Inflammatory Dentigerous Cyst Associated With Mandibular First Premolar: A Rare Case Report
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Abstract
Dentigerous cysts are benign odontogenic cysts that arise from the dental follicle of an unerupted or developing tooth. These cysts are the second most common odontogenic cysts after radicular cysts and they are most frequently associated with impacted mandibular third molar teeth. Dentigerous cysts involving first premolars are rare. This article presents a rare case of dentigerous cyst in a nine years old male patient associated with an unerupted mandibular first premolar.

Key words: Cysts; Dentigerous cyst; Impacted; Jaw cysts; Odontogenic cyst; Tooth.


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Introduction
Dentigerous cysts are benign odontogenic lesions arising from the completed crown of impacted, embedded or unerupted teeth. They are the second most common type of odontogenic cysts, and the most common developmental cysts of the jaws. They are caused by the accumulation of fluid between the crown and reduced enamel epithelium, attached at the cemento-enamel junction of an impacted or unerupted tooth. Dentigerous cysts may occur at any age group but the greatest incidence is in the second and third decade and is uncommon in the first decade of life. Males are slightly more likely to develop dentigerous cysts than females.

The clinical examination reveals a missing tooth or teeth and occasionally a hard swelling, sometimes results in a facial asymmetry or a possible pathologic fracture. Dentigerous cysts are tentatively diagnosed on routine dental radiographs. They are mostly associated with an impacted mandibular third molar and rare lesions of dentigerous cyst involving the maxillary and mandibular premolars have been reported in the literature. The following report presents a rare case of a dentigerous cyst associated with an unerupted mandibular left first premolar in a nine year old boy.

Case report
A nine year old boy referred to the Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, with a chief complaint of painless swelling in the lower jaw for the past six months. Patient’s family and medical history were noncontributory. Intra oral examination revealed patient with mixed dentition and the presence of a solitary, hard and well-defined swelling in the left mandibular premolars region.

A panoramic radiograph revealed the presence of all the permanent teeth without any supernumerary teeth. There was a well-circumscribed unilocular radiolucent lesion in the body of the mandible on the left side, which was associated with the crown of an unerupted first premolar (Fig 1a). A radiographic differential diagnosis of a dentigerous cyst, an odontogenic keratocyst and a unilocular ameloblastoma involving the crown of the unerupted left mandibular first premolar was made. Aspiration of the lesion was done and clear yellowish cystic fluid was obtained.

The cyst was operated under local anesthesia by intra oral approach and enucleated along with removal of the unerupted left mandibular first premolar. The excised specimen was sent for histopathological examination. Gross examination of the specimen showed a cystic sac attached to the crown of mandibular first permanent premolar at cementoenamel junction (Fig 1b). Microscopic findings revealed the presence of a cystic lumen lined by two to five layers of non-keratinized stratified squamous epithelium which resembled reduced enamel epithelium with exocytosis and spongiosis. The epithelium and connective tissue

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interface was flat. Underlying fibrous connective tissue wall showed loosely arranged collagen fibers with islands of odontogenic epithelium and severe chronic inflammatory cells infiltration (Fig 1c). According to WHO criteria, radiographic feature and histopathologic findings the diagnosis was inflamed dentigerous cyst associated with the unerupted first premolar. The patient remained under follow-up for one year and no complications were observed.

Figure 1: The sectional panoramic radiograph showing a well-circumscribed, unilocular radiolucent lesion in the body of the mandible, on the left side in relation to the crown of unerupted mandibular left first premolar (a). The gross specimen showing the relation of the cyst to the crown of first premolar (b), however the hematoxylin and eosin stained photomicrograph under low power view showing the lining epithelium which is thin and non-keratinized with exosyosis and spongiosis along with inflammation in the cyst wall (c).

Discussion
Dentigerous cysts are developmental cysts that enclose crown of an unerupted tooth at cemento-enamel junction and thus they are also named “tooth containing cysts.” These cysts are the second most common type of odontogenic cysts and make up an estimated 14% to 24% of all jaw cysts. The exact histopathogenesis of these cysts is unknown. They are believed to be caused by expansion of dental follicles resulting from accumulation of fluid in the space between the tooth crown and epithelial components. The highest incidence of dentigerous cysts occurs during the second and third decades and they are rarely seen during childhood. Shear has estimated that about 9% of dentigerous cysts occur in the first decade of life. Our patient was only nine years old at the time of presentation. However in the only reported case by Muthu kumar et al the age of the patient was 62 years. The sex predilection of dentigerous cyst is 1.6:1 in favor of male, and the prevalence is higher for whites than for blacks.

Dentigerous cyst most commonly develops around the crown of the third mandibular molar tooth. But in this case, mandibular first premolar was found to be the cause of the dentigerous cyst. In our review of the literature, we have found only one case of dentigerous cyst associated with mandibular first premolar (Fig 4). Dentigerous cysts are typically asymptomatic and may be large, destructive, expansile lesions of bone. In present case, the cyst was painless and was
discovered during investigation of asymptomatic swellings.

On radiographic examination, dentigerous cysts appear as unilocular radiolucent area, with well-defined and often sclerotic borders, associated with the crown of an unerupted tooth. The borders may be ill-defined when infected. Diagnosis should not be made on radiographic evidence alone but should include both macroscopic and microscopic examination of the lesion. The histopathological examination of cyst in the present case showed thin and non-keratinized lining epithelium, resembling reduced enamel epithelium overlying a fibrous connective tissue capsule in most of the areas. In presence of inflammation the capsule shows foci of chronic inflammatory cells and the lining epithelium corresponding to these areas shows an increase in thickness. So this case was diagnosed as an inflammatory dentigerous cyst.

Treatment of choice for dentigerous cysts is removal of the associated tooth and enucleation of the soft tissue component. Complete removal of the cyst is extremely important because ameloblastoma, squamous cell carcinoma and mucocoeplidoma carcinoma have been reported as potential complications of untreated dentigerous cysts.

Conclusion
Dentigerous cyst is most commonly seen in association with impacted third molars. In this case report we have presented a rare case of inflammatory dentigerous cyst associated with mandibular first premolar. The case was successfully treated. Post operatively there was no complication.

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References

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