

A Case of Infected Dentigerous Cyst

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Abstract:

➤ Introduction:

The dentigerous cyst is the most commonly occurring developmental odontogenic cyst, often detected incidentally on radiographs. Impacted mandibular third molars and permanent maxillary canines are the teeth most commonly involved. In this case, however, the cyst was associated with an impacted supernumerary tooth.

➤ Case Presentation:

A 25-year-old male patient presented with a swelling in the upper front tooth region. On clinical examination, a diffuse swelling was observed in the middle third of the face, with obliteration of nasolabial fold and soft tissue enlargement extending from the region of the teeth 12 to 13. Based on the initial findings, a provisional diagnosis of radicular cyst associated with tooth 11 was considered, and further investigation were advised. However, the final diagnosis confirmed an infected dentigerous cyst related to an impacted supernumerary tooth.

➤ Conclusion:

Typically, dentigerous cysts are associated with mandibular third molars and maxillary canines. Only about 5-6% of cases occur in relation to supernumerary teeth. This report highlights a rare case of an infected dentigerous cyst associated with an impacted anterior maxillary supernumerary tooth, which was successfully managed by surgical enucleation.

Keywords: Dentigerous Cyst Infected Dentigerous Cyst.

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I. INTRODUCTION

Dentigerous cysts is the prevalent developing cysts of the jaws and the second most common type of odontogenic cysts following radicular cysts. A dentigerous cyst, also referred to as a follicular cyst, is the result of fluid accumulation between the enamel surface of a formed tooth and the reduced enamel epithelium. It is the result of the follicle's separation from the crown of an un-erupted tooth. The documented ratio of 1.6:1 highlights a greater prevalence among young males. It typically occurs in teeth that are impacted or unerupted. The most commonly implicated teeth are the mandibular third molars, maxillary canines, and mandibular premolars. Occasionally, odontomes, deciduous teeth, and supernumerary teeth are associated with dentigerous cysts. Only few cases of dentigerous cysts have supernumerary teeth associated with them.

II. CASE PRESENTATION

A male patient of age 25 years presented with the complaint of swelling in the upper front tooth region for a duration of 3 months. At the time of his presentation, the patient was a known case of type 1 diabetes mellitus for 3 years and was under insulin injection. (20 units, 3 times) The history of present illness consisted of the development of the swelling in the upper front tooth region since 3 months which was initially pea size and gradually progressed to the current size and was not associated with pain, fever, or discharge. No history of loss of sensations or paraesthesia in the face was elicited. Despite no prior trauma to the maxillary anterior region, the patient experienced gradual retroclination of the maxillary right central incisor. Patient visited a nearby hospital and underwent investigation the same.

Clinical examination shows a solitary diffuse swelling observed on the right middle third of the face with nasolabial fold obliteration measuring approximately 5x4cm. (Fig. 1)

The swelling extended superiorly 5mm above the ala tragus line inferiorly 5cm above the angle of the mandible, medially involving the ala of the nose and distally 5cm from the tragus. The surface appears similar to the surrounding skin with no secondary changes seen. The swelling was non-tender, afebrile, non-fluctuant, non-pulsatile, and hard in consistency. (Fig. 2 and 3)



Fig 1 Extra-Oral Picture Showing Swelling in the Middle Third of the Face



Fig 2 Extra-Oral Photography of the Swelling from the Side View of the Face



Fig 3 Extra-Oral Photography of the Swelling from the Inferior View of the Face

Soft tissue examination revealed, a diffuse swelling with vestibular obliteration from 12 to 13 region with palatally displaced 11 with no palatal involvement of swelling. (Fig. 4)



Fig 4 Pictures Revealing Intraoral Findings

The overlying mucosa was of the same colour as the adjacent mucosa, smooth-pale surface. An area of erythema noted at vestibular region of 11. No bleeding or pus discharge detected, Windowing of bone present at the vestibular region of 11. Tenderness on percussion noted w.r.t 11. Hard tissue examination revealed retroclination of 11. Pulp vitality testing was carried out during the examination, which elicited a delayed response in relation to tooth 11. Yellow-coloured fluid was aspirated during fine needle aspiration (FNA), suggestive of a cystic pathology. The clinical diagnosis of radicular cyst in relation to 11 was rendered. The differential diagnosis includes dentigerous cyst, radicular cyst, adenomatoid odontogenic tumor, and nasopalatine duct cyst—lesions that present as anterior maxillary radiolucency's and require imaging and histopathology for confirmation.



Fig 5 Fine Needle Aspiration Cytology Aspirate

To evaluate the extent and nature of the cystic lesion, radiographic imaging was performed. Intraoral periapical radiograph (IOPAR) of teeth 11, 12, and 13 revealed an ill-defined radiolucency in the anterior maxilla, extending from the right canine to the right central incisor region. The radiolucency was associated with a supernumerary tooth, which exhibited a cone-shaped crown and a shortened root. Displacement of the roots of the central incisor was also evident on the radiograph.

