

## Case Report

### Dentigerous cyst associated with ectopically erupted molar in maxillary sinus- A Case Report

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#### **ABSTRACT:**

The occurrence of dentigerous cysts in maxillary sinus are uncommon. Dentigerous cysts are developmental odontogenic cyst which originate by the separation of the follicle form around the crown of an impacted or unerupted tooth. The dentigerous cyst appear as oval well defined unilocular radiolucency with sclerotic border radiographically. OPG and NCCT scan are important tools in the diagnosis of dentigerous cysts located in the maxillary sinus. Our prime aim was to report the treatment of dentigerous cyst in maxillary sinus associated with 3<sup>rd</sup> molar with a complain of painful swelling over her right cheek with intraoral pus discharge in 21 year old girl by Caldwell-Luc Approach. Histopathological examination report of the specimen, confirmed the diagnosis.

**Key words:** Dentigerous cyst, ectopic 3<sup>rd</sup> molar, Caldwell-Luc approach, maxillary sinus, case report.

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#### **INTRODUCTION**

Dentigerous cysts are developmental odontogenic cyst which develop by the separation of the follicle form around the crown of an impacted or unerupted tooth.<sup>1</sup> Dentigerous cysts are one of the most common (20-24% of all the epithelium-lined jaw cysts) . of the developmental odontogenic cysts of the jaws. It develops by expansion of follicle when fluid collects or a space occurs between the reduced enamel epithelium and the enamel of an impacted tooth.<sup>2</sup>

Usually dentigerous cysts are asymptomatic unless there is infection, when it is followed by a painful swelling. A clinically missing tooth could indicate the possibility of a cyst. A swelling due to dentigerous cyst can cause facial asymmetry. The dentigerous cyst causes cortical expansion and may involve surrounding teeth causing resorption of teeth.<sup>3</sup> Radiographically, the dentigerous cysts shows a unilocular radiolucent lesion with a well-defined cortical border associated with the

crown of an unerupted tooth, but an infected cyst will show ill-defined borders.<sup>4</sup>

Dentigerous cyst has a male predilection and is twice more commonly seen in males than females M:F::2:1. Around 70% of cases are seen in the mandible whereas around 30% occurs in the maxilla. The cyst are most commonly involved with the mandibular third molars followed by the maxillary canines, mandibular bicuspid, and maxillary third molars.<sup>5</sup> However, dentigerous cyst associated with an ectopic tooth obliterating the maxillary sinus is quite rare, and only a few cases have been reported in the literature.<sup>6</sup>

Here we are presenting a case of pus discharge from vestibular region of upper molars due to dentigerous cysts associated with an ectopically placed third molar in the right maxillary sinus and its surgical management via a Caldwell-Luc procedure.

### CASE REPORT

A 21-year-old female patient reported to our Department of dentistry, Dr RPGMC Tanda, with a chief complaint of foul-smelling purulent discharge from behind the right last upper tooth (distally from gingival of the second maxillary molar ) since 7-8 month, with a slow-growing swelling with pain and heaviness over the right cheek. Pain is mild in intensity and intermittent in nature. The patient was diagnosed with chronic sinusitis by physician and was given repeated course of analgesic and antibiotics for the past 7-8 months. Despite being treated with antibiotics, the discharge and pain persisted and the swelling gradually increased in size. On general examination, the patient was moderately built and nourished. On clinical examination, there was slight facial asymmetry caused by the swelling over the right maxillary region extra orally and the maxillary right third molar was absent intraorally. (Fig 1)



Fig 1: The maxillary right third molar absent intra orally.

An Orthopantomograph (OPG) (Fig 2) and OMV skull (Fig 3) was advised, which revealed the presence of an ectopically tooth in the right maxillary sinus.



Fig 2: Pre Operative OPG shows ectopic 3<sup>rd</sup> molar(arrow)



Fig 3: Water's view shows ectopic 3<sup>rd</sup> molar

The initial diagnosis of dentigerous cyst was made on clinical and radiographic findings. Aspiration was performed and serous purulent fluid was obtained, confirming the provisional diagnosis of infected cyst. To confirm the exact location of ectopic molar Non contrast Computed Tomography (NCCT) was advised which showed a tooth in the roof of right maxillary sinus with presence of a well defined pear shaped unilocular uniformly hypodense 2-8 H U lesion in the crown of the right molar tooth which was bordered by thin rim of cortical bone suggestive of cystic lesion measuring 3X3 cm in size. The coronal and axial CT image showed a lesion inducing complete opacity of the maxillary sinus [Figure 4a,4b].



Fig 4a : CT Coronal view showing cyst ant tooth



Fig 4b : CT axial view showing cyst and tooth

**Surgical technique/approach**

The surgery was done under general anesthesia, combined with local anesthesia. Intraorally, a vestibular incision was given to reflect complete thickness mucoperiosteal flap followed by Caldwell-Luc approach through the anterior wall of maxillary sinus (Fig 5).



Fig 5: Caldwell-Luc Approach

Through the Caldwell- Luc approach pus was removed with syringe and complete cystic enucleation along with the removal of impacted molar was done. The

cavity was irrigated with povidine iodine solution and normal saline. The wound was closed with 3.0 silk sutures. The tissue specimen was sent for histopathological examination (Fig 6).

