

## **REVELATION OF DENTIGEROUS CYST IN ASSOCIATION KERATOCYSTIC ODONTOGENIC TUMOUR (KCOT)**

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### **ABSTRACT**

Keratocystic odontogenic tumor are known for their peculiar behaviour, varied origin, debated development, unique tendency to recur and disputed treatment modalities. It was formerly known as odontogenic keratocyst (OKC). It received its new title as 'Keratocystic odontogenic tumor' (KCOT) by the WHO (2005) in order to suggest its aggressive and recurrent nature. It is a most common cyst, generally seen in men and most commonly occur in mandibular angle region and associated with basal cell nevus syndrome. KCOT is a benign intraosseous neoplasm of the jaw. Dentigerous cyst is odontogenic cyst commonly seen arising from impacted mandibular third molar.

We present a rare case of simultaneous occurrence of both these lesions in the same region. A male in the first decade of life reported with the complaint of swelling in anterior region of lower jaw. Clinical and radiographic findings were suggestive of a odontogenic keratocyst. Cystic lesion was enucleated with peripheral osteotomy and the specimen was sent for histopathological analysis. It showed KCOT in association with dentigerous cyst. This case is worth discussing as it is rare to find the simultaneous occurrence of two pathologies in the same region of jaw and there is no comment of the same in the literature. The common site for KCOT is mandibular angle and for DC impacted third molar. But in our case, two pathologies were found in the anterior mandible in association with an impacted canine.

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### **INTRODUCTION**

A 17-year old male reported the department of Oral and Maxillofacial Surgery Department, Daswani dental college, with a gradually increasing swelling in the lower anterior region since 2 years and pain with the same since 18 months. Medical history was unremarkable. Intraoral examination revealed a large smooth surfaced, soft, tender swelling of approx.size 4 x 2 cm in lower buccal / labial vestibule extending from 43 to 32, 73 (over retained deciduous canine) obliterating vestibular depth. (Fig.1a&1b)The lower left permanent canine was missing and an over retained deciduous canine was seen in the same region. Mobility was seen with 43 to 73 teeth with tenderness and pus discharge. Orthopantomogram (OPG) revealed a well- defined corticated multilocular radiolucency associated with impacted 33. It was extending anteroposteriorly from 44 to 35 and vertically from the apices of 44,43,42,41,31,32,73,34 to the inferior border of mandible causing displacement of the root of 43, 32, 73. External root resorption with 42,41,31 was evident.

Computed tomography (CT) scan revealed a 4.3cm x 2.5cm expansile lesion associated with an impacted 33. On transverse section, the impacted tooth was located close to the lingual cortex, also lingual cortex was seems to be intact with perforation of outer cortex, while in coronal section lesion was seems to be extended to the interdental area leading to the resorption of mandibular anterior teeth. (Fig.3)



**Figure 1a** Extraoral view of the lesion

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Figure 1b Intraoral view of the lesion



Figure 2 Orthopantomograph showing the extent of the lesion towards inferior border of mandible

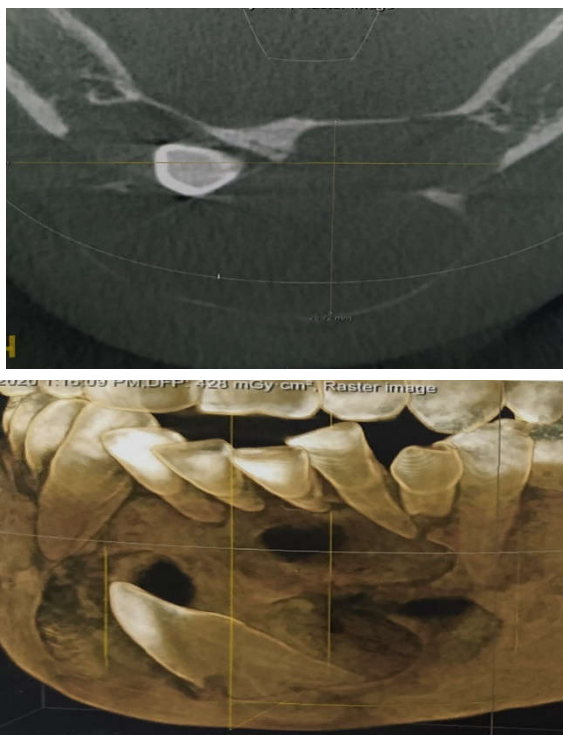


Figure 3 Axial and coronal section of computed tomography showing extend of lesion.

