

CASE REPORT

Success in Conservative Treatment of an Inflammatory Follicular Cyst: A 5-year Follow-up

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ABSTRACT

The inflammatory follicular cysts are cystic lesions associated with non-erupted permanent teeth and involve devitalized deciduous teeth. Products resulting from the necrotic pulp of deciduous teeth stimulate crown hood growth of successor permanent tooth radiographically shown as a unilocular, radiolucent area, associated with an impacted permanent crown. Treatment based on cyst decompression and maintenance of the deciduous tooth is a conservative approach to space maintenance. This case report describes the diagnosis, treatment, and post-surgery follow-up after 5 years of an extensive inflammatory follicular cyst in the mandible, in the region of tooth 75, with marsupialization being the method of treatment and emphasizing the importance of clinical and radiographic follow-up.

Keywords: Mixed dentition, Odontogenic cysts, Panoramic radiography, Pediatric dentistry.

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INTRODUCTION

According to the World Health Organization, odontogenic cysts can be classified as development and inflammatory cysts, with the radicular cyst and dentigerous cyst being more prevalent in the jaw.¹⁻³

Although the majority of dentigerous cysts are considered to be developmental, some cases have inflammatory pathogenesis. Periapical inflammation arising from a non-vital deciduous tooth can disseminate and compromise non-eruption of the permanent successor tooth follicle and inflammatory fluid can form an inflammatory follicular cyst.³⁻⁶

Differential diagnosis of inflammatory follicular cysts includes other cystic lesions such as the radicular cyst, odontogenic keratocyst, paradental cyst, unilocular ameloblastoma, ameloblastic fibroma, and adenomatoid odontogenic tumor with similar clinical and radiographic characteristic and diagnosis is confirmed by means of histopathological analyses.^{4,7}

This case report describes the treatment of a large inflammatory follicular cyst, emphasizing clinical, radiographic, and histopathological aspects with 5 years of post-surgery follow-up.

CASE DESCRIPTION

The patient, an 8-year-old feoderm boy, feoderm, sought care at the public Oral Maxillofacial Surgery Service of Itabira, Minas Gerais, Brazil, in August 2002, showing increased facial volume without pain. In the clinical evaluation, tooth 75 was found to have extensive temporary restorations and periapical edema.

Panoramic radiography was requested and a unilocular, radiolucent area was found, involving unerupted tooth 35, so that this tooth was displaced to the border of the lower edge of the mandible and had promoted cortical expansion without destruction (Fig. 1).

Tooth 75 was also found to have an extensive temporary restoration, with the possibility of pulp involvement. With these radiographic features, the suggested diagnosis was of a dentigerous cyst 35, radicular cyst 75, or unilocular ameloblastoma.

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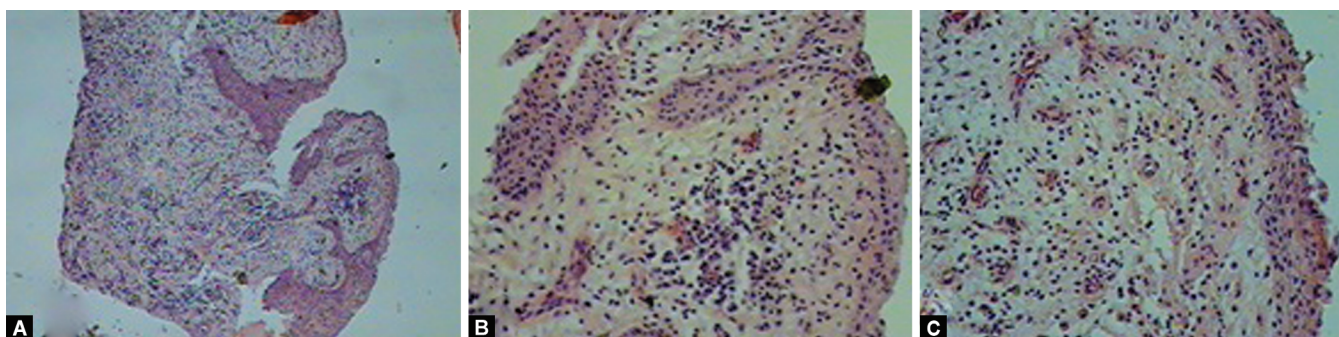
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Fig. 1: Panoramic radiograph shows a radiolucent unilocular image involving the root of 75, in addition to extensive restoration and coronal fracture. The elements 33, 34, and 35 shown shifted to the edge of the jaw—August 2002



