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DENTIGEROUS CYST ASSOCIATED WITH MANDIBULAR LATERAL INCISOR- REPORT OF A RARE CASE

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ABSTRACT:

The dentigerous cyst is a common type of odontogenic cyst that encloses the crown of an unerupted tooth by way of expansion of its follicle due to the collection of cystic fluid. Reported cases commonly involved the mandibular third molars and maxillary canines. They rarely involve the incisors. The highest incidence of dentigerous cysts occur during the second and third decades. We report a case of dentigerous cyst involving the permanent mandibular lateral incisor which is a rare occurrence. The pathogenesis, clinical and radiological features are discussed. **Key Words: Dentigerous cyst, Lateral incisor.**

INTRODUCTION

The occurrence of cysts in the orofacial region is common. The high frequency of occurrence could be attributed to the complex embryology in the development of teeth and also due to the presence of odontogenic epithelial remnants. After the radicular cyst, dentigerous cyst is the most common odontogenic cyst contributing about 16.6% to 21.3% of all odontogenic cysts^{1,2}. They are generally associated with an impacted tooth developing after the complete formation of the crown³. They most commonly involve the mandibular and maxillary third molars and the maxillary canines followed by mandibular premolars. The involvement of incisors is rare. Males are more commonly affected than females. This condition may occur at any age, but the greatest incidence is reported in the second and third decades of life. This article reports a case of dentigerous cyst in a 16 year old boy involving an impacted mandibular lateral incisor.

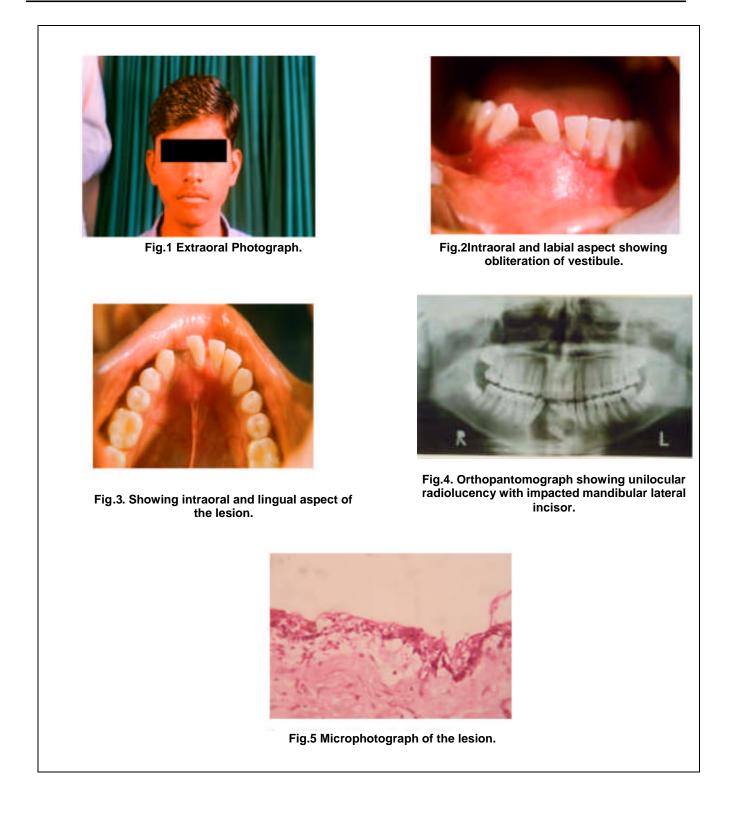
Review of literature

Dentigerous means containing teeth⁴. The term 'dentigerous cyst' was first suggested by Paget in 1853. Dentigerous cyst is the second most common odontogenic cyst arising by the separation of the follicle from around the anatomic crown of an unerupted tooth within the jaws^{5,6}. Shear⁷ suggested the possibility that there may be two types of dentigerous cysts, with different causes and arising at different stages of the tooth development. One could arise by degeneration of the stellate reticulum at an early stage of development and is likely to be associated with enamel hypoplasia. The other could develop after completion of the crown by accumulation of fluid between the layers of the reduced enamel epithelium. Enamel hypoplasia would not be a significant feature of this

variety. The suggested explanation for the association of dentigerous cyst and enamel hypoplasia is that the presence of foci of enamel hypoplasia diminishes the adherence of reduced enamel epithelium to the crown and provides the starting point for the development of the cyst. Main⁸ suggested that venous obstruction subsequent to the compression of its follicle by the impacted tooth induces transudation across the vessel walls. The increased hydrostatic pressure exerted by the pooling transudate separates the follicle from the crown with or without reduced enamel epithelium and in time leads to an increased permeability of the vessels so that the extravasation resembles an exudate more than a transudate⁹.

