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# CLINICAL CASE REPORT: UNICYSTIC AMELOBLASTOMA IN A 16-YEAR-OLD MALE PATIENT

**Maxillofacial Surgery**

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| **Dr. Godvine** | MDS, Oral And Maxillofacial Surgery, Associate Professor, Panineeya Mahavidyalaya Institute Of Dental Sciences And Research Centre. |
| **Dr. I. Venkata Krishna** | MDS, Oral And Maxillofacial Surgery, Professor, Panineeya Mahavidyalaya Institute Of Dental Sciences And Research Centre. |
| **Dr. S L Alekhya*** | BDS, Panineeya Mahavidyalaya Institute Of Dental Sciences And Research Centre, Hyderabad *Corresponding Author |
| **Dr. Rishima Mehra** | BDS, Panineeya Mahavidyalaya Institute Of Dental Sciences And Research Centre, Hyderabad. |
| **Dr. Sayeda Zainah Quadri** | BDS, Panineeya Mahavidyalaya Institute Of Dental Sciences And Research Centre, Hyderabad. |
| **Dr. Serena Susan Luke** | BDS, Panineeya Mahavidyalaya Institute Of Dental Sciences And Research Centre, Hyderabad. |
| **Dr. Sabahat Fatima** | BDS, Panineeya Mahavidyalaya Institute Of Dental Sciences And Research Centre, Hyderabad. |
| **Dr. Sarah Mansoor** | BDS, Panineeya Mahavidyalaya Institute Of Dental Sciences And Research Centre, Hyderabad. |

## ABSTRACT

**Background:** Unicystic ameloblastoma (UA) is a rare odontogenic tumour that predominantly affects adolescents and young adults. It often mimics benign cystic lesions radiographically, posing diagnostic challenges that require histopathological confirmation.**Case Presentation:** This report details the case of a 16-year-old male who presented with a three-month history of painless swelling in the right posterior mandible. Panoramic radiography revealed a well-defined unilocular radiolucency associated with an impacted third molar (tooth 48). The differential diagnosis included dentigerous cyst, odontogenic keratocyst, and unicystic ameloblastoma. Histopathological analysis confirmed a luminal/intraluminal subtype of UA. Treatment and Outcome: A conservative two-stage surgical approach was adopted. Initial marsupialization facilitated lesion shrinkage and bone regeneration. This was followed by complete enucleation and extraction of the impacted tooth, with primary closure of the surgical site. Postoperative recovery was uneventful, and follow-up imaging demonstrated progressive bone fill and remodelling. **Conclusion:** This case underscores the importance of thorough diagnostic evaluation and tailored surgical management in young patients with jaw lesions. Conservative treatment of UA, when appropriately selected, offers favourable outcomes with minimal morbidity. Long-term follow-up remains essential due to the potential for recurrence.

## KEYWORDS

Unicystic ameloblastoma, Odontogenic tumour, Marsupialization, Enucleation, Panoramic radiograph, Impacted third molar, Mandibular cyst, Conservative surgery, Histopathology, Jaw lesion management

## INTRODUCTION

Unicystic ameloblastoma (UA) is a distinct variant of ameloblastoma, first described by Robinson and Martinez in 1977, characterized by its cystic morphology and relatively less aggressive behaviour compared to the solid/multicystic type [1]. It typically presents in younger patients, often in the second decade of life, and is most commonly located in the posterior mandible [2,3].

**Histologically, UA Is Classified Into Three Subtypes:**

- **Luminal**: Tumour confined to the cyst lining.
- **Intraluminal**: Nodular proliferation into the cyst lumen.
- **Mural**: Infiltration into the cyst wall, which may behave more aggressively [1].

Radiographically, UA often mimics odontogenic cysts such as dentigerous cysts or odontogenic keratocysts, appearing as a well-defined unilocular radiolucency associated with an impacted tooth [3]. Despite its benign nature, UA has a recurrence potential, especially in mural variants, necessitating careful histopathological evaluation and long-term follow-up.

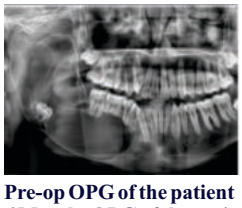
### Case Presentation

A 16-year-old male patient presented with a gradually enlarging, painless swelling in the right posterior mandible. The swelling had persisted for three months and was associated with mild discomfort during mastication. No history of trauma, fever, or paraesthesia was reported. Date of Presentation- March 4, 2022.

### Radiographic Findings

**Panoramic Radiograph (OPG) Revealed:**

- A well-defined unilocular radiolucency in the right posterior mandibular region.
- Association with the crown of an unerupted third molar (tooth 48).
- Cortical expansion and thinning of the inferior mandibular border.
- root resorption present irt 45,46,47.



**Pre-op OPG of the patient**
**6 Months OPG of the patient after marsupialisation**

### Differential Diagnosis

- Dentigerous cyst
- Unicystic ameloblastoma
- Odontogenic keratocyst (OKC)

An incisional biopsy was performed for definitive diagnosis.

**An incisional biopsy was performed**

**Histopathological Diagnosis**

Histopathology confirmed a **unicystic ameloblastoma**, luminal/intraluminal subtype, with ameloblastomatous epithelial lining within a cystic cavity.

