

# Eruption of Teeth Associated with a Dentigerous Cyst by only Marsupialization Treatment: A Case Report

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## ABSTRACT

The purpose of this case report was to describe the management of a mandibular dentigerous cyst in a 10-year-old male patient. Without any clinical symptom, the lesion was detected in a routine panoramic radiograph showing a well-defined osteolytic lesion that measured 3 cm in diameter, partially surrounding the crown of the canine, first molar, and second premolar displacing the teeth to the mandible's lower border. The apex of the teeth were still open. Under local anesthesia, the patient was treated by: extraction of the left deciduous canine and first and second deciduous molars; and marsupialization of the cystic cavity. After 30 months, the premolar had erupted and an orthodontic therapy was started to maintain space for the canine. (J Dent Child 2007;74:228-30)

KEYWORDS: DENTIGEROUS CYST, MARSUPIALIZATION, ERUPTION OF TEETH

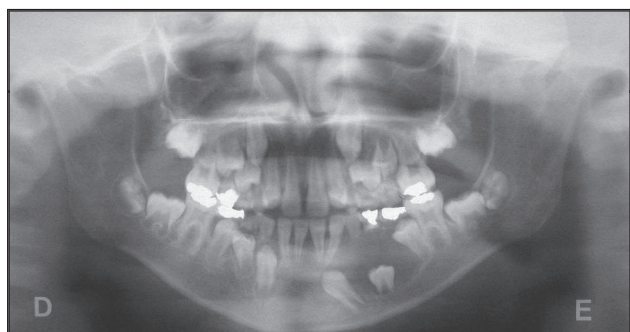
The dentigerous cyst has always been associated with impacted, embedded or unerupted teeth.<sup>1-6</sup> Most patients with a dentigerous cyst are younger than 20 years.<sup>2</sup> The risk of cyst formation around the crowns of unerupted mandibular first premolars, maxillary incisors, or mandibular second molars is significant.<sup>7</sup> If enlargement of the jaw occurs, it is progressive and generally painless. It may cause displacement of adjacent teeth and resorption. The 2 main methods of treating a dentigerous cyst are removal and marsupialization. Excision is indicated when there is no likelihood of damaging anatomic structures, such as apices of vital teeth, the maxillary sinus, or inferior alveolar nerve. Marsupialization can maintain the impacted tooth in the cystic cavity and promote its eruption.<sup>8</sup> Marsupialization is especially useful for dentigerous cysts with teeth displacement. Marsupialization may be advisable to allow eruption of a cyst associated with an impacted or unerupted tooth, if sufficient space exists.<sup>5</sup>

## CASE REPORT

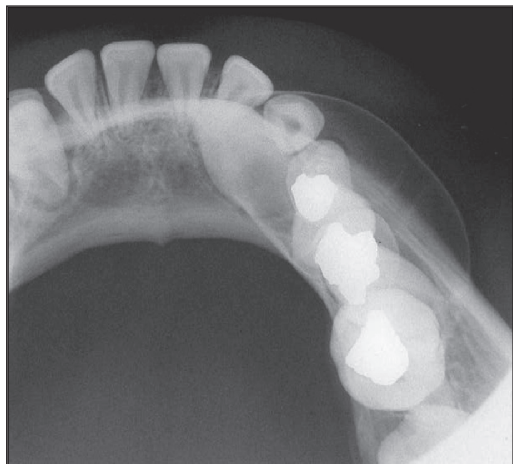
A 10-year-old male patient was referred to the oral and maxillofacial surgery department at Piracicaba Dental School, State University of Campinas, São Paulo, Brazil, for treatment of a lesion in the lower left vestibule detected via routine panoramic radiography. The patient did not report pain or altered sensation. A physical examination revealed an increase of volume, suggesting a hard submucosal lesion in the lower right vestibule. Carious lesions could be detected in first and second deciduous molars. A panoramic radiograph revealed a well-defined osteolytic lesion that measured 3 cm in diameter, partially surrounding the canine's crown and the first and second premolars and displacing the teeth to the mandible's lower border. The apex of the teeth were still open. No signs of root resorption were present in the adjacent teeth (Figure 1). Under local anesthesia, the patient was treated by extraction of the left deciduous canine and the first and second deciduous molars; and marsupialization of the cystic cavity (Figure 2).

During the access for marsupialization, a histopathological analysis of the soft tissue removed from the superior portion of the cyst was performed (Figures 3 and 4). The histological evaluation showed a dentigerous cyst (Figures 5 and 6). A 3-month follow-up visit showed that the radiographic radiolucency had decreased and that the premolar was

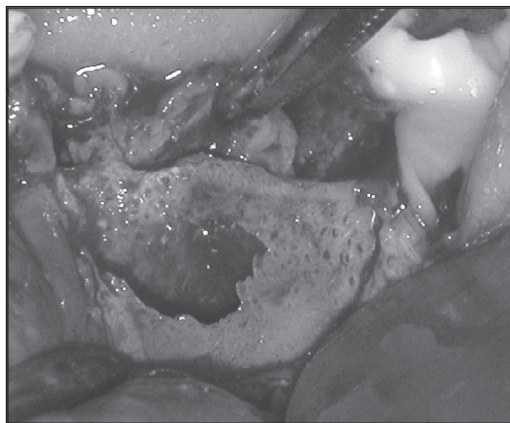
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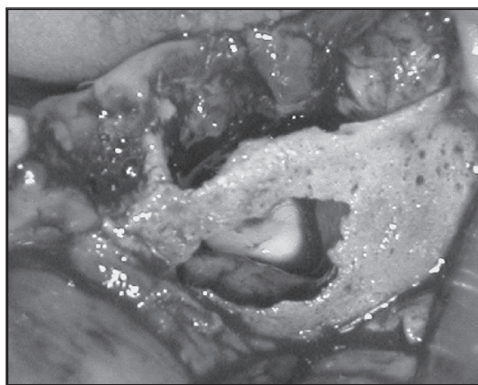
**Figure 1.** A routine panoramic radiograph where the lesion in the lower left vestibule was detected.



