



Review of Literature and Case Report of Dental Cyst in A 8 Year Old Child

KEYWORDS

Dental cyst, radicular cyst, maxilla, erupted tooth

Dr.S.A.Murchite

Associate Professor, Department of surgery Dr. D. Y. Patil Hospital Kolhapur

Dr.V.V.Gaikwad

Associate Professor, Department of surgery Dr. D. Y. Patil Hospital Kolhapur

Dr.A.D.Chougale

Professor, Department of surgery Dr. D. Y. Patil Hospital Kolhapur

Dr.Furquan Ahmad

Post Graduate Student, Department of surgery Dr. D. Y. Patil Hospital Kolhapur

Dr R.M.Kulkarni

Professor & HOD Department of surgery Dr. D. Y. Patil Hospital Kolhapur

ABSTRACT A dental cyst or radicular cyst are odontogenic cysts which are derived from the inflammatory activation of epithelial root sheath residues (cell rests of Malassez). It typically occurs between the 3rd and 6th decades of life. Occurrence in primary dentition is very rare. A 8 year old boy presented with a warm, painless, bony hard swelling associated with the third deciduous molar of the right maxilla. These cysts are not common in maxilla and in children under 10 years of age. This article reports the unusual presentation of a case of dental cyst associated with the erupted deciduous maxillary premolar tooth in an 8-year-old male child.

Introduction

Radicular cyst, also known as periapical cyst, apical periodontal cyst, root end dental cyst. Dental cyst, is a cystic lesion of inflammatory origin affecting a devitalized tooth. It is commonly found at the apex of an affected tooth due to extension of inflammatory stimulus from the apical foramen. Occasionally, it may be located at the lateral aspects of the root in relation to lateral accessory root canals. It is the most common odontogenic cyst comprising about 52% to 68% of all cysts affecting the human jaws. It occurs at any age but typically seen between the 3rd and 6th decades with peak incidence at the 3rd decade of life and predilection for the male gender. Radicular cyst is always sequel to pulpal necrosis which usually results from carious infection of a tooth or traumatic dental injuries affecting the pulp. It is usually asymptomatic and may go unnoticed unless secondarily infected or detected by routine radiograph. It is often treated by surgical enucleation or marsupialization. Apicectomy and root filling may be performed on the affected tooth to permit direct curettage of the periapical region. Occasionally, outright extraction of the affected tooth may be indicated. In spite of several reported and unreported cases of pulpal necrosis in children radicular cyst is generally said to be rare in primary dentition, comprising only 0.5%-3.3% of all radicular cysts. When it occurs, the effects include abnormal bone expansion and resorption, delayed eruption, malposition, enamel defects or damage to the developing permanent successors. We therefore present a case of radicular cyst of a third deciduous premolar in a 8 years old child.

Case Report

A boy aged 8 years came to our hospital, with a chief complaint of swelling on the right side of the face since 2 months. The patient was apparently healthy and his past medical history was non-contributory. Extra oral examination revealed a single diffuse swelling on right side of the cheek. The colour of overlying skin was normal. Intra oral examination showed presence of a right maxillary mass measuring approximately 2.6 cm in diameter and extending from the buccal vestibule of maxillary right third deciduous premolar. The buccal cortical plate showed slight expansion and the overlying mucosa was inflamed. The patient was in early mixed dentition stage and presented multiple carious lesions. CT Scan (Plain & Contras) of para nasal sinuses shows

fairly large nonenhancing hypodense lesion in right alveolar process causing bony erosion and elevating the floor of right maxillary sinus- suggestive of dental cyst/dentigerous cyst/mucoceler. Based on clinical and radiological examination, a provisional diagnosis of dental cyst was made. Routine blood and urine investigations were within normal limits. Surgical enucleation of the dental cyst and extraction of erupted maxillary right third deciduous premolar was done followed by primary closure of the wound. The cyst was seen attached to the neck of the involved tooth.

