

Large Radicular Cyst Associated with a Deciduous Tooth: A Rare Clinical Challenge

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Abstract: *Radicular cysts are the commonest odontogenic cysts in the oral cavity, typically associated with the permanent teeth but only rarely with primary teeth. Even so, large radicular cysts associated with primary teeth are very uncommon. This case report presents a 7-year-old male with a large periapical cystic lesion associated with a mandibular deciduous molar. Through this report, we add to the limited literature of large radicular cysts associated with primary teeth in children, highlighting the unique diagnostic and surgical challenges involved in managing such lesions in a growing jaw.*

Keywords: Cystic Enucleation, Radicular cyst, Primary dentition, Periapical lesion, Jaw cyst

1. Introduction

Jaw cysts in children are challenging to diagnose and treat due to ongoing facial growth and developing permanent tooth buds. While radicular cysts are common in adults, only 0.5%–3.3% of all radicular cysts occur in children.¹ The limited lifespan of primary teeth possibly gives insufficient time for chronic inflammatory stimuli necessary for cyst formation, and when large, may be mistaken for other aggressive odontogenic lesions.^{1,2} Vague history and similarities to dentigerous cysts, keratocysts (OKCs), or unicystic ameloblastomas complicate diagnosis in children. Management of paediatric jaw cysts involves lesion removal, preserving permanent successors, space maintenance, and minimizing iatrogenic trauma.³

2. Case Report

A 7-year-old male presented with a gradually increasing swelling on the lower left face over three months. At presentation, the swelling was warm and tender, with expanded buccal cortical plate (Fig. 1). CBCT showed a large well-defined radiolucent lesion in the left mandible (Fig. 2). Cyst aspirate was straw-coloured, suggesting an odontogenic cyst. Extraction of involved primary molars and cyst enucleation were planned. During surgery, the permanent first premolar bud (tooth 34) was free-floating in the cyst cavity, and its follicular tissue was found fused with the cyst lining, necessitating its extraction. Histopathology confirmed an infected radicular cyst. The patient was lost to follow-up after referral for space maintenance.

3. Discussion

Radicular cysts are inflammatory odontogenic cysts arising from chronic periapical inflammatory stimuli on the epithelial rests of Malassez secondary to caries or trauma. Radicular cysts with primary teeth are rare, predominantly found in mandibular molar regions with a male predominance. This rarity may be due to rapid exfoliation of the teeth and sinus tract drainage preventing the chronic inflammatory stimuli necessary for cyst formation.^{4,5}

In our patient, the large lesion (35 mm × 21 mm), buccolingual expansion, and peri-coronal association with the permanent tooth bud suggested an aggressive lesion like keratocysts or unicystic ameloblastoma.^{5–7} Conversely, its association with a non-vital carious primary tooth apex hinted at an inflammatory radicular cyst. CBCT proved invaluable, clearly delineating lesion boundaries, its relationship to the inferior alveolar nerve, and adjacent structures. This aided surgical planning and patient-family education.⁸

While marsupialisation and conservative surgical procedures are typically preferred in paediatric patients to preserve permanent teeth^{8,9} it was impractical here. The permanent tooth bud was grossly displaced, and its follicular tissue fused with the cyst wall, making preservation impossible.

4. Conclusion

This case highlights the complexities in diagnosing and treating even benign paediatric lesions, emphasizing individualized treatment plans.

5. Key Takeaways

- 1) Radicular cysts, though rare with primary teeth, can present as large lesions mimicking aggressive pathologies and warrant differential diagnosis.
- 2) Judicious CBCT use is valuable for diagnosis, treatment planning, and patient-family education.⁷
- 3) Preserving developing teeth is preferred, but not always feasible; this must be communicated.⁹
- 4) Histopathological diagnosis is crucial for long-term follow-up and definitive dental rehabilitation.⁵

Conflicts of Interests: None to declare

Ethics Approval: Not required

Informed Consent: Informed consent was obtained from the parent as per routine institutional protocol for the procedure. No identifiable photographs or images are used in the publication.

