

# Dentigerous Cyst Associated with Impacted Maxillary Canine: A Case Report

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## Abstract

**Introduction:** Dentigerous cyst is an odontogenic cyst. It is caused by accumulation of fluid between the epithelium of the crown and the crown of an interrupted tooth. It is attached to the neck of the tooth and its size increases by the expansion of the follicle. This cyst most commonly affects the impacted 3rd molar and maxillary canine.

**Case Report:** In the present paper, we report a case of dentigerous cyst associated with impacted canine in a 13year aged female.

**Conclusion:** The patient was treated surgically by enucleation of the cyst.

**Keywords:** Cyst; Dentigerous cyst; impacted tooth; Maxillary canine; Unrequited

## Introduction

The term dentigerous literally means “tooth bearing.”[1]The term was coined by Paget in 1853 and arises from the crowns of impacted, embedded, or unrequited teeth.[2] Dentigerous cysts are the most common developmental cysts of the jaws and the second most common type of odontogenic cysts after radicular cysts.[3] Dentigerous cyst, also known as follicular cyst, is caused by fluid accumulation between the reduced enamel epithelium and the enamel surface of a formed tooth and it originates by separation of the follicle from around the crown of an unerupted tooth.[4]It is most frequently associated with mandibular third molar , maxillary canine, mandibular premolar and maxillary third molar in decreasing order of frequency (Jones et al ,2006). They are twice as common in males as compared to females; with about 30% of them occurring in the maxilla. [5]

Clinically, it is often asymptomatic; it is discovered as an incidental radiographic finding or when acute inflammation, infection or swelling develops, where it appears as a well circumscribed, unilocular, usually symmetric radiolucency around the crown of an impacted tooth. As normal follicular space is 3-4 mm, a dentigerous cyst can be suspected when the space is more than 5 mm. [6] these cysts may also convert into ameloblastomas, mucoepidermoid carcinoma and squamous cell carcinoma.

This case involves a dentigerous cyst encompassing the right impacted maxillary canines and crossing the midline.

## Case Report

A 13-year-old female child reported to the Department of Pediatric and Preventive Dentistry of Rama dental college, hospital & Research Centre, Kanpur with a chief complaint of swelling over the right maxillary midrace region. The swelling was gradual and progressive as noted by the patient till the time of presentation [Fig1]. There was no history of trauma. No episode of pain or discharge from the site was reported by the patient. Patient was subjected to routine general systemic examination. She had no relevant past and present medical history.

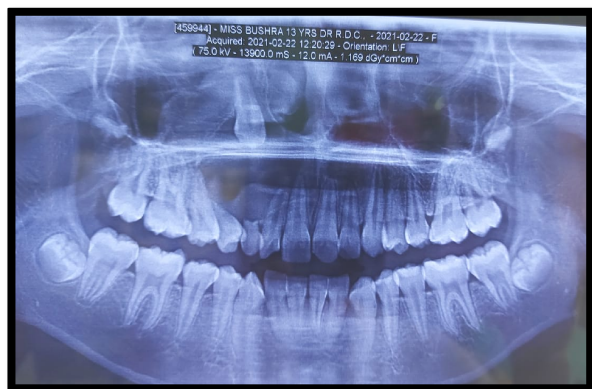


**Figure: 1**

Local examination revealed an extra oral solitary swelling which was oval in shape measuring about 5 cm × 4.5 cm. On palpation, the swelling was bony hard in consistency with a smooth surface. It was nontender with no pulsations.