Aspiration yielded a purulent material (liquor puris) which was thick creamy in consistency (Fig.4). Blood investigation were advised which revealed normal values. Correlating clinical and radiographic findings, a provisional diagnosis of odontogenic keratocyst associated with impacted 33 was made with differential diagnosis of dentigerous cyst. Histopathological examination with H & E stained section revealed the presence of cystic lumen lined by ribbon – shaped odontogenic epithelium which is parakeratinized 8 to 10 cell thick. The basal layer of epithelium shown characteristic palisading appearance. The underlying connective tissue capsule is delicate with mild inflammatory response. This histological

feature are suggestive of KCOT. (Fig.5) Also tissue adjacent to the tooth in H & E stained section revealed cystic lumen lined by non-keratinizing odontogenic epithelium displaying varying amount of hyperplasia. The connective tissue capsule is oedematous, fibrous and thick densely infiltrated by acute and chronic inflammatory cells. This histologic features are suggestive of inflamed dentigerous cyst / dental follicle. (Fig.6)



Figure 4 Syringe showing aspirated pus

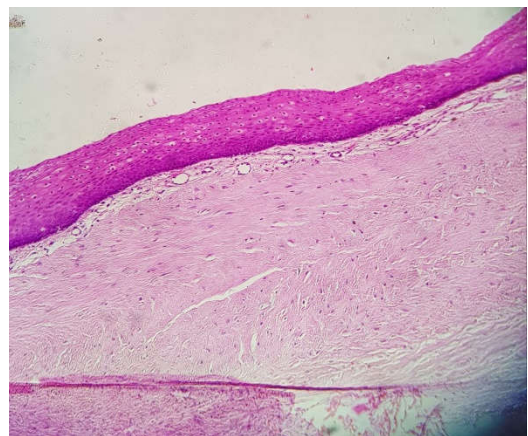


Figure 5 Slide showing inflamed odontogenic keratocyst

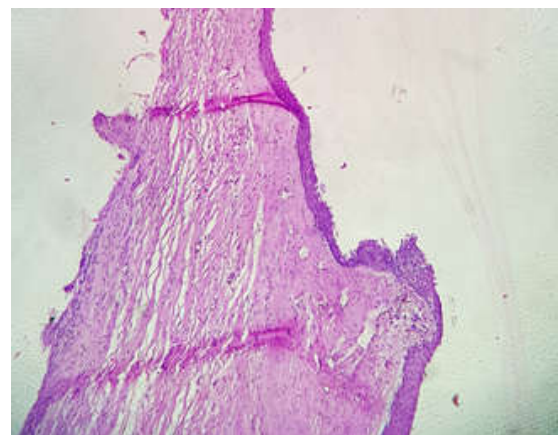


Figure 6 Slide showing dentigerous cyst

Under all aseptic precautions in the minor operation theater, local anaesthesia was given to the patient. Crevicular incision was given from distal of left first premolar to distal of right first premolar with vertical releasing incision. Mucoperiosteal

flap was raised and enucleation was done. Cystic lining along with the cystic contents and the associated impacted mandibular canine was removed. Peripheral ostectomy was done. Borders of the wound were then sutured. The wound healed uneventfully.(Fig.7&8) The patient has been asymptomatic for 4 months after the operation. As the lesion has a high recurrence rate, so a follow – up period of at least 5 years is necessary.



Figure 7 Cyst can be seen after incision



Figure 8 Cystic cavity after enucleation reflection of mucoperiosteal flap.

## DISCUSSION

Keratocystic odontogenic tumor is believed to be a developmental cyst which originates from the dental lamina or its remnants (glands of Serres).<sup>3</sup> They represent 5%– 15% of all jaw cysts. Most odontogenic keratocysts are found during the 2nd to 4th decades of life, although they can occur at any age.<sup>1</sup> Keratocystic odontogenic tumors, particularly those that are small, can often be asymptomatic. Larger tumors can cause symptoms with pain and may be associated with tooth root resorption, tooth mobility and bony expansion.<sup>8</sup> In mandible, majority of cysts occur in ramus-third molar area, followed by the first and second molar and then the anterior mandible. And on aspiration thick creamy keratinous fluid is yielded. In our case, the patient was in his second decade, presented with large painful swelling in anterior region of mandible, with tooth mobility, root resorption, and not much bony expansion, and on aspiration we got thick creamy fluid, all these clinical features are consistent with OKC. Radiographically an odontogenic keratocyst usually appears as a unilocular / multilocular, lucent lesion with smooth, corticated borders that is often associated with an impacted tooth. In our case lesion was multilocular, with corticated borders associated with impacted tooth. Odontogenic keratocysts may cause cortical thinning,<sup>1</sup> so it was evident in our case. Keratocystic odontogenic tumor may show inflammation and in that case, the diagnostic features can be lost.

