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Mandibular Odontogenic Keratocyst: Case Report and Focused Review

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Abstract **Case Report**

Background: Odontogenic keratocyst (OKC) is a developmental cyst from dental lamina or basal epithelial rests, marked by locally aggressive, anteroposterior intraosseous expansion and a meaningful recurrence risk; in the 2022 WHO framework it remains classified as a cyst distinct from the orthokeratinized variant, warranting histopathologic confirmation and subclassification for risk stratification. ***Case presentation:*** An incidental mandibular radiolucency was identified in an asymptomatic patient without extraoral swelling; examination noted slight vestibular cortical deformation and non-vital 33–32 managed by endodontic therapy prior to surgery. CBCT confirmed a well-circumscribed symphyseal lesion; intraoperatively a thin, friable cystic wall with pasty keratin-like content was found, and histopathology confirmed OKC. ***Outcome****:* Enucleation via a buccal approach with double osseous trepanation provided complete access and meticulous curettage. Postoperative recovery was uneventful, with satisfactory mucosal healing at 14 days and no early signs of recurrence on short-term follow-up. ***Discussion:*** Management spans conservative to aggressive options. Meticulous primary enucleation is standard; adjuncts such as Carnoy's solution or peripheral ostectomy may lower recurrence, while marsupialization/decompression can downsize large lesions before definitive surgery; resection is reserved for recurrent/aggressive disease. Recurrences cluster within five years, often due to residual lining, satellite cysts, or new primaries; multifocal/recurrent cases merit evaluation for Gorlin–Goltz syndrome. ***Conclusion****:* A conservative, anatomy-preserving strategy achieved lesion eradication, reduced recurrence risk through optimized access and thorough curettage, and maintained mandibular continuity and function, supporting structured long-term clinical and radiologic surveillance.

Keywords: Odontogenic keratocyst, mandibular cyst, enucleation, oral surgery, case report.

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INTRODUCTION

Odontogenic keratocyst (OKC) is a developmental odontogenic cyst arising from dental lamina or basal epithelial rests, notable for locally aggressive growth, anteroposterior intraosseous spread, and a meaningful risk of postoperative recurrence. [1]

In the current WHO/IARC framework (5th ed., 2022, in use through 2024), OKC is classified as a cyst, while orthokeratinized odontogenic cyst is recognized as a distinct entity, histopathologic confirmation and subclassification are essential due to differing recurrence risks. [2] Clinically and radiographically, OKC typically presents as a well-defined uni or multilocular radiolucency most often in the posterior mandible with features overlapping dentigerous and radicular cysts and ameloblastoma, necessitating biopsy and cross-sectional imaging for definitive assessment.

This case report presents a mandibular OKC, detailing clinical imaging features, operative management with specimen-based confirmation, and a follow-up strategy consistent with contemporary classification and recurrence data.

[1] Singh & Gupta 2010
[2] Soluk-Tekkesin & Wright s. d.

CASE REPORT

Patient information

The patient was referred by a general dentist after an incidental mandibular radiographic finding. (Fig.1)

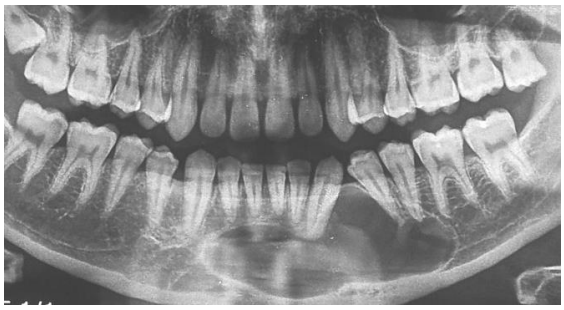


Figure 1:Panoramic radiograph showing a large, well-defined osteolytic image extending from tooth 44 to the mesial root of tooth 36

Medical and dental history revealed no major comorbidities, no prior dental infections, and no current medications. The course was asymptomatic with no visible swelling, paresthesia, or trismus

Clinical findings

Extraoral examination revealed a symmetrical mandibular contour, with no evidence of swelling, lymphadenopathy, or other abnormalities. (fig.2)

