CASE REPORT

A Rare Case of Calcified Radicular Cyst in Deciduous Tooth

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Abstract

Radicular cysts (RCs) are one of the most common odontogenic cystic lesions of inflammatory origin. It originates mostly from epithelial residues in periodontal ligaments secondary to inflammation. The pathogenesis involves the activation of epithelial cell rests of Malaseez after physical, chemical, or bacterial injury. Radiographically, it is seen as a well-defined unilocular lesion of size >1.5 cm. RCs are considered rare in the primary dentition, comprising only 0.5–3.3% of the total number of RCs in both primary and permanent dentitions. This is the first case to be reported of a radicular cyst in primary teeth, with dystrophic calcification.

Keywords: Case report, Calcification, Primary dentition, Radicular cyst.

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Introduction

The most prevalent inflammatory lesion affecting the jaw is thought to be radicular cysts (RCs), with an odontogenic origin.[1] RCs have a very low incidence among primary dentition compared to permanent dentition, comprising, only 0–3% of all RCs in both permanent as well as primary dentitions. It is not very clear about the decreased incidence of radicular cyst in deciduous dentition, considering the fact that the developmental process is the same for both. RCs in primary dentition are most frequently observed in lower molars.[2] The majority of small RCs are often asymptomatic and are typically found in routine dental examinations. Larger cysts frequently result in bony erosion, expansion, swelling, of bone, and fluctuation of soft tissue that lies on top of them. Pain and infection are typically linked to a discharging sinus. With respect to the apices of the affected teeth, radiographically, they are seen as ovoid or round radiolucent areas encircled by a thin radiopaque outline.[3–5] Radicular cyst calcifications are thought to be extremely uncommon. This is the first case report of dystrophic calcification in RCs to be reported in a deciduous tooth, despite the fact that several cases of calcifications in radicular and residual cysts have been reported for permanent dentition.[6]

Case Description

A 6-year-old boy patient reported to the Department of Pediatric Dentistry, Sree Anjaneya Institute of Dental Sciences, Calicut, Kerala, India with the chief complaint of painful swelling in relation to the lower left first molar. The patient's dental history indicated that the first primary molar had received conventional pulpotomy treatment 2 years back. On clinical examination, there was vestibular tenderness associated with the 74 and 75 regions along with grade I mobility for both 74 and 75 (Figs 1 and 2). Based on the clinical examination a provisional diagnosis of furcal abscess was given. Radiographic examination revealed incompletely obturated 74 associated with a periapical well-defined swelling roughly oval in shape extending from the mesial aspect of 74 to the distal aspect of 75 measuring (2.5 × 1.5 cm) associated with mild root resorption in relation to 74 and severe root resorption in relation to 75 (Fig. 3). A radiographic diagnosis of periapical cyst in relation to 74 was given. Histopathological examination revealed a nonkeratinized stratified squamous cyst lining epithelium in association with a fibrovascular connective tissue capsule. The cyst lining epithelium shows proliferation in an arcading pattern. The section shows multiple foci of hematoxyphillic dystrophic calcifications. The connective tissue shows dense diffused predominantly chronic inflammatory cell infiltrate (Fig. 4). Based on the histopathological findings a final

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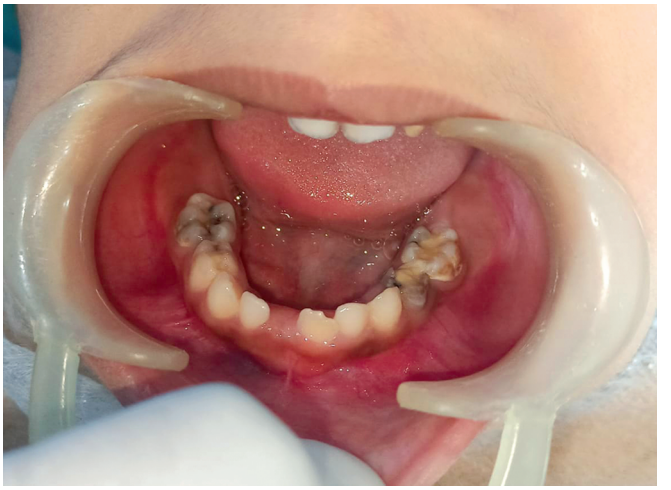

Fig. 1: Intraoral view

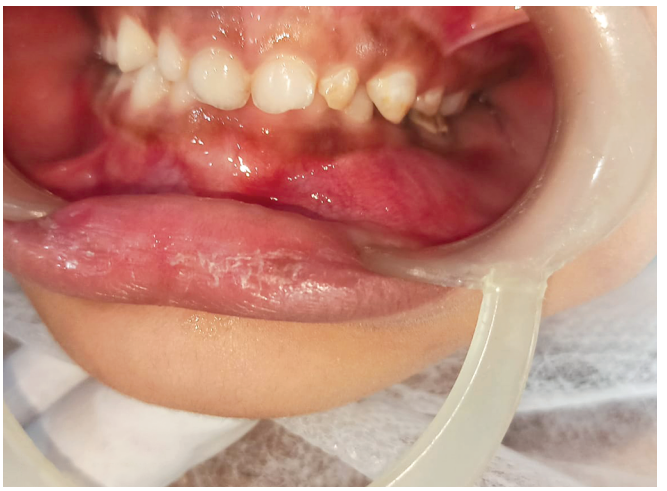

Fig. 2: Intraoral view showing swelling in relation to vestibular region of 74 and 75

