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# Case Report: Dentrigerous cyst in 42 year old male patient.

**Dr. Isheeta Verma (1), Dr. Prasanna Kumar P (2), Dr. Ankita Raj (3)**

## AbstractS

Dentigerous cysts are developmental odontogenic cysts commonly associated with the crown of unerupted or impacted teeth. These cysts, though usually asymptomatic, can grow significantly, causing swelling, pain, and displacement of adjacent teeth. This case report details the diagnosis and surgical management of a 4 cm dentigerous cyst in the left mandibular region of a 42-year-old male patient, involving the third molar and extending to the second molar. The surgery was performed under general anaesthesia, employing a combination of marsupialization and enucleation to manage the cyst effectively while preserving vital structures.

## Introduction

Dentigerous cysts are the second most common odontogenic cysts, constituting approximately 20% of all jaw cysts. They arise from the accumulation of fluid between the reduced enamel epithelium and the crown of an unerupted tooth.[1] These cysts are most frequently associated with impacted mandibular third molars, maxillary canines, and occasionally supernumerary teeth. Although small cysts are typically asymptomatic and discovered incidentally on radiographs, larger cysts can present with swelling, discomfort, or displacement of adjacent teeth.[2]

Dentigerous cysts are significant because they can cause complications such as root resorption, displacement of adjacent teeth, and, in rare cases, transformation into more aggressive lesions like ameloblastomas or squamous cell carcinoma.[3] The treatment of choice is usually enucleation with extraction of the associated impacted tooth. The approach to surgical management depends on factors such as the size of the cyst, its location, and proximity to vital structures like the inferior alveolar nerve and maxillary sinus.[4]

This report discusses the case of a large dentigerous cyst in the left mandibular region, highlighting the clinical, radiographic, and histopathological findings, along with the surgical approach employed for treatment.

## CASE PRESENTATION

### Patient Information:

A 42-year-old male presented to our Department of Oral and Maxillofacial Surgery to the outpatient clinic with a complaint of swelling in the left lower jaw region for the past three months. The patient reported mild discomfort while chewing but denied any significant pain, pus discharge, or systemic symptoms such as fever. His medical history was unremarkable, and there were no known allergies.

**Clinical Examination:**

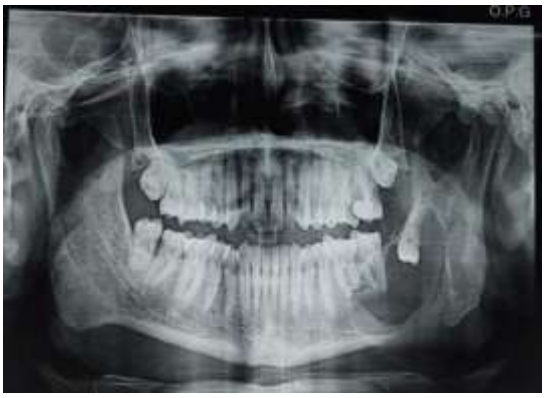
Extraoral examination revealed mild facial asymmetry due to swelling in the left mandibular region. The swelling was firm, non-tender, and showed no signs of erythema or fluctuation. There was no lymphadenopathy or any sign of infection. The temporomandibular joint movements were normal, with no clicking, deviation, or restriction in mouth opening.

Intraoral examination revealed a well-defined buccal cortical expansion in the region of the left mandibular second and third molars. The swelling extended from the distal aspect of the first molar to the retromolar region. The overlying mucosa was intact, with no ulceration, sinus formation, or pus discharge. The involved second molar exhibited mild mobility, while the third molar was completely impacted. Palpation confirmed a firm, non-fluctuant mass with no signs of tenderness. There was no evidence of paresthesia or sensory loss in the distribution of the inferior alveolar nerve.[5]

The patient's oral hygiene was fair, with no signs of active periodontal disease. Percussion testing on the adjacent teeth was negative for tenderness, indicating the absence of pulpal involvement.

**Radiographic Findings:**

A panoramic radiograph showed a well-circumscribed, unilocular radiolucency measuring approximately 4X2 cm in diameter, surrounding the crown of an impacted mandibular third molar. The lesion extended to the roots of the adjacent second molar, with evidence of root resorption. The borders of the lesion were corticated, suggesting a benign nature. Cone- beam computed tomography (CBCT) provided a detailed three-dimensional view, confirming the extent of the lesion and its proximity to critical structures such as the mandibular canal.[9] The CBCT images revealed thinning of the cortical plates and slight displacement of the mandibular canal, although there was no evidence of nerve compression. These findings supported the provisional diagnosis of a dentigerous cyst and helped in surgical planning by identifying vital anatomical structures to avoid during the procedure.[8]



## DIFFERENTIAL DIAGNOSIS

A provisional diagnosis of dentigerous cyst was made based on the clinical findings, and the following lesions were considered while listing the differential diagnosis: Odontogenic Keratocyst (OKC), Radicular Cyst, ameloblastoma, Unicystic Ameloblastoma, Central Giant Cell Granuloma (CGCG), Simple Bone Cyst.

## Treatment

### Treatment Plan

The treatment plan aimed to achieve complete removal of the cyst while minimizing damage to adjacent structures. A two-stage surgical approach was chosen:

- Enucleation: Complete removal of the cystic lining and extraction of the impacted third molar after initial decompression.