References

- [1] Song GJ, Wang L, Gao LR. Window decompression surgery for a large radicular cyst in a 7-year-old patient: A case report. SAGE Open Medical Case Reports. 2025 Jan;13
- [2] Sunny, Raju, Rag, Bimal, Punathil, et al: A rare case of calcified radicular cyst in deciduous tooth. Int J Clin Pediatr Dent 17: 86, 2024.
- [3] Mahesh, B. S., Shastry, et al: Role of cone beam computed tomography in evaluation of radicular cyst mimicking dentigerous cyst in a 7-year-old child: a case report and literature review. Int J Clin Pediatr Dent 10: 213, 2017.
- [4] Narsapur, S. A., Chinnanavar, S. N., Choudhari, et al.: Radicular cyst associated with deciduous molar: a report of a case with an unusual radiographic presentation. Indian J Dent Res 23: 550, 2012.
- [5] Rajendran, R., Sivapathasundharam, B.: Shafer's textbook of oral pathology. 5th ed. New Delhi: Elsevier, 2006:358–78.
- [6] Izzetti, Rossana, Giuca, Maria Rita, Lardani, et al: Treatment options of periapical cysts of deciduous teeth: report of a case and systematic review of the literature. Eur J Paediatr Dent 25: 1, 2024.
- [7] Kuźniarski, Amadeusz, Kiryk, et al: Development and treatment of radicular cyst in pediatric patient: case report. J Clin Med 14: 452, 2025.
- [8] Pei Jun, Zhao, Shimin, et al: Management of radicular cyst associated with primary teeth using decompression: a retrospective study. BMC Oral Health 22: 560, 2022.
- [9] Ishiyama, Misa, Namaki, et al: A radicular cyst in the mandibular anterior region of primary teeth. Cureus 16: e57143, 2024.

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Figure 1: Clinical presentation with buccal expansion and infected roots of the primary molar.



Figure 2: A well-defined, eccentric unilocular radiolucent lesion is seen in the periapical region of the primary mandibular left molar, causing buccal cortical expansion. The lesion extends mesiodistally from the region of the unerupted mandibular canine to the second premolar, measuring approximately 35 mm mesiodistally, 21 mm buccolingually, and 8 mm superoinferiorly. There is displacement of the developing permanent first premolar toward the inferior border of the mandible. The inferior alveolar nerve canal is displaced buccally but remains intact and uninvolved by the lesion. There is no evidence of cortical perforation or periosteal reaction in the section provided.

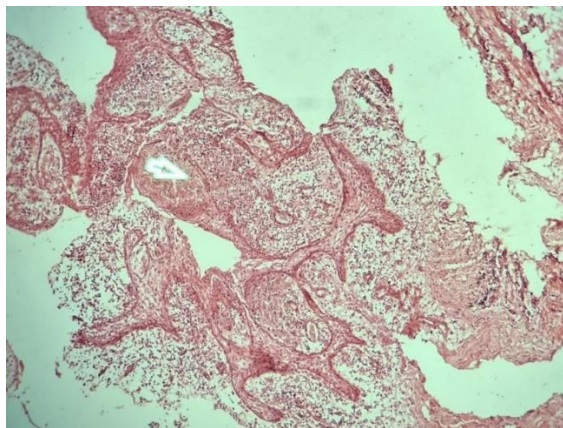
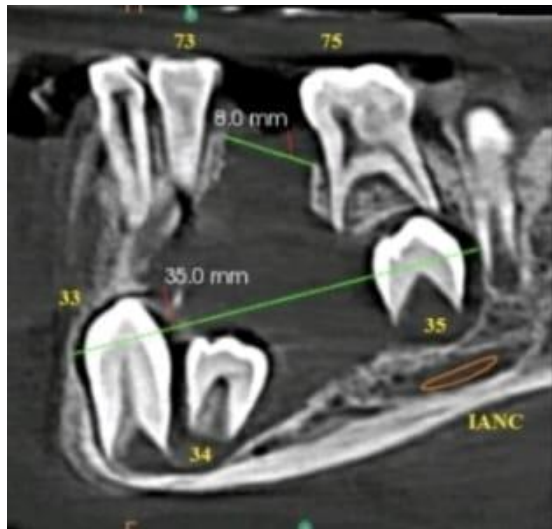


Figure 3: Histopathological presentation of radicular cyst.