

Unicystic Ameloblastoma of the Anterior Mandible in a 13-Year-Old Child: A Case Report

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Abstract

Ameloblastoma is the most common benign odontogenic tumor of the jaws, with the unicystic variant often mimicking odontogenic cysts in clinical and radiographic presentation, particularly in younger patients. We report the case of a 13-year-old male presenting with a swelling in the anterior mandible associated with an impacted canine. Clinical examination revealed buccolingual cortical expansion and facial asymmetry, while radiographs and CBCT demonstrated a well-defined unilocular radiolucency with corticated margins and cortical perforations, initially suggestive of a dentigerous cyst. Aspiration yielded straw-coloured fluid, further supporting a cystic diagnosis. Enucleation with extraction of the impacted tooth was performed, and histopathology confirmed unicystic ameloblastoma with follicular architecture. This case underscores the diagnostic overlap between odontogenic cysts and UA in adolescents, highlighting the importance of histopathologic evaluation for definitive diagnosis. Conservative management through enucleation remains a preferred approach in paediatric patients to preserve mandibular growth and function, though recurrence risk necessitates long-term follow-up. The case emphasizes the need for vigilance in differentiating cystic lesions from neoplastic entities in the paediatric population and supports conservative treatment with structured surveillance as an effective management strategy.

Keywords: Ameloblastoma, Unicystic ameloblastoma, Follicular variant, Mandibular radiolucency, Dentigerous cyst, Odontogenic tumors, Paediatric jaw lesions.

Introduction

Ameloblastoma is the most common benign odontogenic tumor of the jaws, comprising approximately “1% of all oral tumors,” with a marked mandibular predilection and presentation across a wide age range, though classically in the third and fourth decades.⁽¹⁾ Robinson classically defined ameloblastoma as “usually unicentric, nonfunctional, intermittent in growth, anatomically benign, and clinically persistent,” a description still widely cited in contemporary literature.^(1, 2, 3, 6, 15) Clinically, ameloblastomas are typically painless, slow-growing, and locally aggressive, causing cortical expansion, perforation, and soft tissue infiltration, with a higher frequency of buccolingual expansion than many other jaw lesions.⁽²⁾ Radiographically, lesions may be unilocular or multilocular with corticated margins; internal bony septae produce “soap-bubble” or “honeycomb” appearances, and “knife-edge” root resorption is often prominent in conventional ameloblastoma.^(1, 2) Among histopathologic variants, the follicular pattern is frequently reported and has been associated with higher recurrence when managed conservatively, with historical series citing recurrence near “29.5%” for follicular cases in broader ameloblastoma cohorts.^(7, 10, 12)

Case report

A 13-year-old male presented with a swelling in the anterior mandibular region for 6 months, recently accompanied by pain on biting and chewing, without dysesthesia or discharge and without antecedent trauma or toothache history.⁽³⁾ Extra orally, there was facial asymmetry due to a diffuse, smooth swelling in the chin region elevating the lower lip on the right, with intact overlying skin and no temperature rise; right submandibular lymphadenopathy was tender, and TMJ motion was within normal limits.⁽³⁾ Intraorally, a dome-shaped, smooth swelling approximately 3 cm × 3 cm spanned the 41–44 region with slight lingual

prominence and buccal vestibular obliteration; tooth 43 was clinically missing, 84 was exfoliating, mucosa appeared erythematous, and palpation revealed buccal plate expansion with slight central fluctuation and a firm, non-tender consistency.⁽³⁾ Aspiration yielded blood-tinged straw-coloured fluid, a finding compatible with cystic jaw lesions yet not excluding unicystic ameloblastoma, which may mimic dentigerous and other odontogenic cysts preoperatively.^(2,3) Hematologic investigations were within normal limits; IOPAR and panoramic radiography revealed a well-demarcated unilocular radiolucency in the anterior mandible with corticated margins and an impacted mandibular canine positioned inferiorly within the radiolucency.⁽³⁾ Mandibular occlusal radiography demonstrated buccal cortical expansion, while CBCT showed a well-defined, corticated, unilocular lesion extending approximately 36 mm antero-posteriorly (41 mesial to 45 distal), 18.3 mm mediolaterally with cortical perforations, and 20.7 mm supero-inferiorly from the ridge to 2 mm above the inferior border, features that can be seen in large odontogenic cysts and unicystic ameloblastoma alike.⁽³⁾ A provisional diagnosis of an odontogenic cyst was made, with a radiographic diagnosis favouring dentigerous cyst; however, the final diagnosis was established as unicystic ameloblastoma after enucleation and histopathology.^(2,3)