Figs 2A to C: Histopathological examination—HE staining—[an increase of 10× (A) and 40× (B and C)]

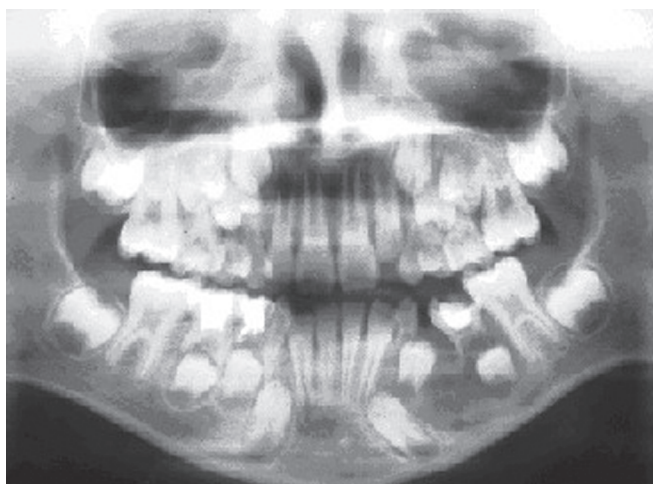


Fig. 3: Panoramic radiograph shows an image 3 months after marsupialization of the lesion. It is noted bone lesion repair—November 2002

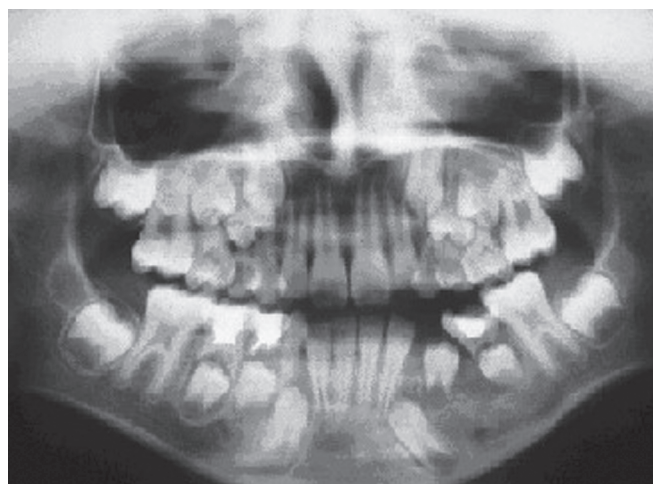


Fig. 4: Panoramic radiograph shows an image 7 months after marsupialization of the lesion. Note the increase in bone lesion repair—March 2003

Subsequently, the patient underwent an incisional biopsy. The material had a firm consistency, shape and uneven surface, brown with black spots, measuring 1.5 × 1.0 × 0.5 cm. The material was stored in 10% formalin and sent for histopathological examination.

Microscopic sections stained with HE showed connective tissue fragment coated with stratified squamous epithelium that was hyperplastic and proliferative with long ridges, with a small portion of atrophic tissue; and connective tissue with areas of intense inflammatory infiltrate, predominately lymphocytic with foci of neutrophils and eosinophils and numerous dilated and hyperemic blood vessels, with areas of hemorrhage and edema (Fig. 2). Based on this examination, the diagnosis was an odontogenic cyst with an inflammatory infiltrate. According to the histopathological report, the inflammatory process interfered in an epithelial organization; therefore, it was not possible to distinguish between a dentigerous cyst that was secondarily infected and an apical periodontal cyst.

