

PALATAL DENTIGEROUS CYST MIMICKING RADICULAR CYST IN A 13 YEAR OLD BOY: A DIAGNOSTIC DIALEMMA

Dr. Ashish Pania	MDS, Senior Resident, Department of Oral & Maxillofacial Surgery, Charak Palika Hospital, New Delhi.
Dr. Jitender Kumar	MDS & Senior lecturer, Department of Oral and Maxillofacial Surgery, SGT university, Gurugram (Haryana) India-122006.
Dr. Juhi Soni	MDS, Senio Lecturer, Department of Oral & Maxillofacial Pathology and microbiology, Raja Rajeshwari Dental College & Hospital, Udaipur.
Dr. Sanjay Talnia	MDS, Oral and Maxillofacial Surgeon. Ambala (Haryana) India- 134003.
Dr. Sugandha Arya*	MDS & Reader, Department of Oral medicine and Radiology, Vyas Dental College and Hospital, Jodhpur(Rajasthan) India-342001. *Corresponding Author

ABSTRACT

Dentigerous cysts are benign odontogenic cysts that are associated with the crowns of permanent teeth and rarely recurs. They are usually single in occurrence and located in the mandible. Multiple cysts are reported in patients with conditions such as mucopolysaccharidosis and basal cell nevus syndrome. Here, we report a case of impacted maxillary cuspid with dentigerous cyst in a non-syndromic patient. The treatment was chosen in order to preserve the associated permanent teeth with complementary orthodontic treatment to direct eruption of the associated permanent teeth.

KEYWORDS : Dentigerous cysts, Enucleation, Marsupialization, Mucopolysaccharidosis, Basal cell nevus syndrome.

INTRODUCTION:

A dentigerous cyst is one that encloses the crown of an unerupted tooth by expansion of its follicle, and is attached to its neck. Browne and Smith (1991) stressed that the term 'dentigerous cyst' is preferable to that of 'follicular cyst', as the latter implies a derivation from the tooth follicle which is a mesodermal structure.¹ It is the second most common jaw cyst comprising 14–20 per cent of all jaw cysts, and are more frequent in males and in the mandible.²⁻⁶

Dentigerous cysts are usually discovered on routine radiographic examination or when films are taken to determine the reason for failure of a tooth to erupt. They are always radiolucent and usually unilocular, have well-defined sclerotic margins unless they become infected (painful), although large lesions occasionally show a scalloping multilocular pattern.^{5,6} Three radiological variations of the dentigerous cyst may be observed- central variety, lateral type and circumferential dentigerous cyst.¹ Third molars followed by maxillary canines and occasionally supernumerary teeth or odontomas are involved in cyst formation.¹⁻⁶

Dentigerous cysts may grow to a large size before they are diagnosed and then treatment is more difficult as associated teeth are often impacted and displaced a considerable distance due to cyst pressure; surgery may require removal of several teeth or tooth buds or endanger vitality of adjacent teeth.¹⁵

Although patients may give a history of a slowly enlarging swelling (common form of presentation), Seward (1964) has shown radiologically that lesions 4–5cm in diameter may develop in 3–4 years.¹

Nevertheless, because of the many damaging sequelae, dentigerous cysts must be surgically eliminated. Methods employed for elimination have included decompression, marsupialization, and enucleation.¹⁻⁶

However, the criteria for selecting these treatment modalities (indications and contraindications) are not clearly defined. Moreover, large study series and long-term follow-up to assess various treatment results, recurrence, and to compare demographic data, are lacking in the literature.⁷

CASE REPORT

A thirteen-year-old boy was referred to our Oral and Maxillofacial Surgery Department with anterior palatal swelling antero-posteriorly extending from 64 to 21, sideways from midline to the palatal gingiva (Fig. 1). Intraoral exam revealed compressible and painless expansion of palatal cortical plates of the alveolar ridge at the region of teeth 21, 22, 63, 64. No sinus involvement or pus discharge. No change in color of overlying gingiva and was non tender on palpation.



