CASE REPORT

ODONTOGENIC KERATOCYST INVOLVING THE LEFT BODY AND RAMUS OF THE MANDIBLE: A CASE REPORT

Dr Chinta Chetana Hota[1*], Dr Mahesh Kumar R[2], Dr Ashok Kumar K R[3], Dr Jambukeshwar Kumar B[4], Dr Shraddha[5],

[1]PG Student, [2]Professor & Head, [3]Professor, [4]Reader, [5]Senior Lecturer,
Department of oral and maxillofacial surgery, SSDC, Tumkur

Abstract

Odontogenic keratocyst (OKC) is a developmental odontogenic lesion characterized by aggressive behavior, rapid growth, and a high recurrence rate. It most commonly involves the posterior mandible and ramus region and often remains asymptomatic until it attains considerable size. Early diagnosis and appropriate surgical management are crucial to prevent extensive bone destruction and recurrence. This case report describes the clinical, radiographic, and histopathological features of an odontogenic keratocyst involving the left body and ramus of the mandible in an adult patient. The patient presented with a slowly progressive swelling and mild discomfort in the left mandibular region. Radiographic examination revealed a well-defined multilocular radiolucent lesion extending from the left mandibular body to the ramus. Surgical management was carried out through enucleation with chemical cauterization under general anesthesia. Histopathological analysis confirmed the diagnosis of odontogenic keratocyst. Postoperative healing was satisfactory, and no signs of recurrence were noted during the follow-up period. This report highlights the importance of comprehensive evaluation, appropriate surgical intervention, and long-term follow-up in managing odontogenic keratocysts.

Key words : Odontogenic keratocyst, mandible, ramus, enucleation, chemical cauterization, recurrence.

Introduction

Odontogenic keratocyst (OKC) is a unique developmental odontogenic lesion arising from remnants of the dental lamina. First described by Philipsen in 1956, OKC has been the subject of continuous debate due to its aggressive nature, infiltrative growth pattern, and high tendency for recurrence.[1] The World Health Organization has alternately classified OKC as a cyst and as a tumor, reflecting its biologic behavior that lies between benign cystic lesions and neoplastic processes.[2]

OKCs account for approximately 10–20% of all odontogenic cysts, with a strong predilection for the posterior mandible, angle, and ramus region. They commonly present in the second to fourth decades of life and show a slight male predominance.[3] Clinically, many lesions remain asymptomatic and are often discovered incidentally on routine radiographic examination. When symptomatic, patients may present with swelling, pain, tooth displacement, or rarely, paresthesia.

Radiographically, OKCs typically appear as well-defined unilocular or multilocular radiolucencies

Address for Correspondence:
Dr. Chinta Chetana Hota
Post Graduate Student
Department of Oral and Maxillofacial Surgery,
Sri Siddhartha Dental College and Hospital
Tumkur -572107
Email id: hotachintachetana@gmail.com
Phone no: 8249231710

with corticated margins. Their tendency to grow in an anteroposterior direction within the medullary bone, with minimal buccolingual expansion, often delays clinical detection. Histologically, OKCs are characterized by a thin, uniform epithelial lining with parakeratinized stratified squamous epithelium, palisaded basal cells, and a corrugated surface.[4]

The management of OKC remains challenging due to its recurrence rate, which ranges from 5% to 60% depending on the treatment modality employed. Various surgical approaches have been advocated, including marsupialization, enucleation, enucleation with peripheral ostectomy, chemical cauterization using Carnoy's solution, and resection in aggressive or recurrent cases.[5] This case report presents an odontogenic keratocyst involving the left body and ramus of the mandible, managed successfully with enucleation and chemical cauterization.

Case Report

Clinical Presentation

A 32year-old male patient reported to the Department of Oral and Maxillofacial Surgery with a complaint of swelling in the left lower jaw region for the past 3 months. The swelling was insidious in onset, gradually progressive, and associated with mild intermittent pain. There was no history of trauma, pus discharge, or paresthesia. The patient's medical and family history was non-contributory.

Extraoral examination revealed mild facial asymmetry due to a diffuse swelling over the left mandibular region. The overlying skin appeared normal, with no signs of inflammation. On palpation, the swelling was firm and mildly tender. Intraorally, buccal cortical expansion was noted in the left mandibular body extending posteriorly toward the ramus region. The mucosa overlying the swelling was intact, and there was no evidence of infection or ulceration.

Radiographic Evaluation

Panoramic radiography revealed a well-defined multilocular radiolucent lesion extending from the left mandibular body to the ramus, involving the region distal to the molar area up to the mandibular ramus. The lesion showed scalloped borders with thinning of the inferior border of the mandible (Fig.1). Computed tomography confirmed cortical thinning with minimal buccolingual expansion and no evidence of pathological fracture.

Surgical Procedure

After obtaining informed written consent, the patient was planned for surgical management under general anesthesia considering the extent of the lesion involving the left mandibular body and ramus. Preoperative hematological and radiographic investigations were within normal limits.