**Treatment Protocol**

Given the patient's age, lesion size, and radiographic features suggestive of a benign but expansile pathology, a **conservative two-stage surgical approach** was selected to preserve mandibular integrity and minimize morbidity.

**1. Marsupialization**

The initial phase involved **marsupialization**, a decompression technique aimed at reducing intracystic pressure and promoting gradual bone regeneration. Under local anaesthesia:

- A **surgical window** was created in the buccal cortical plate overlying the lesion.
- The cystic lining was carefully incised and **sutured to the adjacent oral mucosa**, establishing a permanent communication between the cyst cavity and the oral environment.
- This allowed **continuous drainage** of cystic contents, reducing internal pressure and stimulating osteogenesis.
- Over several weeks, **serial radiographs** demonstrated progressive reduction in lesion size and cortical thickening, indicating a favourable response to decompression.
- Marsupialization was particularly beneficial in this adolescent patient, as it avoided immediate extensive surgery and allowed the surrounding bone to remodel naturally.

**Marsupialization**

**Extraction of 45,46,47**

**2. Enucleation With Primary Closure**

Following adequate shrinkage and stabilization of the lesion, the second stage involved **complete enucleation** of the residual cystic mass:

- The surgical site was re-entered, and the **entire cystic lining was meticulously dissected** from the surrounding bone to ensure complete removal.
- The **impacted third molar (tooth 48)**, which was intimately associated with the lesion, was extracted to eliminate any potential nidus for recurrence.

**Enucleation of the lesion with extraction irt 48**

- Care was taken to preserve vital structures such as the **inferior alveolar nerve**, which was visualized and protected throughout the procedure.
- After thorough irrigation and haemostasis, the cavity was **closed primarily** using resorbable sutures to promote healing and reduce postoperative discomfort.
- No adjunctive chemical cauterization (e.g., Carnoy's solution) was used, given the histological subtype and the lesion's confinement to the cystic lining.

**Postoperative Outcome**

- The patient experienced **uneventful healing**, with no signs of infection, dehiscence, or neurosensory deficits.
- Follow-up **panoramic radiographs** at 3 and 6 months revealed **progressive bone fill**, cortical regeneration, and restoration of mandibular contour.
- The surgical site remained stable, and soft tissue healing was complete.
- Given the **recurrence potential** of unicystic ameloblastoma—especially in cases with mural involvement—**long-term surveillance** was advised, including:
- Clinical examination every 3–6 months for the first year.
- Annual radiographic monitoring for at least 5 years.
- Patient education regarding signs of recurrence, such as swelling, pain, or altered sensation.
- No recurrence was seen 2 years post operatively.
- This conservative yet staged approach successfully balanced oncologic control with preservation of function and aesthetics, aligning with best practices for managing unicystic ameloblastoma in growing patients.

**2 years follow up radiograph post operatively showing no reoccurrence**

**DISCUSSION**

Unicystic ameloblastoma (UA) is a distinct variant of ameloblastoma first described by Robinson and Martinez (1977), characterized by its cystic architecture and less aggressive behaviour compared to the solid/multicystic type [1]. It typically affects younger individuals, often in the second or third decade of life, and is most commonly located in the posterior mandible [2].

Histologically, UA is classified into three subtypes: luminal, intraluminal, and mural. The luminal subtype is confined to the cyst lining, while the intraluminal subtype shows nodular proliferation into the cyst lumen. The mural subtype demonstrates infiltration into the fibrous wall and is associated with a higher recurrence rate [3,4].

Radiographically, UA often mimics odontogenic cysts such as dentigerous cysts or odontogenic keratocysts, appearing as a well-defined unilocular radiolucency associated with an impacted tooth [5]. This resemblance can lead to misdiagnosis, making histopathological confirmation essential for accurate treatment planning [6].

**Treatment Modalities**

Treatment strategies for UA vary depending on the histologic subtype, lesion size, and patient age. Conservative approaches are preferred in younger patients to preserve jaw integrity and function.

**Marsupialization**, as described by Nakamura et al. (1995), is effective in decompressing large lesions and promoting bone regeneration prior to definitive surgery [7]. It is often followed by **enucleation**, which is suitable for luminal and intraluminal subtypes. Enucleation may be combined with peripheral ostectomy or chemical cauterization using **Carnoy's solution** to reduce recurrence [8].

For mural subtypes or recurrent cases, **resection**—either marginal or segmental—is recommended due to the infiltrative nature of the lesion [9]. However, this approach carries higher morbidity, including potential loss of mandibular continuity and function.

Adjunctive therapies such as **cryotherapy** and **laser ablation** have also been explored, though their use remains limited to select cases [10].

### Recurrence And Prognosis

Recurrence rates vary significantly based on the treatment modality and histological subtype. Lau and Samman (2006) reported recurrence rates of up to 35% in mural variants treated conservatively, compared to 10–20% in luminal/intraluminal types [8]. Long-term follow-up with periodic imaging is essential, as recurrence may occur years after initial treatment [11].

A systematic review by Chrcanovic et al. (2017) emphasized the importance of individualized treatment planning, noting that conservative approaches are effective in most cases but require vigilant monitoring [12].

## CONCLUSION

Unicystic ameloblastoma, though rare, should be considered in the differential diagnosis of cystic lesions in young patients. A staged surgical approach combining marsupialization and enucleation offers effective management with favourable outcomes. Long-term follow-up remains essential to monitor for recurrence.

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