

Lateral periodontal cyst: An unusual case report**Cisto periodontal lateral: Relato de caso incomum**

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ABSTRACT

Introduction: Lateral periodontal cysts are odontogenic cysts with very unusual development. According to the literature, they account for less than 0.4% of cases of odontogenic cysts.

Presentation of Case: The present report describes a 34-year-old patient referred to the

maxillofacial surgery and traumatology department of Montenegro Hospital due to swelling of the face with asymptomatic evolution for approximately 1 year. Based on clinical and tomographic examinations, the diagnostic hypothesis was odontogenic cyst, and the surgical plan involved complete enucleation of the cystic lesion. Complete removal was performed, and the material removed was sent for histopathological analysis. The examination revealed an irregular cystic cavity covered by epithelial tissue with few cuboidal layers that showed clear cells in the basal layer in some areas and the formation of nodular epithelial structures that protruded into the cavity. **Discussion:** The histopathological characteristics described in the literature are consistent with the histopathological description of the enucleated cyst in this case, confirming the diagnosis of lateral periodontal cyst. **Conclusion:** The patient is currently under follow-up, and evaluations have been normal.

Keywords: Odontogenic Cysts, Periodontal Cyst, Oral Pathology.

RESUMO

Introdução: Os cistos periodontais laterais são cistos odontogênicos de desenvolvimento muito incomum. Segundo a literatura, representam menos de 0,4% dos casos de cistos odontogênicos. **Apresentação do caso:** O presente relato descreve um paciente de 34 anos encaminhado ao serviço de cirurgia e traumatologia maxilofacial do Hospital de Montenegro por edema de face com evolução assintomática há aproximadamente 1 ano. Com base nos exames clínico e tomográfico, a hipótese diagnóstica foi cisto odontogênico e o plano cirúrgico envolveu enucleação completa da lesão cística. Foi realizada a retirada completa e o material retirado encaminhado para análise histopatológica. O exame revelou cavidade cística irregular coberta por tecido epitelial com poucas camadas cuboidais que apresentava células claras na camada basal em algumas áreas e a formação de estruturas epiteliais nodulares que se projetavam para dentro da cavidade. **Discussão:** As características histopatológicas descritas na literatura são consistentes com a descrição histopatológica do cisto enucleado neste caso, confirmando o diagnóstico de cisto periodontal lateral. **Conclusão:** O paciente encontra-se em acompanhamento e as avaliações estão normais.

Palavras-chave: Cistos Odontogênicos, Cisto Periodontal, Patologia Oral.

1 INTRODUCTION

Lateral periodontal cysts are a rare type of developmental odontogenic cyst that typically occurs lateral to the tooth root surface. They have distinct histopathological, clinical and radiographic characteristics and are defined as nonkeratinized and noninflammatory developmental cysts¹⁻⁴. These cysts likely originate from dental lamina remains, but their source is still under debate^{1,2}. They are most frequently found in the region of the premolars in the mandible and represent approximately 0.4% of all odontogenic cysts³. These cysts have no predilection for sex or race, and their peak prevalence occurs in the sixth decade of life⁵.

Because of the asymptomatic characteristics of lateral periodontal cysts, lesions are often discovered during routine radiographic examination and appear as a well-defined solitary radiolucency adjacent to a tooth root. The lesion has a circular or oval shape and is surrounded

by a radiopaque border^{1,2}. The vitality of the pulp of the adjacent tooth is not affected by the cyst⁶. Lateral periodontal cysts have an average size of 1 ± 0.6 cm¹. Typical histological features include a cystic cavity coated with nonkeratinized squamous epithelium that sometimes penetrates the fibrous tissue, forming invaginated plaques^{5,6}.

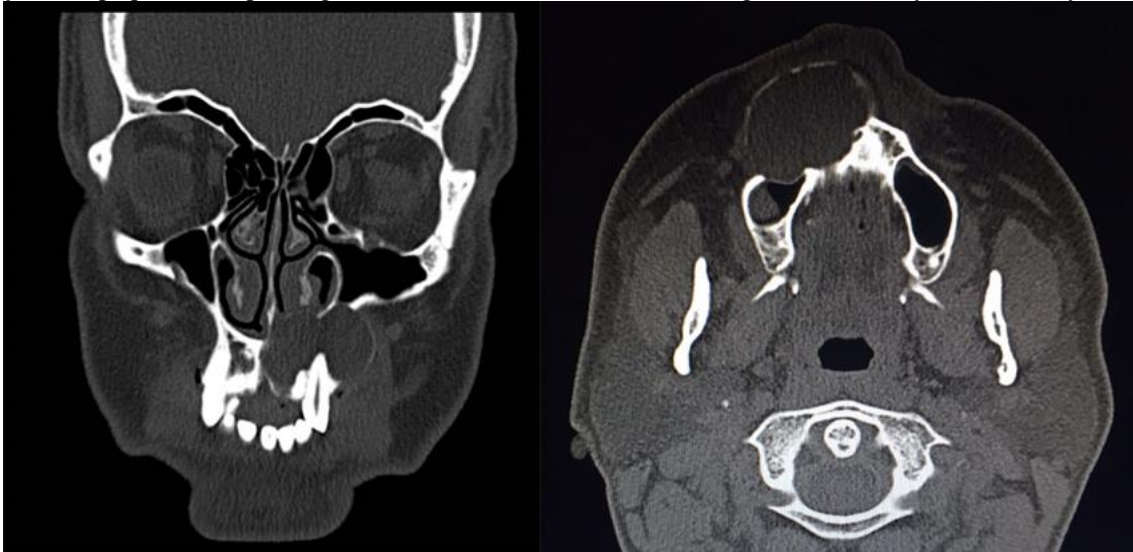
The treatment of choice for lateral periodontal cysts is surgical removal and subsequent histological evaluation to confirm the diagnosis³. Recent studies have used diode lasers for the surgical treatment and removal of the cyst, with good results⁴.

