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Case Report

Dentigerous cyst: enucleation or marsupialization? (A case report)

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ABSTRACT:

Dentigerous cysts, also known as follicular cysts, are slow-growing benign odontogenic cysts that are assumed to be developmental in nature. On imaging, they usually appear as a well-defined and unilocular radiolucency encircling the crown of an unerupted or impacted tooth. This article describes a case of unilateral mandibular dentigerous cysts linked with an unerupted mandibular molar in a healthy patient treated by enucleation, as well as a review of the literature and an analysis of the treatment modality. The purpose of this paper is to emphasize how to select the appropriate treatment for dentigerous cyst cases.

Keywords: Dentigerous cyst, enucleation, marsupialization, case report

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INTRODUCTION

Dentigerous cysts, also known as follicular cysts, are the second most frequent type of benign developing odontogenic cyst caused by fluid collection between decreased enamel epithelium and an unerupted tooth's crown. Dentigerous cysts can arise at any age, with a peak frequency in the second to fourth decades and they are the second most frequent odontogenic cyst after radicular cysts, accounting for approximately 24% of all genuine cysts in the jaws.¹They are uncommon in childhood since they almost always appear in secondary dentition. The mandibular third molar is the most usually affected tooth, followed by the maxillary canine and mandibular premolars.

Dentigerous cysts grow slowly, are normally asymptomatic, and are discovered by chance during a routine radiography check; however, they can grow large and result in a palpable mass. Furthermore, when they expand, they displace neighboring teeth. The most prevalent clinical consequence is inferior alveolar nerve paresthesia. Enucleation or marsupialization can be used to treat dentigerous cysts. Different variables, such as cyst size, cyst location,

removal of unerupted tooth, and follow-up options, are considered in the treatment decision. Usually, large dentigerous cysts are treated by marsupialisation. The purpose of this study is to report a clinical example of a big dentigerous cyst linked with an unerupted mandibular molar in a young male who is completely unaware of his condition, which is treated by enucleation, and to emphasize the treatment decision-making process.

PATIENT INFORMATION

A systematically healthy 37-year-old male patient presented for consultation to the Department of Oral medicine and radiology DYP pune. The patient's chief complaint was a swelling over the posterior sector of his mandible, accompanied by a discomfort sensation, which first appeared two month before the consultation. The patient did not mention any toxic (deleterious) habits, and reported no contributory significant dental history. In the clinical findings the local examination appeared to be normal, but intra-oral one ([Figure 1](#)), revealed a palpable vestibular

obliteration extending from the mandibular right premolar region to the mandibular right molar region.

On palpation, the swelling was painless, firm, and the overlying mucosa did not show any inflammatory signs. All permanent teeth were present except for the mandibular third molar. Lymph node examination ruled out the presence of any pathology. On CBCT (Figure 2) revealed a well-defined oval radiolucent

lesion, extending from the mesial of mandibular right first molar, to the distal aspect of third molar, upon 0.5 cm from the inferior border of the mandible inferiorly. Supero-inferiorly it extends from alveolar crest till lower border of mandible. Thinning and expansion of buccal and lingual cortical plates is seen. Radiolucency included the right horizontal molar. IANC is compressed and displaced inferiorly.



Figure 1: Intraoral image with obliteration of the vestibule
Figure 2: CBCT Image showing osteolytic lesion involving crown portion of 48

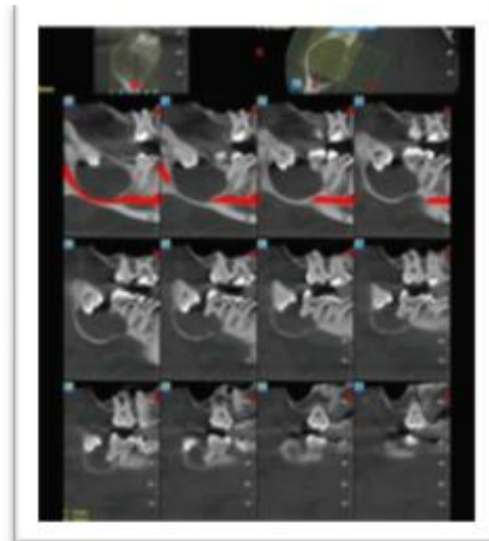
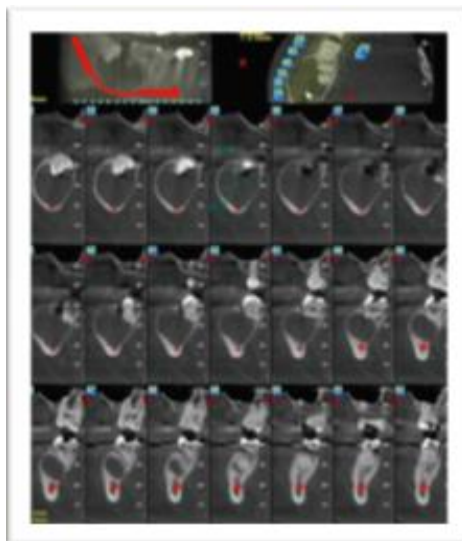


