

Dentigerous Cyst with Cholesterol Clefts in the Mandible: A Rare Case Report

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ABSTRACT

Dentigerous cysts; are benign odontogenic cysts associated with crowns of impacted teeth. Cholesterol clefts are the microscopic cavities formed in these regions, which result in the formation of cholesterol crystals that accumulate in tissues. In this case, we present the enucleation and treatment of infected dentigerous cyst and the cholesterol clefts found in large volumes. A 58-year-old man with type 2 diabetes admitted to our clinic for routine check-ups. Radiologically, large radiolucency was observed around the number of impacted third tooth. Under general anesthesia, the lesion and associated lesion-related tooth were removed and sent for histopathological examination. Histopathological examination revealed a final diagnosis of infected dentigerous cyst and cholesterol cleft within the cyst lumen. Cholesterol cleft is an inflammatory reaction to cholesterol crystals deposition. Very few cases of cholesterol cleft occurring in the dentigerous cyst of the jaws were reported. Dentigerous cysts can reach large sizes without any finding. Therefore, the areas where the teeth are extracted or unerupted should be examined clinically and radiographically cautiously, in this way possible lesions should be treated before reaching big sizes.

Keywords: *Dentigerous cyst, Cholesterol Clefts*

Introduction

Dentigerous cyst is the second most common odontogenic cyst, constitute about 20-24% of all jaw cysts. These cystic lesions are in close association with the non-erupted tooth crown and generally surround the crown of the tooth. The lumen of cyst is covered with reduced enamel and epithelium originated from the tooth-forming organ.[1] Dentigerous cysts are associated with mandibular second premolar teeth rather than with maxillary canine and third molar teeth.[2] The cyst often develops in the jaws with no significant pain and there are a depleted-tooth near the cyst. [3] These cysts affects the all of the age group however the maximum percentage is seen in second and third decade with mildly gender predilection for male patients.[4]

Decompression, enucleation and marsupialization are the main treatment modalities of a dentigerous cyst. The indicated treatment option is enucleation when there is no risk for damaging the anatomic structures, such as apices of vital teeth, the maxillary sinus, or inferior alveolar nerve. In most cases, marsupialisation is a logical treatment option in order to be able to protect the impacted tooth in the cyst cavity and to support eruption of the tooth.[5]

Specific radiographic images of dentigerous cysts are usually unilocular radiolucent areas characterized by a sclerotic margin. On the other hand, trabecular bone may appear on radiographic images, which causes a multilocular lesion to make a false imaging, and when infected the cyst may exhibit diffuse margins. Histopathologically,

the dentigerous cyst is composed of a keratinized layered squamous epithelium with no myxoid tissue, an odontogenic residue, and a fibrous wall occasionally covered by sebaceous cells.[6]

Cholesterol clefts are inflammatory reactions caused by the accumulation of cholesterol crystals. It may develop in various regions including the middle ear, the mastoid process, and even the paranasal sinuses. There are small number of cases of cholesterol clefts occurring in the dentigerous cyst of the jaws.[7] In this case report, a dentigerous cyst within cholesterol clefts treated with enucleation in old patient's mandible was presented.

Case Report

A 58-year-old man with type 2 diabetes admitted to our department for routine dental examination. There was no trauma or dental problem in the history. The patient had no symptoms or complaints in the cyst area. Clinical examination showed painless swelling and fluctuation in the left mandibular ramus region. The panoramic radiographs revealed a unilocular radiolucency under the impacted left mandibular third molar (Fig. 1). The cyst dimensions had reached very large values. In the CBCT examination, it was found that the cystic buccal cortical layer caused perforation and extended to the mandibular basis area (Fig. 2). There was also an air gap in the cyst lumen that did not contain cyst fluid or epithelium. The informed consent form was taken and the patient was operated under general anesthesia. The lesion was enucleated along with the third

molar in the cyst (Fig. 3). The removed specimen was sent for histopathological examination. Histopathologic examination revealed an inflammatory dentigerous cyst

with cholesterol clefts in the cyst lumen. Radiographically, there was no recurrence at 3 months follow-up after the operation (Fig. 4).

