

## A Case Report

### A Case of Dentigerous Cyst Associated with Impacted Mandibular Third Molar

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#### Abstract

A dentigerous cyst usually results due to the enlargement of the follicular space of the whole or part of the crown of an impacted or unerupted tooth and is attached to the neck of the tooth. A dentigerous cyst encircles the crown of an unerupted tooth by expansion of its follicle. It results from alteration of reduced enamel epithelium after the completion of amelogenesis which causes fluid accumulation between epithelium and tooth crown. Dentigerous cyst being the second most common odontogenic cyst which constitutes around 20-24% of all the odontogenic cysts involving the jaws. This case report presents conservative treatment modality for 35 year-old male patient, diagnosed with a dentigerous cyst in association of impacted mandibular third molar. The patient was treated with a minimal invasive approach.

**Keywords:** Dentigerous cyst, Impacted mandibular 3<sup>rd</sup> molar, Enucleation, Marsupialization

#### INTRODUCTION

The term dentigerous cyst is a latin word. Denti means Tooth and Gerous means Bearing or Producing. In 1988, first time dentigerous cyst originated from a female patient. The exact histogenesis of dentigerous cyst remain unknown, but most authors favor a developmental origin from the tooth follicle. It develops by accumulation of fluid between reduce enamel epithelium and crown after crown formation and by transformation of epithelium in the in the wall of dental follicle and uniting with the follicular epithelium.

Dentigerous cyst is the second most prevalent odontogenic cyst affecting the jaw bone [1] and constitutes around 20-24% of all the odontogenic cysts. [2] It usually occurs in first to third decades with no sex predilection. Most common site in oral cavity is mandible(67%) and maxilla (33%). Most frequently located in angle of mandible, canine region of maxilla & mandible, maxillary 3rd molar area, rarely at anterior segment.

It is aggressive type of cystic lesion but may remain silent. Usually painless, pain arise when secondary infection occurs. If untreated-swelling became large with expansion of bone with subsequent facial asymmetry. Pus discharge may occur in case of secondary infection. In the region of cyst, tooth usually remains unerupted.

Dentigerous cysts are normally diagnosed accidentally during the routine radiological examination. Rarely, these cysts get secondarily infected. These cysts

are routinely unilateral, but some rare cases of bilateral dentigerous cysts have also been reported in the literature. [3],[4] The impacted teeth associated with cysts are treated using extraction or non-extraction conservative methods, [3],[5] although, few case reports also revealed spontaneous regression of dentigerous cysts as observed on prolonged radiographic follow-ups. [6],[7] Radiologic examination of these cysts is necessary to decide the appropriate duration of decompression, the enucleation time, and also for the assessment of the adequate new bone formation. In this article, we present a case of a displaced mandibular third molar, which was associated with a large dentigerous cyst. A conservative treatment modality was adopted and the patient was followed-up radiographically for 1 year.

The frequency of dentigerous cyst formation has been estimated to constitute 1.44 per 100 unerupted teeth.[8] Further more, the risk for individual teeth to develop dentigerous cyst varies considerably. In case of mandibular third molars, the prevalence of impaction is approximately the same as that of cyst formation, whereas maxillary third molars

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have a much higher prevalence of impaction than cyst formation, depicting that maxillary third molars have a much lower relative risk of developing a dentigerous cyst than its mandibular counterpart.[9]

### CASE REPORT

A 35 year old male patient came to our clinic with a complaint of swelling at the lower left side near angle of jaw, which he noticed around 2months before. There was no specific onset of swelling and it was increased in size gradually. There was no significant past medical and dental history. Clinical examination showed that there was intraoral swelling in the posterior part of lower left region.

The swelling was intermittent in consistency and there was an expansion of buccal cortical. There was no tenderness on percussion on the lower left 2nd molar and 3rd molar was missing.

The patient was advised for Orthopantomogram (OPG), which revealed a well defined large unilocular radiolucency with sclerotic margins involving the left side of mandible, extending from the periapical region of 37 involving the body, angle, ramus and left coronoid process, and was around 2cm x 2cm in dimensions.(Fig 1) The lesion had caused displacement and thinning of anterior border of ramus. There was erosion of the roots of 37 with demolition of the inferior alveolar canal over the left side. 38 was impacted and displaced superiorly approximating the anterior border of mandible at the angle. Patient was further advised for CBCT scan to examine the extent of bone loss and cyst for better planning of surgical treatment.(Fig 2)

Based on the clinical and radiographic features a provisional diagnosis of dentigerous cyst and a differential diagnosis of odontogenic keratocystic tumor were made. Incisional biopsy was done and sent for the histopathological examination. Biopsy suggestive of a cystic lumen lined by an epithelium along with connective tissue capsule was seen. Cystic space was filled with inflammatory exudates and cholesterol clefts, collagen fibers and few areas of hemorrhage were seen within the connective tissue stroma. These features were suggestive of dentigerous cyst.

Above clinical and radiographic findings were indicative of a dentigerous cyst. The conventional approach is extraction of associated teeth and enucleation of the cyst under local anesthesia (LA)/ general anesthesia (GA) or endodontic rehabilitation of affected teeth. Taking into consideration above findings we planned for minimally invasive approach that is, enucleation followed by marsupialization under LA, and extraction of 2nd and 3rd molars.

In clinical setup under LA, a horizontal incision is placed and the buccal flap was raised hence, making the cyst clearly visible. After that cyst was carefully elevated, enucleated using blunt forceps and preserved on either side. Cystic line was removed carefully along with the impacted third molar(Fig 3) followed by which marsupialization of the cyst was done.

The entire bony cystic wound was irrigated and Cleaned and iodoform dressing was given. After which the patient was followed up for the following intervals of time: after 1 month, with iodoform dressing pack; recall

after 6 months; recall after 1 year; (Fig 4) oral examination and radiographic examination were done.

