

Frequency of Radicular Cyst in Children: An Update**Naresh Sharma**

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ABSTRACT:

Radicular cysts are the most common odontogenic cystic lesions of inflammatory origin and are managed either by surgical enucleation or by marsupialisation. Radicular cyst arising from deciduous teeth is exceedingly rare accounting for 1% of all radicular cysts. A total of 122 cases have been reported to date in the English language literature. This article aims to report two clinical cases of radicular cysts of huge proportion associated with a decayed deciduous maxillary and Mandibular tooth without any history of pulp therapy. Our aim is to emphasize the recognition of inflammatory radicular lesions associated with deciduous teeth which may adversely impact underlying permanent successor.

Keywords: Deciduous molar, Enucleation, Marsupialisation, Radicular cyst

INTRODUCTION:

Radicular cysts are common inflammatory odontogenic cysts arising from epithelial residues (i.e. rest of Malassez) due to periapical periodontitis following death and necrosis of pulp. They are most commonly found at the apices of the involved teeth, however they may also be found on the lateral aspects of the roots in relation to lateral accessory root canals.¹⁻³ They are usually encountered in association with permanent teeth; however, occurrence in relation to deciduous teeth seems to be very rare.³⁻⁵ A recent review of the literature shows the total cases reported through 2004, to be about 112 and attributes 56% of them to be in response to pulp therapy.⁴ Assuming that the developmental mechanisms of radicular cysts are identical in the primary

and permanent dentition, the low frequency in the former is yet to be clarified.⁵

CASE REPORT

An 8 years old boy reported to our institute with a chief complaint of swelling on right side of face since 8 months. Swelling was associated with pain from last two weeks; pain was continuous, severe in intensity, aggravates on opening and closing mouth and while having food. Swelling was insidious in onset and progressed to present size.

Patient gave the history of trauma by bicycle over the cheek eight months back, after which he developed a small swelling which was asymptomatic (Figure 1).

Extra orally a solitary diffuse swelling was present on the middle third of face

measuring about 3X2 cm extending superior inferiorly from infraorbital rim to inferior border of the mandible and medio laterally extending from nasolabial fold to tragus of the ear. Overlying skin is stretched, erythematous and smooth.



Figure 1: An 8yr old child with swelling on the right side of the face

On palpation there was rise in temperature, tender on palpation, firm to hard in consistency. Overlying skin was stretched and pinchable and was not fixed to underlying structures. Right Submandibular lymph nodes were palpable single in number measuring about 1.5X1 cm, mobile and tender.

Intraoral a single diffuse swelling was present measuring about 3X2 cm seen extending from 53 to 16 region with obliteration of buccal vestibule and on palatal aspect was not crossing the midline. Root stump seen in relation with 55. Overlying mucosa is stretched, pallor and smooth (Figure 2). On palpation swelling was tender on palpation with firm to hard in consistency. Overlying mucosa is smooth with ill-defined edges. Based on history and clinical examination provisional diagnosis of infected periapical abscess was given.



Figure 2: Intraoral picture showing root stumps of 55 and palatal swelling

OPG reveals a well defined radiolucency on right side of maxilla extending from canine region to molar area with permanent canine impacted. Radiolucency was seen extending superiorly to the inferior orbital margin and well circumscribed by sclerotic border suggestive of dentigerous cyst (Figure 3).



Figure 3: Radiograph suggesting radiolucent lesion extending till the orbital floor

Under local anaesthesia, Fine needle aspiration cytology (FNAC) was done and sent for histopathological examination. Marsupialization was done in order to reduce the size of the lesion (Figure 4).



Figure 4: Marsupialisation procedure

Drainage of the lesion was undertaken at a weekly interval for the next 4 weeks. An obturator (Figure 5) was fabricated to cover the bony defect. The histopathological finding revealed connective tissue made up of dense bundles of collagen fibres with areas of chronic inflammatory cell infiltrate and numerous capillaries suggestive of infected odontogenic cyst. After 4 weeks surgical enucleation was done under general anaesthesia. The lesion had begun to erode the floor of the orbit. After surgical enucleation, bone decompression was done and specimen was sent for histopathological examination.



Figure 5: Obturator placed

Histopathological report reveals stratified Squamous epithelium lining proliferating into the form of arcading pattern into connective tissue. The connective tissue capsule shows dense chronic inflammatory cell infiltrate mainly in the form of lymphocytes and plasma cells with numerous dilated blood vessels suggestive of radicular cyst.

DISCUSSION:

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

in an extensive review from 1898 to 1985, found only 28 cases to which they added 23 cases.^{3,5} Nagata et al. in their review, report that there were 112 cases reported through 2004.⁴ However, according to Mass et al. and Deblen et al. this low frequency in literature may be underestimated and the lack of diagnosis should be an area of concern, since this lesion may result in several adverse effects including enamel hypoplasia, cessation of root development, displacement and damage of the permanent successor.^{6,7}

Most cysts associated with primary molars are located in the inter-radicular area and around the roots, whereas cysts related to permanent molars are usually located adjacent to the apex. This may be explained by the short and sometimes partially resorbed roots and the existence of accessory canals in the roots of primary molars. Thus the term periradicular cyst in primary molars is more appropriate than periapical or radicular cyst.⁸

Radicular cysts originating from primary teeth are considered rare. Radicular radiolucency related to deciduous teeth tends to be neglected and probably resolve after removal of the offending teeth. The frequency is low because pulpal and periapical infections in deciduous teeth tend to drain more readily than those of permanent teeth and antigenic stimuli which evoke the changes leading to formation of radicular cysts may be different.^{3,8} Rodd et al. reported that although the number of immuno competent 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 teeth.^{4,9} There are several differences between radicular cysts

originating from primary teeth and those originating from permanent teeth. The mandibular primary teeth are affected more frequently than maxillary teeth, in contrast to maxillary predominance in the permanent dentition. The difference in site distribution of radicular cysts in primary and permanent dentitions may be explained by different etiologic factors. In the primary dentition, caries and endodontic ally treated primary molars with materials containing formacresol are the most frequent etiological factors and the mandibular molars are the most frequently affected teeth. In the permanent maxillary incisors, the high frequency of radicular cysts results from trauma, caries and old silicate restorations.¹⁰

The most common clinical and radiographic features of a radicular cyst in primary molars are

1. Mandibular buccal cortical plate expansion
2. Well-defined unilocular radiolucency
3. Thin reactive cortex
4. Displacement of succedaneous teeth
5. Misleading preoperative diagnosis¹¹

Preoperative misdiagnosis is an additional problem, as these cysts are frequently mistaken for a dentigerous cyst associated with permanent successors.^{4,5} 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.

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.

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