

Dentigerous cyst with an impacted third molar obliterating complete maxillary sinus

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ABSTRACT

Dentigerous cyst is the most commonly occurring odontogenic cyst after radicular cyst and accounts for 15% of all true cysts in the jaws. The cyst is more common in mandible than in maxilla. The dentigerous cyst is commonly associated with impacted mandibular third molars. In maxilla, the incidence is rare. Dentigerous cyst in maxillary sinus in association with an impacted third molar is an uncommon entity. We present a case of dentigerous cyst associated with an impacted third molar, completely obliterating the maxillary sinus in a 28-year-old female.

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Dentigerous cyst is the second most commonly occurring odontogenic cyst after radicular cyst and accounts for 15% of all true cysts in the jaws. It is thought to arise from the remains of enamel organ after the enamel formation has been completed.^[1] About 70% of the dentigerous cysts occur in the mandible and 30% in maxilla.^[2] The dentigerous cyst is commonly associated with impacted mandibular third molars. In maxilla, the incidence is rare. If present, it is usually associated with an impacted canine. It is very rarely seen in association with an impacted third molar. It is commonly seen in the age group between 18 and 25 years when third molars are supposed to erupt.

Dentigerous cyst in maxillary sinus in association with an impacted third molar is an uncommon entity. Failure to intervene may cause impingement on the surrounding structures like nasal septum, orbit, alveolar arch, and hard palate.^[3] Some untreated dentigerous cysts have the potential to develop odontogenic tumors like ameloblastoma, and malignancies like oral squamous cell carcinoma and mucoepidermoid carcinoma.^[4,5]

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CASE REPORT

A 28-year-old female reported to the Department of Oral and Maxillofacial Surgery with a chief complaint of facial asymmetry due to swelling on the right side of the face. The swelling was initially small, which gradually increased to the present size. The patient gave history of recurrent sinusitis and headache, for which a computed tomography (CT) scan was advised by a private doctor. On clinical examination, diffuse hard swelling was seen over the right maxilla, which was asymptomatic. Intraoral examination revealed missing second and third molars; CT scan showed a tooth in the roof of right maxillary sinus; the coronal CT image showed a lesion inducing complete opacity of the maxillary sinus [Figure 1]. The initial diagnosis of dentigerous cyst was made on clinical and radiographic findings. Incisional biopsy was done under local anesthesia, which confirmed dentigerous cyst. Complete enucleation of the cyst along with the impacted third molar was done under general anesthesia via an intraoral approach by exposing the anterolateral wall of maxillary sinus [Figures 2 and 3], and the closure was done by resorbable suture material. The specimen was sent for histopathologic examination which confirmed dentigerous cyst. The patient was kept on regular follow-up for 18 months when there were no signs of recurrence.

DISCUSSION

Dentigerous cyst is an uncommon cyst found in the maxillary sinus and there are only a few articles reporting the lesion in maxillary sinus.^[6] In our case, the tooth was present at the roof of the maxillary sinus which is a very rare position for maxillary third molars to erupt. If not

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Figure 1: CT scan showing impacted third molar surrounded by radiolucency in the right maxillary sinus



Figure 2: Enucleation of the cyst by intraoral approach



Figure 3: Excised specimen

treated, early cyst in the maxillary sinus may displace and obliterate the maxillary antrum and nasal cavity. The cyst may cause pathological fracture and may become secondarily infected.^[7] Metastatic and dysplastic changes may occur; associated aneurismal bone cyst and hemangiomas have also been reported in rare instances.^[7] Ectopic eruption of a tooth into the dental environment is common, whereas ectopic eruption of a tooth in other sites is rare. Its presence in the maxillary sinus is a rare entity and very few cases have been reported in the literature.^[8] Ectopic eruption may result due to one of the three processes: Developmental disturbances, pathological process and iatrogenic activity.^[8]

It is believed that the displacement of the tooth buds by the expansion of these dental cysts results in the displacement of the tooth to other areas, as was seen in our case.

Dentigerous cysts are usually single lesions. But bilateral and multiple cysts have been reported in patients with syndromes such as basal cell nevus syndrome, mucopolysaccharidosis, and cleidocranial dysplasia.^[9,10] Also, cases of multiple

dentigerous cysts involving maxilla and mandible have been reported in literature.^[10]

The management of this lesion depends on the age of the patient, site and extension of the cyst. Various treatment modalities have been proposed. Basic surgical procedure includes marsupialization or enucleation. The modified procedures include a combination of both, use of Carnoy's solution following enucleation, and use of bone grafts to fill the cystic cavity. The recurrence rate of dentigerous cyst is very low as when compared to other jaw cysts.^[10]

In the present case, enucleation was preferred over the marsupialization. Since there was no danger of devitalizing teeth, the surgical procedure did not require any sacrifice of any important structure, and the impacted third molar was nonfunctional.

CONCLUSION

This case report highlights maxillary third molar in an ectopic position into the roof of the maxillary sinus, associated with a dentigerous cyst which was completely obliterating the maxillary sinus. Very few such cases have been reported in the literature. Since the untreated cyst may lead to facial asymmetry, infection, nasal obstruction and even metaplastic and dysplastic changes, its diagnosis and treatment is essential.

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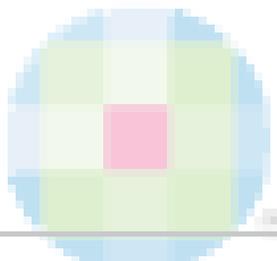
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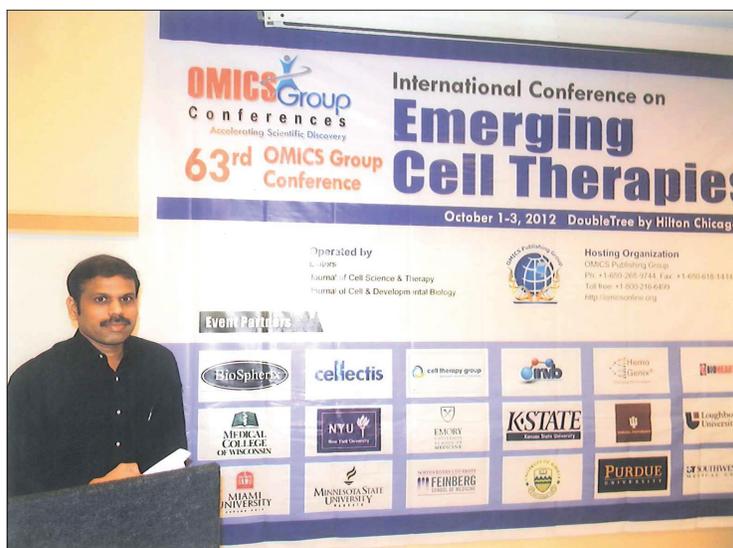
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MEMBER'S ACTIVITY



Dr. PM Sunil, Professor in Department of Oral and Maxillofacial Pathology, Annamalai University, TamilNadu, had presented a poster on the topic "Is Induced Pluripotent Stem Cells an alternative to dental stem cell banking?" in **International Conference on Emerging Cell Therapies**, held on 2nd October 2012, at Chicago, USA.