

Case Report

Dentigerous Cyst of Inflammatory Origin in the Maxilla-A Rare Entity

Dr. Mayuri Singh*, Dr. Deepak P Bhayya¹, Dr. Garvita Sahu², Dr. Amit Singh³

*PG Student, Department of Paedodontics and Preventive Dentistry, Hitkarini Dental College and Hospital, Jabalpur, Madhya Pradesh India.

¹Professor and Head, Department of Paedodontics and Preventive Dentistry, Hitkarini Dental College and Hospital, Jabalpur, Madhya Pradesh India.

²PG Student, Department of Oral and Maxillofacial Surgery, Hitkarini Dental College and Hospital, Jabalpur, Madhya Pradesh India.

³Resident Doctor, Department of Dentistry, AIIMS Bhopal.

Corresponding Author Email: drmayurisingh15@gmail.com.

Received: January 5, 2020

Accepted: February 2, 2020

Published: February 18, 2020

Abstract: The purpose of this case report is to describe the management of dentigerous cyst in maxillary left anterior region with respect to unerupted central incisor, lateral incisor and deciduous canine seen in 10 year old male patient. Radiographic examination revealed well defined radiolucency associated with lateral incisor and the non-vital deciduous canine. The cystic space lined by odontomatous epithelium, consisting of basal cuboidal to flat cells and superficial loose cells. Adjacent connective stroma is densely inflamed with chronic inflammatory cell infiltration and blood capillaries. Diagnosis was made and marsupilization under general anesthesia was planned.

Keywords: Dentigerous cyst, Marsupilization.

Introduction

Dentigerous cyst is the second most common cyst of the oral cavity [1]. A dentigerous cyst is one that encloses the crown of an unerupted tooth by expansion of its follicle and is attached to the neck of the tooth [2]. It is a radiolucent, well-defined, odontogenic lesion that surrounds the crown of an unerupted tooth and prevents its eruption. Develops from proliferation of the enamel organ remnant or reduced enamel epithelium [2]. Most commonly seen in association with third molars and maxillary canines. The highest incidence occurs during the second and third decades. In rare cases, dentigerous cyst occurs in maxilla in the first decade of life. Greater incidence in males, with a ratio of 1.6 to 1 reported. Symptoms are generally absent, with delayed eruption being the most common indication of dentigerous cyst formation [3, 4].

Case Report

A 10-year-old boy reported to the department of paediatric dentistry, Hitkarini Dental College and Hospital, with chief complaint of pain and swelling in left upper front tooth region since 6 months. Pain was sudden in onset, throbbing in nature, continuous, non-progressive and no radiation of pain was present. Pain was relieved by taking medications. Pain was associated with swelling. There was no significant medical history. Blood investigations were found to be within normal physiological limits. Facial asymmetry was found in extra oral examination involving left half of the face. Swelling was extending from left ala of nose to zygomatic buttress region antero-posteriorly and from left infraorbital region to commisure region superior-inferiorly, it was round to oval in shape, and no surface changes were noted (Figures 1,2,3 and 4). Intraoral examination revealed obliteration of left

maxillary vestibular region wrt 63, 64, 65 and 26 region (Figure 5). On palpation swelling was non tender and soft to firm in consistency with no change in localized temperature. The differential diagnosis included radicular cyst, odontogenic keratocyst, unicystic ameloblastoma. Orthopantomogram revealed ill-defined unicystic radiolucency involving impacted 21, 22, 23 in left maxillary antrum (Figure 6).

Treatment Plan

Marsupialization under GA

Under naso-endotracheal intubation, LA with adrenaline 1:2,00,000 ratio was administered in left upper vestibular region. Maxillary vestibular incision was taken to expose the lesion (Figure 7a), window created which showed multiple impacted teeth (Figure 7b) and small bits of approx. 0.3-0.4 cms of superficial portion of cystic lining were excised for histopathological evaluation with thick creamy foul smelling cystic content and remaining cystic lining was sutured (marsupialized) to mucosal epithelium (Figure 8a) with placement of betadine (povidone iodine 10%) soaked surgical gauze pack (Figure 8b) Suturing was done using 3-0 vicryl sutures. Post-operative period was uneventful. Gauze pack was changed routinely after every 48 hours for approx. 4-6 times.