Histopathology

Microscopy showed islands of odontogenic epithelium resembling enamel organ within a fibrous stroma, with peripheral tall columnar cells exhibiting reverse nuclear polarity consistent with ameloblastomatous differentiation, supporting a diagnosis of unicystic ameloblastoma with follicular architecture in the tumoral components.⁽²⁾ By definition, unicystic ameloblastoma presents as a cystic lesion with clinical and radiologic features of an odontogenic cyst but reveals an ameloblastomatous epithelial lining, with possible luminal, intraluminal, and mural proliferation patterns of significance to prognosis and treatment planning.⁽²⁾ The lesion's unilocular configuration, association with an impacted tooth, buccolingual expansion, and cyst-like aspirate are congruent with the known clinicoradiographic spectrum of unicystic ameloblastoma in the paediatric and adolescent population.^(2,3)

Differential diagnosis

The leading differentials for a unilocular, corticated, anterior mandibular radiolucency in an adolescent with an impacted canine include dentigerous cyst, odontogenic keratocyst, adenomatoid odontogenic tumor, unicystic ameloblastoma, and less commonly central giant cell lesion or odontogenic myxoma in this location and age.⁽³⁾ Distinguishing dentigerous cyst from unicystic ameloblastoma is notably challenging; features that may favour UA include combined buccal and lingual expansion, defects in the cyst wall, and extension beyond typical dentigerous patterns, although definitive diagnosis rests on histopathology.^(3,2) Odontogenic keratocyst may show anteroposterior spread with less pronounced expansion and keratinaceous aspirate, whereas AOT favours anterior maxilla and exhibits characteristic radiographic calcifications; solid/multicystic ameloblastoma is less common below age 30 and more often multilocular.⁽³⁾

Management

Treatment was enucleation with extraction of the impacted canine and submission of tissue for histopathology, which is an accepted conservative approach for unicystic ameloblastoma in young patients to minimize morbidity and preserve growth, sometimes supplemented by adjuvants such as Carnoy's solution depending on mural involvement and surgeon preference.^(2,3) Paediatric cases increasingly support conservative enucleation for UA, particularly when mural infiltration is limited, to reduce functional and esthetic sequelae of resection while maintaining vigilant long-term follow-up given documented recurrence intervals averaging several years.^(5,2) Contemporary paediatric case reports emphasize timely intervention, conservative surgery, and structured follow-up to prevent complications, with prosthetic rehabilitation as needed during growth.⁽³⁾

Follow-up and prognosis

Unicystic ameloblastoma carries a lower recurrence potential than solid/multicystic lesions, though reported UA recurrence ranges from approximately "6.7–35.7%," influenced by mural invasion and surgical modality, necessitating multi-year surveillance with periodic imaging.⁽²⁾ More broadly across

ameloblastoma, recurrence risk is higher with conservative curettage than with resection, and historical analyses identify higher recurrence proportions in certain histopathologic patterns such as follicular in conservatively treated cohorts, underscoring the need to align surgery with histologic subtype and extent.⁽⁷⁾ In paediatric UA, conservative approaches have shown favourable outcomes when combined with appropriate adjuvant measures and close follow-up, balancing disease control with preservation of mandibular growth and function.⁽⁵⁾

Discussion

This case highlights a unilocular, corticated, anterior mandibular radiolucency with an impacted canine in an adolescent, initially indistinguishable radiographically from a dentigerous cyst but ultimately proven to be unicystic ameloblastoma on histopathology, consistent with well-recognized diagnostic pitfalls in UA.⁽²⁾ UA often presents in the second decade and is commonly associated with unerupted teeth, features aligning with the present case and with literature noting the mean age near the mid-teens when an unerupted tooth is involved.⁽²⁾ Radiographically, UA may be unilocular and expansile with buccolingual cortical involvement and can show cortical perforations when large, paralleling the CBCT findings here and reinforcing that cystic appearance does not preclude a neoplastic lining.^(2,3)