Dentigerous cyst is always associated with an impacted tooth. Mourshed ⁶ showed the distribution of 761 cysts associated with unerupted teeth of which the majority were mandibular(378) and maxillary(328) third molars. Maxillary canines were next a long way behind (15), followed by mandibular second premolars (11), maxillary second molars (8), mandibular second molars (7), mandibular canines (6) and maxillary second premolars, maxillary central incisors and a supernumerary tooth were each involved once. Males were predominantly affected over the female population and the common age of incidence being the second and third decades of life^{7,10,11}.

Dentigerous cyst often grew to a large size before they were diagnosed. Most of them were discovered on radiographs when they were taken because a tooth had



failed to erupt or a tooth was missing or because teeth were tilted or otherwise out of alignment. Expansion of bone with subsequent facial asymmetry, extreme displacement of teeth, severe root resorption of adjacent teeth and pain were all possible sequelae brought about by continued enlargement of the cyst. Cystic involvement of an unerupted mandibular third molar might result in hollowing out of the entire ramus extending upto coronoid process and condyle as well as expansion of the cortical plate due to pressure exerted by the lesion. Dentigerous cysts may occasionally be painful particularly if infected¹². Radiographically, dentigerous cysts typically appear as a well circumscribed, unilocular, usually symmetric radiolucency around the crown of impacted tooth¹¹. The size of the radiolucency is larger than that of a normal dental follicle¹³. The cysts have well defined sclerotic margins unless they become infected. There may be displacement of the third molar to such an extent that it sometimes comes to lie compressed against the inferior border of the mandible or the ascending ramus. The Maxillary canine may be forced into the maxillary sinus as far back as floor of the orbit. Maxillary incisor may be found below the floor of the nose. In lateral dentigerous cysts the radiolucent area projects laterally from the tooth crown, particularly if the cyst is relatively large or if there has been displacement of the tooth. In the circumferential dentigerous cyst, the radiolucent area surrounds the entire crown of the tooth, without involving the occlusal surface, so that the tooth may erupt through as 'through the hole of a doughnut'. Craig demonstrated paradental cysts that occurs on the lateral aspects of the roots of partially erupted third molars where there is an associated history of pericoronitis. Radiographically there is a well demarcated radiolucency distal to the partially erupted tooth 11,14.

Dentigerous cysts have a greater tendency than other simple jaw cysts to produce resorption of the roots of adjacent teeth. Dentigerous cysts' potential for root resorption may be derived from its origin from the dental follicle and the ability of the latter to resorb the roots of deciduous predecessors^{14,15}. Arendorf had suggested that prostaglandin 2, may play a role in the resorption of cementum and dentine⁷.

Dentigerous cysts usually show a thin fibrous cyst wall derived from the dental follicle, consisting of young fibroblasts widely separated by stroma and ground substance rich in acid mucopolysaccharide¹¹. The epithelial lining is usually made up of reduced enamel epithelium, consisting of 2-4 cell layers of flat or cuboidal cells. Characteristically, the epithelial lining is not keratinized, although in cases in which there is secondary inflammation, epithelial hyperplasia is noted¹⁶.

Case report:

A 16 year old male patient attended the department of Oral Medicine and Radiology, Govt Dental College and Hospital; Hyderabad with a complaint of painless swelling in the chin since two months. Initially the swelling was small and gradually increased in size and was associated with mobility of lower front teeth.

Extraorally the face was asymmetrical (Fig.1) due to fullness in the right side of the chin obliterating the mentolabial sulcus. There was a diffuse swelling measuring about 2×1.5 cm extending anteropsteriorly from the symphysis menti to the parasymphysial region and superoinferiorly from the mentolabial sulcus to the inferior border of the mandible. The skin over the swelling was normal. There was neither local rise of temperature nor regional lymphadenopathy.

Intraorally there was an oval swelling (Fig. 2 and Fig. 3) measuring about 3.5×2 cm extending from 32 to 43 and the vestibule was obliterated from 32 to 43. The surface of the swelling was smooth. The swelling was hard and compressible in the centre. There was expansion of buccal and lingual cortical plates. 42 was missing. Grade II mobility of 31 and 41 was observed. Extrusion and distolabial displacement of 41 was also observed.

Orthopantomograph (Fig. 4) showed regular unilocular radiolucency surrounded by a sclerotic border extending from 33 to 43 and was associated with impacted 42 near the inferior border of the mandible. There was displacement of 41, 31 and 43 and resorption of roots of 31 and 41. On aspiration, 2ml of straw colored fluid was obtained. Based on the abovesaid findings a diagnosis of dentigerous cyst was arrived at, and it was confirmed with histopathology (Fig. 5).