Figure 3,4: CBCT image showing expansion of buccal and lingual cortical plates, IANC is compressed and displaced inferiorly

Periapical cyst, keratocystic odontogenic cyst (KOT), and ameloblastoma were among the clinical differential diagnoses. As there no carious lesion was observed clinically, periapical cyst was ruled out. Dentigerous cyst was the first choice of diagnosis since the radiograph indicated unilocular radiolucency surrounding the neck of an unerupted tooth's crown, with diffuse and thin corticated margins, which are typical radiographic findings of dentigerous cyst. Clinically, fine needle aspiration revealed a yellowish-brown color with a thick and non-viscous consistency, validating the preliminary diagnosis of Benign

odontogenic cyst of the right side of the mandible associated to potential impacted 48. after all primary investigation was done and operated under general anesthesia with nasal intubation, horizontal incision and releasing incisions were done. Then, the mucoperiosteal flap was reflected. The soft cystic tissue was exposed (Figure 5,6), and a complete enucleating of the cysts was performed with removal of the permanent third molar and second molar (Figure 07). Incision was closed using 3-0 silk suture, and the specimens histopathological investigation was performed (Figure 08).

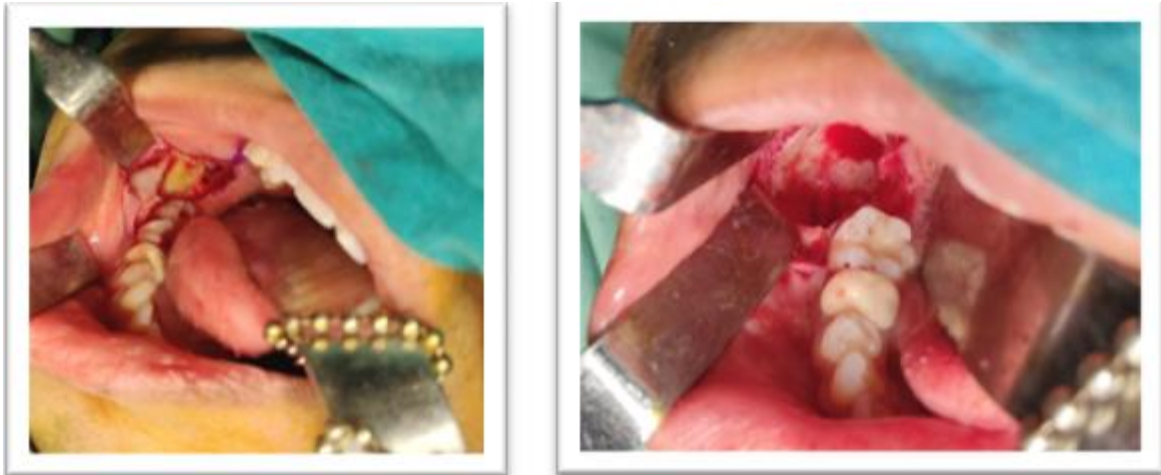


Figure 5,6 : Exposed soft cystic tissue



Figure 7: Removal of the permanent third molar and second molar

Figure 8: Specimens of lesion

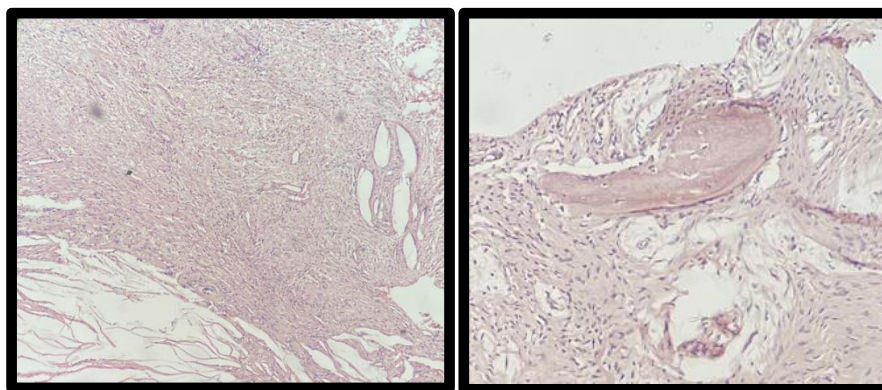


Figure 9a: Section shows connective tissue shows dense collagen fibers with mild inflammation. 9b: section shows cholesterol clefts and trabecular bone was seen at focal areas in the periphery.

