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# A Deceptive pathology in the Periapical Cyst: A Case Report

[1]Manju S, PG Student, Department of Oral & Maxillofacial Surgery, PG student, MES Dental College, Perinthalmanna, 679338, India.

[2]Roshni A, MDS, Department of Oral & Maxillofacial surgery, Professor, MES Dental College, Perinthalmanna, 679338, India.

[3]Sachin Aslam A, MDS, Department of Oral & Maxillofacial Surgery, Professor & HOD, MES Dental College, Perinthalmanna, 679338, India.

[4]Akhila K, MDS, Department of Oral & Maxillofacial Surgery, Senior lecturer, MES Dental College, Perinthalmanna, 679338, India.

[5]Antony George, MDS, Department of Oral & Maxillofacial Pathology, Professor & HOD, MES Dental College, Perinthalmanna, 679338, India.

**Corresponding Author:** Manju S, PG Student, Department of Oral & Maxillofacial Surgery, PG student, MES Dental College, Perinthalmanna, 679338, India.

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**Conflicts of Interest:** Nil

**Abstract**

With a documented frequency of less than 1.0%, odontogenic keratocysts in the maxillary sinus are exceptionally rare. We present a rare instance of a single odontogenic keratocyst (OKC) in the right maxillary sinus, which exhibited aggressive expansile behaviour and resembled an infected periapical cyst clinically and radiographically. The OKC was enucleated under general anaesthesia. Regarding OKC in the maxillary sinus, the choice of treatment varies. Important structures' proximity must be taken into account. Regardless of the chosen treatment approach, efforts to reduce recurrence must be made.

**Keywords:** Maxillary Sinus, Odontogenic Keratocyst, Periapical Cyst.

## Introduction

Among the cysts of the maxillofacial region, the odontogenic keratocyst (OKC) is a clinically and histopathologically distinct entity. This is explained by OKC's unusually aggressive character and high rate of recurrence, which are not typical of odontogenic cysts. From developmental odontogenic cysts of the jaw, OKC was reclassified as keratocystic odontogenic tumour (KCOT) in 2005[2]. However, KCOT was recently reclassified by the WHO classification of Head and Neck pathology (2017), returning it to the cystic

group[3,7]. The lower jaw is where OKC is most frequently documented, with a preference for the posterior mandible and ascending ramus [4,5]. Although it presents seldom, the canine and third molar regions of the maxilla are where OKC is most frequently documented.[5]

**Case Report**

A 30-year-old male patient complained to our department about a bad-smelling discharge from the upper right back tooth area for three months. Examination of the face did not reveal any asymmetries or deformities.

Oral examination indicated obliteration of the mucobuccal fold of 16, 17, and yellow coloured pus discharge from the gingival sulcus in the vicinity of those two teeth. Hard-tissue examination revealed missing teeth in the number of 18, repaired teeth in the number of 17, and tender to percussion in the number of 16. On palpation, the alveolar mucosa and buccal vestibule in the 16–18 region were sensitive.

The right maxillary sinus appeared to have a single, large destructive lesion on cone beam computed tomography. Axial sections revealed bone degradation in the medial and lateral walls of the maxillary sinus as well as wall expansion and thinning. The nasal cavity was seen to be shifting to the left. Coronal sections showed destruction in the floor of the maxillary sinus in the 18 region, as well as a mild superior displacement of the left orbit's floor. (Figures 1A-D)

Yellow coloured pus was aspirated from the 17 periapical area. The periapical region of 16,17 was subjected to an incisional biopsy, and the histology results were suggestive of an inflammatory cyst. Consequently, under general anaesthesia thee enucleation of the cyst was done. (Figures 2A-C), and the specimen was sent for histopathological examination (Figure 2D). Microscopic analysis revealed focal areas of ulceration, focal areas of arcading arrangement with entrapped connective tissue, and focal areas of parakeratinized stratified squamous cystic epithelium of 6–8 layers thickness with flat connective tissue interface, palisaded hyperchromatic basal cells, and congested blood vascular channels. Focused peripheral laminar bone spicules and areas of chronically inflammatory cells are present in the associated dense fibrovascular capsule. Focal area of pseudostratified ciliated columnar epithelium of maxillary sinus seen. (Figure 2E). It was determined that it was OKC of the maxillary sinus based on the histological characteristics. The recovery time went without any complications, and the patient has been receiving regular check-ups for the past 18 months.

