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A Clinical Study of Dentigerous Cyst its Sites of involvement and Surgical outcome in ENT practice

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ABSTRACT

Background: Dentigerous cysts are the most common developmental cysts of the jaws and the second most common type of odontogenic cysts after radicular cysts. Common sites associated with dentigerous cysts are the third molars and maxillary canines.

Aims and Objectives: Aim of this study is to tell about the rare sites and presentations of dentigerous cysts and its treatment modalities with a multidisciplinary approach.

Methods and material: It is a prospective study where all the patients presented to ENT out-patient department between June 2016 to January 2019. Patients were examined, radiological investigations were done for all the patients and surgical enucleation was planned.

In this series various sites of dentigerous cyst were observed and patients were surgically treated by either Caldwell luc procedure or with clavicular incision and trapezoid flap. Middle meatal antrostomy was done in patients having associated sinusitis.

Results: patients were followed for 6 months after the surgery there was no recurrence in any of the cases and post-operative period was quite uneventful.

Conclusion: dentigerous cyst should be differential diagnosis in mind even when patient comes in with complaints like nasal obstruction and facial pains, and should be treated in multidisciplinary fashion, like in this study where results were excellent and no recurrence noted..

Keywords: Dentigerous cyst, Odontogenic cyst, Supernumerary tooth, Unerrupted tooth

INTRODUCTION

A dentigerous cyst encompasses the crown of an unerupted tooth due to expansion of its follicle and is attached to the neck of the tooth.[1] It occurs by variation of reduced enamel epithelium after the amelogenesis completion, this leads to fluid accumulation between epithelium and tooth crown.[2,3]

Reported incidences of dentigerous cyst are 1.44 in every 100 unerupted teeth[1.] Males have more prevalence than females and more commonly associated with unerupted third molars, first and second premolars and canines.[4]

Dentigerous cyst can be asymptomatic and may be diagnosed on routine radiographs or patients may give history of slowly enlarging swelling. Pain is the complaint only when these cysts are secondarily infected.

Most commonly seen in 2nd and 3rd decade and rarely observed in 1st decade of life. [5,6]

Treatment is either by enucleation of all the pathological content with the involved tooth or by marsupialization. Marsupialization is mostly preferred in children so as to not damage the surrounding structures and hamper their growth. Removal of the cystic content and the involved unerupted tooth is the mainstay treatment to avoid any recurrence.[7,8,9]

AIMS AND OBJECTIVES.

Aim of this study is to tell about the rare sites and presentations of dentigerous cyst and its treatment modalities with multidisciplinary approach.

MATERIALS AND METHODS

Study design: prospective study

Total number of cases: 8

The individual patients were selected on the basis of inclusion and exclusion criteria as and when they came to ENT out-patient department (OPD) of Chalmeda Anand Rao institute of medical sciences.

All patients between the ages of 6 to 60 years were included in the study with exclusion of:

- Patients with diabetes, malignancies, renal failure, immunocompromised state, post splenectomy.
- High risk cases like cardiac valvular lesions.
- Established cases of rheumatic fever.

Patients were selected as they presented to the Chalmeda Anand Rao institute of medical sciences, dept of ENT OPD during June 2016 to January 2019. A predesigned Performa was used to record the history and patients were examined thoroughly. Radiological investigations i.e. an Orthopantomogram(OPG) and a CT scan was done for every patient to reach a diagnosis and to know the extent and to plan for the surgical procedure. Once the patients were declared fit by the anesthesiologist, they were operated with multidisciplinary approach and a complete surgical enucleation was done and sample was sent for histopathological examination, which revealed it to be dentigerous cyst. Procedures which were done, turn to be in excellent result. Patients were followed up for next 6 months and none of the patients showed any recurrence and post-operative period was uneventful. Patient were referred to dental OPD for further dental evaluation.

ETHICAL CONSIDERATION

The study was conducted after getting ethical approval from ethical committee of Chalmeda Anand Rao institute of medical sciences, Karimnagar Telangana, INDIA and a written consent was taken from all the patients to be included in the study.