Histopathological report revealed a inflamed dentigerous cyst (Figure 9,10).

The patient was seen after one week to remove sutures, and to control health process.

Dentigerous cysts (DCs) have been widely reported in the literature. The specific cause of this cyst is unknown, but numerous explanations have been offered. The "intrafollicular theory" proposes that a DC is caused by fluid collection between the

epithelium's outer and inner surfaces. This buildup happens during crown creation. The "enamel hypoplasia theory" is the second. It suggests that the cyst formed as a result of stellate reticulum degradation. According to "Main's theory," the cyst is caused by the hydrostatic pressure imposed by an impacted tooth on the follicle, which causes the impacted crown to separate from the surrounding follicle.²

A dentigerous cyst can be inflamed or noninflamed. An inflammatory dentigerous cyst develops as a result of inflammation in a nonvital deciduous tooth. The non-inflammatory kind arises as a result of the erupting tooth's pressure on an impacted follicle.³ Radiographically, dentigerous cysts are suspected when the size of the follicular space is larger than 5 mm. Radiographically, dentigerous cyst presents as well-defined unilocular radiolucency, often with a sclerotic border and this radiolucency surrounds the crown of an impacted tooth⁴ These cysts are frequently single lesions. Bilateral and numerous dentigerous cysts are extremely unusual, though they have been observed in people with diseases such as basal cell nevus syndrome, mucopolysaccharidosis, and cleidocranial dysplasia.⁵

DC epithelium is histopathologically composed of 2-4 layers of smooth nonkeratinized cells, with a smooth contact between the epithelium and connective tissue. DC epithelium may contain mucous, ciliated columnar and fat cells.⁶

The differential diagnosis may include odontogenic keratocysts, primordial cysts, and odontogenic tumors (pindborg tumor, adenomatoid odontogenic tumor, mural ameloblastoma, unilocular ameloblastoma, Ameloblastic fibroma, Odontoma, and cementomas).⁷ Among the therapy options are marsupialization and total enucleation. The process of converting a cyst into a pouch by suturing the cyst lining to the oral mucosa is known as marsupialization. If the preservation of the misplaced teeth is desired, especially in a young kid, this conservative procedure is adopted. It is also employed if the cyst is huge and there is a risk of tissue damage and a pathologic fracture of the jaw.^{8,9} This procedure has fewer issues than enucleation in terms of preserving critical anatomical features and producing permanent tooth germs.

The downside of marsupialization is the diseased tissue that remains in place. Ameloblastoma, squamous cell carcinoma, or intraosseous mucoepidermoid carcinoma can arise from the cells in the lining of a dentigerous cyst; however, recurrence of a dentigerous cyst is uncommon, especially after complete removal of the cyst or tooth eruption.⁹ Enucleation is a drastic procedure for eliminating the entire cystic capsule. When the cyst is small and saving the afflicted tooth is impossible, this is the treatment strategy of choice.

Even though the cyst was huge in our case, enucleation was the most frequently acknowledged technique because the patient has a poor socioeconomic status and will have to travel for an extended period of time, follow-up visits are impossible. Furthermore, there was no risk of jaw fracture. Many authors disagree on whether large dentigerous cysts should be enucleated. This is partly owing to the fact that larger cystic cavities lack blood clot structure and fresh bone development is dubious. A blood clot in a devitalized area poses a significant

concern since it is easily infected and can result in the undesirable effects of local inflammation.¹ Various investigations, however, have revealed predictable spontaneous bone regrowth in young individuals following enucleation of such big cysts.^{1,10,11}

CONCLUSION

Enucleation can be used to treat big dentigerous cysts, according to our experience. As a result, the treatment selection must be made correctly for each instance, taking into account anatomic site, clinical extent, size, age, and the likelihood of follow-up.

INFORMED CONSENT

Written informed consent was obtained from the patient to publish anonymized information in this article.

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