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A Dentigerous Cyst Associated with Impacted Mandibular Canines: A Rare Case Report

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Conflicts of Interest: Nil

Introduction

Cysts of the jaws are defined as pathological cavities lined by epithelium and surrounded by fibrocollagenous connective tissue. Among them, odontogenic cysts arise from odontogenic epithelium, which is derived from the basal layer of the stomodeum. [1]

The dentigerous cyst is a developmental odontogenic cyst that encloses the crown of an unerupted tooth at the cementoenamel junction. It represents the second most common odontogenic cyst after the radicular cyst, accounting for approximately 16–24% of all true cystic lesions of the jaws.[2]

Dentigerous cysts typically occur in younger patients, most often under 20 years of age, and are usually associated with impacted, embedded, or unerupted teeth. The mandibular third molars are the most frequently affected, followed by the maxillary canines and premolars. Clinically, these cysts are often asymptomatic but can attain considerable size, resulting in cortical expansion, erosion, tooth displacement, and root resorption. Radiographically, they present as unilocular radiolucencies with well-defined sclerotic margins surrounding the crown of an unerupted tooth. Histologically, the cyst wall consists of thin fibrous connective tissue with a myxomatous appearance, and the epithelial lining, usually 2–4 cell layers thick, represents reduced enamel epithelium that is characteristically non-keratinized. [3]

Management of dentigerous cysts depends on their size, location, and relation to adjacent structures. Treatment modalities include enucleation, marsupialization, and decompression, each with the aim of eliminating the lesion while preserving the associated tooth when possible. This study aims to illustrate a simplified surgical approach for the management of large dentigerous cysts with impacted teeth, which can be effectively performed in an office setting, providing an optimal balance between disease eradication and preservation of oral structures. [4]

Keywords: Dentigerous Cysts, Marsupialization, Root Resorption

Case Report

A 15 year old female patient presented to our hospital with complains of swelling on the right lower jaw region since the last 1 year. The swelling was gradual on onset, following which started to progress quickly, it is a firm swelling and non tender. The swelling extended from the right mandibular canine region to the second molar region on the same side. No history of pain or difficulty in speech and swallowing was noted.

Medical history – Patient gives no relevant medical history. No known drug allergy

On Extra-oral examination

Inspection

- Slight facial asymmetry noted with respect to the lower right region of the face extending along the body of the mandible. No erythema or pus discharge was noted extra orally.

Palpation

- Swelling is hard on the lower border of mandible
- Submandibular lymph nodes were non palpable.
- Localized rise in temperature noted over the swelling.

On Intra- oral examination

- Mouth opening of 3 finger breadth noted.
- Swelling was noted along the right mandibular from 42-47 region
- Slight vestibular tenderness noted
- Obliteration of the buccal cortical plate is noted



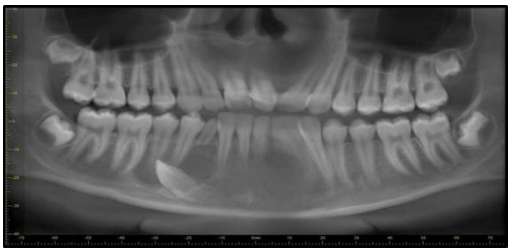
Pre Op Profile – Mild Swelling Noted in the Right Body of the Mandible

Patient was advised admission for disimpaction of the impacted canine followed by enucleation and curettage of the cyst. Post admission basic blood investigations were performed prior surgery.

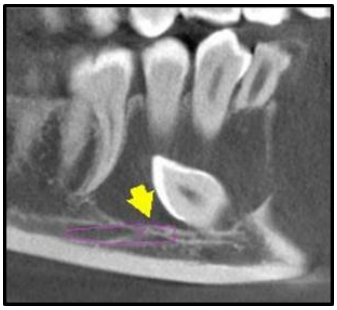
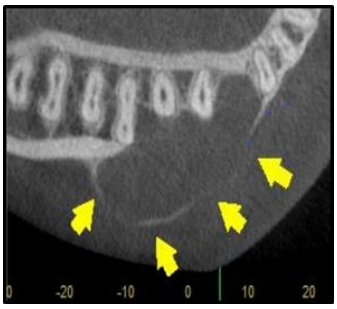
A CBCT and OPG (Orthopantomogram) were done for the region involved.

