Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 16s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

Odontogenic Keratocyst in Mandibular Premolar Region- A Case Report

Aishwarya. S[1], Bala Krishnan[2]

[1]PG Resident, Oral and Maxillofacial Surgery, Sree Balaji Dental College and Hospitals, Chennai

Email ID: aishuswami27@gmail.com

[2]Professor, Oral and Maxillofacial Surgery, Sree Balaji Dental College and Hospitals, Chennai

Email ID: bala4_us@yahoo.com

***Corresponding Author:**

Bala Krishnan,

Email ID: bala4_us@yahoo.com

Cite this paper as: Aishwarya. S, Bala Krishnan, (2025) Odontogenic Keratocyst in Mandibular Premolar Region- A Case Report. *Journal of Neonatal Surgery*, 14 (16s), 956-959.

ABSTRACT

A growing odontogenic cyst known as an odontogenic keratocyst is frequently detected in the early stages of routine radiography. This means that the dentist is now more responsible for diagnosing the patient accurately and should treat the maxillomandibular complex as a whole rather than just the individual teeth. Because of this, the dentist is now more accountable for making the correct diagnosis and should focus on the entire maxillomandibular complex rather than just the teeth. Because of its aggressive nature and greater propensity for recurrence, OKC has a peculiar feature. OKC may sometimes left undiagnosed in many cases as it does not show any evident swelling in the affected region as it's tendency of expansion is generally antero posterior direction instead of bucco-lingual expansion. It is usually identified as an incidental finding in dental radiographic images. A case of a Keratocystic Odontogenic Tumor of Unknown Origin in the Canine Premolar Region of the Right Mandible is presented in this article.

Keywords: *Odontogenic Keratocyst , parakeratinized stratified epithelium, carnoy's solution*

1. INTRODUCTION

The word "odontogenic keratocyst" (OK), which previously described the odontogenic cyst in development, has been replaced. The odontogenic keratocyst was reclassified as a benign neoplasm in the WHO classification of head and neck tumors in 2005. The term "keratocystic odontogenic tumor" was recommended because of the aggressiveness, high recurrence rate, association with nevoid basal cell carcinoma syndrome, and mutations in the PTCH1 gene of this tumor. However, the WHO categorized it as a cyst in 2017 after asserting that PTCH gene mutations may arise in non-neoplastic lesions like the dentigerous cyst [1] . Furthermore, a number of researchers have postulated that the removal of cysts after marsupialization is incompatible with the neoplastic process [1].

OKC are derived from the dental lamina and men are most commonly affected, primarily in the third decade of life. The posterior body, angle, and ascending ramus of the mandible are more commonly impacted than the maxilla [2]. The lesion is asymptomatic and frequently identified on routine radiographs. Thus, the general dentist's focus should not be confined to studying the teeth while evaluating the maxillomandibular complex.Initially extending in anteroposterior direction, OKC eventually cause growth [3]. Pain, edema, tooth displacement, root resorption, and pathologic fractures are signs of an advanced stage [4] [3]

On radiography, OKCs are seen as a well-defined unilocular or multilocular radiolucency bounded by corticated edges. The multilocular variety is seen in around 30% of patients, most frequently in the mandible, but unilocular lesions are more prevalent. Mandibular unilocular OKCs may seem to have few and incomplete septa on panoramic radiography; this observation is more typical in bigger OKCs than in smaller OKCs [5] .

This article presents a case of OKC in the mandibular canine premolar region of unknown origin.

CASE REPORT

A 35- year - old female patient reported to the department of Oral And Maxillofacial Surgery, of Sree Balaji Dental College and Hospitals, Chennai, with the chief complaint of painful swelling in lower right front jaw for the past 2 months. Patient's general health condition was normal.During an intraoral examination, a diffuse swelling was observed in the lower right chin region, obliterating the buccal vestibule and extending from the distal aspect of 42 to the mesial aspect of 45. On palpation, the swelling was soft and fluctuant. Tenderness on palpation was positive.