OBSERVSTIONS AND RESULTS

8 patients were selected for this study in whom clinical evaluation and radiological investigations like OPG and CT PNS were done which showed the location, extent and involvement of the surrounding structures and followed by diagnostic nasal endoscopy. These patients were operated for total enucleation of the cyst with different approaches discussed below. And the samples collected were sent for Histopathological examination which confirmed the diagnosis to be dentigerous cyst.

TABLE 1: BRIEFING OF THE CASES.

No. of cases	Patient age and sex	Presenting complain	Investigations	Site	Procedure	Follow up
Case 1	15 years female	Right sided Facial pain, swelling and nasal obstruction.	CT paranasal sinuses (CT PNS), orthopantomogram (OPG), diagnostic nasal endoscopy (DNE)	Impacted first premolar of maxilla	Enucleation with middle meatal antrostomy (MMA) and caldwell luc	6 months: uneventful

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					approach	
Case 2	35 years male	Left sided Facial swelling	CT PNS, OPG, DNE	Impacted supernumerary tooth of 2nd incisor of maxilla	Enucleation with clavicular incision	6 months: uneventful
Case 3	21 years female	Right sided Facial pain and swelling	CT PNS, OPG, DNE	Impacted molar extending to ramus of mandible.	Enucleation with clavicular incision and trapezoid flap	6 months: uneventful
Case 4	34 years female	Right sided Facial pain and swelling.	CT PNS, OPG, DNE	Impacted canine of mandible	Enucleation with clavicular incision and trapezoid flap	6 months: uneventful
Case 5	35 years female	Right sided Facial swelling	CT PNS, OPG, DNE	Multiple Impacted supernumerary teeth of maxilla	Enucleation with clavicular incision and trapezoid flap	6 months: uneventful
Case 6	8 years male	Right sided facial swelling with nasal obstruction	CT PNS, OPG, DNE	Unerupted canine of maxilla	Enucleation with MMA and caldwell luc	6 months: uneventful
Case 7	7 years male	Right sided facial swelling	CT PNS, OPG, DNE	Supernumerary tooth of 2nd maxillary incisor	Enucleation with clavicular incision and trapezoid flap	6 months: uneventful
Case 8	34 years female	Left sided infraorbital swelling and nasal	CT PNS, OPG,	Unerupted molar attached to roof of maxillary sinus	Enucleation with caldwell luc and polyp	6 months: uneventful

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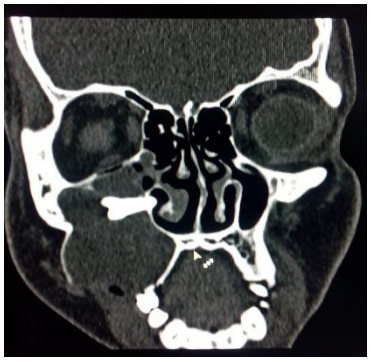
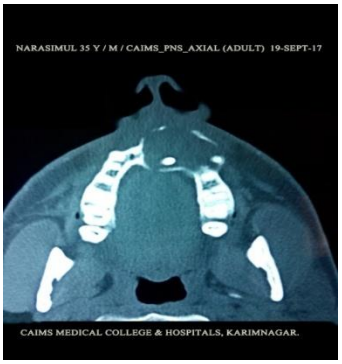
		obstruction	DNE	with nasal polyp.	was removed with MMA	



