



DENTIGEROUS CYST: CASE SERIES

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ABSTRACT

A retrospective study looked at the features of dentigerous cyst clinically, radiographically and histopathologically in 17 patients in Department of ENT, Raipur Institute of Medical Sciences, Raipur (CG). The results showed that the mean age was 18.3 years with peak incidence occurring in second and third decades, males were affected more than females in a ratio of 1.4:1. The maxillary region (53%) was the most specific site involved, followed by mandibular region (47%). The most common clinical features were swelling over maxillary or mandibular region, while pain is not a prominent feature. Radiographic appearance revealed radiolucency associated with unerupted teeth. All cases were undergone for surgical excision of cyst under general anesthesia. Histopathology features were suggestive of dentigerous cyst.

KEYWORDS : Dentigerous cyst, Maxilla, Mandible, Odontogenic

INTRODUCTION

Odontogenic cysts commonly encountered in dental practice are the radicular cysts and dentigerous cysts. While the radicular cysts usually form in response to pulpal death and subsequent tissue necrosis, the dentigerous cyst develops around the crown of unerupted teeth apparently in the absence of an inflammatory stimulus. It develops in two ways; by accumulation of fluid between the reduced enamel epithelium and the crown, or between the layers of the reduced enamel epithelium.

The frequency of dentigerous cyst formation has been estimated to constitute 1.44 per 100 unerupted teeth [1]. Furthermore, the risk for individual teeth to develop dentigerous cyst varies considerably. In case of mandibular third molars, the frequency of impaction is roughly the same as that of cyst formation, whereas maxillary third molars have a much higher frequency of impaction than cyst involvement, suggestion that this tooth has a much lower relative risk of developing a dentigerous cyst than its mandibular counterpart[2]. Similarly the risk of cyst formation around the crowns of unerupted mandibular first premolars, maxillary incisors, or mandibular second molars is very high, although the frequency of failure of eruption of these teeth is extremely low[3].

The aim of the present study is to find the incidence, clinicopathological variation of dentigerous cyst in a review of cases. Such information are valuable to clinician as it help in the formulation of a working diagnosis and timing management decisions and approach to surgical treatment.

MATERIAL AND METHOD

All cases of dentigerous cyst over the period between 2000-2009 were recorded from the Department of ENT, Raipur Institute of Medical Sciences, Raipur (CG). All cases diagnosed histologically as dentigerous cyst were analyzed according to the age, sex, duration, site distribution, clinical presentation, radiographic appearance, histopathologic details and surgical options based on the individual pathologic report of each case.

Demographics

Records of total of 17 patients were reviewed. Age and sex distribution of patients are shown in Table 1. The age of the

patient ranged from 7 to 35 years, with a peak incidence in the second decade of life, and the mean age was 18.3 years. Median age was 17 yrs. Male subjects in this study made up 58.8% of all patients. The males were affected more than the females with a ratio of (1.4:1).

Table 1: Age & sex distribution in 17 cases

Age group (yrs)	No of cases	Male	Female	M:F
0-10	2 (11.7%)	1 (5.8%)	1 (5.8%)	1:1
11-20	9 (52.9%)	5 (29.4%)	4 (23.5%)	1.2:1
21-30	4 (23.5%)	3 (17.6%)	1 (5.8%)	3:1
31-40	2 (11.7%)	1 (5.8%)	1 (5.8%)	1:1
41-50	-	-	-	-
Total	17 (100%)	10 (58.8%)	7 (41.1%)	1.4:1

Site of lesion

Regarding the location of lesion, 9 cases (52.9%) occurred in the maxilla and 8 cases (47.1%) in the mandible.

Presenting symptoms

The duration of the symptoms ranged from one month to 2 years (median = 6 months). The initial presenting symptom (for all 17 patients) was swelling over maxillary or mandibular region, associated with pain in only 2 cases, intraoral alveolar swelling was noted in only one case. One case was recorded with off and on fever since 1 month associated with pus discharge from sinus which was case of dentigerous cyst with infected sinus over maxillary region. One child was presented with recurrent swelling and scar mark over left maxillary region in which I & D was done due to suspicion of abscess in other hospital (Fig 1).



Figure 1. Photograph showing swelling and scar mark over left maxillary region

Radiographic appearance

The dentigerous cyst appears as circumscribed radiolucency associated with impacted tooth. The majority of the cysts show unilocular radiolucency. Orthopantomogram shows unilocular well defined radiolucency surrounding unerupted molar teeth (Fig 2). CT scan coronal view is also a valuable tool to diagnose the dentigerous teeth (Fig 3).

Treatment and histopathology

Surgical excision was done in all cases. Marsupialization was done in 9 (52.9%) cases, enucleation in 5 (29%) cases and combined enucleation with Caldwell Luc operation was done in 3 (18%) cases (Fig 4). All of the histopathological reports show features of dentigerous cyst (Fig 5).

