

An unusual clinicoradiographic presentation of a lateral periodontal cyst – report of two cases

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ABSTRACT

The lateral periodontal cyst and the botryoid odontogenic cyst are two rare nosological entities, who, despite their radiological and clinical presentation can only be diagnosed by their rather typical histopathological characteristics.

The purpose of this article is to report two cases of radiolucent cystic lesions of the mandible, located in the premolar area, with a clinical and radiographic diagnosis of residual cyst, which showed histological features of a lateral periodontal cyst. Histopathologically, the lateral periodontal cyst lining is characterized by a thin cuboidal to stratified squamous non-keratinizing epithelium, ranging from one to five cell layers and presence of one or more epithelial thickenings or plaques. Furthermore, glycogen-rich clear cells encountered either in the epithelial plaques or in the superficial layer of the lining epithelium.

Key words: *Odontogenic cysts, lateral periodontal cyst, residual cyst.*

INTRODUCTION

The epithelial lining of the odontogenic cysts is derived from the epithelial remains of the tooth-forming organ, such as 1) the epithelial rests of Malassez, left in the periodontal ligament by the breakdown of the epithelial root sheath of Hertwig; 2) the reduced enamel epithelium, which covers the completely formed crown of an unerupted tooth and is derived from the enamel organ; and 3) the epithelial rests or glands of Serres, which persist after the dissolution of the dental lamina (1).

The lateral periodontal lateral cyst is a developmental odontogenic cyst defined as a radiolucent lesion which develops along the lateral aspect of an erupted vital tooth, in which an inflammatory etiology and a diagnosis of collateral keratocyst have been excluded based on clinical and histological grounds (2).

The pathogenesis of the lateral periodontal cyst is a matter of controversy dealt with in numerous articles, with

opposing views regarding the origin, being either from the reduced enamel epithelium or the dental lamina or even the epithelial rest of Malassez (1-5).

In the past, the lateral periodontal cyst was largely defined as a cyst located between the roots of two vital teeth, usually in the bicuspid or cuspid area (1,2,5). However in 1992, in the WHO's monograph on the "Histological typing of odontogenic tumours", rather characteristic histopathological criteria were added to the clinicoradiographic ones (Table 1) (6).

CASE REPORT

Case 1

A 54 year-old was treated for a residual cyst at the site of a 36, that has been extracted twelve years before. The lesion was discovered as an incidental finding by his dentist (Fig. 1). Treatment consisted of enucleation.

Developmental	
- “Gingival cysts” of infants (Epsteins’s pearls)	26540*
- Odontogenic keratocyst (primordial cyst)	26530*
- Dentigerous (follicular) cyst	26560*
- Eruption cyst	26550*
- Lateral periodontal cyst	26520*
- Gingival cyst of adults	26540*
- Glandular odontogenic cyst or sialo-odontogenic cyst	26520*
Inflammatory	
- Radicular cyst	43800*
- Paradental (inflammatory collateral, mandibular infected buccal) cyst	26520*

Table 1. World Health Organization (WHO) classification of Odontogenic epithelial cysts (6).



Fig. 1. Well-circumscribed radiolucency distally of 35. A tentative clinico-radiographic diagnosis of residual cyst was made.

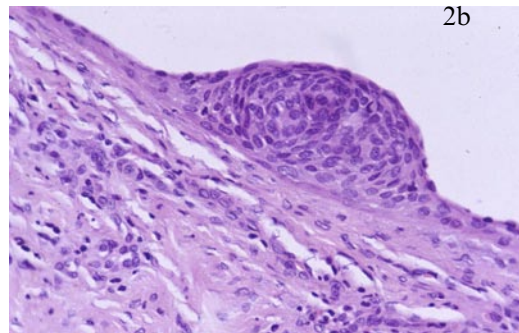
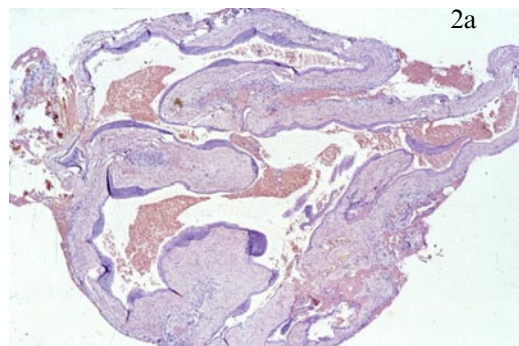