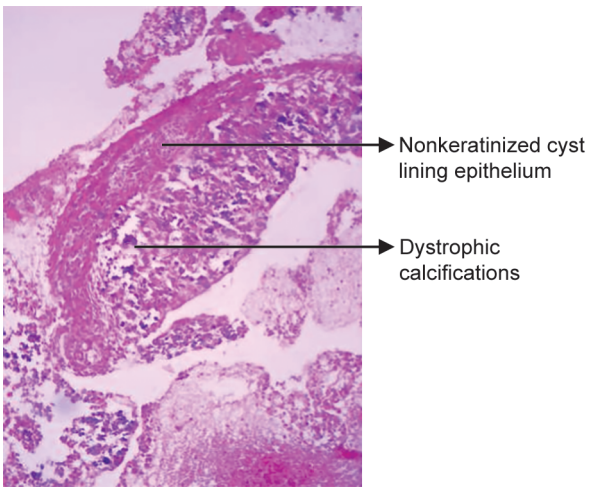

Fig. 4: Histopathological view showing cystic lining with multiple foci of dystrophic calcification

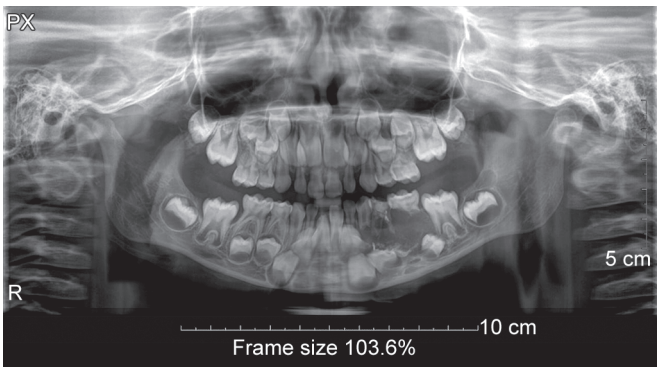

Fig. 3: Panoramic radiograph showing well-defined oval-shaped radiolucency with root resorption in relation to 75

diagnosis of radicular cyst with dystrophic calcification was given. Extraction of 74, 75, and cyst enucleation was done followed by a space maintainer, which was given in the extracted area.

Discussion

Radicular cyst is one of the most popular osseo-destructive lesions involving the jaw. Subepithelial fibrosis, lipid-laden macrophages, and topical hemosiderosis, in conjunction with dystrophic calcification in root canals, are uncommon histopathological characteristics of RCs. Root canal dystrophic calcification in its aggressive forms may induce obliteration involving the root canal apex.[7] The same histopathology is shared by residual cysts that are observed in connection to extracted tooth spaces that had RCs previously. Several cases of RCs and residual cysts with calcification have been reported,[6] but this is the first case to be reported in a deciduous tooth.

Approximately two-thirds of cases were reported to show the highest incidence among males in their 4th and 5th decade of life.[2] In primary dentition, the incidence of RCs is very low compared to permanent dentition, accounting for only 0–3% age of all RCs equally in both permanent dentitions and primary.[2] Most RCs are asymptomatic and only become apparent when periapical radiographs of nonvital pulps are obtained. In our case, the left deciduous first molar was affected. Slowly growing swellings are a common complaint from patients.

The expansion is initially bony hard, but when the cyst enlarges, subperiosteal bone deposition causes the bone covering to thin out, and often the swelling starts to show "springiness." While buccal or palatal enlargement can occur in the maxilla, buccal or labial enlargement is more common in the mandible and very infrequently lingual.[8] The majority of RCs show up radiographically as periapical, round- or pear-shaped, unilocular, radiolucent lesions. The cysts may induce mild root resorption or displace neighboring teeth.[1–3] A painful swelling was found during the clinical examination in our case, and the panoramic radiograph displayed a well-defined swelling along with root resorption of the affected tooth. Microscopically, RCs show a cystic cavity with a nonkeratinized stratified squamous epithelial lining. The degree of inflammation within the fibrous capsule and the lesion's stage both affect epithelial thickness.[8] About 16% of radicular cyst patients may exhibit dystrophic calcifications.[6] On analysis of various residual and RC samples, results showed that mineralization increases over time. Mixed radiography images, however, typically do not show the extent of calcifications.[6,8] For instance, in our case, dystrophic calcification was seen in the histopathology, but radiography did not show any mixed appearance.

Conclusion

Dystrophic calcifications are very rare among deciduous teeth. RCs in permanent dentition may or may not manifest with mixed appearance. In our case there was no mixed radiographic appearance; dystrophic calcification was only detected on histopathological examination. This case report is an eye-opener to pathologists when reporting cases of RCs in deciduous teeth.

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