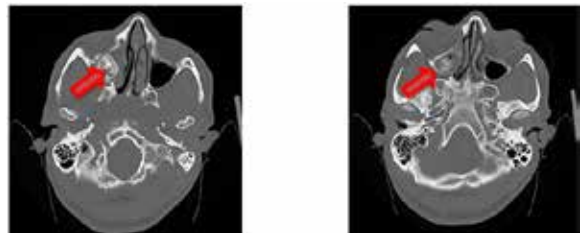


Figure 1: Computerized tomography scan (PNS)



Figure 2: Pre operative photograph of bony expansion in maxillary right quadrant



Figure 3 : Following fenestration of the maxilla, the dental cyst and tooth are visualized within the floor of the sinus

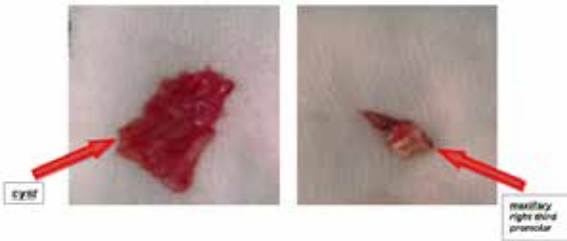


Figure 4 : Excised specimen showing cyst and maxillary right third molar

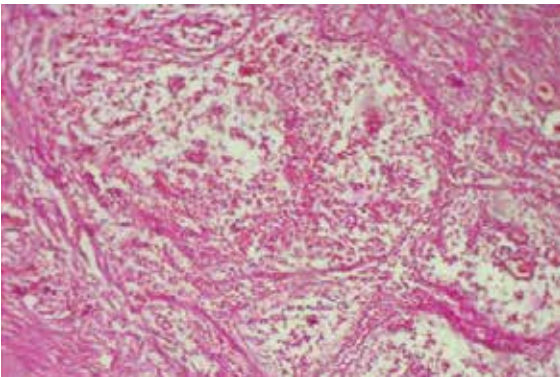


Figure 5 : Histopathologic view of the cystic lesion.

Discussion

Radicular cysts associated with deciduous teeth (RCDT) are considered exceptionally rare. Shear [1] reported that they account for less than 1% of all cases, while Lustmann et al.

[3] in an extensive review from 1898 to 1985, found only 28 cases to which they added 23 cases. Nagata et al. [2] in their review, report that there were 112 cases reported through 2004. Since then, there have been several individual case reports (11 cases) including the present case making the total number to approximately 123 [4–11].

However, according to Mass et al. [12] and Deblen et al. [13], this low frequency in literature may be underestimated and the lack of diagnosis should be worrisome, since this lesion may result in several adverse effects including enamel hypoplasia, cessation of root development, displacement and damage of the permanent successor. Various reasons cited for this relative rarity include presence of deciduous teeth for a short time, easy drainage in deciduous teeth due to the presence of numerous accessory canals and a radicular radiolucency in relation to deciduous teeth are usually neglected. Additionally, the lesions tend to resolve on their own following the extraction/exfoliation of the associated tooth and are generally not submitted for histopathological examination [2–15]. A possibility of difference in the biologic activity of pulp in primary and permanent teeth has also been considered [1, 2]. However, this is debatable. Rodd et al. [16] reported that although the number of immunocompetent cells in the dental pulp of the primary teeth is significantly higher than in the permanent teeth; there was no difference noted in the inflammatory reaction in response to caries in both primary and permanent tooth [2].

Preoperative misdiagnosis is an additional problem, as these cysts are frequently mistaken for a dentigerous cyst associated with permanent successors [2, 3]. A comprehensive assessment regarding the position of the permanent tooth germ with radiographic and surgical evaluation followed by a confirmatory histopathologic appraisal may aid in the correct diagnosis. This distinction though very difficult and in some cases not possible, is vital as we can prevent the unwarranted extraction of the permanent successor. RCDT are reported to occur in age range of 3–19 years with a male preponderance [2, 3]. The most commonly involved deciduous teeth are mandibular molars (67%), maxillary molars (17%) followed by anterior teeth [2]. Our case corroborated with the age and sex predilection and occurred in relation to deciduous maxillary molar teeth. The etiologic factor most commonly implicated is dental caries. However, several authors [17, 18] have documented cases of RCDT following pulp therapy using materials containing formocresol which, along with tissue proteins, is antigenic and elicits a humoral and cell mediated response [11, 13, 14, 16, 17]. Some of these cysts in their series showed rapid buccal expansion and nonrefractile eosinophilic material in their epithelial linings. Nagata et al. in their review, report 56% of the total cases of RCDT were following pulp therapy (2). In our case, there was no pulp therapy done and the cyst was associated with grossly decayed deciduous teeth, signifying caries to be the source. To conclude, we present a rare case of radicular cyst associated with third deciduous premolars. Recognition of the potential of radicular cysts to form in association with deciduous dentition is important for prevention of adverse effects to the underlying permanent successor.