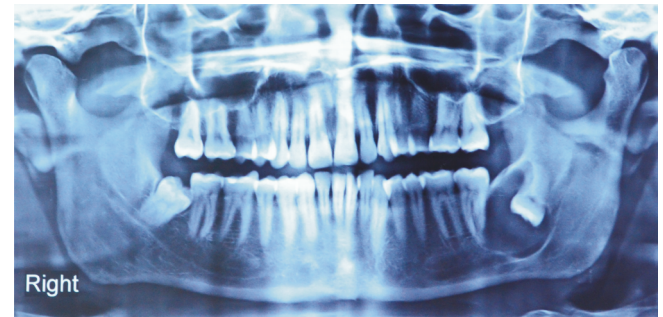


Fig 1 : Preop OPG X ray revealing extent of large Dentigerous cyst

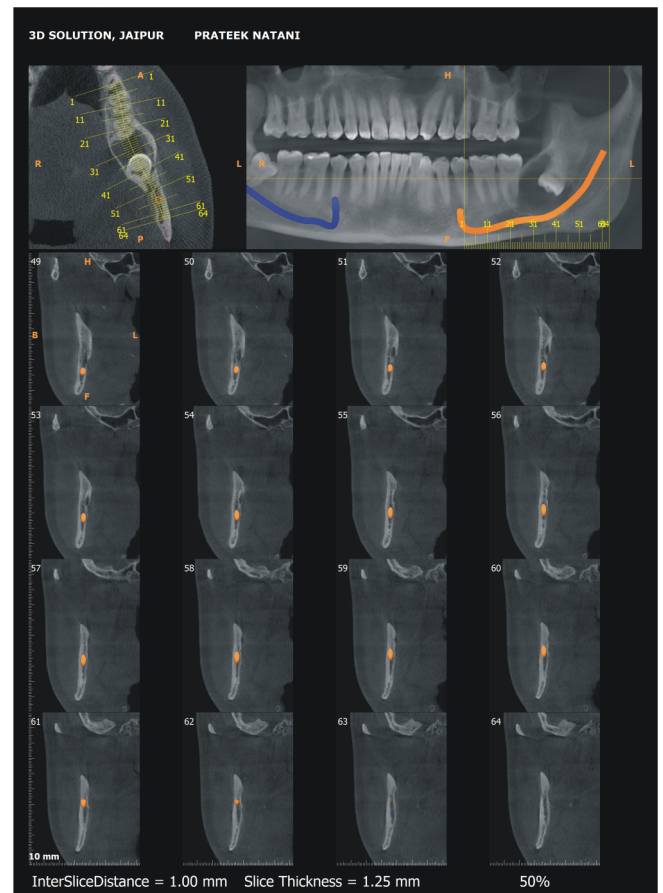


Fig 2: CBCT Scan of mandibular region



Fig 3: Dentigerous cyst along with mandibular third molar





Fig 4: Post op X ray after 1 year showing bone remodelling.

## DISCUSSION

The jawbones have a high prevalence of cysts due to the abundant amount of epithelial remnants. Dental surgeons, therefore, frequently encounter cystic lesions within jawbones. Mostly these jaw cysts are lined with epithelium derived from the odontogenic epithelium, so they are called as odontogenic cysts. They are further divided into two groups, developmental or inflammatory [10]. Dentigerous cysts are the second most commonly found odontogenic cyst. A previous systematic review regarding odontogenic cysts showed that of 18,297 odontogenic cysts, 9982 (54.6%) were cases of radicular cysts, and 3772 (20.6%) were cases of dentigerous cysts [11].

Our case involved a 35 year old male however, dentigerous cysts have peak occurrence during the second decade, commonly noticed in individuals between 10-30 years of age. These cysts have a sex predilection for the male population with an incidence rate of 1.6-1 [12]. Usually dentigerous cysts go undetected until encountered accidentally in routine radiograph as they do not exhibit any symptoms. However, some cysts may attain a substantial size bringing about painless bony expansion until infected secondarily. In view of these lesions acquiring extensive size without manifestation of major symptoms, it is essential to detect and remove them to minimize destruction [13]. Histologically, a normal dental follicle is lined by enamel epithelium, whereas a dentigerous cyst is lined by nonkeratinized stratified squamous epithelium. Since, this cyst originates from follicular epithelium it has more potential for growth, differentiation and degeneration than a radicular cyst. Very rarely, the wall of a dentigerous cyst may give rise to a more perilous mucoepidermoid carcinoma. Considering the tendency for dentigerous cysts to expand rapidly, they may cause pathological fractures of jaw bones in some cases. Thin straw colored fluid is usually seen, on fine needle aspiration. In radiograph it appears as a well-demarcated radiolucent lesion attached to the cervical area of an unerupted tooth. Radiographically, a dentigerous cyst should always be differentiated from a normal dental follicle. Radiographically, the cyst appears unilocular with well defined margins and often sclerotic borders but sometimes it may be multilocular in appearance with continuous cystic membrane. Infected cysts show ill-defined margins. A dentigerous cyst is often treated by enucleation of the cyst along with the extraction of the associated tooth. Marsupialization is done in cases of a large cyst.

## CONCLUSION

In our case report, we have disclosed the gradual improvement of jaw bone cyst encircling an impacted third molar. Conservative treatment approach with a cautious and consistent follow-up displayed a non-traumatic approach for treating large cysts of jaws, with salvation of the impacted and displaced third molar tooth. Enucleation was done under local anesthesia without use of any bone graft. Natural bone remodeling was promoted. In subsequent follow-ups, lesion got completely resolved without any complications in one year.

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