By associating the pathological examination with radiographs, the conclusive diagnosis was an inflammatory follicular cyst. Treatment of the lesion consisted of marsupialization and clinical and radiographic follow by monitoring bone formation in the region and the eruptive movements of the permanent successors. Extraction of tooth 75 was performed 10 months after marsupialization and the patient was followed up for 5 years (Figs 3 to 7).

DISCUSSION

Dentigerous cysts correspond to 17.1% of cysts affecting the oral cavity and although their etiology is still unknown, studies have suggested a relationship with changes in the dental follicle. These changes can be originated from inflammatory processes, as occurred in the patient of the reported case, where the inflammatory follicular cyst originated from the stimulus of the necrotic contents of the deciduous tooth on the dental follicle of the permanent successor tooth.^{3,4}

A study that made a radiographic and histological evaluation of cysts occurring in the mixed dentition showed that of 47 cases of follicular cysts associated with deciduous teeth, 44 had the presence of an inflammatory process arising from association with a deciduous tooth—a percentage of 93.6% of cases. Also, histologically observed was that in 98.1% of cases, there was an inflammatory cell infiltrate in the epithelial lining and the subepithelial connective tissue. When this pattern of chronic inflammation associated with dentigerous cysts is observed, the denomination used is an inflammatory follicular cyst. These characteristics were found in the pathological analysis of this case reported, and intense predominantly lymphocytic infiltration confirmed the hypothesis of inflammatory origin.^{8–10}

These cysts develop during the period of mixed dentition, with the likelihood of mandibular involvement being 10 times higher than of maxillary involvement; and with premolars being the teeth

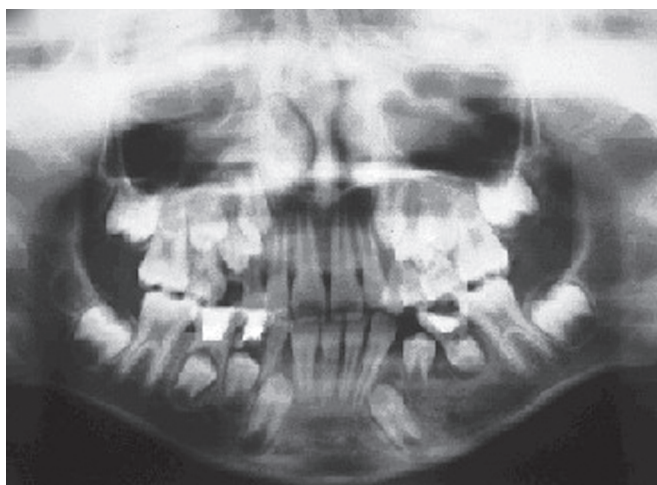


Fig. 5: Panoramic radiograph shows an image 10 months after marsupialization of the lesion. Note that the density and bone pattern present with normal aspect—June 2003

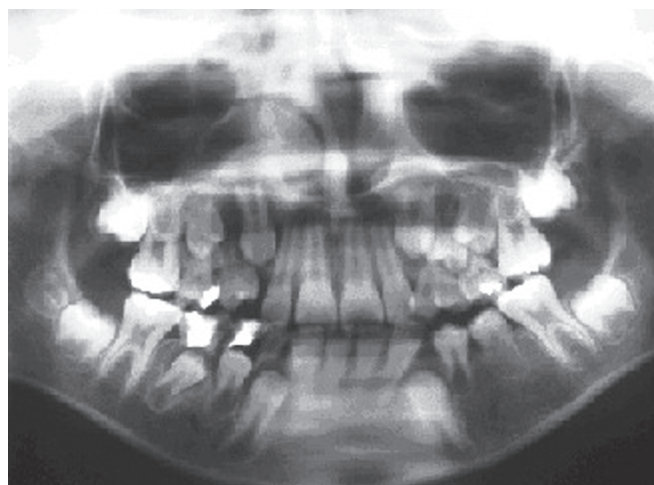


Fig. 6: Panoramic radiograph shows the tooth 75 extracted and the teeth 34 and 35 presented in formation and eruption, and well-positioned—February 2004