Discussion

Jaws are most commonly affected with cysts rather than any other bone of the skeleton. The major categories usually are radicular cysts, dentigerous cysts and odontogenic keratocysts. The dentigerous cyst is the second most common odontogenic cyst. It is also the most common cyst that encloses the crown of an unerupted tooth. The case reported showed findings resembling the clinical features of dentigerous cysts seen in the review of literature. The patient had noticed the painless slowly growing swelling for 2 months, associated with the mobility of lower front teeth. Intraorally the swelling was hard and compressible in the centre with the expansion of buccal and lingual cortical plates. Missing 42 and grade II mobility of 31 and 41 was observed. Extrusion and distolabial displacement of 41 was observed. A provisional diagnosis dentigerous cyst and differential diagnoses of of ameloblastoma, odontogenic keratocyst were considered. Orthopantomograph showed regular unilocular radiolucency surrounded by a sclerotic border, associated with an impacted 42 which is displaced to the inferior

Case reports

border of the mandible. There was displacement of 41, 31 and 43 and resorption of roots of adjacent teeth, i.e., 41 & 31. 2ml of straw colored fluid was observed upon aspiration.

Dentigerous cysts are commonly associated with mandibular and maxillary third molars followed by the canines. Involvement of mandibular lateral incisor is rather uncommon, even rare. Hence the case is reported and discussed. Enucleation along with the removal of the involved tooth is the definitive management. Exteriorization or marsupialization of the cyst is recommended in extensive lesions. Recurrence is relatively uncommon. Besides the possibility of recurrence, following incomplete surgical removal the potential complications of dentigerous cyst include development of ameloblastoma, epidermoid carcinoma or even mucoepidermoid carcinoma¹².

References:

- Md. Ali, Ronald A Baughman et al: Maxillary odontogenic keratocyst: A common and serious clinical misdiagnosis: JADA Vol 1; issue 1; Nov â"Dec: 2003.
- Juliana Yuri Kawamura, Roberto Pererio de Magathaes et al: Management of a large dentigerous cyst occurring in a six year old boy: J clinical pediatric dentistry 2004; Vol 28; No:4; 355-357. PMid:15366628
- Maria da Graca NH, Wilma A S, Maria cristina ZD, Israel C, Andreia A T: Dentigerous cyst associated with an upper permanent central incisor: case report and literature review: J Clin Pedia Dent 2002; 26: 187-192.
 - PMid:11874012
- Regazi, Scuibba: Cysts of oral region: clinical and pathological correlations: 1989, 306-309.
 Shear M: Dentigerous cyst : cysts of oral region 3rd ed: 1992; 75-98
- Farouk Mourshed; A roentgenographic study of dentigerous cysts: I incidence in a population sample: Oral Surg Oral Med Oral Pathol: 1964; 18; 1; 47-53. <u>http://dx.doi.org/10.1016/0030-4220(64)90255-5</u>
- 6. Shear M: Cysts of the jaws: Recent advances: J Oral Pathol: 1985; 14; 43-59.
 - http://dx.doi.org/10.1111/j.1600-0714.1985.tb00465.x
- 7. Main D M G: Epithelial Jaw Cysts: A clinicopathological reappraisal: Br J Oral Surg: 1970; 8; 114-125.

http://dx.doi.org/10.1016/S0007-117X(70)80002-6

Annals and Essences of Dentistry

- Brown R M: The Pathogenesis of odontogenic cysts: A review: J Oral Pathol; 1975; 4; 31-46. <u>http://dx.doi.org/10.1111/j.1600-0714.1975.tb01738.x</u>
- Brown R M: Metaplasia and degeneration in odontogenic cysts in man: J Oral Pathol: 1972; 1; 145-158.
- http://dx.doi.org/10.1111/j.1600-0714.1972.tb01655.x 10. Tom D, Daley, George P, Wysocki: Small dentigerous cyst: A diagnostic dilemma: J Oral Surg Oral Med
- Oral Pathol Oral Radiol Endod: 1995; 79; 77-81.
 11. Shafer, Hine, Levy: Cysts and tumors of odontogenic origin: A text book of oral pathology, 4th ed; 260-265.
- Stanley H R, Alattar M, Collett W K, and Spiegel EM: Pathological sequelae of neglected impacted third molars: J Oral Pathol Med: 1988; 17; 113-117. <u>http://dx.doi.org/10.1111/j.1600-0714.1988.tb01896.x</u>
- Cahill D R, Marks SC: Tooth eruption: evidence for central role of the dental follicle: J Oral Pathol: 1980; 9; 189. <u>http://dx.doi.org/10.1111/j.1600-0714.1980.tb00377.x</u>
- 14. Holmund H A, Annerath G, Liundquist G, Nordenramid: Ameloblastoma originating from odontogenic cysts: J Oral Pathol Med: 1991; 210; 318-21. <u>http://dx.doi.org/10.1111/j.1600-</u> 0714.1991.tb00937.xPMid:1895249
- 15. Gorlin RJ: Potentialities of oral epithelium manifested by mandibular dentigerous cysts: J Oral Surg Oral Med Oral Pathol: 1957; 10; 271-84. <u>http://dx.doi.org/10.1016/0030-4220(57)90092-0</u>

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