

Dentigerous Cyst of Inflammatory Origin Associated With Extensive Root Resorption of the Adjacent Tooth

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Abstract

Odontogenic cysts are relatively common in dental practice, and can be classified as developmental or of inflammatory origin. Most dentigerous cysts are considered developmental in their origin, some examples appear to present an inflammatory pathogenesis; resorption of the tooth in question as well as the tooth adjacent to the lesion may also be considered rare. This paper aims to present a clinical case of a patient diagnosed with a dentigerous cyst of inflammatory origin in the mandible, associated with extensive root resorption of the tooth adjacent to the lesion, covering the diagnosis, treatment and follow-up of the case.

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I. Introduction

The dentigerous cyst is defined as a cyst commonly arising from the separation of the follicle surrounding the crown of an included tooth, more often lower third molars.¹ Although most dentigerous cysts are considered developmental in their origin, some examples appear to present an inflammatory pathogenesis; resorption of the tooth in question as well as the tooth adjacent to the lesion may also be considered rare.¹ Root resorption occurs in deciduous dentition and has also been described in teeth submitted to orthodontic movement, occlusal trauma, periodontal disease, periapical granulomas and reimplanted teeth, as well as when associated with teeth adjacent to neoplastic cysts and lesions.² This paper aims to present the clinical case of a patient diagnosed with a dentigerous cyst of inflammatory origin in the mandible, associated with extensive root resorption of the tooth adjacent to the lesion.

II. Case Report

Patient G.M.A., male, black, 40 years old, was referred to the Ribeirão Preto School of Dentistry, University of São Paulo (USP), located in the state of São Paulo - Brazil, for evaluation of mandible lesion, observed in a requested panoramic radiograph by the dentist who performed the extraction of his third left lower molar (Figure 1A). The patient signed a Free and Informed Consent Form that follows the terms of Resolution no. 466/12 and Complementary. In the clinical evaluation, there was no facial swelling or facial asymmetry or expansion of the bone cortical to oroscopy, but the second lower right molar presented a high degree of mobility. The lesion was only observed after radiographic evaluation, in which it presented a unilocular image,

radiolucently well-marked involving the third lower molar of the right side, horizontal and enclosed extending to the distal region of the first lower molar of the same side, with complete root resorption of the second molar. To better evaluate the lesion, a mandible computed tomography was requested.

In the first surgical time, under local anesthesia, incisional biopsy of the lesion was performed to determine the definitive treatment. With a linear incision on the external oblique line and bone exposure of the affected region, the aspiration puncture of the site was performed, being negative. A bone window was then made with the aid of a trunk-conical drill, after removal of the bone tissue, the lesion itself was exposed, with a fibrous and friable content, which was removed and the suture of the incised site was made. All material removed, including the bone tissue, was sent for histopathological analysis, in the Pathology Department of the same institution. This analysis yielded the diagnosis of Benign cystic odontogenic lesion, which determined the treatment plan for that lesion, cystic enucleation with exodontia of the involved teeth (second and third molars on the right side).

In a second surgical procedure, also under local anesthesia, the treatment described above was performed. This time, with an intrasulcular and relaxing incision in the mesial of the first lower molar, the second lower molar and third lower right molar were extracted, with the latter's dental incision, in addition to the enucleation of the entire cystic capsule with abundant irrigation of saline solution 0.9% of the entire affected region, ending with the access suture (Figure 2A). The patient was advised to maintain a liquid diet for one month after the procedure, since he had a risk of fracture of the right mandibular angle due to the little bony remnant of the site. After this new material (dental elements and cystic capsule) was sent for histopathological analysis (Figure 2B), the conclusive diagnosis of Dentigerous Cyst of inflammatory origin was obtained, with its follow-up accompanied by panoramic controlling radiographs (Figure 1B).