The objective of the study was to report a case of lateral periodontal cyst due to the rarity of the disease and its unusual characteristics.

2 PRESENTATION OF CASE

A 34-year-old male patient sought care at the maxillofacial surgery and traumatology outpatient clinic of Montenegro 100% SUS Hospital complaining of asymptomatic swelling in the right maxillary region for more than 18 months. The patient had a previous history of alcoholism but no other relevant medical history. The extraoral examination showed swelling on the right side of the face that caused facial asymmetry involving mainly the right nasal-labial region. The intraoral and clinical examination revealed an inclined upper right lateral incisor tooth and a significant increase in the buccal mucosal area from the upper right central incisor to the upper right first premolar. Computed tomography (CT) revealed a well-defined radiolucent area measuring approximately 30 mm x 45 mm, circumscribed by a radiopaque halo that expanded the external cortical bone and invaded the nasal cavity and maxillary sinus and appeared to be filled with fluid (Figure 1). All surrounding teeth responded positively to the pulp vitality test. Routine serum tests showed no significant changes. Based on clinical and imaging tests, the surgical plan established entailed total enucleation of the cyst and peripheral ostectomy.

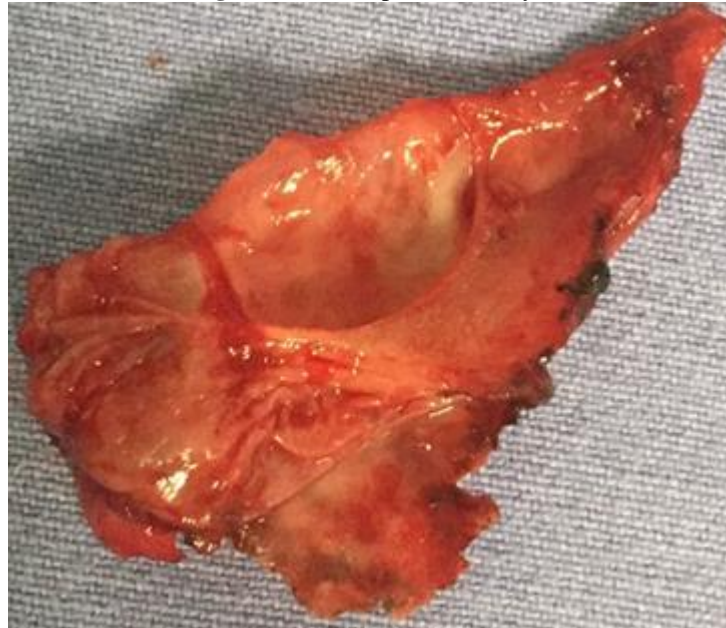
Figure 1. Axial section(A) and coronal section(B) CT scan of the face showing a radiolucent area circumscribed by a radiopaque halo expanding the external cortical bone and invading the nasal cavity and maxillary sinus.



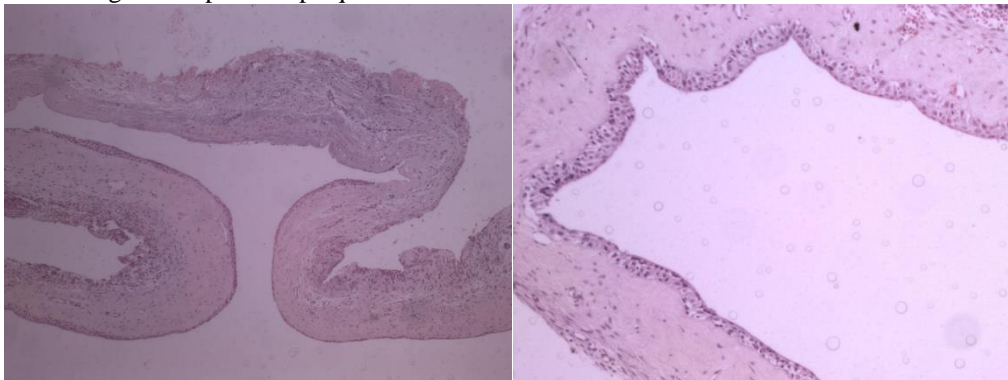
The surgery occurred under general anaesthesia, and the patient received prophylactic antibiotic coverage with 1 g intravenous cephalothin immediately before the surgical procedure. A transoral buccal incision was made, and the buccal cortical bone was removed to gain access to the lesion. The thin cyst capsule was easily identified and removed from the adjacent bone. Total enucleation of the lesion was performed with a surgical curette (Figure 2), after which haemostasis and surgical wound suture were performed. The cyst (Figure 3) was immersed in 10% formaldehyde and sent for histopathological analysis.