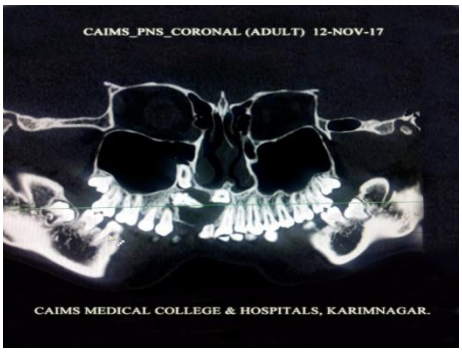
CASE 1



CASE 2

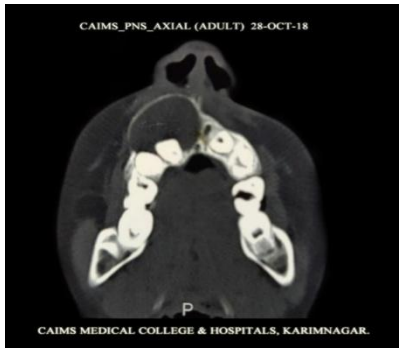
CASE 3

CASE 4



CASE 5

CASE 6



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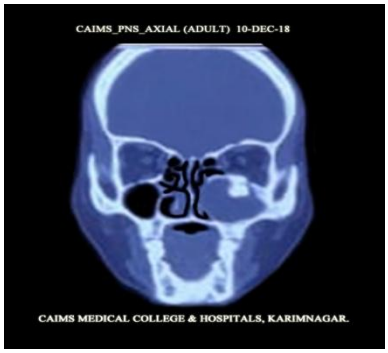

CASE 8

DISCUSSION

The term "dentigerous cyst" was coined by Paget in 1853. Dentigerous cyst is a developmental odontogenic cyst, it is also called as a follicular cyst. Most of the time it is an accidental finding like in some of our cases mentioned here, where patient had vague complaints and a misdiagnosis of only sinusitis was likely to be made.

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Dentigerous cyst may enclose an impacted or a supernumerary tooth. Both of which are seen in our study where clavicular incision with trapezoid flap or Caldwell luc approach was used for enucleation.

In dentigerous cyst the follicular space is about 5mm which normally is 3-4mm[10]. Radiologically dentigerous cysts are unilocular, radiolucent mass having well defined sclerotic margins. CT scan is a very important investigation that should be done for each case so as to the extent, margin and the exact location of the cyst. CT also helps to look at the surrounding structures, their involvement and plan for the surgical excision.

Classification of dentigerous cyst is based on its origin and on inflammation; origin is from reduced enamel epithelium, diagnosed in 3rd decade of life mostly. And inflammation based are either inflammatory or non-inflammatory, it is diagnosed in 1st or 2nd decade of life when there is mixed dentition,[11] in our study we have 3 cases in 1st and 2nd decade of life which were diagnosed and treated for the same by total enucleation and patient showed no recurrence in post-operative period.

Maxilla to mandible involvement is 1:10.[11] in our study we had 6 cases of maxillary involvement, rare occurrence and 2 cases of mandibular dentigerous cyst which are also of rare occurrence as one case has unerupted tooth attached to the ramus of the mandible while other has cyst in submental and submandibular area. Both of these cases were operated with clavicular incision and trapezoid flap and enucleation was done.

Hamama et al. in the year 2018 [12], reported two cases of dentigerous cyst associated with an ectopic third molar in the maxillary sinus. Similar finding was found in one of our case where ectopic molar was attached to roof of maxillary sinus and patient had associated sinusitis and nasal polyp which was removed with MMA and cyst was enucleated. For a similar case Di Pasquale and Shermetaro did a middle meatal antrostomy and took out the cyst with its contents and also delivered the tooth[13].

When there are no chances of damaging adjacent anatomical structures Enucleation is the preferred treatment modality, whereas marsupialization is done to minimize the danger of harm to nearby anatomical structures. In young patients as conservative treatment as possible should be done so as to not hamper the growth of developing structures [14]. In our cases enucleation was done which resulted in excellent outcome and post-operative period was totally uneventful.

CONCLUSION

To conclude, every patient who walks into ENT OPD should be evaluated thoroughly to eliminate all causes. In this case series almost, all patients came with complaints of facial pain and nasal obstruction which is very easily misdiagnosed as sinusitis, sub-mental or sub-mandibular swelling. So after a complete examination (OPD and endoscopic) and proper radiological investigations dentigerous cysts were the probable diagnosis of these cases which were treated in a multidisciplinary approach by enucleation either by caldwell luc or by clavicular incision with trapezoid flap, and middle meatal antrostomy was done in cases where there was a need of it due to associated sinusitis, which gave excellent results. Diagnosis was finally confirmed on HPE examination of the sample sent after surgical removal. Post-operative period was uneventful and none of the above patients had recurrence.

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