Case Report

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

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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 odematous 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 commissure 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. Orthopentomogram 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 Caldwell 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].

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