Histopathological findings showed cystic spaces lined by edematous epithelium consisting of basal cuboidal to flat cells and superficial loose cells. Adjacent connective stroma is densely inflamed with chronic inflammatory cell infiltration and blood capillaries. The report revealed Infected Dentigerous cyst. After removal of surgical pack for 4-6 times in absence of foul smell and completion of epithelization, a custom acrylic obturator was used that kept the fenestration of former cystic cavity open until bone apposition occurred with only a shallow depression left behind and aided to avoid entrapment of food particles into the cavity (Figures 9.a, b). The obturator was then modified in periodic follow up visits during healing period. The appliance is used to secure permanent dentition when cystic lesion is shrinking in its dimension.

Instructions are given to clean cystic cavity and obturator, and radiographs are taken until permanent teeth are erupted in dental arch. The three months follow up revealed miraculous results be in eruption of permanent teeth, aesthetics, and most importantly impact on psychology of the child (Figures 10-14).

Discussion

Occurrence of Dentigerous cysts according to shear is usually in 3rd and 4th decade, in contrast to this finding Y Shibata *et al.* showed that the age of discovery of the dentigerous cyst was generally 9-11 years [5]. The patient was also 10-year-old this difference in the age related prevalence of dentigerous cyst may be attributed to the difference in the ethnicity of the population examined. Dentigerous cyst is seen associated with 3rd mandibular molars 34, but in our case the cyst was associated with unerupted mandibular second premolar and the same finding were reported in the previous study on the Japanese, where lower premolars is the most common site of occurrence of dentigerous cyst 11 [3, 4].

According to Benn and Altini [6] three feasible mechanism exists for histogenesis of the dentigerous cyst. Developmental dentigerous cyst forms from dental follicle and becomes secondarily inflamed and the source of inflammation is usually a non-vital tooth. The second type develops from Radicular cyst which forms at apex of a nonvital deciduous tooth. The permanent successor erupts into radicular cyst and results in dentigerous cyst that is extrafollicular in origin.

Third type is due to periapical inflammation from non-vital deciduous tooth or other source which spreads to involve follicle of permanent successor, as a result of inflammatory exudate, dentigerous cyst formation occurs as seen in our case [7]. It is being suggested that marsupialization of the cyst lining is the treatment of choice for dentigerous cyst in children in order to give a chance to the unerupted tooth to erupt 12, but in our case cystic sac was surrounding the unerupted premolar and

was firmly attached to it. So it was decided to do enucleation of the cyst. Two months' post-operative result showed good prognosis of the case.

Conclusion

Due to their asymptomatic behaviour, the dentigerous cysts tends to acquire considerable size without the notice of the patient and this warrants the early clinical and radiographic detection of the cyst so that early treatment strategies will prevent or decrease the morbidity associated with the same. The standard management of dentigerous cyst is enucleation and extraction of the impacted or associated teeth. However, the maxillary cysts are usually treated by Cald well luc approach, marsupialisation is another option to retain associated permanent teeth and promote eruption. Complete precised enucleation is the only key to prevent recurrence [8-11]. The radiographic presentation shows well defined radiolucency of alveolar bone associated with an impacted tooth. The intraluminal pressure within cystic cavity causes displacement of the teeth, cortical expansion, hinders eruption and retain considerable sizes, engendering facial symmetry [12-14]. The cyst may eventuate fracture or may become infected secondarily, or if maxillary dentigerous cyst, then it can cause impingment to orbital floor further leading to diplopia or may even blindness [15]. The mandibular third molars are most commonly involved teeth. Many researchers have found dentigerous cyst to be the initiator of some serious pathologies like KCOT and cystic ameloblastoma [16, 17].