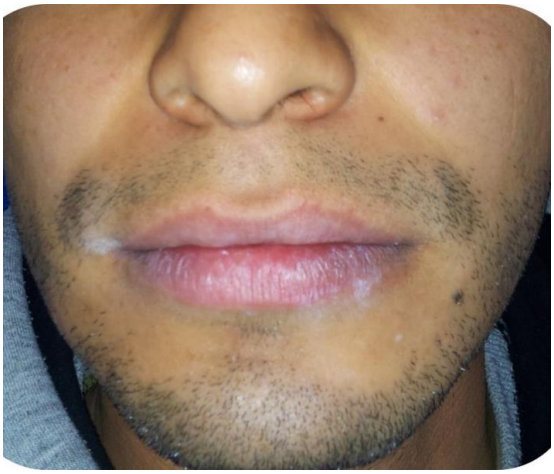


Figure 2:Frontal extraoral photograph demonstrating normal facial symmetry and soft tissue contours with no deformity

Intraoral inspection demonstrated normal overlying mucosa. (Fig.3)

Palpation disclosed a slight deformation of the vestibular cortical plate in correspondence with the symphyseal region. Clinical dental examination demonstrated a mild axial displacement of the canine and lateral incisor. Both teeth responded negatively to pulp vitality testing, indicating pulpal necrosis. (Fig.3)

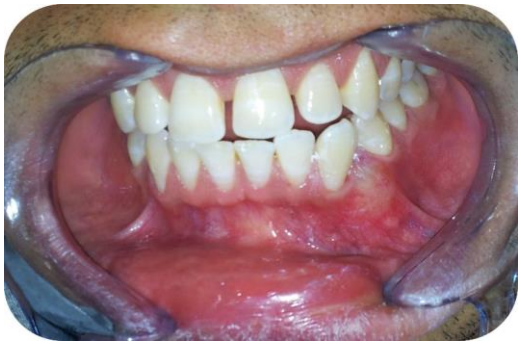


Figure 3: Intraoral photograph demonstrating slight vestibular inclination of the canine and lateral incisor; mucosa appears healthy and intac

A cone-beam computed tomography (CBCT) examination was requested to investigate the lesion in three spatial planes and to precisely evaluate its extent. (Fig.4)

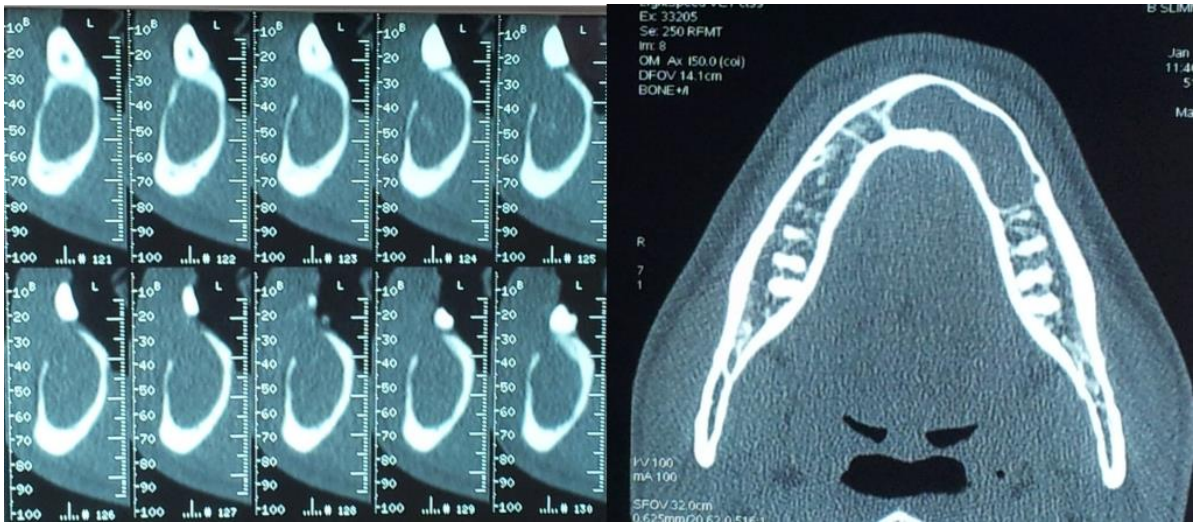


Figure 4: Axial (left) and coronal (right) CBCT views demonstrating a geographic, well-defined osteolytic lesion at the mandibular symphysis including 34 and 32, with buccal table deformation and intact non-buccal cortices