A panoramic radiograph shows a well-defined, unilocular radiolucency that is 43 mesially and 42 distally displaced, extending from the mesial aspect of 45 to the mesial aspect of 34. Generalized horizontal bone loss, loss of crown structure with periapical radiolucency irt 35.

Incisional biopsy was done from 43,44 region. The histo pathological report of the given specimen shows cystic lining epithelium with underlying connective tissue stroma. Presence of para keratinised stratified squamous epithelium with hyper chromatic, palisading basal cell layer and keratin flakes in the lumen. With endothelial-lined blood vessels, the stroma shows very little inflammatory infiltration.

Procedure

Under GA, nasal tracheal intubation done. 2% lignocaine with 1:80,000 adrenaline administered from 43 to 33 region. A vestibular incision was made from the 43–33 region, the lesion was excised, and the affected teeth were extracted. Soft tissue adhering to the cystic lining was also removed. Peripheral osteA single application of Carnoy's solution was administered after a peripheral ostectomy of the entire surgical bed. The lesion contained white cheesy like material. The biopsy specimen was then sent for histopathological examination.

Fig.1: Pre operative radiograph reveals a well defined radiolucency extending from 45-34 region

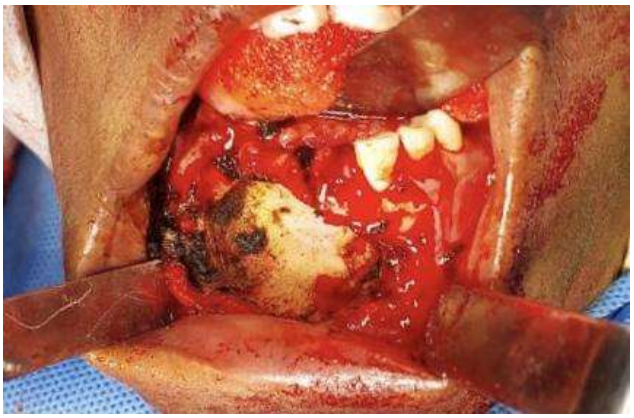

Fig.2: Enucleation of the lesion followed by peripheral ostectomy

Fig 3: Placement of Carnoy's solution on the lesion site with the cotton pellet

Fig 4: One month post operative review

2. DISCUSSION

Through a modified marsupialization process called decompression, the cyst significantly shrinks and its cystic lining thickens to resemble oral mucosa, which facilitates enucleation. This method reduces IL-1 levels, which regulate epithelial cell proliferation in OKC; thus, there is immune-histochemical evidence that decompression is superior to enucleation alone [6]. de Castro et al.[3] reported that the RR of OKC treated by decompression followed by enucleation (11.9%) was significantly lower thaThe odontogenic keratocyst (OKC), which has a tendency to infiltrate nearby tissues and a relatively high incidence of recurrence, is one of the most aggressive odontogenic cysts. Toller (1967) surmised that the OKC might be more accurately diagnosed as a benign neoplasm than as a typical cyst[5] based on its clinical behavior. The greatest strategy to prevent substantial bone loss and more invasive surgery is early identification of OKC.

In OKC, the recurrence rate vary from 7 to 28% [7] [8] . In an attempt to reduce the high recurrence rate of OKCs, it has been suggested since the 1980s that surgery involve marginal resection, including a rim of uninvolved bone, akin to the therapy for unicystic ameloblastoma[9] . Various recommendations for surgical procedures for OKCs have been provided. The following are the primary recommendations: Enucleation, enucleation combined with adjuvant therapy, such as enucleation combined with curettage, enucleation combined with Carnoy's solution, enucleation combined with cryotherapy, and enucleation combined with peripheral ostectomy and Carnoy's solution, marsupialization, resection, or combinations of these methods [8] .

There are several factors leading to recurrence of the cyst apart from the surgical enucleation such as size of the cyst, presence of daughter cysts, unilocular or multilocular variant [10].

Fadi Titinchi et al has suggested that [11], at present, it has been understood that enucleation alone cannot eradicate the cyst due to the presence of number of satellite or daughter cyst found in the epithelial lining of the cyst leading to higher recurrence rates (20.8%-26.1%)[3]

n enucleation alone (20.8%).