Two years after the surgical procedure, the patient maintains periodic follow-up with the team of the Hospital for Oral and Maxillofacial Surgery of FORP-USP, clinically presenting the region submitted to procedure now normally repaired, without signs of infection or inflammation; the radiographic image shows no signs of relapse of the lesion with good formation of healthy bone at the site (Figure 1C), the site submitted to the procedure is rehabilitated with implant prosthesis installed in the edentulous region (Figure 1D).

III. Discussion

Dentigerous cysts are commonly associated with unerupted teeth, impacted third molars and upper canines³, ranging from 14% to 20% of all maxillary cysts.⁴⁻⁶ Its treatment includes decompression, marsupialization, and enucleation, or a mixture thereof.⁷⁻⁹ Although rare, spontaneous disappearance can also happen. The report of this situation comes from a third molar included and affected, associated with the cystic lesion that was presented to incisional biopsy in a first surgical period, and in a second act its full removal by enucleation of the dentigerous cyst in question, corroborating with the authors mentioned above.

The size, cyst site, age of the patient, dentition involved, and involvement of noble structures are the criteria to be considered and used to dictate the indicated treatment for each case.³ Cystic enucleation and the extraction of impaction were indicated in 34 of the 40 patients. In these patients submitted to enucleation, the impacted tooth was considered useless or without space for eruption and was thus extracted. In addition to the cystic enucleation carried out in this work, the third molar was also extracted horizontal, including this tooth with its crown completely surrounded by the dentigerous cyst.

Males had a slight advantage in the incidence of dentigerous cysts compared to females.³ The reason for this predilection is unclear, but it may be related to the smaller size of the jaw and the greater tendency of third molar prophylactic extraction in women.¹⁰ This paper cites a dentigerous cyst in a male patient, agreeing with the highest incidence described by the previously described study.

Radial resorption is one of the radiographic features of ameloblastoma found in 81% of patients with such comorbidity. Dentigerous cyst is the characteristic cystic lesion in which root resorption is most frequently encountered; in 55% of cases, all types of lesions are behind only ameloblastoma. Following the order, nasopalatine cyst with 36%, root cyst with 18%, is observed in only 7% of the cases of simple bone cyst, and not observed in any case of odontogenic keratocyst.² Resorption of the right lower second molar tooth root was observed in this study, since the lesion extended from the third lower molar crown on the same side to the reabsorbed region, condemning the dental element to extraction, performed concomitantly with the enucleation of the lesion.

Root resorption is a phenomenon independent of the period of odontogenesis, and is not related to the lesion invasive power. The mechanism of root resorption associated with neoplastic cysts and lesions is still unknown. One possible reason for this resorption is derived from the dental follicle, where intracranial pressure or the high level of prostaglandin released by the lesion may have effects on root resorption. Thus, such mechanism for root resorption associated with dentigerous cysts and epithelial tumors, similar to that of dental eruption.²

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Subtitles:

Figure 1A - Radiographic image showing element 48 included, associated with the radiolucent image involving its crown, besides the root resorption of element 47.

Figure 1B - Radiographic appearance after seven days of cystic enucleation and extraction of dental elements 47 and 48.

Figure 1C - Six months after surgical procedure, showing good bone formation at the site.