Fig. 2. Overview of lateral periodontal cyst showing the typical epithelial plaques (2a); high power view of epithelial plaque (2b)

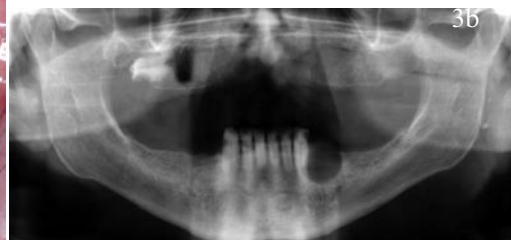


Fig. 3. Bluish, cyst-like swelling distally of 33 (3a); well-circumscribed radiolucency at the site of the previous extracted 34 (3b)

Histopathological examination showed the typical features of a lateral periodontal cyst (Fig. 2). Healing was uneventful. The patient has been lost to follow-up.

Case 2

In May 2004, a 65-year-old man was referred because of a cystic swelling distally of 33 in an edentulous part of the mandible. The 34 had been extracted four years before. At that time there were no distinct radiographic abnormalities. At oral examination a bluish, cyst-like swelling was seen distally of 33 and measuring approximately 1.5 cm (Fig. 3).

On the panoramic view a well-circumscribed radiolucency was observed at the site of the previously extracted 34. A tentative clinicoradiographic diagnosis of residual cyst was made.

Treatment consisted of enucleation. Histopathological examination showed the typical features of lateral periodontal cyst. Healing was uneventful. The patient will be scheduled for regular follow-up visits.

DISCUSSION

Clinical information about the lateral periodontal cyst is sparse since there have only been a few analyses of large series of cases (1,4,5).

Epidemiologically, the lateral periodontal cyst presents at a low frequency, without a distinct gender predilection (1,2,4,6,7). Radiologically, the lateral periodontal cyst appears as a round, oval or teardrop-like well-circumscribed interradiolar radiolucent area, usually with a sclerotic margin, lying somewhere between the apex and the cervical margin of the teeth (1,6). Although uncommon, resorption of adjacent teeth has been reported (8). Loss of lamina dura and periodontal ligament space may be present (8). A swelling may occur on the buccal aspect, in which case the differential diagnosis might include a gingival cyst (2).

Histologically, the lateral periodontal cyst is lined by a thin non-proliferating cuboidal to stratified squamous non-keratinizing epithelium, ranging from 1 to 5 cell layers, and thus resembling the reduced enamel epithelium (1,6). The cyst wall and the lining are usually free of inflammation (4). The lateral periodontal cyst presents two main characteristic features, being (1,2,4,6):

a) the presence of epithelial thickenings or "plaques", which, according to Shear and Pindborg are an odontogenic recapitulation by odontogenic epithelium under pathological conditions (1,3);

b) the presence of glycogen-rich clear cells either in "plaques" or in the superficial layers of the lining epithelium.

The clinical and radiographic characteristics per se are not distinctive as diagnostic criteria for a diagnosis of lateral periodontal cyst. Actually, the WHO's "Histological typing of odontogenic tumours" has more or less changed the lateral periodontal cyst from a clinicoradiological entity into a histopathological one. In fact, today, the diagnosis of lateral periodontal cyst seems to be primarily based on histopathologic features. Therefore, when dealing with a radiographic and clinical diagnosis of residual cyst, the pathologist report

may occasionally be that of a lateral periodontal cyst, as was the case in the two presently reported patients.

The lateral periodontal cyst has characteristic histological features which separate it from other odontogenic cysts, and for that reason it seems preferable to define this cyst primarily based on the histopathologic features and to give less weight to its exact location in the jaw or its relation to the teeth.

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