REFERENCE

- . Shear M. Cysts of the oral region. 2. UK: Butterworth-Heinemann Ltd, John Wright & Sons; 1983. | 2. Nagata T, Nomura J, Matsumura Y, Yanase S, Fujii T, Oka T, Uno S, Tagawa T. Radicular cyst in a deciduous tooth: a case report and review of literature. *J Dent Child*. 2008;75:80-84. | 3. Lustmann J, Shear M. Radicular cyst arising from deciduous teeth- review of literature and report of 23 cases. *Int J Oral Surg*. 1985;14:153-161. doi: 10.1016/S0300-9785(85)80087-9. | 4. Caldwell RE, Freilich MM, Sandor GK. Two radicular cysts associated with endodontically treated primary teeth: rationale for long term follow-up. *Ont Dent*. 1999;76:29-33. | 5. Bhatt SS, Vidhya M, Sargod S. Radicular cyst associated with endodontically treated deciduous tooth: a case report. *J Indian Soc Pedo Prev Dent*. 2003;21:139-141. | 6. Smith AT, Cowpe JG. Radicular cyst arising from a traumatized primary incisor; a case report of a rare complication that emphasizes the need for regular follow-up. *Dent Update*. 2005;32:109-110. | 7. Al-Khayatt AS, Davidson LE. Complications following replantation of a primary incisor: a cautionary tale. *Br Dent J*. 2005;198:687-688. doi: 10.1038/sj.bdj.4812382. | 8. Johann AC, Gomes Cde O, Mesquita RA. Radicular cyst: a case report treated with conservative therapy. *J Clin Pediatr Dent*. 2006;31:66-67. | 9. 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;24:158-160. doi: 10.4103/0970-4388.27899. | 10. Chiu Wk, Sham ASK, Hung JNM. Spontaneous alignment of permanent successors after enucleation of odontogenic cysts associated with primary teeth. *Br J Oral and Maxillofac Surg*. 2008;46:42-45. doi: 10.1016/j.bjoms.2007.06.011. | 11. Gandhi S, Franklin DL. Presentation of radicular cyst associated with a primary molar. *Eur Arch Paediatr Dent*. 2008;9:56-59. | 12. Mass E, Kaplan I, Hirshberg A. A clinical and histopathological study of radicular cysts associated with primary molars. *J Oral Pathol Med*. 1995;24:458-461. doi: 10.1111/j.1600-0714.1995.tb01134.x. | 13. Deblem ACB, Cunha RF, Veira AEM, Pugilesi DMC. Conservative treatment of a radicular cyst in a 5-year old child- a case report. *Int J Pediatr Dent*. 2003;13:447-450. doi: 10.1046/j.1365-263X.2003.00452.x. | 14. 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;15:209-212. doi: 10.1111/j.1600-0714.1986.tb00609.x. | 15. Myers DR, Battenhouse MR, Barenie JT, Mc Kinney RV, Singh B. Histopathology of furcation lesions associated with pulp degeneration in primary molars. *Pediatr Dent*. 1987;9:279-282. | 16. Rodd HD, Boissonade FM. Immunocytochemical investigation of immune cells within human primary and permanent tooth pulp. *Int J Pediatr Dent*. 2006;16:2-9. doi: 10.1111/j.1365-263X.2006.00682.x. | 17. Grundy GE. Cysts associated with deciduous molars following pulp therapy. *Aust Dent J*. 1984;29:249-256. doi: 10.1111/j.1834-7819.1984.tb06067.x. | 18. Myers DR, Durham LC, Hanes CM, Barenie JT, Mc Kinney RV. Histopathology of radiolucent furcation lesions associated with pulpotomy-treated primary molars. *Pediatr Dent*. 1988;10:291-294. |