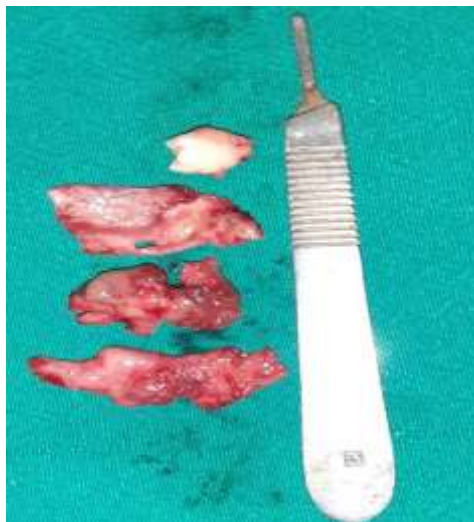


Fig 6 : Excised cyst with ectopic tooth

After the surgery, the patient was prescribed analgesic, antibiotics, xylometazoline nasal drops and steam inhalation. The patient was discharged on the third postoperative day with oral antibiotics. The patient was reviewed after one week and intraoral silk suture were removed. At the same time OPG was advised which showed normal sinus (Fig 7)



Fig 7: Post operative OPG.

Histopathology of the specimen revealed a fibrocollagenous cyst wall with dense lymphoplasmacytic inflammation and focally preserved squamous epithelium with underlying bony trabeculae noted suggestive of dentigerous cyst

She was totally free of her symptoms. She was periodically reviewed for 12 months with no symptoms.

## DISCUSSION

A dentigerous cyst or follicular cyst is a developmental odontogenic associated with the crown of an unerupted (or partially erupted) tooth. The cavity lining of cyst is formed by epithelial cells derived from the reduced enamel epithelium of enamel organ. The most accepted theory of pathogenesis suggests that pressure exerted by an erupting tooth on the follicle obstructs venous flow resulting in accumulation of exudate between the reduced enamel epithelium and the tooth crown.<sup>7</sup>

Ectopic eruption of a tooth is a developmental disturbance in which there is malposition of a permanent tooth bud resulting in the tooth erupting in the wrong place in spite of following its usual course and eruption pattern. Ectopic eruption of a tooth is rarely common phenomenon; however, ectopic eruption of the tooth in the maxillary sinus,<sup>6</sup> nose,<sup>8</sup> condylar process of mandible,<sup>9,10</sup> and coronoid process has been reported by few.<sup>11</sup>

These cysts remain painless and dormant and may cause some expansion of cortical bone. If infected it shows symptoms of inflammation such as facial swelling, and sensory changes.

Radiographically, dentigerous cyst is presents as unilocular radiolucency with well-defined cortical border and is associated with the crown of an unerupted tooth at the cemento-enamel junction. Waters' view, lateral cephalogram, and OPG are considered as common, reliable, and conventional views for evaluation of an ectopic tooth in the maxillary sinus. Noncontrast computed tomography (NCCT) scan provides best bony detail, helps in determination of exact location and extent, and size of the lesion.<sup>12</sup> In the present case, Water's view, orthopantomograph and NCCT were used for the diagnosis and surgical planning. Histologically, the uninflamed cyst has lining of non-keratinized stratified squamous epithelium similar to the reduced enamel epithelium and consists of two to three rows of cuboidal or flattened epithelial cells. Mucous cells may be present and sometimes are quite prominent. Some are ciliated. The cystic wall is fibrous, and the connective tissue stroma has abundant mucopolysaccharides so that it may appear basophilic and myxoid. Often the connective tissue wall has rests of odontogenic epithelium and dystrophic calcifications. Rushton bodies may also be found within the lining, similar to the radicular cysts. The inflamed dentigerous cysts may have proliferative changes within the epithelium with the formation of rete ridges. Cholesterol clefts also may be seen. These inflammatory changes result in histological picture indistinguishable from a radicular cyst.<sup>13, 14</sup> Differential diagnosis includes odontogenic keratocyst, adenomatoid odontogenic tumor, calcifying epithelial odontogenic cyst, calcifying epithelial odontogenic tumour, and unicystic ameloblastoma. In addition to

this researchers recently proved that the biochemical markers such as BMP-4<sup>15</sup> and immunohistochemical markers such as Bcl-2 and Bcl-xL can be used for differentiation of DC from odontogenic keratocyst and unicystic ameloblastomas.<sup>16</sup>

The accepted treatment for a dentigerous cyst of maxilla is cystic enucleation alongwith extraction of the associated tooth via Caldwell-Luc procedure under local or general anesthesia. In large cysts, marsupialization is done to decrease the size of the osseous defect, followed by enucleation and tooth extraction. The major disadvantage of marsupialization is recurrence or persistence of the lesion along with the residual cystic lining<sup>17</sup>

## CONCLUSION

This case report shows infected dentigerous cyst associated with ectopic maxillary 3<sup>rd</sup> molar which completely obliterate sinus with intraoral pus discharge. Untreated cyst can lead to facial swelling, numbness, infection, nasal obliteration and even malignancy so its timely management is necessary.

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