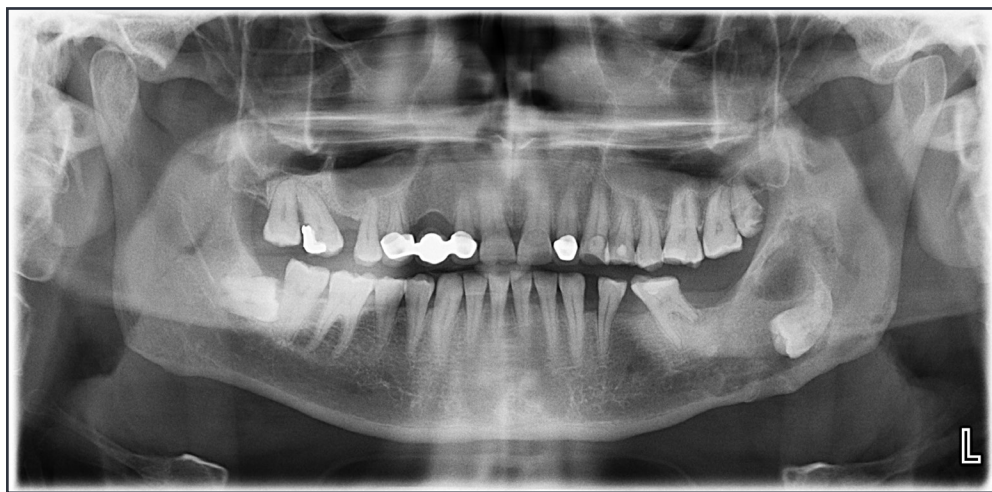


Fig. 1: Preoperative orthopantomography

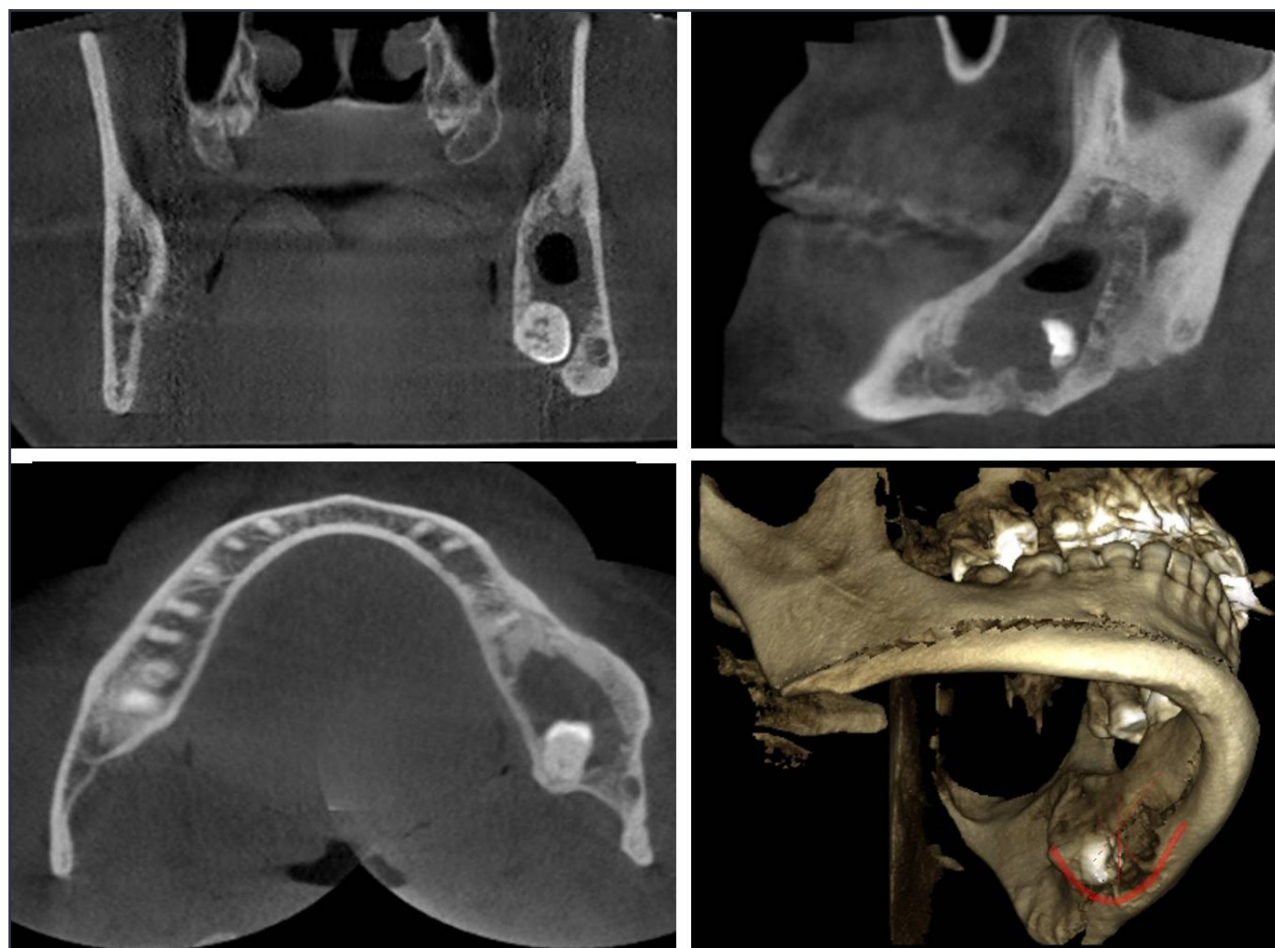


Fig. 2: Preoperative CBCT images.



