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Case Report

A CASE REPORT OF DENTIGEROUS CYST IN CHILD PATIENT INVOLVING IMPACTED PERMANENT MAXILLARY CANINE

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ABSTRACT

A dentigerous cyst encloses the crown of an impacted tooth and its cystic lining is typically attached at the neck of the tooth. Dentigerous cyst is a type of odontogenic cyst, which may have aggressive behavior and may grow intraosseously to large size before producing any clinical manifestations. Also its cystic lining can give rise to more dangerous tumors like ameloblastoma, squamous cell carcinoma or mucoepidermoid carcinoma. The present article discusses a case report of dentigerous cyst associated with the impacted permanent maxillary canine, which is accidentally discovered on the radiograph.

Keywords: Dentigerous cyst, Impacted tooth, Odontogenic cyst, Unilocular, Unerupted tooth.

INTRODUCTION

Various types of odontogenic cysts can develop from odontogenic epithelium or its remnants. One of the common types of odontogenic cyst is dentigerous cyst¹. Dentigerous cysts can be defined as an epithelial-lined developmental cyst formed by accumulation of fluid between the reduced enamel epithelium and crown of an unerupted tooth².

It encloses the crown of an unerupted or impacted tooth by expansion of its surrounding follicle and is typically attached at the neck of the tooth. It is caused by accumulation of fluid between epithelium and tooth crown, which is due to alteration of reduced enamel epithelium after completion of amelogenesis³.

The important diagnostic feature of dentigerous cyst is the presence of unerupted or impacted tooth in its cavity. Although it can involve any tooth, it is most frequently associated with mandibular third molar, maxillary canine, mandibular premolar, and maxillary third molar in decreasing order of frequency^{1,4}.

Most of the dentigerous cysts are asymptomatic and its discovery is usually an accidental finding on radiography¹. Here, we present a case report of dentigerous cyst occurring in maxilla and involving impacted permanent maxillary canine.

CASE REPORT

A 14 year old female patient was presented with a complaint of pain in the maxillary anterior of jaw since 15 days. On intraoral examination, grossly carious deciduous canine of right side and missing permanent canine was noted. Radiographic examination revealed presence of grossly carious deciduous canine and impacted permanent maxillary canine of right side; with presence of unilocular radiolucency surrounding to crown portion. The roots of the permanent canine and maxillary premolars were not fully developed. The radiolucency was of 1.5 X 2.0 cm in size and caused displacement of the roots of the maxillary premolars.

Enucleation of the cystic lesion done along with the extraction of the impacted tooth and the cystic lining was sent for the histopathological examination.

Histopathological examination showed presence of nonkeratinized cystic lining of 2 to 4 layers and at places single layered, resembling to that of the reduced enamel epithelium. The connective tissue capsule was of loosely arranged fibrocellular tissue. Based on the clinical, radiographic and histopathological findings, final diagnosis of the dentigerous cyst was made involving impacted permanent maxillary canine. After 7 days the surgical site showed

complete superficial wound healing and suture removal was done.

Regular follow-up in intervals of 3 months was done and there was no evidence of any recurrence noted.



Figure 1: Radiographic presentation of the impacted permanent maxillary canine of right side with pericoronal radiolucency. Note here, the presence of carious deciduous canine tooth and displacement of the roots of the premolars



Figure 2: Surgically extracted tooth specimen of permanent maxillary canine alongwith presence of cystic lining attached at the cemento enamel junction

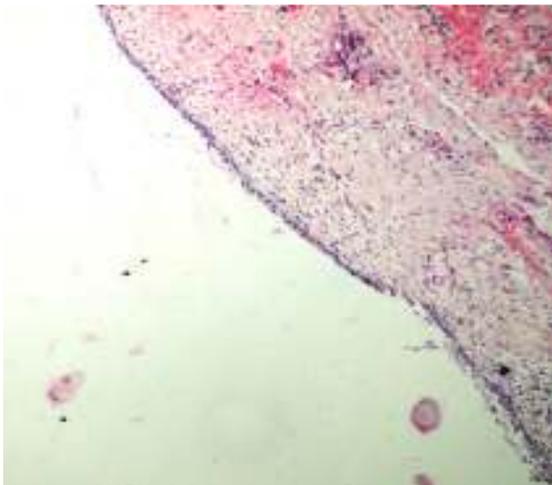


Figure 3: Histopathological representation of the cyst, showing cystic lining of 2 to 4 layers in thickness of nonkeratinized stratified squamous epithelium. The outer connective tissue capsule is fibrocellular

DISCUSSION

Previous studies reported the incidence of dentigerous cyst as 1.44 in every 100 unerupted teeth. It is more commonly found in males as compared to females.⁴ Dentigerous cysts usually remain symptomless and the diagnosis is mostly an incidental finding on radiographs, but it can produce slowly enlarging swelling, displacement of adjacent teeth or delayed eruption of teeth. Secondarily infected cysts produce pain^{3,5}.

Dentigerous cysts usually present in the second to third decades of life and very rarely seen in childhood. On radiograph, dentigerous cysts appear as unilocular radiolucent cysts of variable sizes, with presence of well-defined sclerotic border, involving crown of an unerupted tooth.⁶ There are 3 types of dentigerous cyst based on location of radiolucency; central, lateral and circumferential type².

They are mostly solitary, but multiple cysts were reported on occasion in association with syndromes like Mucopolysaccharidosis, Basal Cell Nevus Syndrome, Cleidocranial Dysplasia and Maroteaux-Lamy syndrome.^{2,6} Recently, a case of multiple dentigerous cysts involving all four quadrants is reported by Aher V et al².

The most common differential diagnosis of the dentigerous cysts includes other odontogenic cysts like radicular cysts, odontogenic keratocysts, and odontogenic tumors like unicystic ameloblastoma, odontoma, Pindborg tumor and odontogenic fibroma. Also mucoceles, pseudocysts and retention cysts are included in the differential diagnosis when a cyst involving maxillary sinus is present with maxillary expansion⁵.

On histopathological examination, the dentigerous cyst shows a cystic lining of nonkeratinized stratified squamous epithelium, with occasional presence of mucous cells, ciliated cells and sebaceous cells. The overlying fibrous connective tissue wall may contain varying amounts of myxoid tissue and variable numbers of odontogenic rests. The interface between the epithelium and the connective tissue is typically flat, but often becomes irregular when associated with inflammation⁷.

The diagnosis of dentigerous cyst is on the basis of clinical examination, radiological findings and histological features⁸. The exact histogenesis of the dentigerous cyst is not completely established, but most researchers favor a developmental origin from a tooth follicle. The formation of the cyst is believed to be related to the proliferation of epithelial remnants, which are activated by the release of cytokines and growth factors^{9,10}.

In case of younger patients, the periapical radiolucencies in association with deciduous teeth may mimic pericoronal radiolucencies of the erupting permanent teeth and may give a false impression of dentigerous cyst.² In case of children, which have greater capacity to regenerate bone; conservative treatment for spontaneous eruption of teeth can be carried out. Teeth having open apices have more eruptive capacity¹¹.

The treatment option includes complete enucleation and marsupialization, with or without extraction of the associated tooth.¹¹ The recurrence of dentigerous cyst is rare, but occasionally the lining of the cyst may give rise to a variety of odontogenic tumors, like ameloblastomas or can also give rise to squamous cell carcinoma or mucoepidermoid carcinoma^{7,12}.

CONCLUSION

In conclusion, we suggest that complete investigations are necessary to arrive at a diagnosis of dentigerous cyst and great care must be taken in case of pediatric patients to avoid damage to nearby growing and vital structures.

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