appeared intact and unremarkable. Palpation confirmed the presence of cortical perforation on the buccal aspect near tooth 46 and on the lingual aspect near tooth 47. **[Fig. 2]**

A close-up of a person's mouth

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**Fig 2-Obliteration of buccal and lingual vestibules with expansion of cortical plates on right side**

Based on the clinical features, a provisional diagnosis of ameloblastoma of the right posterior mandible was made. Calcifying epithelial odontogenic tumor, Odontogenic myxoma and central giant cell granuloma were considered as a differential diagnosis.

**RADIOGRAPHIC FINDINGS**

Reconstructed panoramic radiography and cone beam computed tomography (CBCT) were performed. A multilocular radiolucent lesion was observed in the right posterior mandibular region, extending anteroposteriorly from the apical region of tooth 43 to 0.5-1 cm posterior to 48 in the ramus and superoinferiorly from the alveolar crest to the inferior border of the mandible. The lesion measured approximately 70.4 mm in the anteroposterior dimension, 42.8 mm superoinferiorly, and 42.6 mm buccolingually. It exhibited a well-defined corticated margin with scalloped borders and a characteristic "soap bubble" appearance. Notably, there was significant expansion and thinning of both buccal and lingual cortical plates, with perforation evident in the 46 and 47 regions. The inferior border of the mandible was also thinned. External root resorption was noted in teeth 43 through 48**.[Fig. 3 and Fi. 4]** These features were highly suggestive of ameloblastoma. Also Odontogenic myxoma and central giant cell granuloma were considered as differential diagnosis.

**A x-ray of a skull

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**Fig 3-Multilocular radiolucent lesion seen on right posterior mandible**

**A close-up of a skull

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**A x-ray of a person's teeth

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**Fig 4-3D view, Axial and Sagittal views showing multilocular lesion on right posterior mandible**

**HISTOPATHOLOGICAL EVALUATION**

Histopathological examination revealed ameloblastomatous epithelial islands with peripheral palisading columnar cells and central stellate reticulum-like cells within a fibrocellular stroma, confirming the diagnosis of ameloblastoma. **[Fig. 5]**

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Description automatically generated

**Fig 5-Thick and fibrocellular wall with numerous ameloblastomatous islands**

**TREATMENT AND OUTCOME**

Segmental resection of the right body of the mandible was performed in the Department of Oral and Maxillofacial Surgery of the same institute after a week of diagnosis**. [Fig. 6]** Reconstruction was achieved using a titanium reconstruction plate and Fibula Free Flap bone grafting to restore form and function. **[Fig. 7]**

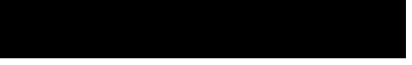
X-ray of teeth and jaw

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**Fig 6-Resected mandible specimen after surgery**

A person in a blue shirt

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**Fig 7- Extraoral image after surgery Post operative bone grafting and suturing**

Postoperative images revealed successful resection with proper placement of the reconstruction plate and integration of the bone graft**.[Fig. 8]** The patient was then placed on a follow-up for 1 year with no recurrence was seen.

X-ray of teeth and teeth

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**Fig 8-OPG showing bone graft with reconstructed plate on right mandible operative region**

**DISCUSSION**

Ameloblastoma presents a unique diagnostic and therapeutic challenge due to its deceptively benign histological appearance and locally invasive nature.[1] While the tumor does not typically metastasize, its potential for significant osseous destruction and high recurrence rate, particularly when inadequately treated, warrants serious clinical consideration.[2]

The asymptomatic and slow-growing character of ameloblastoma often delays diagnosis until the lesion reaches a considerable size.[3] Many patients present only after noticing facial swelling, asymmetry, or progressive tooth mobility. The posterior mandible, especially the molar–ramus region, is the most commonly affected site due to the embryological origin of odontogenic tissues in this area.[1,3]

Radiographically, ameloblastomas exhibit variable appearances depending on the subtype and stage of progression. Multilocular radiolucencies with thin, scalloped septa are typical of the conventional solid/multicystic variant and often described as having a “soap bubble” or “honeycomb” pattern.[4] In some cases, unilocular appearances may mimic other cystic lesions such as dentigerous cysts or odontogenic keratocysts, complicating differential diagnosis. Adjunct imaging with cone-beam computed tomography (CBCT) allows for superior evaluation of cortical involvement, extent of the lesion, and planning of surgical resection margins.[2,5]

Histologically, the tumor is composed of odontogenic epithelial islands that mimic the enamel organ, with peripheral palisaded columnar cells showing reverse polarity and centrally arranged stellate reticulum-like cells.[6] Among the histologic subtypes, follicular and plexiform patterns are most frequently encountered, although mixed patterns are also common. The acanthomatous variant, in which squamous metaplasia is present, may show more aggressive features. Importantly, histopathologic type does not always correlate with biological behavior, although some evidence suggests the desmoplastic and solid multicystic forms are more prone to recurrence.[7]

The cornerstone of ameloblastoma management is surgical excision. The choice of surgical technique—ranging from simple enucleation and curettage to marginal or segmental resection—depends on factors such as tumor size, location, radiologic appearance, cortical involvement, and proximity to vital structures.[8] Studies have shown that conservative treatments like enucleation are associated with recurrence rates as high as 55–90%, primarily due to the tumor's tendency to infiltrate cancellous bone beyond the apparent radiographic margins.[9] In contrast, wide surgical excision with at least 1 cm of uninvolved bone significantly reduces the risk of recurrence. The location of ameloblastoma significantly affects prognosis and treatment. Mandibular lesions are more common, slow-growing, and usually managed with resection. Maxillary ameloblastomas, though rare, are more aggressive due to thin bone and proximity to vital structures, leading to earlier invasion, delayed diagnosis, and poorer prognosis. They often require wider resection and complex reconstruction.[10,13]

In the present case, resection of the involved mandibular segment followed by immediate reconstruction using bone grafting and rigid fixation was successfully employed, restoring both structural integrity and facial symmetry.Postoperative care includes prosthetic rehabilitation and long-term follow-up. Given that recurrences can manifest many years after initial treatment, ongoing clinical and radiographic monitoring is essential, ideally for a period extending beyond five years.[11] Advances in molecular biology and immunohistochemistry have recently begun to shed light on the pathogenesis of ameloblastoma, with mutations in genes such as **BRAF V600E** and **SMO** offering promising avenues for targeted therapy in select cases, especially for recurrent or inoperable tumors.[12]

Due to the risk of late recurrence, long-term follow-up is crucial in ameloblastoma patients. Clinical examination and imaging should be done every 3–6 months for the first 2 years, then every 6–12 months up to 5 years. After that, annual follow-up is recommended for life, especially after conservative treatment or previous recurrence. Imaging modalities like panoramic radiographs, CT, or MRI may be used as needed. Patients should be advised to report any new symptoms promptly.[10,11]

**CONCLUSION**

Ameloblastoma, despite being a benign tumor, is known for its locally aggressive behavior and significant potential for recurrence, making it a critical topic of discussion. Understanding its clinical, radiological, and histopathological features is essential for early diagnosis and effective management. This manuscript contributes valuable insights that may help in refining treatment strategies and improving long-term outcomes. Additionally, the potential for malignant transformation and metastasis, though rare, underscores the importance of continuous research in this area.

**CONSENT**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

**DISCLAIMER (ARTIFICIAL INTELLIGENCE)**

Author(s) hereby declare that generative AI technologies such as Large Language Models, etc. have been used during the writing or editing of manuscripts. This explanation will include the name, version, model, and source of the generative AI technology and as well as all input prompts provided to the generative AI technology

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