

## Radicular Cyst: a case report treated with conservative therapy

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*This case reports on the treatment of a radicular cyst in a child. The patient presented a periapical radiolucent area associated to a root from the maxillary left primary second molar. After the extraction of the root, marsupialization of the lesion was done and a fixed resin tube was placed in the alveolar hole. After twenty-five months the lesion was healing. This technique has proved to be effective and conservative for the treatment of radicular cysts in primary teeth.*

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### INTRODUCTION

**R**adicular cyst in primary dentition (RCP) is an odontogenic inflammatory lesion, consequent to pulp necrosis.<sup>1,2</sup> This lesion is rare in the literature.<sup>1,3</sup> Sousa *et al.*, in a study of pediatric oral lesions, showed that 4.8% of all lesions were radicular cysts (from 27% of all cystic lesions), but the authors did not specify the affected dentition.<sup>4</sup> Bodner, in a study of cystic lesions of the jaws in children, found a frequency of 13.3% of radicular cysts.<sup>5</sup> However, in accordance to Lutsman and Shear<sup>3</sup>, Mass *et al.*<sup>2</sup> and Delben *et al.*<sup>6</sup>, the low frequency of RCP reported in literature may be underestimated, since the radicular cyst in primary dentition is neglected or not diagnosed. The last authors observed a high frequency of radicular cyst (73.5%) in a study of radiolucent lesions associated with primary molars. The lack of diagnosis should be worrisome, since this lesion may result in displacement and damage to the permanent dentition.<sup>1,7</sup>

Patients with RCP are generally seen in first decade and in the early second decade of life. Girls have higher RCP incidence than boys. The mandible is more often affected than the maxilla.<sup>3</sup> RCP is generally asymptomatic, slowly growing lesion and have tendency to drain through the gingival or sinus tract. However, some cases are identified in routine periapical radiography.<sup>2</sup>

Radiographically, RCP is characterized by a round or oval, uni or multilocular, well-circumscribed radiolucency delimited by a radiopaque line, attached to the root of a tooth. RCP may cause cortical expansion, displacement of permanent tooth buds and dilacerations of the forming root.<sup>3,6</sup> Others features helping in the diagnosis are loss of the lamina dura of the necrotic tooth, history of dental caries, endodontic therapy or trauma.<sup>1</sup>

Usually, treatment of cystic lesions of the jaws in children consists in extraction or endodontic therapy of necrotic tooth followed by marsupialization, enucleation or enucleation followed by bone grafting.<sup>5,8</sup> The purpose of this paper is to report a case of RCP that was treated with decompression using a fixed resin tube.

### CASE REPORT

A 9-year-old boy was referred by his dentist to the Pediatric Surgical Clinic, School of Dentistry, Federal University of Minas Gerais (UFMG, Belo Horizonte, Brazil) in July 2003, for evaluation of a periapical radiolucency observed in routine radiographic examination. Intraoral physical examination showed a root stump in the maxillary left primary second molar region. Periapical radiography demonstrated a well-defined circular radiolucent area of 25 mm in diameter, associated with this root (Figure 1A). The patient was otherwise in good health. A yellow and red liquid was obtained with aspiratory puncture (Figure 1B). The clinical diagnosis was radicular cyst. The primary root stump was extracted and a fragment of the cystic wall lesion was removed. A fixed resin tube was placed inside of the alveolar hole to decompress the lesion. The tube was fixed with orthodontic yarn and photo-polymerized resin in the tooth 25 (Figure 1C). A parent and the patient were trained to irrigate the lesion using a syringe with saline solution 0.9%.

The excised specimen was maintained in 10% formalin and sent to the Oral Pathology Service of the UFMG (Belo Horizonte, MG). Haematoxylin and eosin staining demonstrated a cystic cavity partially lined by non-keratinized stratified squamous epithelium. The cyst wall was composed by a fibrous connective tissue with numerous vessels and intense infiltrate of inflammatory cells. A diagnosis