Acknowledgement: Nil.

Conflict of Interest: The authors declare that they have no conflicts of interest.



Figure 1. Front profile of patient



Figure 2. Right and left Lateral profile views



Figure 3. Right and left lateral oblique views



Figure 4. Worm's and Bird's eye views



Figure 5. Intra oral view showing obliteration of vestibule



Figure 6. OPG revealing well defined radiolucency involving impacted 21, 22, 23

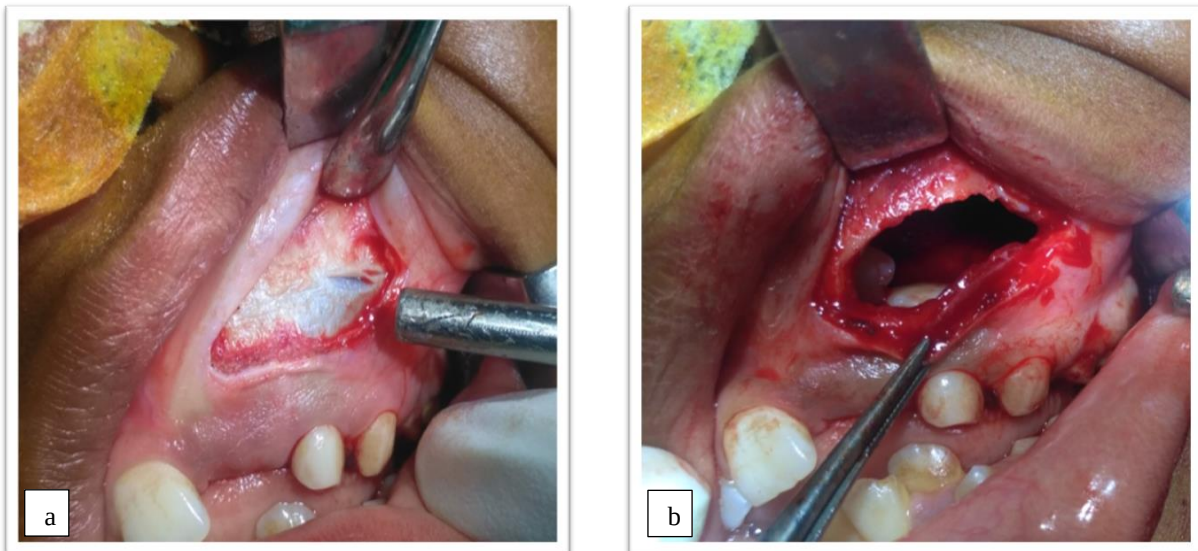


Figure 7 (a, b). Maxillary vestibular incision and exposure of impacted teeth

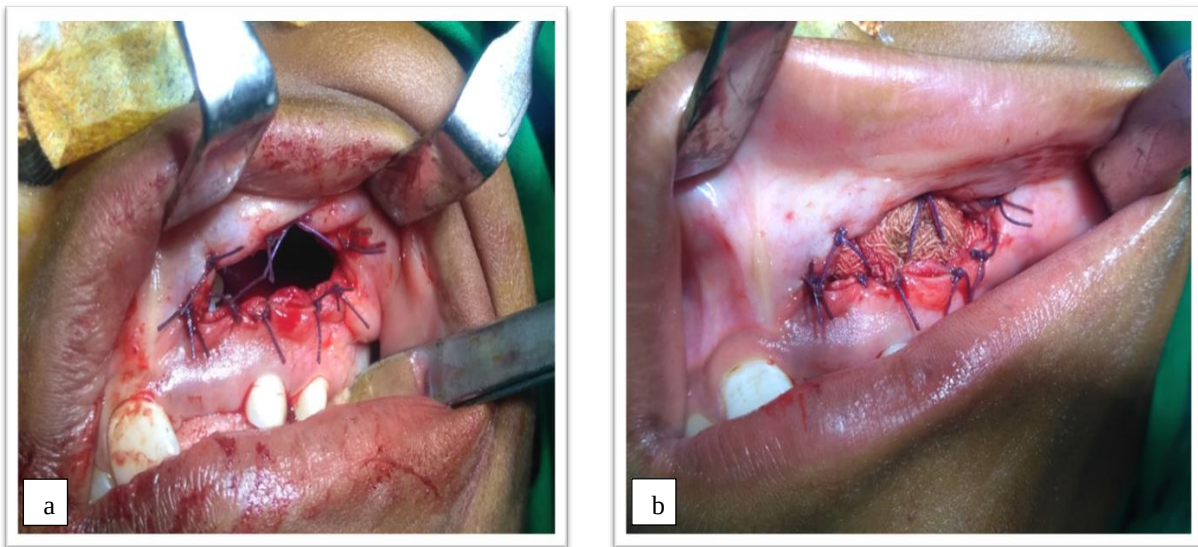


Figure 8 (a, b). Cystic line marsupialised to mucosa with placement of surgical pack

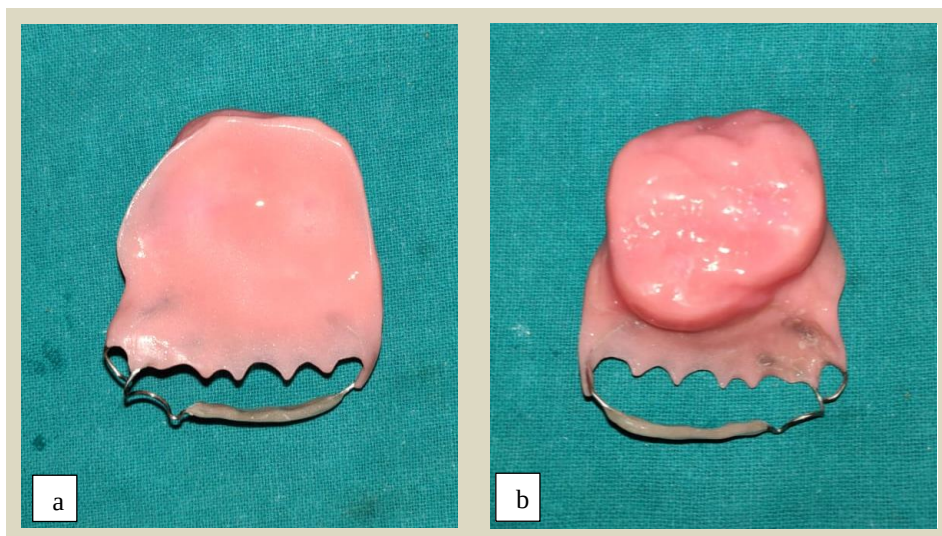


Figure 9 (a, b). Customised acrylic obturator placed after completion of epithelisation

