

A Massive Dentigerous Cyst in Maxillary Sinus

Neha Jain^{1*}, Ajay K. Pillai², Ankur Jain³, Priya Agrawal⁴ and Priyanka Bhojane⁵

¹ Professor, Department of Oral and Maxillofacial Surgery, People Dental Academy, Bhopal.

² Professor and Head, Department of Oral and Maxillofacial Surgery, People Dental Academy, Bhopal.

³ Professor and Head, Department of Pediatric and preventive dentistry, People Dental Academy, Bhopal.

⁴ Post graduate student, Department of Oral and Maxillofacial Surgery, People Dental Academy, Bhopal.

⁵ Post graduate student, Department of Pediatric and preventive dentistry, People Dental Academy, Bhopal.

***Corresponding Author:** Dr. Neha Jain, Professor, Department of Oral and Maxillofacial Surgery, People Dental Academy, Bhopal.

DOI: <https://doi.org/10.58624/SVOADE.2023.04.0133>

Received: May 02, 2023 **Published:** May 18, 2023

Abstract

The dentigerous cysts are odontogenic cysts associated with impacted or unerupted teeth and supernumerary teeth. This is a case report of a large dentigerous cyst encroaching maxillary sinus in a 11-year-old female patient where the surgical enucleation was done.

Keywords: Dentigerous cyst; supernumerary teeth; maxillary Sinus

Introduction

Dentigerous cyst are second most common frequently occurring odontogenic cyst originating from reduced enamel epithelium [1]. The DC was firstly described by Paget in 1863 which is caused by cumulation of fluid between the reduced enamel epithelium and newly formed surface of tooth enamel [1,2].

DC may be manifested as facial asymmetry, expansion of bone, displacement of teeth and displacement of inferior alveolar nerve causing paresthesia of nerve. The cyst is formed between the tooth and reduced enamel epithelium so it prevents the tooth from eruption which may state its association with impacted, unerupted or supernumerary tooth [1,4]. Since mandibular third molars and maxillary canines are most common impacted teeth so their affiliation with impacted mandibular third molar and canine can be justified. [3] It has high propensity to occur during the second and third decades of life. Male preponderance is seen [5,6]. DC may show malignant transformation into malignant ameloblastoma, mucoepidermoid, or epidermoid carcinoma [7].

Treatment may vary depending on size, age of the patient and proximity with vital structures. Small cyst not involving vital structures, cystic enucleation is preferred and in cases of large cyst or in young patients to save the tooth germ, marsupialization followed by enucleation is preferred [6]. We report a case of a dentigerous cyst in the 11-year-old female associated with impacted canine and unerupted premolar.

Case Report

An 11-year-old girl reported to the Department of Oral and Maxillofacial Surgery in People's Dental Academy with chief complaint of a painless swelling of left upper cheek region since 6 months. No significant medical history nor any associated trauma was present.

Extraorally facial asymmetry was noted. Diffuse swelling was present extending from left lateral border of the nose to left lateral canthus of eye Antero-posteriorly and from left zygomatic bone to left corner of mouth superoinferiorly. Skin over swelling appears normal. Swelling was non tender and was firm in consistency. Temperature of skin over swelling was normal. On intraoral examination, soft, fluctuant, nontender swelling was present on the left buccal vestibule with respect to 22,63,64,65. Vestibular obliteration was present with respect to 22,63,64,65. Slight mobility present with 11,21,22,63,64,65.



Figure 1



Figure 2

Aspiration contained a straw color fluid which on microscopic examination revealed inflammatory cells and few cholesterol crystals. On the basis of aspiration and clinical history, provisional diagnosis, dentigerous cyst was made.

Orthopantomograph shows a well-defined radiolucent lesion in the left maxillary region involving maxillary sinus with impacted 23 and unerupted 24,25,27 teeth [Figure 3]. Cone beam computed tomography (CBCT) revealed a single well defined hypodensity in left maxillary region extending from distal aspect of 22 till mesial aspect of 26 invading into maxillary sinus. Impacted tooth 23 and developing tooth bud 24 appears to be located inside hypodensity [Figure 4].



Figure 3

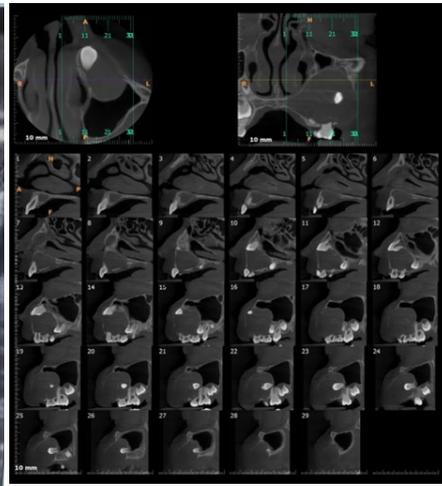


Figure 4

Based upon the clinical and radiographic presentation final diagnosis of dentigerous cyst secondary to impacted.

Surgical enucleation was done using intraoral approach followed by extraction of 23,24,63,64,65. Nasal antrostomy was done with placement of iodoform ribbon gauge [Figure 5]. After the primary closure of the operated region, the surgically enucleated specimen, was sent for histopathological examination. Microscopic findings of the specimen revealed stratified squamous epithelium lining resembling enamel epithelium with focal denudation. Subepithelial area shows fibro-connective tissue with mixed inflammatory infiltrate. No evidence of malignancy was observed. All the features led to the diagnosis of dentigerous cyst. [Figure 6].