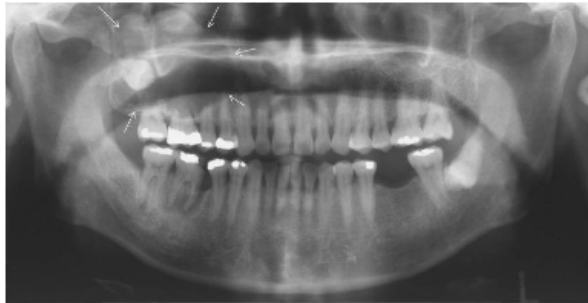


Figure 2. OPG showing circumscribed radiolucency associated with impacted teeth at molar region



Figure 3. CT scan coronal view showing better demarcation of impacted teeth surrounded by soft tissue thickening at right maxillary region



Figure 4. Intraoperative picture of Caldwell Luc procedure showing teeth in maxillary antrum

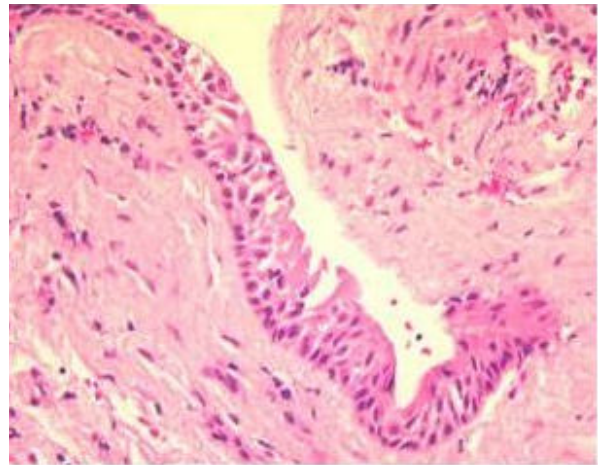


Figure 5. Histopathological picture of dentigerous cyst (H & E_40x)

DISCUSSION

The lesion occurs most often in the second and third decades of life [4]. This is in harmony with this result in which the majority of patients were young, 15 out of 17 patients being under the age of 30 years (88.24%). The lowest incidence was in the first decade of life. The peak incidence was in the second and third decades. Both the finding is similar to Mourshed's finding [5].

The greatest incidence of dentigerous cyst occurred between age 21 and 30 years. In this age period, the third molar has completed the process of development (it erupts between the age of 16 and 25 years). Thus, it would be in this age period that the dentigerous cyst would develop in association with unerupted or impacted third molars.

The present investigation showed that males (58.8%) were affected more than the females. A similar result was reported by Browne [6]. The reason for this sex difference is unknown. However, Daley and Wysocki [4] suggested that it may be related to smaller jaw size in female patients and a greater tendency for prophylactic extraction of third molar.

Regarding the site, dentigerous cyst in our study observed predominantly in the maxillary cuspid area (52.9%). This finding confirmed by previous studies [3,7,8]. However, Main [9], Angela and Mario [2] reported that the common site for dentigerous cyst was in the mandibular third molar area.

The dentigerous cyst is frequently well circumscribed unilocular radiolucency which is often associated with an unerupted tooth. The cyst appears to have a greater tendency than other jaw bone cyst to induce root resorption of adjacent teeth.

Clinically, dentigerous cysts occur most often as painless alveolar swelling [2], sometime the cyst associated with pain [9]. Our finding is the same, in which all the cases were presented with the jaw swelling. Pain was reported less frequently; tooth mobility and displacement were occasionally observed. It is often painless unless infected and mostly silent until they have enlarged sufficiently to produce the expansion of jaw.

Dentigerous cysts are frequently treated surgically, either by enucleation or marsupialization. Following enucleation of cyst and extraction of unerupted tooth the prognosis is excellent and recurrence is rarely observed after complete removal [1]. The decision whether to enucleate or marsupialise the cyst

depends on various factors. Enucleation will alter the normal tooth development and in certain circumstances especially in children the involved tooth should be given a chance to erupt. Marsupialization has advantage of reducing the cyst cavity and preserving the involved tooth in the cyst.

Hyomoto et al [12] found that marsupialization assisted natural eruption of the impacted tooth in the dentigerous cyst in 72.4% of their subject. Based on that, they concluded that marsupialization promotes the natural eruption of a cyst-associated tooth and they suggest that in the pediatric population, marsupialization should be considered as first line of treatment. In adult, the impacted teeth normally have a slim chance to erupt; therefore enucleation is a better treatment. Surgical enucleation combined with the Caldwell-Luc approach followed by primary closure is recommended in treatment of the large maxillary sinus cyst (Kaya and Bocutoglu, 1994)¹³, as marsupialization of these cysts towards the oral cavity will consequently create an oroantral fistula. In our cases we performed marsupialization in 9 patients who were in their first or second decade of life. Enucleation was performed in 5 cases. Enucleation combined with the Caldwell-Luc procedure was done in 3 cases as the cyst was large. Recurrence of dentigerous cyst is rare [10]. In our study also no one case returned with recurrence.

The histological features of our dentigerous cyst are similar to those seen elsewhere. Kim and Ellis [14] showed that the dentigerous cyst may be lined by stratified squamous epithelium, especially in older patient.

Furthermore, the dentigerous cyst may give rise to a variety of tumors, notably ameloblastoma, squamous cell carcinoma, mucoepidermoid carcinoma, and rarely other tumors. Therefore, every case mimic radiographic appearance of a dentigerous cyst should be confirmed pathologically in order to exclude any other aggressive lesions.

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