

Fate of pulpectomized deciduous teeth: Bilateral odontogenic cyst?

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Abstract

Pulpectomy is preferably more conservative treatment option than the extraction of deciduous teeth despite few undesirable consequences of obturating materials of which odontogenic cysts are one. This article aims to report a case of an 11-year-old female child having bilateral odontogenic cysts, i.e., radicular and infected dentigerous cyst followed by pulpectomy of deciduous molars using zinc oxide eugenol which was surgically enucleated and followed up to 6 months until satisfactory healing of bone was observed. The article also emphasizes on the importance of regular follow-up of the pulpectomized tooth which can be harmful otherwise.

Keywords: Dentigerous cyst, enucleation, radicular cyst, zinc oxide eugenol cement

Introduction

Pulpectomy is intended to remove an irreversibly infected or necrotic pulp of deciduous tooth, meanwhile maintaining the functional state until the permanent teeth take its position. However, the procedure has its own shortcomings which include incomplete instrumentation of complex torturous canals and unavailability of ideal obturating materials.^[1] Zinc oxide eugenol although commonly used since 1930 as the obturating material has many side effects like alteration in the path of eruption of succedaneous tooth, persistent interradicular pathologies, necrosis of bone and cementum, slower rate of resorption, and continuous irritation to periapical tissues.^[2]

The death of pulp usually causes a continuous source of inflammation which may give rise to radicular cysts from epithelial residues of the periodontal ligament.^[3] Dentigerous


cyst arises because of the separation of the follicle from the crown of an unerupted tooth.^[4] The presence of both the cysts can be either from foci of infection from carious tooth or because of obturating material causing continuous irritation. Thus, here we are presenting a case of pulpectomized tooth using zinc oxide eugenol which was followed by the occurrence of both radicular cyst and infected dentigerous cyst.

Case Report

An 11-year-old female child had come to the Department of Pedodontics, P.M.N.M. Dental College, Bagalkot, for regular follow-up of pulpectomized tooth followed by stainless steel crown done 2 years back in the same department. At present, the patient did not have any pain or swelling but the only concern of parents was whether the tooth will exfoliate naturally or the crown has to be removed before the eruption of permanent tooth. Patient's family and medical history were noncontributory. The patient had a dental history of pain with tooth number 55, 85, and 75 which underwent pulpectomy using zinc oxide eugenol as per previous case sheet records and followed by stainless steel crowns. However, the obturation technique and over or under obturation was not recorded in the case sheet. Intraoral examination revealed the patient with mixed dentition having physiologic mobility with 65, 74, and stainless steel crowns over 55, 85, and 75. No intraoral and extraoral swelling was seen. On taking intraoral periapical radiograph, radiolucency was seen beneath 75 and thus orthopantograph, occlusal radiograph was advised

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[Figure 1]. Orthopantomographic (OPG) examination revealed a well-demarcated radiopaque line around the unerupted 45 extending from cemento-enamel junction of 45 to distal root of mandibular right permanent first molar and radiolucency was seen beneath 75 surrounding erupting 35. However, no pathology was found in and around the tooth number 55. The occlusal radiograph showed buccal cortical plate expansion on both right and left side of lower jaw. Provisional diagnosis was made as a dentigerous cyst with 45 and radicular cyst with 75.

A decision of enucleation was done along with the removal of deciduous teeth, i.e. 74, 75, and 85 under local anesthesia [Figures 2 and 3]. The tissue was sent for histopathological examination which confirmed the diagnosis as an infected dentigerous cyst with 45 and a radicular cyst with 75 [Figure 4]. The enucleated site was thoroughly irrigated with saline and betadine and was sutured. The patient was recalled after a week for the suture removal. A 6 months follow-up was done to check the condition of erupting premolars. Tooth number 35 had erupted in normal position and 45 was partially erupted. OPG was taken to see the bony healing

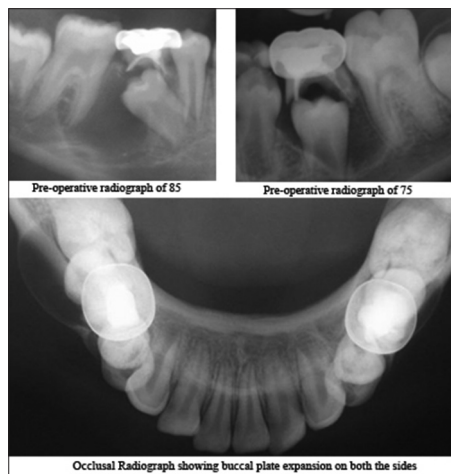


Figure 1: Preoperative intraoral and occlusal radiographs



Figure 3: Enucleated radicular cyst along with the left deciduous first and second molar

which was satisfactory [Figure 5]. The patient is now under regular follow-up.