Dentigerous cysts are the most common of odontogenic cysts and can occur at any tooth location, but most often occur in third molars and maxillary canines, locations most often involved in tooth impaction.<sup>8</sup> Patients are typically pain free. The most important features of this cyst are its ability to expand asymptotically and its potential to displace or resorb adjacent teeth or bone.<sup>1</sup> They are usually asymptomatic unless they become secondarily inflamed.<sup>8</sup> Radiographically,

dentigerous cyst appear as well-defined, round or ovoid, corticated, lucent lesions around the crowns of unerupted teeth, usually third molars, large cysts may show a multilocular feature and suggest other lesions such as ameloblastoma and OKC.<sup>10</sup> Cyst 2cm in diameter or larger may cause mandibular expansion. On aspiration, DC shows yellowish - straw colored fluid. In the case we reported, the swelling was large enough in association with pain, displacement and resorption of adjacent teeth, and bony expansion. Radiographically showed large multilocular radiolucent, in association with impacted tooth. So we gave the differential diagnosis of dentigerous cyst, as the features were similar to large inflamed dentigerous cyst.

We present a rare case of OKC along with inflamed dentigerous cyst. It is worth discussing because it is rare occurrence of two pathologies (OKC and DC) in the same region at the same time. Clinically and radiographically, the diagnosis was OKC with differential diagnosis of dentigerous cyst. After histopathological examination OKC and inflamed dentigerous cyst both were diagnosed. Enucleation along with mechanical peripheral ostectomy was done, as due to high recurrence rate of OKC, patient is kept on follow up.

## CONCLUSION

In conclusion, KCOT commonly occur in angle region in association with impacted tooth. Nevertheless, according to our reported case, in young adults, other than KCOT, dentigerous cyst should also be considered, since dentigerous cyst has features similar to KCOT. We present a rare case of simultaneous occurrence of two pathologies in same region, which have no comment in the literature. Histopathologically, we found OKC in association with dentigerous cyst which is very rare. The best way to diagnose pathologies may be to combine accurate clinical, radiographic and transsurgical observations with a biopsy specimen examination; this approach will help determine the most effective treatment, thereby preventing recurrences.

## References

1. Robert J. Scholl, MD Helen M. Kellett, MD. Cysts and Cystic Lesions of the Mandible: Clinical and Radiologic-Histopathologic Review. 1999; 19:1107–1124
2. Mervyn Shear, The aggressive nature of the odontogenic keratocyst: is it a benign cystic neoplasm? Part 3 immunocytochemistry of cytokeratin and other epithelial cell markers. Oral Oncology 38(2002) 407-415
3. Mukta B Motwani. Keratocystic Odontogenic Tumor: Case Reports and Review of Literature. *J Ind Acad Oral Med & Radio*, 2011,150-154
4. Walid A Abdullah. surgical treatment of keratocystic odontogenic tumour: A review article. *The Saudi Dent J*(2011) 23, 61-65
5. Hyuk II Kwon, Won Lim, odontogenic keratocyst associated with an ectopic tooth in the maxillary sinus- A report of two cases and a review of the literature, *Korean J Pathol*.2011;45(S1): S5-10
6. Shivesh Acharya, Ashima Goyal, dentigerous cyst and adenomatoid odontogenic tumor: clinical radiological and histopathological dilemma, *Med*, vol. 2014

7. D C Shetty, A S Rathore. Orthokeratinizedodontogenic cyst masquerading as dentigerous cyst. *Int J Appl Basic Med Res.* 2016 Oct-Dec; 6(4): 297–299.
8. Robert A Robinson. Diagnosing the most common odontogenic cystic and osseous lesions of the jaws for the practicing pathologist. *Modern Pathology* (2017) 30, S96–S103.
9. N Agrawal, S Carnelio, R Radhakrishnan, synchronous odontogenic cyst in mandible. *J ClinDiag Research*,2018 Jun, Vol-12(6); ZD10-ZD12
10. Carla P M-Kläy. Unusual Imaging Features of Dentigerous Cyst: A Case Report. *Dent J.* 2019. 7,76.

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