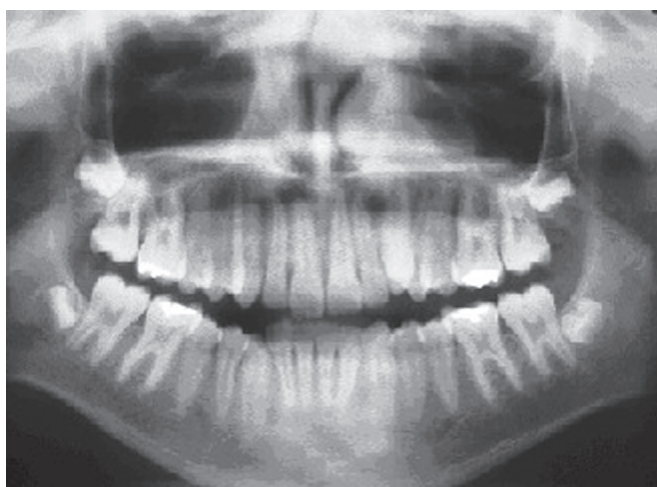


Fig. 7: Panoramic radiographic control after 5 years shows the resolution of the case—June 2007

with the highest prevalence, related to the high rate of caries in primary molars. Predominance is also observed in Caucasian and male individuals. Apart from the ethical context, other prevalent characteristics of inflammatory follicular cysts were also found in the present report, in which: it was a male patient, the mandibular region was involved; associated with an apical lesion caused by a carious process in a deciduous molar.¹¹

Because follicular cysts do not show pain symptoms, diagnosis is usually obtained in dental routine exams, and these cysts can reach large proportions. Despite the absence of symptoms reported by the patient, the fact that the cyst had reached large proportions, promoted changes in facial symmetry and mandibular volume, made it possible to find changes in normality using clinical exam, which led to the patient undergoing a panoramic radiographic exam, thereby confirming the presence of the lesion.¹²

The radiograph showed a well-defined, unilocular, radiolucent lesion associated with the roots of a non-vital deciduous tooth and with the crown of a permanent successor, preventing it from erupting. In this inflammatory stage, the limit of the radiopaque

characteristic may be partially or completely lost, and the transition to the initially intact adjacent areas, appeared to be tenuous and diffuse, making it difficult to perform differential diagnosis, based on characteristics compatible with the features found in the initial examination.¹¹

Radiographic identification of inflammatory follicular cysts is usually achieved in the age range from 9 to 11 years of age; however, to obtain a diagnosis, it is necessary to perform the histopathological analysis because other lesions present similar radiographic features, such as the unicystic ameloblastoma and odontogenic keratocyst. Although the patient was slightly younger when compared with patients in reports by the authors, the fact of being in the mixed dentition period and the location factor related to an extensive carious lesion were factors most strongly related to inflammatory follicular cysts than age itself.^{4,10}

The most common alternative therapy in the literature consists of extraction of the deciduous tooth, followed by marsupialization or enucleation of the lesion, however, when possible, the deciduous tooth should be maintained up to the physiological time of its exfoliation, to maintain the space and provide a more favorable prognosis for the permanent successor. In this study, we opted for maintaining the deciduous tooth and after a radiographic follow-up for a period of 5 years, we found that there was enough space for the successor second premolar, canine and adjacent first premolar, demonstrating the success achieved with the proposed therapy.^{4,8,9}

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