Management of an Inflamed Dentigerous Cyst

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Introduction

Dentigerous cysts (DC) are common odontogenic cysts associated with fluid accumulation in the dental follicle of unerupted or impacted teeth.[1] DCs are generally asymptomatic, but may contribute to dental symptoms such as delayed tooth eruption, adjacent tooth displacement, adjacent tooth root resorption, and/or bony expansion. Cysts may arise from, or be further complicated by, infection from deciduous primary teeth due to pulpal necrosis or clinically failing pulpotomy or pulpectomy treatment.[3] Efficient management is important to prevent infection, bony fracture or disruption of neighboring anatomic structures. Management strategies via enucleation or marsupialization are often indicated to optimize clinical outcomes. [2]

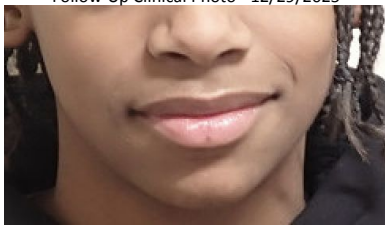
Case Report

In July 2024, a 10-year-old male presented to Children's Wisconsin EDTC due to worsening right-sided facial swelling with associated pain. The patient was previously healthy, with history of full-mouth dental rehabilitation at CW in 2019, and was then lost to follow-up. The patient was admitted for management of facial swelling, with suspicion for facial cellulitis secondary to a dental abscess. Initial clinical examination suggested pulpal necrosis of the ferric sulfate pulpotomy-treated teeth of the mandibular right contributing to the facial swelling. Additional pathology was identified on the initial periapical radiographs, indicating need for further imaging. A panoramic radiograph was obtained, presenting a unilocular cystic lesion in the region of #28-30. Carious lesions of #3 and #19 were also identified. The patient was then seen outpatient at CHW Dental Clinic for extractions of #S and #T, followed by treatment under general anesthesia in coordination with oral surgery for cyst management. This report will discuss the clinical, radiographic, and histological findings, as well as treatment rendered and clinical outcomes after cyst management.

Initial Clinical Photo - 07/02/2024

Initial PANO - 07/03/2024

Follow-Up Clinical Photo - 12/29/2025



Follow-up PANO - 12/29/2025

Treatment Rendered and Pathology Report

- 07/02-07/03/24 - Bedside and outpatient exam, x-rays
- 07/05/24 - #S, #T EXT with nitrous oxide inhalation
- 07/10/24 - Oral surgery consult at CHW Dental Clinic
- 07/22/24 - Cyst enucleation under GA with oral surgery
- 07/29/24 - Initial 1-week post-op follow up
- 12/29/25 - POE, prophy and pathology follow-up

Pathology Report (07/22/24):

- 2.0 cm x 1.7 cm x 1.3 cm lesion
- Benign cyst wall lined by squamoid epithelium and with underlying chronic and acute inflammation, see comment.
- The findings are favored to represent an inflamed dentigerous cyst; no evidence of malignancy

Inflammatory Cyst Development

DCs are typically developmental in nature, asymptomatic, and may remain unidentified or become identified incidentally during routine radiographic evaluation.[1,4] Inflamed dentigerous cysts, however, may develop in response to local acute or chronic inflammation. Non-vital deciduous teeth (due to necrosis or failing pulp treatment) may induce local inflammation and contribute to infection of the dental follicle of the associated succedaneous tooth, or of a previously unidentified or asymptomatic DC, leading to symptoms like pain and facial swelling. It is suggested that this inflammation may stimulate epithelial proliferation of the succedaneous tooth dental follicle, leading to follicle enlargement or cystic development.[3] However, it is challenging to determine if cyst formation occurs prior to or in response to the local inflammation and symptom development.

Conclusions

- *Risks of cyst development/ management:* permanent tooth loss, bone loss, jaw fracture, damage to adjacent structures, and possible need for orthodontic correction in the affected area.[1]

- DCs/IDCs may have ameloblastic or malignant potential. Overall prognosis is improved with efficient management.[4]

- Patient had a promising outcome with continued eruption of the associated premolars and complete bony fill.

- Further patient follow-up includes periodic exams and radiographs to monitor for continued healing and stability in area of initial pathology. Family also aware of other treatment needs and are planned for caries management.

- This case report reinforces the importance of annual clinical and radiographic follow-up of pulp-treated teeth.

References

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