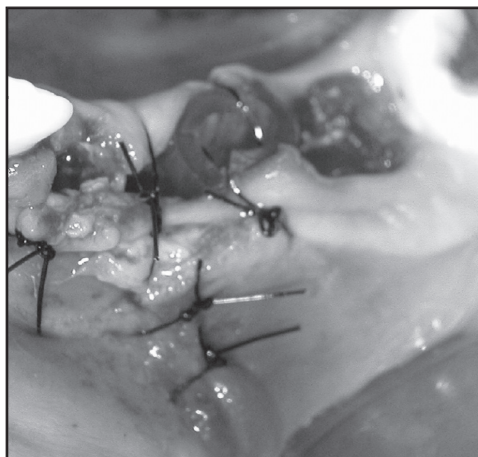
**Figure 2.** An occlusal radiograph showing a vestibular jaw expansion caused by the lesion.



**Figure 3.** Following extraction of the left canine and the first and second deciduous molar and after marsupializing the cyst cavity under local anesthesia.



**Figure 4.** The superior portion of the cyst was completely removed, preserving the premolar.



**Figure 5.** A silicon tube was installed to drain the intracystic pressure.



**Figure 6.** The soft tissue removed from the cyst during the biopsy.

erupting without orthodontic traction or any other therapy (Figure 7). After 30 months, the premolar had erupted and an orthodontic therapy was started to maintain space for the canine.

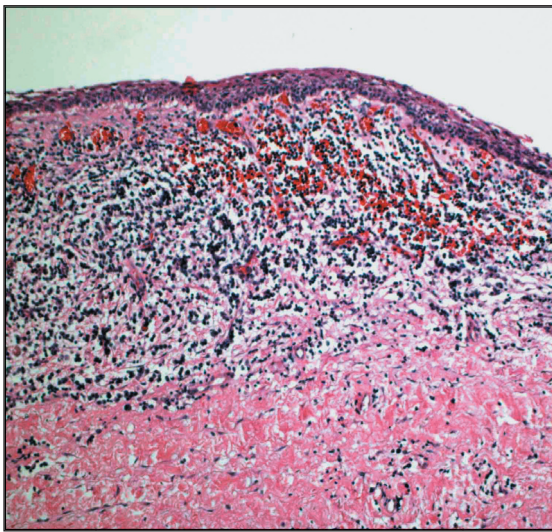
## DISCUSSION

Dentigerous cysts are usually associated with an embedded or unerupted tooth.<sup>1-5,9,10</sup> Benn and Altini<sup>7</sup> reported that 2 types of dentigerous cysts occur. The first is developmental in origin and occurs in mature teeth, usually as a result of impaction.

These cysts typically occur in the late second and third decades are discovered on routine radiography, and predominantly involve mandibular third molars.<sup>7</sup>

The second type is inflammatory in origin and occurs in immature teeth as a result of inflammation from a non-vital deciduous tooth follicle. These are diagnosed in the first and early part of the second decade either on routine radiographic examination or when the patient complains of swelling and pain.<sup>9</sup>

The authors believe that their patient's case might be classified as the second type of dentigerous cyst. Be-



**Figure 7.** The histological evaluation showing a compatible dentigerous cyst image.

cause of age and clinical behavior, there is a relationship between this study's case and the second type of dentigerous cyst. Furthermore, in the patient's previous dental history, it was noticed that the deciduous lateral incisor had been extracted 2 years earlier. This clinical feature is typical of the second type of dentigerous cyst. Dentigerous cysts are often treated via enucleation. Cysts causing tooth displacement and involving loss of bone, however, should be treated with marsupialization or decompression.<sup>2,11</sup> It is believed that new bone formation is stimulated because marsupialization decreases intracystic pressure.<sup>2,12</sup> The major disadvantage of marsupialization is that pathologic tissue is left in situ, without a thorough histologic examination.<sup>2,12</sup> Although the tissue taken from the window can be submitted for pathologic examination, there is a possibility of a more aggressive lesion in the residual tissue.<sup>12</sup>

It is known that, although a dentigerous cyst inhibits eruption of the cyst-associated permanent tooth, maturation of tooth roots continues.<sup>4</sup> Miyawaki et al<sup>5</sup> reported that an impacted tooth is able to erupt faster if marsupialization is performed at a time when the tooth has the ability to erupt. There is a close correlation between eruption and the development of teeth roots.<sup>2,5</sup> Speed of eruption and rate of angulation of the cyst-involved permanent teeth were faster than those of the teeth on the noncyst side.<sup>5</sup> Takagi and Koyama<sup>2</sup> reported that marsupialization is useful for promoting eruption of teeth associated with dentigerous cysts. Orthodontic traction of impacted teeth with matured roots has often been performed after marsupialization of a large cyst.<sup>4,10</sup> In the present case, however, all teeth erupted

with marsupialization only without orthodontic traction. Although marsupialization has its disadvantages, it may represent an adequate treatment choice in cases of young patients; with large cysts; with displacement of permanent teeth; and with incomplete mandibular development, as observed in this clinical case report.

The eruption of teeth is dependent on the patient's early age and incomplete root formation.

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