### Surgical Procedure

Under general anesthesia, a mucoperiosteal flap was elevated to expose the cystic lesion. The buccal cortical bone was carefully thinned using a round bur to provide adequate access to the lesion. Once the cystic cavity was exposed, the cyst lining was meticulously separated from the surrounding bone using blunt dissection. Care was taken to avoid excessive trauma to the inferior alveolar nerve.

Enucleation was performed by completely excising the cystic lining in one piece to ensure no remnants were left behind. The impacted third molar was extracted, and the cavity was thoroughly irrigated with sterile saline to remove any residual debris. Hemostasis was achieved using electrocautery and gauze packing.[7]

The cavity was left open to allow for secondary healing, ensuring proper drainage and reducing the risk of infection. The patient was advised on wound care and instructed to maintain good oral hygiene. Postoperative antibiotics and analgesics were prescribed to prevent infection and manage pain.[12]

Enucleation and Tooth Extraction[6]

- Flap Reflection: A crevicular incision was made, and a mucoperiosteal flap was elevated to expose the residual cystic cavity.[11]
- Bone Removal: Minimal bone removal was performed using a surgical bur to access the cyst lining.

- Enucleation: The cystic lining was carefully separated and completely removed. Care was taken to preserve the mandibular nerve followed my modified carony's solution.
- Tooth Extraction: The impacted third molar was extracted, along with second molar.

**Histopathological Examination**

The excised tissue was sent for histopathological analysis. Microscopic examination revealed a cystic lining composed of non-keratinized stratified squamous epithelium, consistent with a dentigerous cyst. There was no evidence of dysplasia or malignancy.

**Postoperative Management**

The patient was advised to continue antibiotics and analgesics as prescribed. Chlorhexidine mouthwash was recommended for oral hygiene. Soft diet and avoidance of trauma to the surgical site were advised. Follow-up appointments were scheduled to monitor healing and detect any signs of recurrence.[10]

**Follow-up**

- The patient was monitored for signs of infection, nerve injury, and bone healing.
- Radiographic evaluation at 3 and 6 months showed progressive bone regeneration and no signs of recurrence.
- The patient remained asymptomatic with no functional impairment.

## DISCUSSION

Dentigerous cysts are benign lesions but can grow significantly, causing complications such as tooth displacement, root resorption, and jaw fractures. Early diagnosis and appropriate management are essential to prevent such complications.[1]

Enucleation ensures complete removal of the cyst lining, reducing the risk of recurrence. This technique is effective for managing large dentigerous cysts while preserving adjacent structures. [2] Leaving the surgical site open allows for gradual healing and reduces the risk of fluid accumulation, which can lead to secondary infection.

Histopathological confirmation is crucial in differentiating dentigerous cysts from other aggressive lesions such as odontogenic keratocysts or ameloblastomas. Long-term follow-up with periodic radiographic evaluations is recommended to monitor bone regeneration and detect any recurrence.[5]

Additionally, advancements in imaging modalities such as CBCT have improved preoperative planning by providing a detailed assessment of cystic lesions and their relationship with vital structures. This helps in minimizing surgical complications and ensuring optimal patient outcomes.

This case highlights the importance of individualized treatment planning. Enucleation provided effective resolution of the lesion with minimal morbidity. Regular follow-up is crucial to monitor healing and detect any signs of recurrence.

## Conclusion

This case demonstrates the successful management of a large dentigerous cyst in the left mandibular region using enucleation. The procedure ensured complete removal of the lesion while preserving surrounding structures. Early diagnosis, tailored surgical planning, and meticulous follow-up are essential for optimal outcomes in managing odontogenic cysts.

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## Author details

Corresponding Author

Dr. Isheeta Verma(1)
Post Graduate , Department of Oral and Maxillofacial Surgery, Rama Dental College and Research Centre , Kanpur
Mailing Address : 554/94 kha Arjun Nagar, Alambagh, Lucknow. 226005
isheetaishaverma@gmail.com
7007949855

Dr. Prasanna Kumar P.(2):
Professor and Head of Department of Oral and Maxillofacial Surgery, Rama Dental College, Hospital and Research Center, Kanpur, Uttar Pradesh, India
prasannamaxface@gmail.com
9886122780

Dr. Ankita Raj(3):
Professor, Department of Oral and Maxillofacial Surgery, Rama Dental College Hospital and Research Centre, Kanpur, Uttar Pradesh, India
drankitaraj.rdc@ramauniversity.ac.in
9415465531

Dr. Avinash Singh Bhadauria(4);
Reader, Department of Oral and Maxillofacial Surgery, Rama Dental College and Research Centre , Kanpur.
Avinash0411@gmail.com
8299127393

Dr. Ankur Rathaur(5):
Reader, Department of Oral and Maxillofacial Surgery, Rama Dental College, Hospital and Research Center, Kanpur, Uttar Pradesh, India
ankurrathaur10@gmail.com
8802879982

Dr. Akash Tiwari(6);
Senior lecturer, Department of Oral and Maxillofacial Surgery, Rama Dental College and Research Centre , Kanpur
akash.tiwari5186@gmail.com
9696643192