Fig. 3: Perioperative intraoral images and specimen.

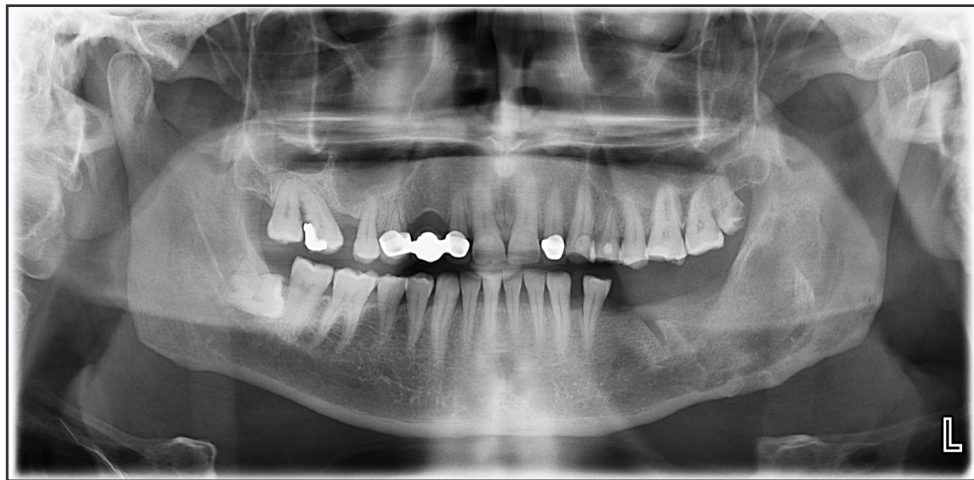


Fig. 4: Postoperative orthopantomography.

Discussion

Dentigerous cyst is the most common type of developmental odontogenic cyst. It can cause cortical enlargement and facial asymmetry.[8] Benn et al. mentioned two types of dentigerous cysts. These are developmental dentigerous cysts due to the embedding of teeth in mature teeth and inflammatory dentigerous cysts resulting in inflammation that affect the tooth follicle in immature teeth. It has been reported that inflammatory dentigerous cysts are generally observed in the lower jaw small molar teeth, routine radiographic examinations during childhood or adolescence, pain or swelling result in the region concerned.[9] The presented findings localization and symptoms of the patient complies with the inflammatory

dentigerous cyst pattern, but the age of the patient does not fit the cyst pattern.

Cholesterol clefts are regions of cholesterol crystals that dissolve during the formation process, which surround the foreign body giant cells and hemosiderin pigmented macrophages and are embedded in the fibrotic granulation tissue.[10] In our present case, the cholesterol clefts were found in the inflammatory dentigerous cyst lumen is the determining factor that differentiates most of the other cases in the literature.

Different treatment modalities such as decompression, marsupialisation and enucleation are applied in the treatment of dentigerous cysts with permanent bone

deformation, pathological bone fracture, and permanent tooth loss or tumor development potential. But it is not clearly defined under which condition the method is to be applied. Motamedi et al. reported that the age, cysteine localization and size of the cyst, as well as the treatment approach according to the importance of the impacted tooth should be determined.[11] However, it is reported that there is a risk of recurrence of a cystic lesion after protective treatments such as marsupialisation and the risk of developing an in situ cancer. In addition, daily dressings must be made during the healing period so that the cavity opened by the purpose of cysteine drainage is filled with food residues and prevented from becoming infected.[12] Kilinc et al. the cyst seen in CBCT images did not reach to very wide limits, did not apply marsupialisation, performed enucleation, removed ectopic tooth and enucleated cysts. [13] For this reason, the patient was treated with the enucleation method in consideration of the systemic disease.

Conclusion

The treatment of dentigerous cyst associated with tooth particularly third molar enucleation is safer and better treatment choice than marsupialization because of the major disadvantage of marsupialization is that pathologic tissue is left in situ.

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