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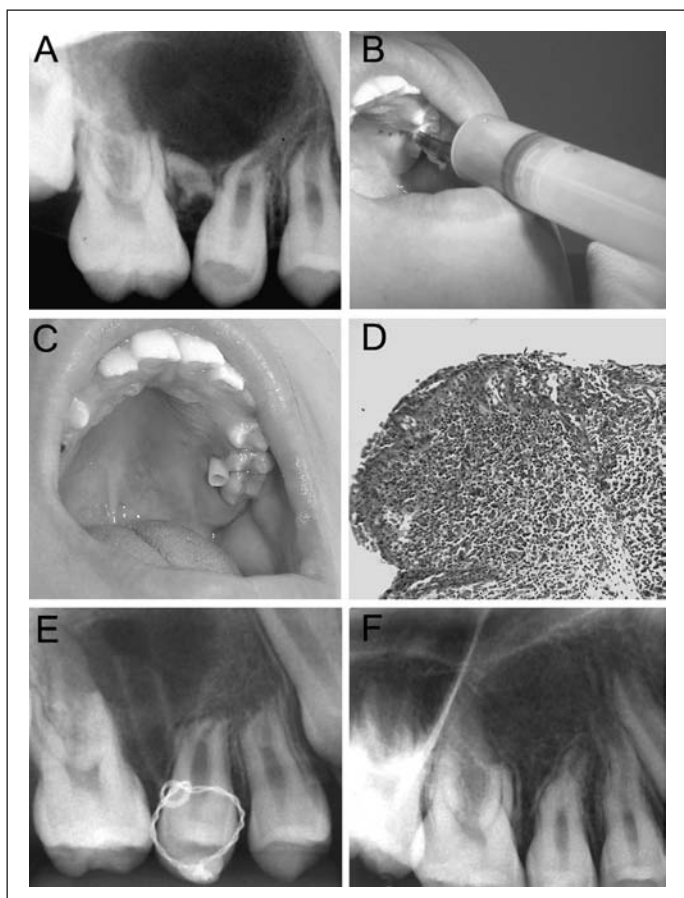
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**Figure 1:** A- Periapical radiography demonstrate a 25 mm well-defined radiolucent area associated with a root stump from the maxillary left primary second molar. B- Aspiratory puncture technique produced a yellow and red liquid. C- A fixed resin tube was placed inside to the alveolar hole to decompress the cyst. D- The histology is represented by an cystic cavity partially lined non-keratinized stratified squamous epithelium and supported by a fibrous connective tissue with intense infiltrate of inflammatory cells (X100 magnification, Haematoxylin and eosin). E- Periapical radiography demonstrated the second fixed resin tube. We can also observe the orthodontic yarn. F- Healing, an bone repair.

of radicular cyst was defined (Figure 1D).

After six months, periapical radiography showed advanced bone formation and reduction of the cyst. The tube was removed and parents were instructed to return for follow-up after three months. However, the patient returned ten months later and the lesion did recur. A new fixed resin tube was inserted (Figure 1E). After four months, it was definitively removed and at five months follow-up there was a complete healing of the lesion (Figure 1F).

**DISCUSSION**

The clinical, radiographic and microscopic features of the case described support a diagnosis of RCP. The case was successfully treated by a conservative therapy. Decompression with a fixed resin tube is an easy, conservative, effective and important auxiliary in treatment of different odontogenic cysts, with the following advantages: 1) Allows a decrease in size of the cystic lesion, 2) prevents food accumulation inside the cystic cavity, and 3) avoids damage to permanent teeth<sup>6,9</sup>. Also, in this case a corrective surgical intervention

after final tube removal was not necessary.

The technique described in this study is similar to that reported by Delbem et al.<sup>6</sup> However, these authors used a removable resin tube for decompression and in this current study the tube was fixed. In both treatments forms complete healing of the lesion was observed. The others advantage offered by a fixed tube are: 1) Better prevention of food accumulation inside the cystic cavity and 2) patient’s cooperation is reduced.

In the second time of treatment, the complete healing was achieved due to more collaboration from the patient and from his parent. Since this report case presented a recurrence, the authors suggested that the parent and the patient must be oriented and understand: 1) the importance of clinical and radiographic follow-ups after the resin tube removal, and 2) that the success of this technique depends also, on the constant irrigation of the lesion. In conclusion, this approach is effective and conservative for the treatment to a wide range of radicular cysts in primary teeth, but cooperation is essential for treatment success.

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