Fig.1. Clinical Picture Showing Left Sided Anterior Palatal Swelling. Alveolar Ridge Expansion At The Palate.

Intraoral periapical radiograph of 63, Orthopantomogram (Fig. 2) and Occlusal view was advised which shows radiolucency around the left impacted canine. Dentition was mixed, carious involvement of 64, with the eruption of multiple teeth were delayed including maxillary canine. Except for his palatal swelling, his physical examination was unremarkable, and routine laboratory tests were within normal limits.



Fig.2. OPG Showing Radiolucency Around The Left Impacted Canine

Radiographic findings revealed a well delimited radiolucent area, measuring approximately 20 mm in its largest diameter, with sclerotic margins, completely associated with the crown of the involved permanent teeth (Fig. 2). Aspiration of the lesion fluid revealed a serous, straw colored and blood-tinged liquid content in which inflammatory cells were found (Fig. 3).



Fig.3. FNAC Showing Straw Coloured Fluid

The lesion was treated by enucleation with preservation of impacted 23 (Fig. 4) and acrylic plate was applied for support after suturing (Fig. 5,6) During the surgical procedures, 64 was extracted and also a biopsy was sent for histopathological examination which confirmed the clinical diagnosis of the dentigerous cyst for the lesion. No dysplastic changes were observed. The follow-up was accomplished at 7 and 30 days.



Fig.4. Intra-operative Picture Showing Enucleation Alongwith Preservation Of Left Maxillary Permanent Canine.



Fig.5. Post-operative Acrylic Plate Placement For Support.

DISCUSSION

Dentigerous cysts are usually solitary with multiple cysts reported on occasion in association with syndromes such as mucopolysaccharidosis, basal cell nevus syndrome and cleidocranial dysplasia.⁸

Bilateral mandibular dentigerous cysts have also been reported after prolonged concurrent use of cyclosporine A and calcium channel blockers. Gingival hyperplasia and impaired dentition are the most common features shared by most of these syndromes.⁹

Dentigerous cysts appear to have a greater tendency than other simple jaw cysts (Radicular and OKC) to produce some resorption of the roots of adjacent teeth (Struthers and Shear, 1976). The important role of dental follicle in the resorption of bone has been demonstrated experimentally by Cahill and Marks (1980).¹ It has been suggested that dentigerous cysts

may be of either extrafollicular or intrafollicular origin and that those of intrafollicular origin may develop by accumulation of fluid either between the reduced enamel epithelium and the enamel, or within the enamel organ itself. Another theory of origin that has been proposed is that the crown of a permanent tooth may erupt into a radicular cyst formed at the apex of its deciduous predecessor.¹

The treatment choice should regard conservative managements with low morbidity particularly in young patients. Surgical excision and pathologic analysis of the lesion is essential for the definitive diagnosis. Maxillary cysts may displace and obliterate the maxillary antrum and nasal cavities. The cysts may cause fractures and become secondarily infected.¹ Metaplastic and dysplastic changes may occur. An ameloblastoma, mucoepidermoid carcinoma, or squamous cell carcinoma may develop from the lining epithelium of a dentigerous cyst.¹⁰⁻¹² Associated aneurismal bone cysts and hemangiomas have been reported in rare instances.⁹ Smaller lesions are removed entirely to prevent damage to the involved permanent teeth, whereas larger lesions may be surgically drained and marsupialized to relieve the pressure within the cysts.

Dentigerous cysts are known to recur very rarely.⁹ Motamedi and Talesh (2005) have detailed their experience in treating 40 large dentigerous cysts involving three or more teeth, referred to them over an 11-year period. Their view was that dentigerous cysts were usually easy to treat when small, but that the more extensive cysts were more difficult to manage. Their treatment approaches were based on patient age, cyst site and size, involvement of vital structures by the cyst, and the potential for normal eruption into occlusion of the impacted tooth involved. Aspiration with a 16- or 18-gauge needle was performed to confirm that they were dealing with cysts and not tumors, and these were followed by incisional biopsies to make definitive histological diagnoses.

