

Dentigerous cyst of maxilla in a young child

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ABSTRACT

Dentigerous cysts are the most common odontogenic and developmental cysts arising in the jaws. In this article, we report a rare case of dentigerous cyst arising from an unerupted canine which had invaded a part of the maxilla in a 6-year-old child. The clinical features, radiographic presentation, and the treatment modality are described.

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INTRODUCTION

The dentigerous cyst initially is always associated with the crown of an impacted, embedded, or unerupted tooth.^[1] It develops around the crown of the unerupted tooth by the expansion of the follicle when fluid collects or space occurs between the reduced enamel epithelium and the enamel of an impacted tooth.^[2] The proportion of 6- to 7-year-old children affected with dentigerous cysts is only 9.1%.^[3] Dentigerous cysts occur predominantly in the third molar region of the mandible, followed in frequency by maxillary canine, maxillary third molar, and rarely in relation to maxillary central incisor.^[4]

CASE REPORT

A 7-year-old boy reported to the Department of Paediatric Dentistry at our institute with the chief complaint of a painless swelling in the left upper jaw since 6 months [Figure 1]. On asking for a detailed history, the patient's guardian reported that the kid

was treated for the same problem by a local dentist by the extraction of few teeth in the same area with no relief of problem few months back. On general physical examination, the patient was apparently healthy. The medical history was not significant and routine haematological investigations were within normal limits. A clinical intraoral examination revealed a diffuse swelling extending from the buccal vestibule distal to the maxillary left deciduous lateral incisor to the maxillary left permanent first molar. The swelling was ill defined, firm on palpation, non-tender, and measured about 3.5 × 2.5 cm extending into the maxillary vestibule. The overlying mucosa was apparently normal with no signs of inflammation or serosanguinous discharge. It was not compressible and no pulsations were felt. The maxillary left deciduous canine and molars were missing. These teeth were probably extracted by the local dentist assuming it as a case of dental abscess arising from these teeth. The deciduous central incisors had exfoliated normally.

The patient had a pre-existing lateral cephalometric radiograph and an orthopantomograph [Figures 2 and 3]. Both the radiographs revealed a partially formed and unerupted tooth resembling canine with a radiolucent area surrounding it. On aspiration of the swelling, it yielded straw-colour fluid which was sent for biochemical investigation, the result of which was consistent with the diagnosis of a cystic lesion. A provisional diagnosis of the dentigerous cyst was arrived at based on clinical and radiological features.

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Figure 1: Preoperative intraoral view



Figure 2: Lateral cephalometric view



Figure 3: OPG



Figure 4: Tissue specimen

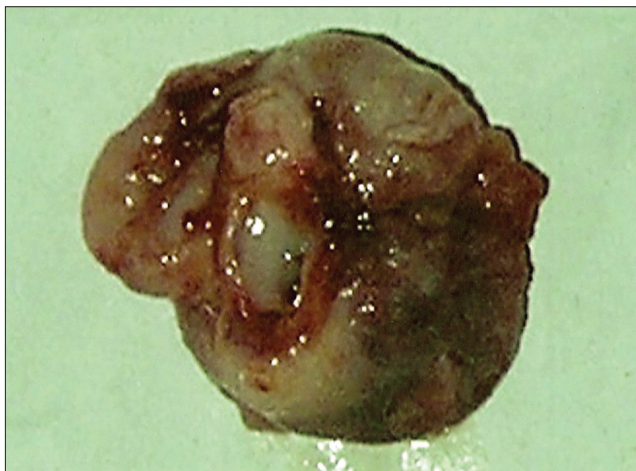


Figure 5: Tissue specimen

Enucleation of the cyst was chosen as the treatment of choice as the patient's guardians were not ready for a prolonged treatment period. The treatment consisted of extraction of the maxillary left permanent canine, along with en masse removal of the dentigerous cyst.

