

# LATERAL PERIODONTAL CYST: AETIOLOGY, DIAGNOSIS AND CLINICAL SIGNIFICANCE. A REVIEW AND REPORT OF CASE

Cisto periodontal lateral: etiologia, diagnóstico e significado clínico.  
Revisão e relato de caso.

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## Abstract

The lateral periodontal cyst is a non-keratinized, non-inflammatory developmental cyst occurring adjacent to or lateral to a tooth root. It is a relatively uncommon lesion found mostly in adults (5th to 6th decades) and has no sex predilection. Since pain or other clinical symptoms have seldom been reported, lateral periodontal cysts are discovered on routine radiographic examination. The radiographic appearance is usually a round or teardrop shaped, well circumscribed radiolucency. Microscopically is characterized by a thin lining of epithelium usually 1 to 5 cell layer thick which resembles the reduced enamel epithelium. The lateral periodontal cyst is treated by surgical enucleation and has no tendency to recur. Meanwhile, clinicians are advised to follow these cases over a number of years.

Keywords: Developmental cyst; Lateral periodontal cyst; Oral pathology.

## Resumo

O cisto periodontal lateral é um cisto de desenvolvimento não queratinizado, não inflamatório, que ocorre adjacente ou lateral a uma raiz dentária. É uma lesão relativamente incomum, encontrada principalmente em adultos (5.ª a 6.ª décadas de vida), não tendo predileção por sexo. Uma vez que dor ou outro sintoma raramente são reportados, os cistos periodontais laterais são usualmente descobertos em exames radiográficos de rotina. A aparência radiográfica é geralmente uma radiolucência arredondada ou em forma de "gota de lágrima", bem circunscrita. Microscopicamente é caracterizado por um epitélio fino, usualmente com 5 a 6 células na camada, semelhante ao epitélio reduzido do órgão de esmalte. O cisto periodontal lateral é tratado por enucleação cirúrgica e não tende à recorrência. Entretanto, recomenda-se a preservação nestes casos por alguns anos.

Palavras-chave: Cisto de desenvolvimento; Cisto periodontal lateral; Patologia bucal.

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## Introduction

The lateral periodontal cyst (LPC) may be defined as a non-keratinized, non-inflammatory, epithelial developmental cyst occurring adjacent or lateral to the root of a vital tooth. It is a rare condition, with a prevalence of 1,5% within cysts of the jaws. This group of lesions (gingival cyst of adults, lateral periodontal cyst, botryoid odontogenic cyst and glandular or sialodontogenic cyst) continues to excite interest and there has been some advance in the study of their pathogenesis and their relationship to one another. (1-4).

The LPC is relatively uncommon (5). One study found their prevalence to be 0.7 % of 2,616 cysts seen during an 11-year period (6).

It was postulated that the gingival cyst of adults and the lateral periodontal cyst have a common histogenesis and represent the intra-osseus and extra-osseus manifestations of the same lesion (7). Buchner and Hanssen (8) considered that they probably were of the same epithelial origin.

Although there can be little doubt that LPC are of developmental odontogenic origin, there seem to be three possibilities: reduced enamel epithelium, cell rests of Malassez and remnants of dental lamina. The cyst is lined for the most part by a narrow nonkeratinized epithelium which resembles reduced enamel epithelium.

## Clinical features

The lateral periodontal cyst appears as a small, soft-tissue swelling, slightly inferior or within the interdental papilla. Radiographically it presents as a round (sometimes teardrop-shaped), well-defined, with an opaque margin along the surface of the root tooth. There are no associated clinical symptoms. Root divergence may be present. Most frequently the LPC presents as a monocystic radiolucency, but may be polycystic or multilocular (9). Wysocki et al (7) found that 26 of 39 LPC (67%) were between the roots of vital mandibular canines and premolars. Cohen et al (10) found that 78% of LPC occurred in the

mandible, all of which were between the premolars. Most LPCs are small (less than 1 cm in diameter), but some are larger and may compromise the entire length of the root.

Because the lesions are slow growing, left untreated they can enlarge 0.7 mm per year and cause gingival expansion (6,16).

## Diagnosis

The lateral periodontal cyst is discovered during routine radiologic examination and is usually asymptomatic. Occasionally a swelling is seen on the labial surface of the gingiva and may be misdiagnosed as a periapical or periodontal abscess. The diagnosis is based on the history, clinical and radiological examination, and pulp vitality tests. In the majority of the cases the pulp of the adjacent teeth are vital (11). Difficulties in diagnosis arise when one or more of the adjacent teeth is endodontically treated. In this case there is a possibility that the lesion might be due to an infection arising from a lateral canal (2), and the diagnosis must be made on findings of radiographs with angled horizontal beam and on the clinical features of the lesion (9). Other interradicular radiolucencies must be distinguished from the lateral periodontal cyst: anatomic radiolucencies, such as the mental foramen, maxillary sinus and the nutrient canals; cyst of pulpal origin, other cysts of the jaws, odontomas and other tumors.

## Histological features

The LPC is characterized by a thin lining of non-keratinized epithelium usually 1 to cell layer thick, which resembles the reduced enamel epithelium. The thin lining is interspersed with glycogen-rich clear cells (7, 10, 11). Some areas of epithelial thickening, referred to as plaques or theca, are commonly found (12), and the connective tissue subjacent to the epithelium exhibits a zone of hyalinization (13). Inflammation is not a feature and the walls of the cyst consist of mature collagen fibrous tissue.