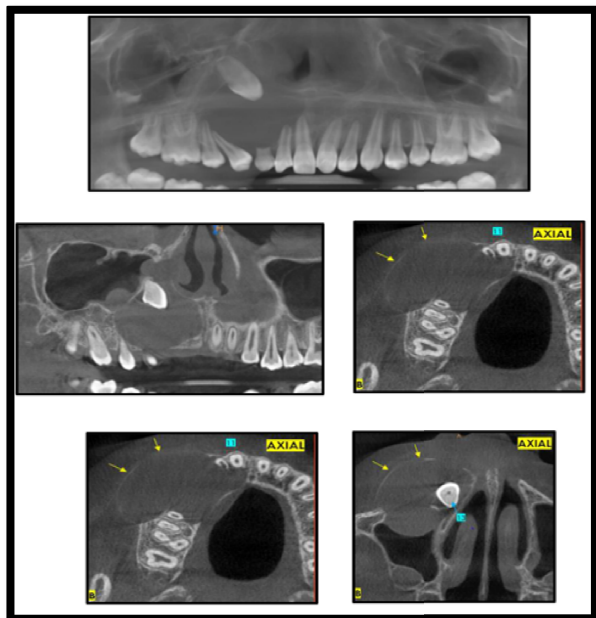
Intraoral examination revealed a hard swelling with cortical plate expansion in relation to 11 to 16. Grade II mobility in relation to 53 and grade I mobility with 14 was observed.

Diagnostic Panoramic Radiograph revealed a large, well defined unilocular radiolucent lesion associated with 11, 12, 53, 14 and 15; 13 was seen impacted and enclosed within the lesion. [Fig2]. Displacement of crown and root of 14 and restoration of root apex of 12 was observed.

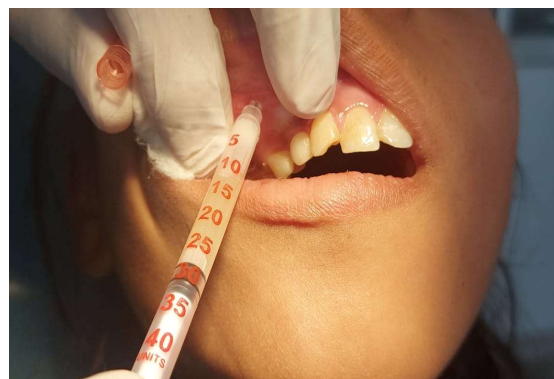


**Figure: 2.**

Cone Beam Computed Tomography confirmed a well-defined radiolucency in relation to 13. [Fig 3] Aspiration of the lesion was done and 2ml clear yellowish cystic fluid was obtained at the time of examination. [Fig 4]



**Figure: 3**



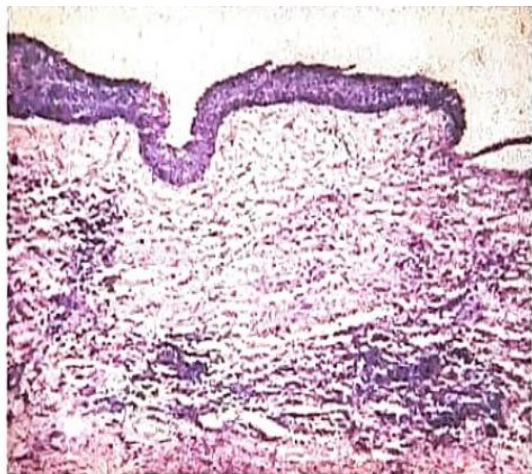
**Figure: 4**

Considering the factors such as age and site of the growing child, it was planned to treat the lesion with simple enucleating procedure [Fig 5] and the excised lesion was histopathologically examined.



**Figure: 5**

Histological section showed characteristic thin cystic lining resembling reduced enamel epithelium and connective tissue stroma showed features of a primitive type ectomesenchyme [Fig 6]



**Figure: 6**

Radiographic findings, surgical resection and histopathological examination confirmed the diagnosis of dentigerous cyst associated with the impacted canine. The patient remained under follow up for six months and no complications were observed.

## Discussion

Dentigerous cyst is more common in the third and fourth decades and most of the surgical modality can be justified in those instances where jaws have completed the growth. But, choosing a treatment modality becomes critical when young growing jaws suffer a massive lesion. In the present case, the patient was only 13 years old at the time of presentation. Any radical approach may result in severe mutilation of jaw along with the loss of its function.

