

Unusual Clinicoradiographic Presentation of a Lateral Periodontal Cyst

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Abstract

The lateral periodontal cyst is an uncommon, but well-recognized type of developmental odontogenic cyst. Lateral periodontal cysts are defined as non-keratinized and non-inflammatory developmental cysts located adjacent or lateral to the root of a vital tooth. It is a relatively uncommon lesion found mostly in adults (5th to 7th decades) and it is rare in young people under 30 years of age. A common site of occurrence is the mandibular premolar region. It does not have a predilection for any race or sex. 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.

The purpose of this article is to report a case of interradicular radiolucent cystic lesion in a thirteen-year-old girl, located in a rare site of the maxillary premolar area, mimicking clinical and radiographical features of a residual cyst, but histopathologically proven to be a lateral periodontal cyst.

Key Words: Lateral Periodontal Cyst; Maxillary Premolar Area; Young Patient; Unusual Clinicoradiologic Presentation

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INTRODUCTION

The lateral periodontal cyst (LPC) is an odontogenic cyst with an unclear etiology [1]. Formation and development of LPC may result from following theories:

- Early dentigerous cyst which remains after tooth eruption.
- A primordial cyst (obsolete terminology).
- The cell rests of Malassez

d. Reduced enamel epithelium

e. Remnants of the dental lamina [1].

LPC is seen typically along the lateral surface of a tooth [2]. They have a high site predilection for inter-radicular areas and the mandibular canine-premolar region [1].

Most of the studies have reported a male preponderance [3].



Fig 1. Intra oral swelling between the periapical areas of 24 and 25



Fig 2. Inter radicular triangular radiolucency seen in an intra-oral periapical radiograph

LPCs with an incidence rate as low as 0.8% can often manifest as gingival tumefaction. It is usually diagnosed during routine radiography, but at times it may manifest as a buccal swelling on the gingiva creating an impression of a gingival cyst [4]. Their name reflects their position. They arise from the periodontium and extend into the interproximal bone inbetween the apex and alveolar crest next to a vital tooth [6]. Botryoid cysts represent a polycystic variant of LPC, first described in 1973 by Weathers and Waldron [7] and are characterized by the presence of a multilocular image [8].

CASE REPORT

A 13-year-old girl reported to the department of oral and maxillofacial radiology with a complaint of pain and swelling in the right side of the face of 3 days duration. Two weeks earlier the patient had pain in the same region for which she consulted a local physician. The pain subsided after she used antibiotics. No history of trauma, nasal discharge or ear discharge was detected. There was a history of swelling in the same region 4 years before that had regressed after pus discharge.

On examination, diffuse swelling was noticed in the left cheek area, measuring approximately 3×4 cm extending anteriorly up to the left

ala of the nose, posteriorly up to the anterior border of the left ramus, superiorly 2 cm from the infra orbital rim, inferiorly 2 cm above the left lower border of the mandible. The nasolabial fold was obliterated on the left side. The overlying skin was normal in color. On palpation, no local rise in temperature was observed.

The swelling was non-tender, soft in consistency and the overlying skin was pinchable. Submandibular lymph nodes were palpable bilaterally, tender and mobile. On intraoral examination, the mucosa apical to 24 and 25 showed diffuse swelling approximately 1×1 cm in size which was erythematous (Fig 1). The swelling was firm to hard in consistency and caused partial obliteration of the vestibular space in the same region.

The teeth were non-tender on percussion. On examination, normal complement of the teeth for the patient's age were present. Electric pulp testing showed no response with respect to 24 and 25. On radiographic examination, intraoral periapical radiograph showed mesially inclined root of 24 and distally inclined root of 25. A comparatively radiolucent interradicular triangular area was seen between 24 and 25, the base of the triangle was forming an upward arc. Roots of 24, 25, 26 and 27 showed incomplete apexogenesis (Fig 2).



Fig 3. Orthopantomograph

The panoramic radiograph showed tilt in the long axis of 24 and 25, the triangular area could not be visualized adequately (Fig 3). Radiographic differential diagnosis of lateral periodontal cyst include lateral radicular cyst, lateral periodontal cyst, botryoid odontogenic cyst, odontogenic keratocyst, unicystic odontogenic tumors.

On surgical exploration, a triangular mucoperiosteal flap was elevated, which showed a perforated buccal cortical plate (Fig 4). A cyst like lesion was present interdentially between 24 and 25. The cyst was enucleated and the area was thoroughly curetted. The space was filled with hydroxyapatite bone graft material and the flap was sutured back in place.