## Treatment

The treatment of the lateral periodontal cysts is enucleation of the lesion. There is no tendency for recurrence. Only two cases of recurrent cysts have been reported, and in both cases they were botryoid odontogenic cysts. Greer and Johnson (14) found that 8 of 10 recurrent cases were unilocular radiologically, but multilocular histologically. These cases must to be followed over a number of years, since it is unclear whether the encapsulated multicystic and unicystic LPC have the same predilection to recur (6). The surgeon must exercise caution during surgical enucleation of the LPC to avoid damaging the adjacent root structure (11).

## Case report

A woman 70 years of age was referred for dental examination to the clinic of Stomatology of the Dental School, Pontifical Catholic University of Parana, Curitiba, Brazil. Her medical history was free from systemic diseases. The patient presented a painless swelling in the mandibular premolar region, left side. The lesion had originally appeared 30 years earlier and she never was concerned about the lesion. It was told her that "probably it was an impacted tooth" (sic).

The ovoid, reddish, sessile, painless and moderately hard to palpation, lesion was located on the vestibular attached gingiva, in the second premolar region, and measured 2 cm in diameter.

Pulp vitality testing showed that teeth 33,34 and 35 were vital.

Periapical radiograph of the area showed a well circumscribed radiolucency between the roots of the canine and the first premolar (Fig. 1). A clinical diagnosis of lesion of non-pulpal origin was made, and a surgical excision of the lesion was proposed to the patient.



Fig. 1 A well circumscribed radiolucency between the roots of the canine and the first premolar.

Under local anesthesia, a full-thickness mucoperiosteal flap was elevated and the lesion was completely enucleated, exposing areas of the root surfaces of the canine and 2nd premolar. The root surfaces appeared normal without any signs of resorption. The patient returned for postoperative visits and the healing was uneventful. The patient has been followed for two years, with no clinical or radiographic signs of recurrence of the LPC. Microscopic examination of the specimen revealed a cystic cavity lined by a thin, nonkeratinized squamous epithelium 3-5 cell layers thick and supported by fibrous connective tissue. This epithelium presented areas of focal thickening interspersed with glycogen-containing clear cells. The histological diagnosis was lateral periodontal cyst. (Figs. 2 and 3).

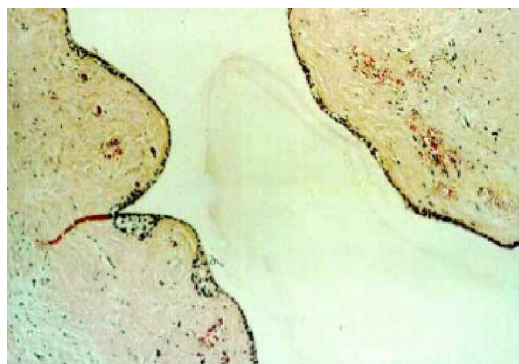


Fig. 2 HE 10 X Thin, non keratinized squamous epithelium supported by fibrous connective tissue.

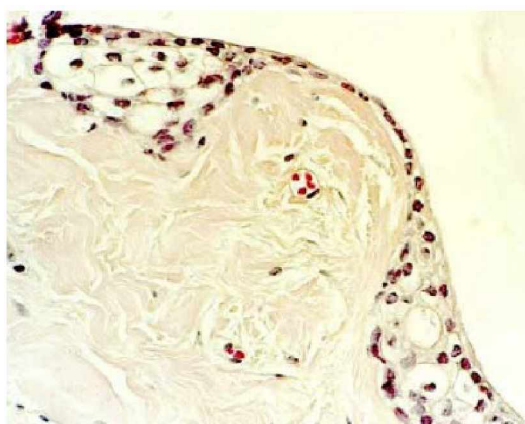


Fig. 3 HE 40 X Areas of focal thickening interspersed with glycogen-containing clear cells.

### Discussion

The lateral periodontal cyst is an uncommon developmental odontogenic cyst that is located along the lateral aspect of a root of a tooth, with special prevalence in the mandibular premolar and canine region. The histogenesis of the lesion remains uncertain, although a number of possible sources of odontogenic epithelium have been ruled out as candidates (15). It was noted that the majority of ILPD occur on the facial aspect of the alveolus, a distribution consistent with that of the rests of dental lamina but not with that of the rests of Malassez, which are most plentiful in a periapical locus (8).

Clear cells in the lateral periodontal cyst present morphologic resemblance to the clear cells in the dental lamina rests. These clear cells are not found in either the rests of Malassez or the reduced enamel epithelium, nor are they found in radicular or dentigerous cysts, which are derived from these two sources of epithelium.

Most authors separate the lateral periodontal cyst of the adult and the gingival cyst. Wysocki et al (7), Gorlin and Damante (19) believe that they are only intraosseous and extraosseous manifestations of the same lesion.

Lesions should be removed by surgical enucleation and the patients followed for several years thereafter. Special care should be taken not to damage the roots of the adjacent teeth. Recurrence is

uncommon, but has sporadically been reported (14, 17, 18).

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