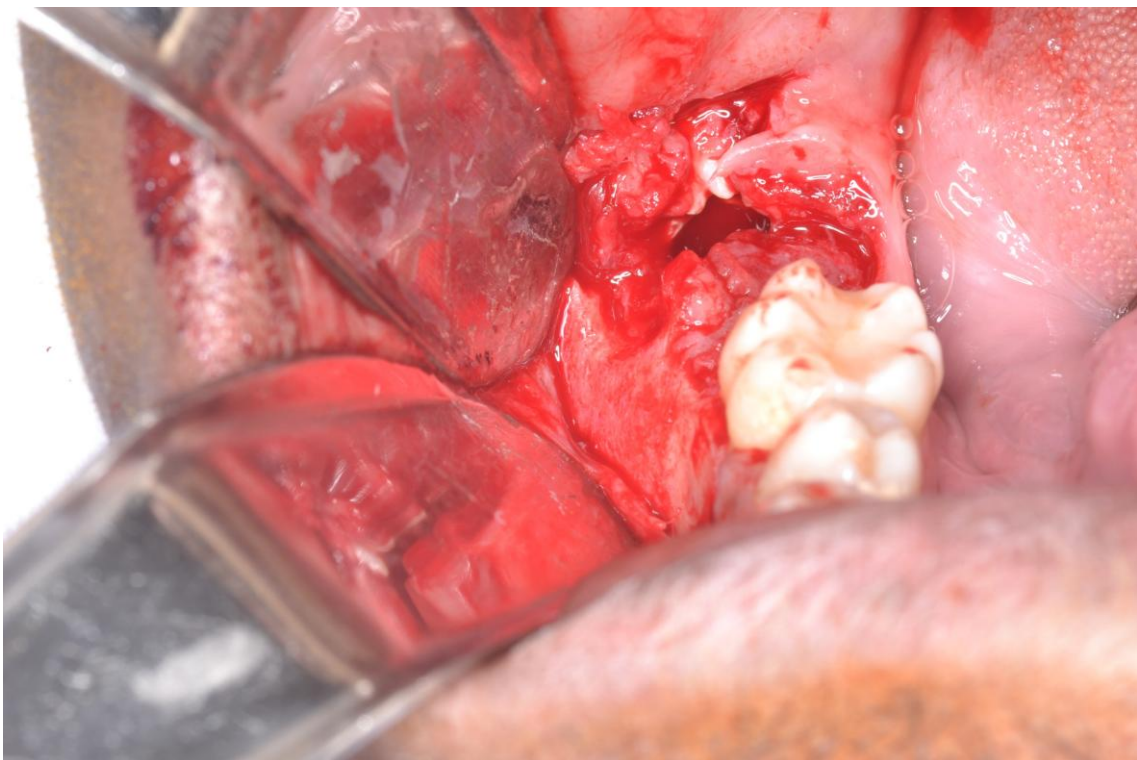
Figure 1D - Two years postoperative, with implant prosthesis installed for rehabilitation of the edentulous area.