No complications occurred intraoperatively. Antimicrobial and anti-inflammatory drugs were prescribed for the 1st post-operative week. At the first control appointment, the patient presented a good healing and reduced inflammation.



Figure 5



Figure 6

Discussion

The DC was firstly described by Paget in 1863 which is caused by cumulation of fluid between the reduced enamel epithelium and newly formed surface of tooth enamel. [1,2]

DC may be manifested as facial asymmetry, expansion of bone, displacement of teeth and displacement of inferior alveolar nerve causing paresthesia of nerve [2] It is usually correlated with impacted or unerupted teeth and supernumerary teeth [1,4]. It is usually associated with impacted mandibular third molar and canine [3]. Literature as shown higher affinity towards male gender of 20-30 years age. [5,6] DC may show malignant transformation into malignant ameloblastoma, mucoepidermoid, or epidermoid carcinoma [7].

DC is suspected if size of the follicular space measured on the radiograph is more than 5 mm. [8]. In our case, OPG revealed a well -defined show radiolucent lesion associated with deciduous canine, molars and permanent canine and premolars. Benn and Altini stated three mechanisms for the occurrence of the dentigerous cyst.

1. Developmental dentigerous cyst arising from the dental follicle which becomes inflamed secondarily and associated with the non-vital tooth.
2. Second type originates from the radicular cyst
3. Third type arising from peri-apical inflammation secondary to either nonvital deciduous tooth or unknown causes which reaches the follicle of a permanent tooth resulting in formation of dentigerous cyst. [9].

Our case falls under category 1 according to histogenesis mechanism.

The treatment of DC is either enucleation, marsupialization or both but is influenced by the size, sites, age, the dentition involved and involvement of vital structures around the cyst [10]. For smaller lesion, enucleation of the cyst is treatment preferred. Marsupialization is preferred when the cystic lesion is large, encroach the vital structures and when permanent tooth germ is still in its formative stage. It reduces the size of the cystic lesion by alleviating the hydraulic pressure. This fluid accumulation if not relieved causes the cystic enlargement and displace the involved tooth and prevents its eruption. [11]. In the procedure of marsupialization, the cystic lining is not completely removed so a thorough histopathological examination cannot be performed. The Waldron technique or parstch II technique in which marsupialization followed by enucleation is done, which is preferred over marsupialization alone. In our case we performed cystic enucleation followed by extraction, although this should not be the first choice of treatment in mixed dentition cases, marsupialization should be the preferred choice to save the permanent tooth germs in young patients. But our patient belonged to a remote village and was not ready for regular follow up visit and also wanted to get rid of the disease at earliest which made us to perform enucleation rather doing marsupialization.

Conclusion

Dentigerous cyst are the second most commonly occurring cyst. The treatment chosen depends on the age of the patient, site, size, location, root development and the involvement of the lesion with adjacent tooth and nearby vital structures.

Conflict of Interest

The authors declare no conflict of interest.

References

1. Shah KM, Karagir A, Adaki S, Pattanshetti C. Dentigerous cyst associated with an impacted anterior maxillary supernumerary tooth. *Case Reports*. 2013 Jan 31;2013:bcr2012008329.
2. Valdes Reyes JM, Espinoza Bermudez JA, Ghannam Ruisánchez YE. Dentigerous Cysts: Case Report. *Journal of Advanced Oral Research*. 2016 Jan 1;7(1).
3. Jiang Q, Xu GZ, Yang C, Yu CQ, He DM, Zhang ZY. Dentigerous cysts associated with impacted supernumerary teeth in the anterior maxilla. *Experimental and Therapeutic Medicine*. 2011 Sep 1;2(5):805-9.
4. Cakarer S, Selvi F, Isler SC, Keskin C. Decompression, enucleation, and implant placement in the management of a large dentigerous cyst. *Journal of Craniofacial Surgery*. 2011 May 1;22(3):922-4.
5. Kalaskar RR, Tiku A, Damle SG. Dentigerous cysts of anterior maxilla in a young child: A case report. *Journal of Indian Society of Pedodontics and Preventive Dentistry*. 2007 Oct 1;25(4):187.
6. Samal S, Kumar M, Sahoo PK, Singh RR. Surgical Management of Massive Dentigerous Cyst in Mixed Defintion-A Case Report.
7. Bhushan NS, Rao NM, Navatha M, Kumar BK. Ameloblastoma arising from a dentigerous cyst-a case report. *J Clin Diagn Res* 2014;8:ZD23-5.
8. Ko KS, Dover DG, Jordan RC. Bilateral dentigerous cysts--report of an unusual case and review of the literature. *Journal of the Canadian Dental Association*. 1999 Jan 1;65(1):49-51.
9. Benn A, Altini M. Dentigerous cysts of inflammatory origin: a clinicopathologic study. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology*. 1996 Feb 1;81(2):203-9.
10. Freitas DQ, Tempest LM, Sicoli E, Lopes-Neto FC. Bilateral dentigerous cysts: review of the literature and report of an unusual case. *Dentomaxillofacial Radiology*. 2006 Nov;35(6):464-8.
11. Jones TA, Perry RJ, Wake MJ. Marsupialization of a large unilateral mandibular dentigerous cyst in a 6-year-old boy—a case report. *Dental Update*. 2003 Dec 2;30(10):557-61.

Citation: Jain N, Pillai AK, Jain A, Agrawal P, Bhojane P. A Massive Dentigerous Cyst in Maxillary Sinus. *SVOA Dentistry* 2023, 4:3, 93-96.

Copyright: © 2023 All rights reserved by Jain N., et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.