**Discussion**

4.0 -12.0% of all odontogenic cysts are odontogenic keratocysts[8]. The mandible is where 60–80% of OKC occurs. The remnants of the dental lamina are the source of OKC, which is a developmental phenomenon8. During the second and third decades of life, it is frequently reported. Maxillary sinus OKC is substantially more uncommon [9,10]. Due to the enlargement taking place within the solid cavity of the maxillary sinus, OKC developing in the maxillary sinus may go unnoticed. When critical structures are affected or the cyst becomes infected, it may start to show symptoms. Although it has a greater recurrence rate, enucleation is the most popular therapeutic option. Additionally, marsupialization with posterior enucleation has been used for bigger cysts. Adjuvant procedures are also utilised to lessen recurrences; one of these approaches involves applying Carnoy's solution as a fixative for three minutes, which can lessen recurrences by up to 0%. However, it is not suggested to employ Carnoy's solution in the maxillary sinus because

to the irreversible harm it might do to the sinus lining and the nearby neurovascular bundle.

**Conclusion**

In light of cases that closely resemble an inflammatory or periapical cyst, this report emphasizes the necessity to rule out the possibility of an odontogenic keratocyst diagnosis in the maxilla and its prudent management. The treatment for OKC in the maxillary sinus must be carefully chosen due to the high likelihood of recurrence, and the patient must be monitored clinically and radiologically for at least five years.

**List of Figures**

Figure 1(A-D): Preoperative CBCT showing location and dimensions of the lesion.

Figure 2(A-E): Macro- and micro-scopic appearances of the lesion insitu and on histopathological slide respectively.

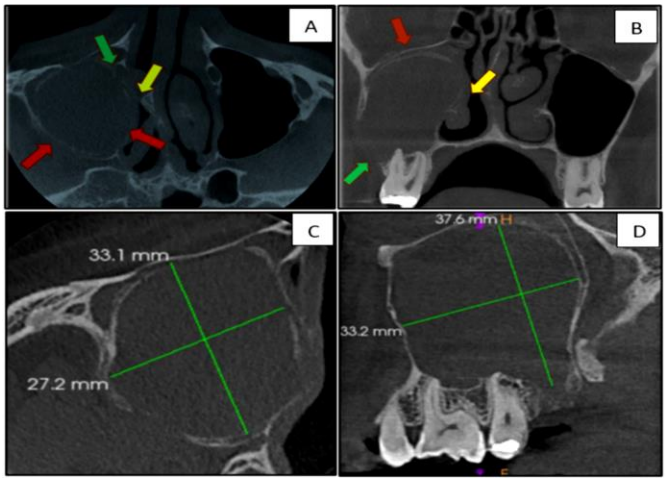


Figure1: Cone beam computed tomography showing a single large destructive lesion in the right maxillary sinus. Axial sections (Figures A & C) showing expansion and thinning of walls of maxillary sinus with erosion of bone in the medial and lateral walls. Displacement of nasal cavity towards left side was noted. Coronal sections (Figures B&D) showing mild superior displacement of floor of left orbit, and destruction in the floor of maxillary sinus in 18 region.

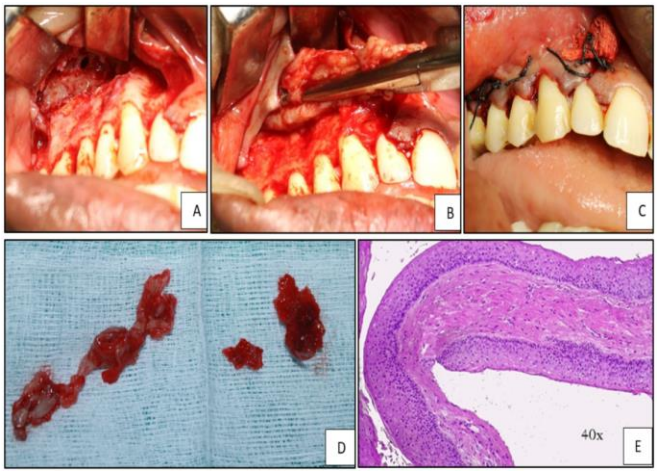


Figure 2: (A) Cystic lining identified through surgical exposure (B)Enucleation of cystic lining (C)Closure of surgical site done with 3-0 Mersilk (D)Enucleated cystic lining for histopathological examination (E)Microscopic image showing para-keratinized stratified squamous cystic epithelium of 6-8 layers thickness with flat connective tissue interface, palisaded hyperchromatic basal cells, focal areas of ulceration, and focal areas of arcading arrangement with entrapped connective tissue having congested blood vascular channels.

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