These cysts can grow to very large size and can cause displacement of teeth. Since, cysts can attain considerable size with minimal or no symptoms, early detection and removal of the cysts is important to reduce morbidity. Moreover, almost all of the reported cases [7] including the present case were presented without pain and discovered during investigation of asymptomatic slowly-growing swellings.

Radiographically, the dentigerous cyst presents as a well-defined unilocular radiolucency, often with a sclerotic border. Since the epithelial lining is derived from the reduced enamel epithelium, this radiolucency typically and preferentially surrounds the crown of the tooth. A large dentigerous cyst may give the impression of a multilocular process because of the persistence of bone trabeculae within the radiolucency. However, dentigerous cysts are grossly

and histopathologically unilocular processes and probably are never truly multilocular lesions[8]. Three types of dentigerous cyst have been described radiographically: The central variety, in which the radiolucency surrounds just the crown of the tooth, with the crown projecting into the cyst lumen. In the lateral variety, the cyst develops laterally along the tooth root and partially surrounds the crown, the circumferential variant exists when the cyst surrounds the crown but also extends down along the root surface, as if the entire tooth is located within the cyst. Our case was radiographically a classic presentation of the central variety.

The histological features of dentigerous cysts may vary greatly depending mainly on whether or not the cyst is inflamed. In the non-inflamed dentigerous cyst, a thin epithelial lining may be present with the fibrous connective tissue wall loosely arranged. As the lining is derived from reduced enamel epithelium it is 2-4 cell layer thick primitive type. The cells are cuboidal or low columnar. Retepegs formation is absent except in cases that are secondarily infected. As the connective tissue wall is derived from the dental follicle of developing enamel organ, it is a loose connective tissue stroma which is rich in acid mucopolysaccharides.

Histopathogenesis of dentigerous cyst is based on intrafollicular and extrafollicular theories. There can be no good reason for the extrafollicular theory of origin of dentigerous cysts, as the evidence is that those reported as arising in this manner all appear to be envelop mental or follicular odontogenic keratocyst [8]. Intrafollicular theory postulates the possibility of cyst formation due to fluid accumulation between the layers of inner and outer enamel epithelium after the formation of crown. Another possibility is due to degeneration of stellate reticulum at an early stage of tooth development resulting into cyst formation associated with enamel hypoplasia. [9].

Main's theory (1970): The impacted tooth exerts pressure on the follicle which obstructs the venous outflow and induces rapid transudation of serum across the capillary walls. The increased hydrostatic pressure exerted by this pooling of fluid causes separation of crown from the follicle with or without reduced enamel epithelium.

Most dentigerous cysts are treated with enucleation of the cyst and removal of the associated tooth. Large dentigerous cysts may be treated with marsupialization when enucleation and curettage might otherwise result in neurosensory dysfunction or predispose the patient to an increased chance of pathological fracture. Occasionally it transforms to squamous cell carcinoma, mucoepidermoid

carcinoma, or ameloblastoma from or in association with a dentigerous cyst [10].

In case of a 13years old child, proper decision making in selecting the appropriate treatment modality plays a crucial role in the prognosis of the overall therapy. For the present case, we had considered all possible modalities by taking into account the factors such as age, gender, location, size as well as the patient's socioeconomic status.

The lesion was totally enucleated together with the impacted 13 under local anesthesia. 14 were extracted. Surgically enucleated specimens were sent to the Department of Oral and Maxillofacial Pathology for histopathological evaluation.

The prognosis for most histopathologically diagnosed dentigerous cysts is excellent, recurrence being a rare finding. In all dentigerous cyst, the microscopic features must be determined, to rule out its transformation in an ameloblastoma or, to squamouscell carcinoma.

## Conclusion

Gradual migration of tooth and concurrent soft tissue swelling may be suggestive of cystic lesion. Impacted supernumerary teeth are more likely to be associated with pathology. Early diagnosis and proper treatment planning for such uncommon cases is necessary to avoid further complication.

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