CT (submitted report) revealed a thin-walled, non-enhancing hypodense cystic lesion involving the alveolar process of the maxilla in the right para midline region, with no obvious internal enhancing septations which was suggestive of a cyst, with a dentigerous cyst being one of the primary possibilities.

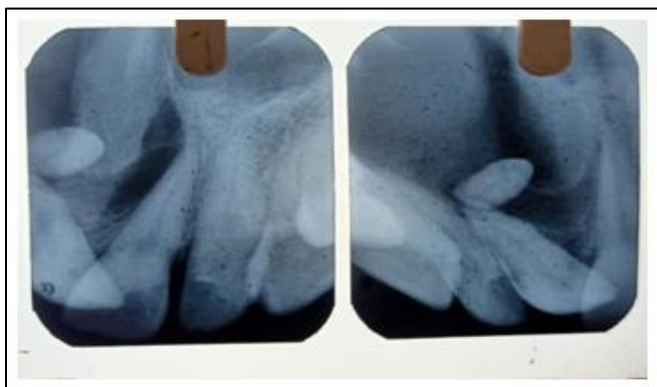


Fig 6 IOPAR Report Showing the Extent of Cystic Lesion

Histopathological examination showed the presence of a cystic lumen lined intermittently by stratified squamous parakeratinized epithelium. The epithelial lining was

supported by a collagenous and myxomatous connective tissue stroma, with peripheral areas showing trabeculae of host bone. Based on these features, a final diagnosis of infected dentigerous cyst was confirmed.⁰

The patient was planned for surgical intervention under general anaesthesia. Complete enucleation of the cystic lesion was carried out, accompanied by the extraction of teeth 11 and 12 due to their compromised condition. To manage the residual bony defect, a free cadaveric bone graft was placed to facilitate healing and maintain structural integrity. A customized obturator was then provided to assist with speech, function, and aesthetics during the postoperative healing phase.

➤ Outcome and Follow-up

The patient was followed up for a period of 4 months, during which healing was satisfactory and the postoperative course remained uneventful. Follow-up photographs were also documented to assess progress.

III. CASE DISCUSSION

Swelling in the anterior maxilla can result from various causes, such as infections, cysts, benign or malignant growths, allergic reactions, and other abnormalities affecting the bone or mucosa. In this case, both clinical examination and radiographic evaluation indicated a cystic lesion linked to a supernumerary tooth—an uncommon but noteworthy factor to consider when diagnosing swellings in this region.

The patient presented with malpositioned maxillary anterior teeth and a gradually enlarging swelling, both of which turned out to be key diagnostic clues.

Supernumerary teeth, particularly in the anterior maxilla, are known to interfere with the eruption and alignment of adjacent teeth. This may cause problems like crowding, shifting of the tooth, spacing between the tooth and, in some instances, the formation of dentigerous cysts. Although the exact etiology of supernumerary teeth remains unclear, but one theory says that they develop due to over-active dental tissue (dental lamina). Among them, mesiodens is the most frequently encountered type, often found in the region of maxillary central incisors, and seen more often in males.

Dentigerous cysts make up about 16–20% of all odontogenic cysts and are most frequently linked with the crowns of un-erupted permanent teeth. A smaller subset, roughly 5%, is linked to supernumerary teeth. On x-rays, these cysts look like a clear, well-defined dark area around the crown of an un-erupted tooth, starting near the cemento-enamel junction. In the present case, both intraoral radiographs and CT scans were instrumental in identifying the supernumerary tooth and assessing the full size and impact of the lesion on adjacent structures. CT imaging, in particular, proved valuable for evaluating factors such as cortical bone thinning or erosion, root displacement, and the lesion's relationship to nearby soft tissues—key aspects for accurate diagnosis and treatment planning.

The aspirated yellow-coloured fluid with inflammatory cells and cholesterol crystals suggested secondary infection of the cyst. Histopathology confirmed the diagnosis, showing parakeratinized stratified squamous epithelial lining with myxomatous connective tissue and trabeculae of host bone—features consistent with an infected dentigerous cyst.

Treatment of dentigerous cysts typically involves surgical enucleation along with removal of the associated tooth. In larger lesions, marsupialization may be considered to preserve vital structures, especially in younger patients. In the present case, enucleation was performed under general anaesthesia, along with extraction of teeth 11 and 12. A free cadaveric bone graft was placed to aid osseous healing, and a custom obturator was provided postoperatively to support functional and aesthetic rehabilitation during the healing phase.

Timely identification and management are key when dealing with dentigerous cysts, especially those related to supernumerary teeth. Diagnostic tools such as CT imaging and histopathological analysis assist in confirming the condition and planning suitable treatment. For patients with underlying systemic issues like diabetes, early surgical management and attentive postoperative care are vital to avoid complications and support smooth healing.

IV. CONCLUSION

Dentigerous cysts associated with supernumerary teeth in the anterior maxilla are rare but clinically important. Early diagnosis and prompt surgical management are crucial to prevent complications. This case highlights the value of radiographic, histopathological, and multidisciplinary evaluation, especially in medically compromised patients, to ensure successful outcomes.

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Fig 7 Follow-up after a Period of Month



Fig 8 Showing Healing after Period of 4 Months