Cyst enucleation along with extraction of the impaction(s) was indicated in 34 patients. In these patients the impacted teeth were deemed unlikely to be useful, or lacked space for eruption. Cyst enucleation with preservation of the impacted tooth was indicated in six patients: five by enucleation of the cyst while preserving the associated maxillary or canine teeth, while one was treated by decompression. These teeth erupted normally when root formation was incomplete. Orthodontics was used in cases requiring aided eruption or alignment. Decompression was used in only one case where there was an extensive cyst in an 11 year old girl involving the mandibular body and angle, and impinged on the inferior alveolar nerve and term germs^{1,11,12}.

It should be borne in mind that radiographic findings are not diagnostic for dentigerous cysts because odontogenic keratocyst, unilocular ameloblastoma, and many other odontogenic and non-odontogenic tumors have radiographic features essentially identical to those of a dentigerous cyst. These are ruled out after negative biopsy and histological examination.^{4,5,13} Thus, in large dentigerous cysts an incisional biopsy from an accessible site is done to rule out other lesions which mandate separate, more aggressive, treatment protocols.

REFERENCES:

1. Shear M. Cyst of the oral and maxillofacial regions. 4th ed. Blackwell: 2007.
2. Assael LA. Surgical management of odontogenic cysts and tumors. In: Peterson LJ, Indresano TA, Marciani RD, Roser SM. Principles of Oral and Maxillofacial Surgery. Philadelphia: JB Lippincott 1992; Vol 2: 685-8.
3. Pai N, Shemna SS, Dubey PN, Poddar P. Infected dentigerous cyst in the maxilla: Report of two cases. Indian J Dent Sci 2020;12:244-7.
4. Neville BW. Odontogenic cysts and tumors. In: Neville BW, Damm DD, Allen CM, Bouquot JE. Oral and Maxillofacial Pathology. Philadelphia: WB Saunders 1995: 493-6.
5. Al-assaf M, Al-awad A, Al-Mandily A, Al-Khen M, Farhoud A. Huge Inflammatory Dentigerous Cyst: Case Report. Int J Dentistry Oral Sci.

- 2020;7(2):723-726.
6. Martinez-Pérez D, Varela-Morales M. Conservative treatment of dentigerous cysts in children: report of four cases. *J Oral Maxillofac Surg* 2001; 59: 331-334.
 7. Dammer R, Niederdellmann H, Dammer P, et al. Conservative or radical treatment of keratocysts: A retrospective view. *Br J Oral Maxillofac Surg* 1997; 35: 46.
 8. Norris L, Piccoli P, Papageorge MB. Multiple dentigerous cysts of the maxilla and the mandible: report of a case. *J Oral Maxillofac Surg* 1987; 45: 694-7.
 9. Ustuner E, Fitoz S, Atasoy C. Bilateral maxillary dentigerous cysts: A case report. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2003; 95: 632-5.
 10. Yasuoka T, Yonemoto K, Kato Y, Tatematsu N. Squamous cell carcinoma arising in a dentigerous cyst. *J Oral Maxillofac Surg* 2000; 58: 900-5.
 11. Motamedi MHK and Talesh KT. Management of extensive dentigerous cysts. *British dental journal* 2005; 198: 4.
 12. Sudheer Kanth Kondamari, Sravya Taneeru, Venkateswara Rao Guttikonda, Geetha Kumari Masabattula. Ameloblastoma arising in the wall of dentigerous cyst: Report of a rare entity. *J Oral Maxillofac Pathol* 2018;22,Suppl S1:7-10.
 13. Khandeparker RV, Khandeparker PV, Virginkar A, Savant K. Bilateral Maxillary Dentigerous Cysts in a Nonsyndromic Child: A Rare Presentation and Review of the Literature. *Case Rep Dent*. 2018 [Medline: 29850282] [doi: 10.1155/2018/7583082].