Discussion

Radicular cysts are considered to be extremely rare in relation to deciduous tooth^[5] which arises from inflamed pulp that stimulates the proliferation of cell rests of Malassez.^[6] Radicular cysts have been reported more commonly with permanent tooth and 56% of them are in response to pulp therapy and also cases are reported associated with the decayed deciduous tooth. However, the rare presentations in deciduous tooth can be because of short time span of primary dentition, numerous accessory canals facilitating easy drainage, general negligence toward exfoliation of tooth, and difference in biologic activity of pulp of the primary and permanent tooth.^[5] Radicular cysts have also been documented in pulp treated tooth using formocresol and the reason stated was the antigenic nature of formocresol and cell and humoral mediated response to it.^[7] Moreover, cases have been reported with the occurrence of apical periodontal cysts in relation to pulp treated deciduous teeth showing a direct relation of intraepithelial inclusions and continuous antigenic stimulation.^[8] The occurrences of radicular cyst in pulp tomized tooth, defective Class II amalgam restoration,^[9] and in incomplete endodontically treated deciduous molar tooth^[10] are very well-documented.

Dentigerous cyst forms when fluid gets accumulated in between the crown of the unerupted tooth and epithelial follicle. There is obstruction of follicular vein and thus



Figure 2: Enucleated dentigerous cyst along with the right deciduous second molar

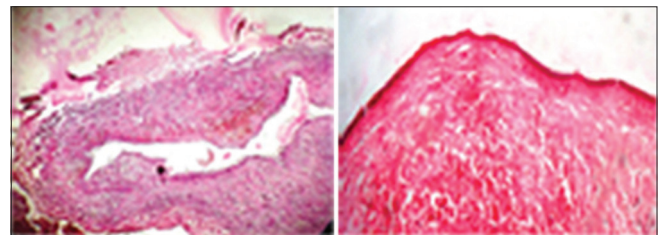


Figure 4: Histopathology of both the cysts



Figure 5: Postoperative orthopantomographic taken after 6 months

pooling of inflammatory exudates leading to unicentric expansion.^[6] Similar to radicular cysts, dentigerous cysts have also been reported with endodontically treated primary molar; however, the material used was not mentioned. The inflammatory exudate is released by an infection which may cause the separation of enamel and reduced enamel epithelium.^[11] Dentigerous cyst has been also identified with formocresol pulpotomized primary tooth.^[12]

In the present case, bilateral presentation of cysts is seen of which one is radicular and other is dentigerous cyst. The etiology behind the cysts could be antigenic stimulus either because of infection left behind during pulpectomy procedure or the zinc oxide eugenol material. Exact reason cannot be stated as the details of pulpectomy procedures were not recorded. However, a regular follow-up could treat the cysts in time and prevent the future discomfort to the patient.

Conclusion

This article not only presents a rare case of both radicular and dentigerous cysts in mandible related to pulpectomized deciduous tooth but also mentions the importance of continuous monitoring of any endodontically treated tooth. Regular checkups in dental clinics along with proper education and motivation of patients for regular visits should

be a routine trend which helps in improving the quality of dental treatment as well as the quality of life.

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Conflicts of interest

There are no conflicts of interest.

References

1. Barja-Fidalgo F, Moutinho-Ribeiro M, Oliveira MA, de Oliveira BH. A systematic review of root canal filling materials for deciduous teeth: Is there an alternative for zinc oxide-eugenol? *ISRN Dent* 2011;2011:367318.
2. Ramar K, Mungara J. Clinical and radiographic evaluation of pulpectomies using three root canal filling materials: An *in-vivo* study. *J Indian Soc Pedod Prev Dent* 2010;28:25-9.
3. Aslan M, Aras MH, Simsek G, Dayi E. Large dentigerous and radicular cysts of the mandible a case report. *Atatürk Üniv Hekim Fak Derg* 2006;16:54-8.
4. Ko KS, Dover DG, Jordan RC. Bilateral dentigerous cysts – Report of an unusual case and review of the literature. *J Can Dent Assoc* 1999;65:49-51.
5. Shetty S, Angadi PV, Rekha K. Radicular cyst in deciduous maxillary molars: A rarity. *Head Neck Pathol* 2010;4:27-30.
6. Browne RM. The pathogenesis of odontogenic cysts: A review. *J Oral Pathol* 1975;4:31-46.
7. Gandhi S, Franklin DL. Presentation of a radicular cyst associated with a primary molar. *Eur Arch Paediatr Dent* 2008;9:56-9.
8. Savage NW, Adkins KF, Weir AV, Grundy GE. A histological study of cystic lesions following pulp therapy in deciduous molars. *J Oral Pathol Med* 1986;15:209-12.
9. Toomarian L, Moshref M, Mirkarimi M, Lotfi A, Beheshti M. Radicular cyst associated with a primary first molar: A case report. *J Dent (Tehran)* 2011;8:213-7.
10. Ramakrishna Y, Verma D. Radicular cyst associated with a deciduous molar: A case report with unusual clinical presentation. *J Indian Soc Pedod Prev Dent* 2006;24:158-60.
11. Nagaveni NB, Umashankara KV, Radhika NB. Inflammatory dentigerous cyst associated with an endodontically treated primary second molar: A case report. *Arch Orofac Sci* 2011;6:27-31.
12. Asián-González E, Pereira-Maestre M, Conde-Fernández D, Vilchez I, Segura-Egea JJ, Gutiérrez-Pérez JL. Dentigerous cyst associated with a formocresol pulpotomized deciduous molar. *J Endod* 2007;33:488-92.