Figure 2. Total enucleation of the lateral periodontal cyst



Figure 3. Lateral periodontal cyst

The surgical specimen was fixed with 10% neutral formalin and then processed using the haematoxylin and eosin (HE) technique. Histological examination showed an irregular cystic cavity covered by a thin epithelial layer of cuboidal cells in some areas, with clear cells in the basal layer and the formation of fibrous-epithelial nodular structures that protruded into the cavity. Externally, this capsule was fibrous (Figure 4).

Figure 4. Histological examination. Cystic cavity outlined by a thin, non-keratinized squamous epithelium on the right and with invaginated epithelial plaques on the left

The patient remained in the hospital for 24 hours and was then discharged. After 10 days, the patient returned to the outpatient clinic for suture removal and began clinical follow-up. After two years of postsurgical control, bone repair with reorganization of anatomical structures was observed in a new CT scan (Figure 5). The patient will be followed up every six months for five years.

Figure 5. Axial section (A and B) and coronal section (C) of computed tomography of the face showing bone repair with reorganization of the anatomical structures after two years



3 DISCUSSION

In this study, a case of lateral periodontal cyst was reported, and its clinical, tomographic and histological presentation was investigated. Because lateral periodontal cysts are asymptomatic, they are usually found in routine radiographic examinations. They are located near vital teeth in middle-aged patients; radiographically, the lesion shows well-defined radiolucency surrounded by a radiopaque halo³, as was observed in the present case. Although the literature indicates that these cysts have an average size of 1 cm^{1,3}, in this case, the cyst was 3 x 4.5 cm, indicating that it was as an unusual type of lateral periodontal cyst.

Based on these findings, a provisional diagnosis of lateral periodontal cyst was established, and treatment was planned accordingly. After the enucleation of the cyst, it is always prudent to confirm the diagnosis through histopathological analysis, which should reveal a cyst that is surrounded by thin walls of non-keratinized stratified squamous epithelium that is usually without inflammation and is supported by connective tissue. Invagination of the squamous epithelium in the fibrous tissue can be observed⁵. The histopathological characteristics described in the literature are consistent with the histopathological description of the enucleated cyst in this case, confirming the diagnosis of lateral periodontal cyst.

There is still debate in the literature regarding the origin of lateral periodontal cysts. Different authors report that lateral periodontal cysts may arise from reduced enamel epithelium, from the remnants of dental lamina (rests of Serres) or from the epithelial cell rests of Malassez^{3,5}. While the presence of nonkeratinized epithelium in the cyst points to reduced enamel epithelium as the origin, the presence of glycogen-rich clear cells indicates a relationship with the rests of Serres. On the other hand, the cyst's location predominantly near the root implies a possible origin of the epithelial cell rests of Malassez³. For these reasons, there is still no consensus regarding the origin of lateral periodontal cysts. In the present study,

the histopathological analysis revealed the presence of nonkeratinized epithelium and clear cells in the basal layer.

A conservative surgical approach involving enucleation of the lateral periodontal cyst and curettage is the treatment of choice to minimize tooth loss and masticatory function impairment³⁻⁶. In the present case, similar surgical treatment was performed. Although guided bone regeneration was not performed in this study, as some authors suggest^{3,5}, at the end of the first 6 months of postsurgical control, bone repair with proper reorganization of anatomical structures was observed via CT scan.

Although the patient did not present postoperative complications, the complementary use of a diode laser has been reported in the literature; this approach has been described as presenting advantages related to the reduction of healing time and improvement in the periodontal parameters when combined with the conventional surgical treatment of enucleation of lateral periodontal cysts⁴.

Surgical treatment is considered successful when the following criteria are met: reestablishment of stomatognathic system functions followed by total reduction of the disease focus, in this case of the lateral periodontal cyst; healing of bone and mucosal tissues; and nonrecurrence of the disease during follow-up⁴. Thus, it can be stated that the diagnosis, treatment plan and postoperative follow-up of the unusual case of a lateral periodontal cyst described in this report were successful.

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Statement of Clinical Relevance

Lateral periodontal cysts are developmental odontogenic cysts that corresponds to 0.4% of all odontogenic cysts¹. Because of their rarity, it is essential for their treatment to be reported to establish protocols.

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