Histological examination of H&E stained slides showed a cystic lumen lined by stratified squamous non-keratinized epithelium of 3 to 4 cell-layer thickness. The surrounding connective tissue showed collagen fibres with lymphocytes (Fig 5).

The patient was followed up for a period of 6 months. Satisfactory healing of the lesion was noticed. Radiologic examination of the surgical site showed satisfactory uptake of the graft materials and osseous repair (Fig 6).

DISCUSSION

LPC occurs more commonly in the mandible, especially on the lateral aspect of premolar-

canine root surfaces [9]. In our case it was seen in relation to the lateral aspect of maxillary premolar region.

The histogenesis of the lesion remains unclear, and odontogenic epithelium has been ruled out as possible cause [10].

Most frequently the LPC presents as a unicystic radiolucency as noticed in the presenting case, but may be polycystic or multilocular [11].

Lateral periodontal cyst tends to occur intraosseously, but a gingival cyst appears to be attached to the gingiva. [6].

The associated symptoms are mild, and the diagnosis is generally established by means of a routine radiological examination, which reveals a radiolucent image less than 1 cm in size in most cases [8].

Our patient presented with symptoms of pain and swelling, following which radiographs were made and the lesion detected.

LPC is predominantly seen among males in their fifth or sixth decades of life [8].

Our patient was relatively young, 13-year-old female. LPC is diagnosed based on the exclusion of collateral keratocyst clinically and histopathologically, with radiographic evidence of a radiolucent lesion on the lateral aspect of an erupted tooth [12].

Radiographically the cysts appear small, with round or tear-drop-shape and usually has a



Fig4. Buccal cortical plate perforation in between periapical areas of 24,25 on elevating the flap

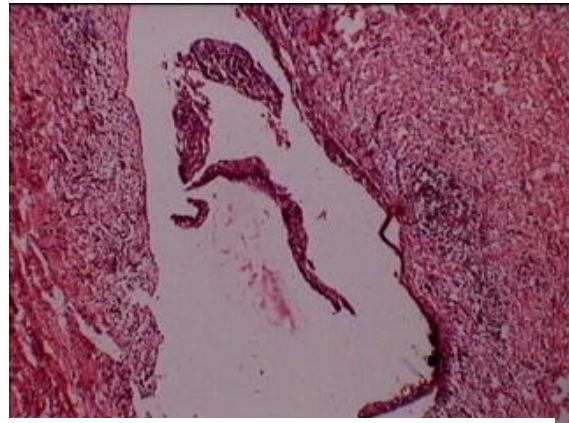


Fig 5. Histopathology examination showing cystic lumen lined by stratified squamous non keratinised epithelium



Fig 6. Satisfactory healing after 6 months

marginated hyperostotic border [6].

In the present case, the teeth involved were non vital and radiographically no distinct hyperostotic border was noticed.

The LPC presents two main characteristic features, those being:

- a) The presence of epithelial thickenings or “plaques”, which, arise from odontogenic epithelium under pathological conditions;
- b) Foci of glycogen-rich clear cells interspersed either in “plaques” or among the lining epithelium [13].

The clinical and radiographic characteristics are not considered as diagnostic criteria for the

diagnosis of lateral periodontal cyst [5].

Histopathological features of LPC include a thin cuboidal or stratified non-keratinising squamous epithelium about 1 to 5 cells in thickness and resembles reduced enamel epithelium [13]. The cyst wall as well as the cyst lining are usually non-inflamed [5].

Differential diagnosis of LPC will include gingival cyst, lateral radicular cyst, lateral (inflammatory) periodontal cyst, odontogenic keratocyst, radiolucent odontogenic tumors, and benign mesenchymal tumors [6].

The focus has to be laid especially on its clinical variant, the botryoid odontogenic cyst which usually shows a multilocular radiographic appearance, but may appear unilocular also [2]. Reccurrence is unusual in lateral periodontal cyst [2]. But submission of surgically excised tissues for histopathologic evaluation is important, due to a rare case reported of well-differentiated squamous-cell carcinoma arising in the epithelial lining of a LPC [14]. The WHO’s “Histological typing of odontogenic tumours” has changed the criteria for diagnosis of LPC from a clinicoradiological entity into a histopathological one [5]. Unlike other odontogenic cysts LPC has distinct histopathological features which define its diagnosis [5].

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