Endodontic treatment was subsequently carried out on teeth 33 and 32 due to confirmed pulpal necrosis. Complete enucleation in one piece when feasible, with careful curettage of the cavity. The intervention was performed under local anesthesia via a buccal approach to allow enucleation of the lesion. A double osseous trepanation was selected due to the extensive nature of the lesion, providing improved access for instrumentation and debridement. (Fig.5)

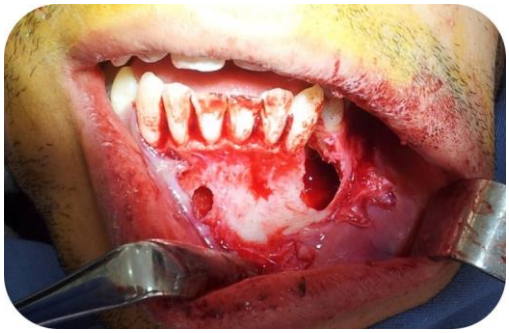


Figure 5:Intraoral surgical field showing dual cortical trepanations performed to create bone windows for safe, complete cyst enucleation

This approach allowed for a thorough and controlled curettage of the pathological cavity. The intraoperative examination revealed a thin cystic wall containing a friable, pasty material suggestive of keratin, consistent with the features of a keratocystic odontogenic cyst (OKC). (Fig.6)

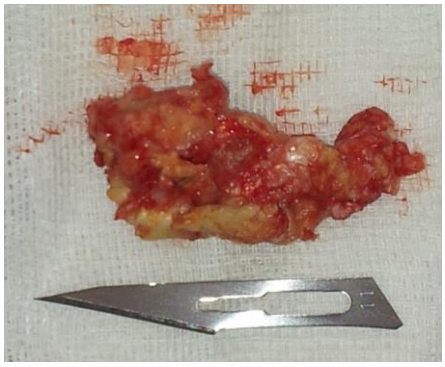
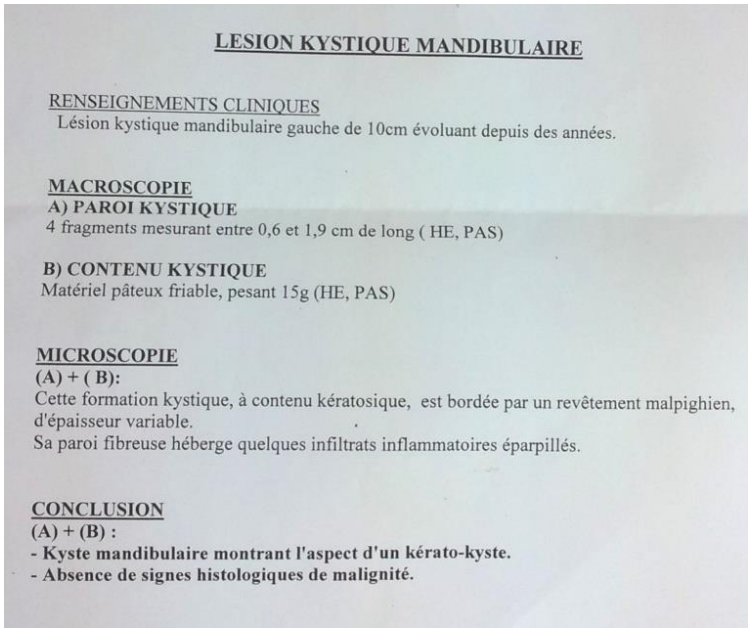


Figure 6: Operative specimen showing friable, pasty material consistent with keratinaceous content

The surgical specimen was sent for histopathological examination, which subsequently confirmed the presumptive diagnosis. (Fig.7)



LESION KYSTIQUE MANDIBULAIRE

RENSEIGNEMENTS CLINIQUES
Lésion kystique mandibulaire gauche de 10cm évoluant depuis des années.

MACROSCOPIE
A) PAROI KYSTIQUE
4 fragments mesurant entre 0,6 et 1,9 cm de long (HE, PAS)

B) CONTENU KYSTIQUE
Matériel pâteux friable, pesant 15g (HE, PAS)

MICROSCOPIE
(A) + (B):
Cette formation kystique, à contenu kératosique, est bordée par un revêtement malpighien, d'épaisseur variable.
Sa paroi fibreuse héberge quelques infiltrats inflammatoires éparpillés.