The patient was positioned supine, and nasoendotracheal intubation was performed. Following standard aseptic preparation, local infiltration of 2% lignocaine with 1:80,000 adrenaline was administered in the left mandibular vestibular region to achieve adequate hemostasis.

A crevicular incision with posterior extension was made from the left mandibular premolar region extending posteriorly toward the ramus (Fig. 2). A full-thickness mucoperiosteal flap was elevated to expose the underlying cortical bone, which was found to be thinned in the body and ramus region. A bony window was created using a round bur under copious saline irrigation to access the cystic cavity.

The cystic lining was carefully separated from the surrounding bone and enucleated in toto (Fig.3), taking care to avoid rupture of the friable lining.

Following complete enucleation, peripheral ostectomy was performed using rotary instruments to remove a thin margin of surrounding bone and eliminate any residual epithelial remnants or satellite cysts.

Carnoy's solution was then applied to the bony cavity using gauze packs for approximately 3 minutes, ensuring protection of adjacent vital structures, particularly the inferior alveolar nerve (Fig.4). The cavity was subsequently irrigated thoroughly with sterile saline to remove any residual chemical agent.

Hemostasis was achieved, and the surgical site was inspected to confirm complete lesion removal and preservation of mandibular continuity. The excised specimen was placed in 10% buffered formalin and submitted for histopathological examination.

The mucoperiosteal flap was repositioned and sutured using resorbable sutures to obtain primary closure (Fig. 5). Postoperative medications included antibiotics, analgesics, and antiseptic mouth rinse. The postoperative course was uneventful, and the patient was kept under regular clinical and radiographic follow-up to assess healing and monitor for recurrence.

Histopathological Findings

Microscopic examination revealed a cystic lesion lined by parakeratinized stratified squamous epithelium of uniform thickness. The basal cell layer showed palisading with hyperchromatic nuclei, and the epithelial-connective tissue interface was flat. The lumen contained keratinaceous material. These features were consistent with a diagnosis of odontogenic keratocyst.

Figure-1: Panoramic radiography

Figure-2: intraoral vestibular incision

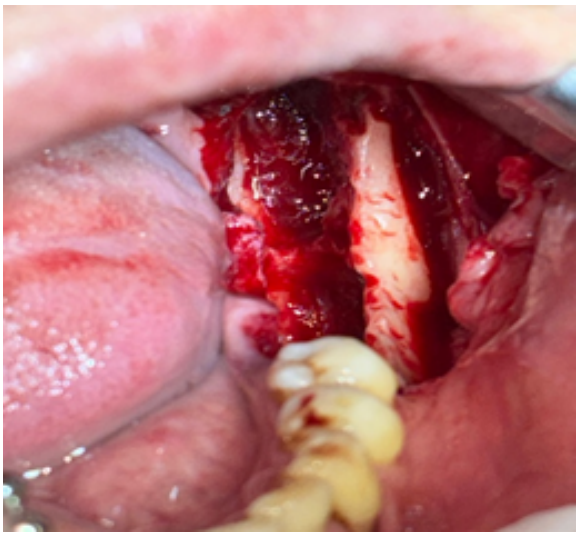

Figure-3: Cystic Enucleation

Figure-4: Chemical cauterization

Figure-5: Suturing

Discussion

Odontogenic keratocyst is a clinically significant lesion due to its aggressive behavior and high recurrence potential. The posterior mandible and ramus are the most commonly affected sites, as seen in the present case. The lesion's ability to grow extensively within the medullary bone without significant cortical expansion often results in late diagnosis.[6]

Radiographically, OKCs may mimic other odontogenic lesions such as ameloblastoma, myxoma, or dentigerous cyst, particularly when presenting as a multilocular radiolucency. Hence, histopathological confirmation is essential for definitive diagnosis.[7]

The characteristic histological features, including a parakeratinized epithelial lining and palisaded basal layer, are responsible for the cyst's fragile lining and increased recurrence rate. Satellite cysts and daughter cysts within the fibrous capsule further contribute to recurrence.[8] Various treatment modalities have been described in the literature. Conservative approaches such as marsupialization are often employed in large lesions to reduce cyst size, followed by secondary enucleation. However, enucleation alone is associated with higher recurrence rates. Enucleation combined with chemical cauterization, as performed in this case, aims to eliminate residual epithelial remnants and reduce recurrence. More aggressive approaches, such as resection, are reserved for recurrent, extensive, or syndromic cases.[9]

Long-term follow-up is mandatory, as recurrences have been reported even after several years post-treatment. Regular clinical and radiographic evaluation is essential to detect early recurrence and ensure favorable outcomes.

Conclusion

Odontogenic keratocyst is a locally aggressive odontogenic lesion with a high propensity for recurrence, particularly when involving the posterior mandible and ramus. Early diagnosis, accurate radiographic assessment, and histopathological confirmation are crucial for effective management. Enucleation with chemical cauterization provides a balanced approach, offering adequate lesion removal while preserving mandibular integrity. Long-term follow-up remains a cornerstone in the management of OKC to monitor for recurrence and maintain optimal patient outcomes.

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