Gross View

Panoromic View



A well-defined radiolucent lesion is noted in the 4th quadrant extending from distal to 42 upto the distal part of the mesial root of 46 mesiodistally

Thinning and breach with the expansion of buccal cortical plate is noted

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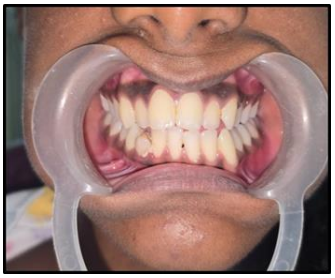
An impacted 43 is noted mesiodistally located at the apical region extending from apex of 42 to the apex of 45

Intraoperative Photographs

2 Months follow Up- no scarring, no swelling and no post operative complications were noted.



Discussion

A dentigerous cyst, also known as a follicular cyst, is a benign developmental odontogenic cyst that originates from the dental follicle surrounding the crown of an unerupted or impacted tooth. It's the second most common odontogenic cyst, after periapical cysts, and typically affects permanent teeth, most frequently the mandibular third molars and maxillary canines. While the majority of these cysts are asymptomatic and are discovered incidentally on routine radiographic examinations, they can grow to a significant size, causing bone expansion, tooth displacement, and even pathological fractures. The involvement of impacted mandibular canines, though less frequent than maxillary ones, presents unique diagnostic and management challenges due to the anatomical complexity of the mandible and its proximity to vital structures [6, 7.]

The pathogenesis of dentigerous cysts is thought to involve the accumulation of fluid between the reduced enamel epithelium and the crown of the developing tooth. The increasing pressure from this fluid leads to the separation of the follicle from the tooth and subsequent cystic enlargement. The exact etiology remains a subject of ongoing research, but factors such as localized inflammation, trauma, or developmental anomalies are believed to play a role. The cyst's lining is typically composed of non-keratinized stratified squamous epithelium, and its wall may contain inflammatory cells. The radiographic appearance is characteristically a well-defined, unilocular radiolucency with a sclerotic border, enveloping the crown of the unerupted tooth at the cementoenamel junction. Differential diagnosis is crucial to distinguish it from other radiolucent lesions like keratocystic odontogenic tumors (KOTs) and ameloblastomas, which have a more aggressive nature and higher recurrence rates [8, 9.]

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The clinical presentation of a dentigerous cyst associated with an impacted mandibular canine can be subtle. Patients may present with a painless swelling of the jaw, asymmetry, or displacement of adjacent teeth. In some cases, the eruption of a permanent canine may be delayed or completely absent. The cyst's growth can be slow and insidious, often only becoming evident when it reaches a considerable size. Radiographic imaging, including panoramic radiographs and cone-beam computed tomography (CBCT), is essential for a definitive diagnosis and for assessing the cyst's extent, its relationship to surrounding structures (such as the inferior alveolar nerve), and the degree of tooth displacement. CBCT, in particular, provides a three-dimensional view that is invaluable for surgical planning, allowing the surgeon to accurately delineate the cyst's boundaries and determine the best approach for removal while preserving vital structures [10,11.]

Management of a dentigerous cyst of an impacted mandibular canine depends on several factors, including the size of the cyst, the age of the patient, the position of the impacted tooth, and the patient's overall health. The primary goal of treatment is to remove the cyst and prevent recurrence. The most common treatment is enucleation, which involves the complete surgical removal of the cyst and its contents, often along with the extraction of the associated impacted tooth. In some cases, for very large cysts, marsupialization may be performed as a preliminary step. This procedure involves creating a surgical window into the cyst to decompress it, allowing it to shrink over time before a definitive enucleation is performed. This approach can be beneficial in cases where the cyst is in close proximity to vital structures, as it reduces the risk of iatrogenic injury. After surgery, long-term follow-up is necessary to monitor for potential recurrence [12,13.]

The prognosis for dentigerous cysts is generally excellent following complete surgical removal. Recurrence is rare, especially with enucleation. However, meticulous follow-up is essential to ensure that the lesion does not return and that the surrounding bone heals properly. The case of a dentigerous cyst of an impacted mandibular canine highlights the importance of early diagnosis through routine dental examinations and radiographic screening, especially in young patients. This allows for timely intervention and prevents potential complications such as significant bone destruction, pathological fractures, or the development of more aggressive pathologies. The collaboration between general dentists, oral surgeons, and orthodontists is crucial for optimal management and to ensure the best possible outcome for the patient [14,15.]

Conclusion

Dentigerous cysts are common developmental odontogenic lesions that typically present as slow-growing, asymptomatic swellings associated with unerupted teeth. Although often benign, they may attain significant size and can occasionally undergo neoplastic transformation into lesions such as ameloblastoma, mucoepidermoid carcinoma, or squamous cell carcinoma.[1] Early detection through careful clinical and radiographic evaluation of unerupted teeth—especially those delayed beyond the expected eruption period—is essential to minimize morbidity and prevent complications.[3] Unusual presentations, such as cysts crossing the midline or bilateral occurrences, highlight the need for thorough assessment of the jaws once a dentigerous cyst is diagnosed.[4] Accurate diagnosis requires a combination of clinical, radiographic, and histopathological examinations, which together guide appropriate management. Prompt recognition and treatment not only preserve surrounding structures but also reduce the risk of recurrence and malignant

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transformation, thereby ensuring optimal patient outcomes.[5]

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