CONCLUSION
(A) + (B) :
- Kyste mandibulaire montrant l'aspect d'un kérato-kyste.
- Absence de signes histologiques de malignité.

Figure 7: Histopathology report confirming an odontogenic keratocyst

Postoperative follow-up demonstrated a favorable outcome without complications, with satisfactory mucosal healing observed at 14 days after surgery. (Fig.8)

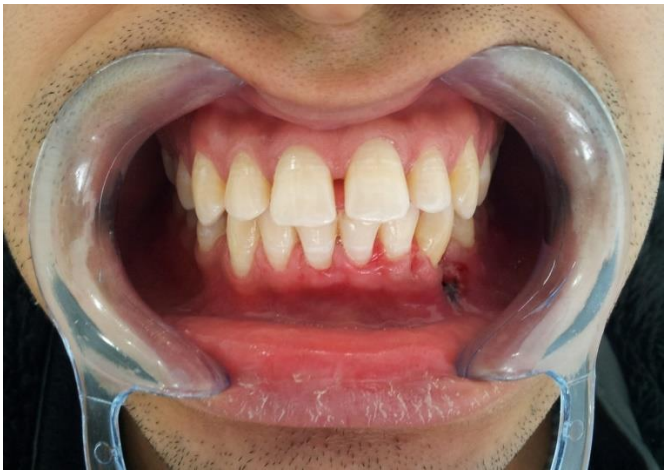


Figure 8: Day 14 follow-up demonstrating appropriate mucosal remodeling and uneventful healing

DISCUSSION

Odontogenic keratocysts (OKCs) originate from the remnants of the dental lamina or basal epithelial rests, explaining their locally aggressive behavior and propensity for recurrence. [3]

The reported prevalence of OKC varies between 5% and 15% of all odontogenic cysts, with a peak incidence in the second to fourth decades of life and a slight male predominance. Recent epidemiological analyses (2017–2022) confirm a stable or slightly decreasing prevalence following the 2017 WHO reclassification of OKC from an odontogenic tumor back to a cystic lesion, emphasizing its developmental rather than neoplastic nature. [4]

Clinically, OKCs are often asymptomatic until significant expansion occurs. Radiographically, they present as well-defined unilocular or multilocular radiolucencies, and computed tomography is essential for assessing cortical perforation and extension. [5]

[3] Singh & Gupta 2010
[4] Soluk-Tekkesin & Wright s. d.
[5] *A Retrospective Review of Treatment of the Odontogenic Keratocyst - Journal of Oral and Maxillofacial Surgery* s. d.

Management remains controversial, with approaches ranging from conservative to aggressive. Primary enucleation performed meticulously to remove the thin, friable epithelial lining in one piece is considered the standard, though recurrence risk may be reduced by adjunctive treatments such as chemical curettage with Carnoy's solution or combined enucleation and cryosurgery. [6,7,8]

Marsupialization or decompression may be indicated for extensive lesions to facilitate size reduction and bone apposition before definitive enucleation. [9]

Peripheral ostectomy or segmental resection is generally reserved for recurrent or highly aggressive cases.

Recurrence is typically related to incomplete removal of the original cyst lining, persistence of satellite cysts in the fibrous capsule, or formation of a new primary cyst in the same or adjacent region. The highest recurrence rates occur within the first five years post-treatment, underscoring the importance of long-term follow-up. In multifocal or recurrent disease, evaluation for Gorlin–Goltz syndrome is warranted.

Optimal management combines comprehensive imaging, thorough surgical technique, and structured follow-up with periodic clinical and radiologic evaluation.

Documentation of follow-up duration and assessment of late bone fill enhances interpretation of recurrence risk and overall treatment efficacy.

CONCLUSION

Over the past five decades, the odontogenic keratocyst has generated considerable debate concerning its origin, biological behavior, and optimal management.

The treatment approach adopted in the present case offers several key advantages: complete eradication of the pathological lesion, significant reduction in recurrence potential, and preservation of mandibular continuity, thereby maintaining both functional integrity and esthetic harmony of the jaw.

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- Conflicts of interest: none.

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[8] Webb & Brockbank 1984
[9] P *et al.,* 1996