Although conventional ameloblastomas demonstrate multilocularity, robust root resorption, and the classic “soap bubble” or “honeycomb” patterns, unilocular disease in youth warrants a high index of suspicion for UA, especially when clinical behaviour is persistent and expansile.^(1,2) In differentials, dentigerous cyst and odontogenic keratocyst are frequent contenders; however, features such as bilateral cortical expansion, defects in the cyst wall, and lesion extent beyond typical follicular confines may hint at UA, though definitive distinction requires tissue diagnosis.⁽³⁾ Histopathologically, the presence of ameloblastomatous epithelium lining the cyst cavity with possible luminal, intraluminal, or mural proliferation defines UA and guides treatment intensity, with mural involvement often prompting consideration of adjuvants or wider excision to mitigate recurrence.⁽²⁾

Management paradigms in children prioritize conservative surgery to preserve growth, with enucleation ± adjuvants like Carnoy’s solution being common, followed by long-term surveillance given recurrence intervals averaging years and the potential for late events.^(3,2) Evidence syntheses and cohort studies suggest overall ameloblastoma recurrence is influenced by histopathologic pattern and surgical margins, with higher recurrence historically reported for follicular architecture in conservatively treated series and substantially reduced recurrence after radical surgery, though at the cost of greater morbidity—considerations that are particularly salient in paediatric patients.⁽⁷⁾ Recent paediatric UA case literature supports conservative enucleation with careful case selection and comprehensive follow-up, achieving functional and esthetic preservation without compromising disease control.^(5,3)

Conclusion

A unilocular, impacted-tooth–associated anterior mandibular lesion in a 13-year-old that mimicked a dentigerous cyst on imaging was diagnosed as ‘unicystic ameloblastoma’ on histopathology and successfully managed with conservative enucleation and extraction, illustrating the importance of histologic confirmation and long-term follow-up in paediatric jaw cystic lesions.^(2,3) Early recognition of UA’s cyst-like presentation, judicious conservative management tailored to histologic subtype, and structured surveillance can balance disease control with preservation of growth and function in the developing mandible.^(5,2)

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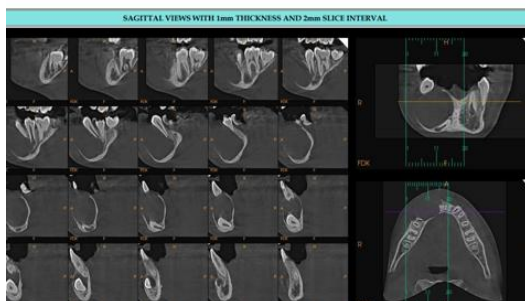
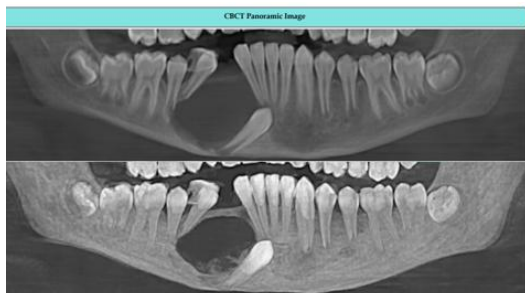
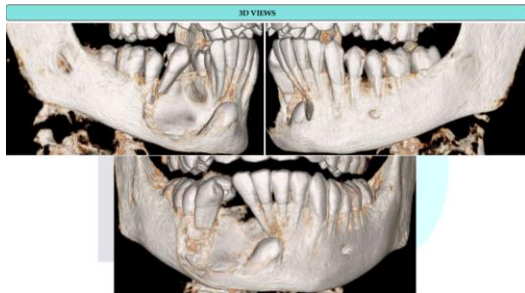
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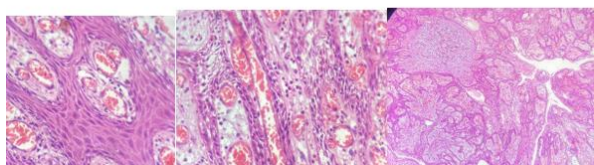
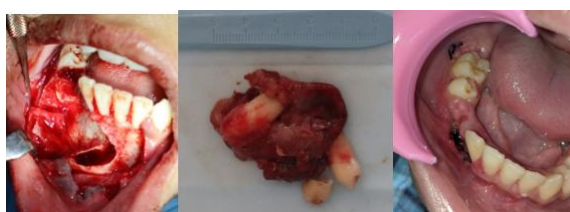
Extra-oral images



Intra-oral images



CBCT images



Intra-operative & Histopathology images