Follow up after 3 months



Figure 10. Front profile view



Figure 11 (a, b). Right and left lateral profile views



Figure 12 (a, b). Right and left lateral oblique views



Figure 13 (a, b). Bird's and Worm's eye views



Figure 14. Intraoral view

References

1. Shah N, Thuan H, Beale T. Spontaneous regression of bilateral dentigerous cysts associated with impacted mandibular third molars. *Br Dent J.* 2002;192(2):75-76.
2. Mervyn S. Speight Paul Cysts of the Oral and Maxillofacial Regions. 4th ed. Blackwell publishing: Bristol; 2007.
3. Daley TD, Wysocki GP, Pringle GA. Relative incidence of odontogenic tumors and oral and jaw cysts in a Canadian population. *Oral Surg Oral Med Oral Pathol.* 1994 Mar 1;77(3):276-80.
4. Mourshed F. A roentgenographic study of dentigerous cysts: I. incidence in a population sample. *Oral Surg Oral Med Oral Pathol.* 1964 Jul 1;18(1):47-53.
5. Shibata Y, Asaumi J, Yanagi Y, Kawai N, Hisatomi M, Matsuzaki H, Konouchi H, Nagatsuka H, Kishi K. Radiographic examination of dentigerous cysts in the transitional dentition. *Dentomaxillo Radio.* 2004 Jan;33(1):17-20.
6. Benn A, Altini M. Dentigerous cysts of inflammatory origin: a clinicopathologic study. *Oral Surg Oral Med Oral Pathol Oral Radiol Endodont.* 1996 Feb 1;81(2):203-9.
7. de Azambuja Berti S, Pompermayer AB, Souza PH, Tanaka OM, Westphalen VP, Westphalen FH. Spontaneous eruption of a canine after marsupialization of an infected dentigerous cyst. *American J Orthodon Dento Ortho.* 2010 May 1;137(5):690-3.
8. Buyukkurt MC, Omezli MM, Miloglu O. Dentigerous cyst associated with an ectopic tooth in the maxillary sinus: a report of 3 cases and review of the literature. *Oral Surg Oral Med Oral Pathol Oral Radiol Endodont.* 2010 Jan 1;109(1):67-71.

9. Dhupar A, Yadav S, Dhupar V, Mittal HC, Malik S, Rana P. Bi-maxillary dentigerous cyst in a non-syndromic child—review of literature with a case presentation. *J Stomatol Oral Maxillo Surg*. 2017 Feb 1;118(1):45-8.
10. Freitas DQ, Tempest LM, Sicoli E, Lopes-Neto FC. Bilateral dentigerous cysts: review of the literature and report of an unusual case. *Dentomaxillo Radiol*. 2006 Nov;35(6):464-8.
11. Hu YH, Chang YL, Tsai A. Conservative treatment of dentigerous cyst associated with primary teeth. *Oral Surg Oral Med Oral Pathol Oral Radiol Endodont*. 2011 Dec 1;112(6):e5-7.
12. Huseyin K, Esin A, Aycan K. Outcome of dentigerous cysts treated with marsupialization. *J Clin Pediatr Dent*. 2009 Dec 1;34(2):165-8.
13. Jones AV, Craig GT, Franklin CD. Range and demographics of odontogenic cysts diagnosed in a UK population over a 30- year period. *J Oral Pathol Med*. 2006 Sep;35(8):500-7.
14. Guerrisi M, Piloni MJ, Keszler A. Odontogenic tumors in children and adolescents: A 15-year retrospective study in Argentina. *Medic Oral Patol Oral Cirug Bucal (Internet)*. 2007 May;12(3):180-5.
15. Prabhakar V, Sandhu SV. Nonsyndromic bilateral maxillary dentigerous cysts: Review of literature and report of an unusual case. *Int J Pediatr Otorhinolaryng Extra*. 2011 Jan 1;6(1):5-8.
16. Ustuner E, Fitoz S, Atasoy C, Erden I, Akyar S. Bilateral maxillary dentigerous cysts: a case report. *Oral Surg Oral Med Oral Pathol Oral Radiol Endodont*. 2003 May 1;95(5):632-5.
17. Zhang LL, Yang R, Zhang L, Li W, MacDonald-Jankowski D, Poh CF. Dentigerous cyst: a retrospective clinicopathological analysis of 2082 dentigerous cysts in British Columbia, Canada. *Int J Oral Maxillo Surg*. 2010 Sep 1;39(9):878-82.

Citation: Singh M, Bhayya DP, Sahu G, Singh A. Dentigerous Cyst of Inflammatory Origin in the Maxilla-A Rare Entity. *Int J Rec Innov Med Clin Res*. 2020;2(1):1-8.

Copyright: ©2020 Singh M, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.