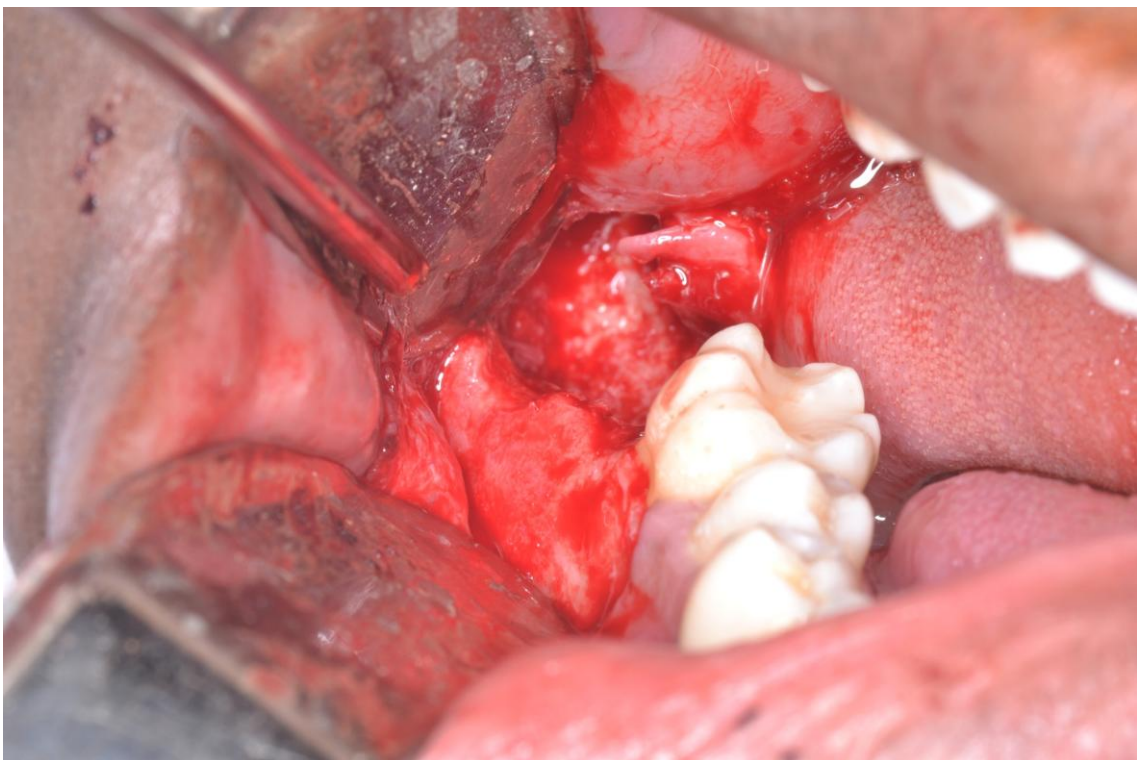
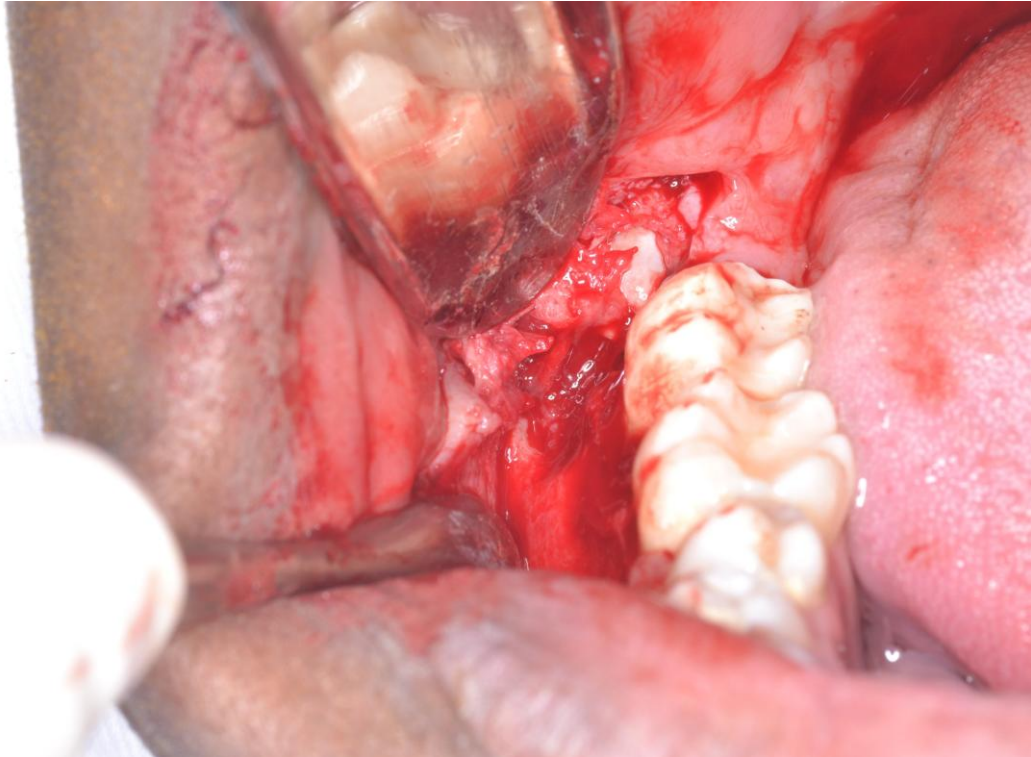
Figure 2A - Intraoral appearance immediately after cystic enucleation and extraction of dental elements 47 and 48.

Figure 2B - Material submitted for histopathological analysis: Cystic capsule and dental elements removed.











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