Peripheral ostectomy is a substantial form of adjuvant treatment in which any cystic remains are stained with methylene blue and removed using a rosehead bur. Cryotherapy using liquid nitrogen, like chemical curettage with Carnoy's solution [3] , produces cell necrosis of the cystic lining. When compared to enucleation or marsupialization/decompression alone, all of these treatments lower RR; nonetheless, these procedures might cause harm to neighboring structures. Resection has the lowest recurrence rate (RR, 0%-8.4%)[12,13]

OKC should be carefully followed with every year panoramic radiographs. An MRI should be performed every two years to identify any early recurrences [14]. Follow-up should last at least ten years. In situations of excision, a thin mandibular cortex, or extensive lesions treated by cryotherapy, bone grafting and rehabilitation can be undertaken early. In the case of recurring lesions, placement of bone grafts should be postponed [3].

3. CONCLUSION

Although OKC is a lesion with a high occurrence in the literature, it is known that its clinical features can vary. The significance of combining clinical, radiographic, and histopathologic aspects for definitive closure and determination of appropriate pathology treatment.

REFERENCES

[1] Milani CM, Mauricio CM, Francio L, et al. 14-Year evolution odontogenic keratocyst: Case report. Rev Port Estomatol Med Dent Cir Maxilofac 2021; 62: 50–55.

[2] Karaca C, Dere K-A, Er N, et al. Recurrence rate of odontogenic keratocyst treated by enucleation and peripheral ostectomy: Retrospective case series with up to 12 years of follow-up. Med Oral Patol Oral Cir Bucal 2018; 23: e443–e448.

[3] de Castro MS, Caixeta CA, de Carli ML, et al. Conservative surgical treatments for nonsyndromic odontogenic keratocysts: a systematic review and meta-analysis. Clin Oral Investig 2018; 22: 2089–2101.

[4] Kumar M, Tripathi A, Singh G, et al. The Role of Adjunctive Chemical Solutions in the Treatment of Odontogenic Keratocysts: A Scoping Review. Cureus 2023; 15: e41822.

[5] Borghesi A, Nardi C, Giannitto C, et al. Odontogenic keratocyst: imaging features of a benign lesion with an aggressive behaviour. Insights Imaging 2018; 9: 883–897.

[6] Pogrel MA. The keratocystic odontogenic tumor. Oral Maxillofac Surg Clin North Am 2013; 25: 21–30, v.

[7] Antonoglou GN, Sándor GK, Koidou VP, et al. Non-syndromic and syndromic keratocystic odontogenic tumors: systematic review and meta-analysis of recurrences. J Craniomaxillofac Surg 2014; 42: e364–71.

[8] Miyamoto S, Goto T, Shirakawa J, et al. Odontogenic keratocyst in the mandibular condyle base region: A case report. Exp Ther Med 2023; 25: 141.

[9] Ahlfors E, Larsson A, Sjögren S. The odontogenic keratocyst: a benign cystic tumor? J Oral Maxillofac Surg 1984; 42: 10–19.

[10] Forssell K, Forssell H, Kahnberg KE. Recurrence of keratocysts. A long-term follow-up study. Int J Oral Maxillofac Surg 1988; 17: 25–28.

[11] Titinchi F. Protocol for management of odontogenic keratocysts considering recurrence according to treatment methods. J Korean Assoc Oral Maxillofac Surg 2020; 46: 358–360.

[12] Johnson NR, Batstone MD, Savage NW. Management and recurrence of keratocystic odontogenic tumor: a systematic review. Oral Surg Oral Med Oral Pathol Oral Radiol 2013; 116: e271–6.

[13] Kaczmarzyk T, Mojsa I, Stypulkowska J. A systematic review of the recurrence rate for keratocystic odontogenic tumour in relation to treatment modalities. Int J Oral Maxillofac Surg 2012; 41: 756–767.

[14] van Rensburg LJ, Paquette M, Morkel JA, et al. Correlative MRI and CT imaging of the odontogenic keratocyst: a review of twenty-one cases. Oral Maxillofac Surg Clin North Am 2003; 15: 363–382.

..