The surgery was done under general anaesthesia using the Caldwell–Luc approach. The cystic sac was identified and dissected from the walls of maxilla. The cystic lining was attached to the cementoamel junction of the maxillary left permanent canine. The wound was closed primarily and the specimen was sent for histopathological examination. The sutures were removed after 1 week and the wound healing was uneventful.

The gross specimen consisted of an irregular, wrinkled soft grey piece of a cystic sac measuring approximately 4.5 × 3.5 × 0.5 cm, containing the developing canine tooth bud within it [Figures 4 and 5]. The microscopic study was consistent with the diagnosis of the dentigerous cyst.

The patient was asked to return for clinical follow-up once in 15 days. After 7 months, intra-oral healing was normal it [Figure 6] and no evidence of bone resorption or radiolucent lesion were observed [Figure 7]. The patient was advised for longer follow-up periods for prosthetic and orthodontic rehabilitation.



Figure 6: Postoperative intraoral view



Figure 7: Postoperative OPG

DISCUSSION

The dentigerous cyst is the most frequent developmental odontogenic cyst affecting permanent teeth.^[5] Dentigerous cysts of maxilla are commonly associated with the maxillary third molar^[6] and not with a canine tooth. In the present case, the ectopic tooth was a permanent canine. There have been previous case reports of a dentigerous cyst with a deciduous tooth^[5] and with a supernumerary tooth.^[7] A case of a large maxillary cyst involving the whole sinus and producing epiphora has been reported by Atlas *et al.*^[8]

Dentigerous cysts are usually solitary, benign odontogenic cysts associated with the crowns of unerupted teeth. The exact histogenesis of the dentigerous cyst is not known. It is stated that the dentigerous cyst develops by the accumulation of fluid either between the reduced enamel epithelium and the enamel or in between layers of the enamel organ. This fluid accumulation occurs as a result of the pressure exerted by an erupting tooth on an impacted follicle, which obstructs the venous outflow and thereby induces a rapid transudation of serum across the capillary wall.^[9] Toller^[10] stated that the likely origin of the dentigerous cyst is the breakdown of proliferating cells of the follicle after impeded eruption. These breakdown products result in increased osmotic tension and hence cyst formation. These cysts usually occur in the late second and third decades, are discovered on routine radiography, and predominantly involve mandibular third molars.

The second type is inflammatory origin and occurs in immature teeth as a result of inflammation from a non-vital deciduous tooth. Bloch^[11] suggested that the origin of the dentigerous cyst is the overlying necrotic

deciduous tooth. The resultant periapical inflammation will spread to involve the follicle of an unerupted permanent successor; inflammatory exudates ensue and result in dentigerous cyst formation. These cysts are diagnosed in the first and early part of the second decade either on routine radiographic examination or when the patient complains of swelling or pain. We believe that our case might be classified as the second type of dentigerous cyst.

Treatment of a dentigerous cyst depends on size, location, and disfigurement and often requires variable bone removal to ensure a total removal of the cyst. Even though marsupialisation of the cyst is the treatment of choice for dentigerous cyst in children in order to give a chance to the unerupted tooth to erupt, the major disadvantage of marsupialisation is that pathologic tissue is left *in situ*, without a thorough histologic examination.^[12, 13] Although the tissue taken from the window created can be submitted for pathologic examination, there is a possibility of a more aggressive lesion in the residual tissue. But, in this case, as the tooth was almost displaced up to the roof of the developing maxillary sinus far from the alveolar arch with a questionable viability, enucleation with the removal of the displaced tooth was favoured.

CONCLUSION

In summary, dentigerous cyst development associated with an unerupted permanent tooth is not uncommon. Dentigerous cysts of maxilla are usually associated with the maxillary third molar and not with a canine tooth. In the present case, the cyst was associated with canine and was almost involving the developing maxillary sinus of the 7-year-old child. These findings are not common in dentigerous cysts, and hence, this case is reported.

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