

Case Report

Lateral periodontal cyst with unusual clinical features--- A Clinico-pathologic study

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ABSTRACT:

Lateral periodontal cysts are rare, asymptomatic odontogenic cysts with unusual occurrence. Although radiographic findings reveal unilocular, radiolucent regions between mandibular lateral incisors and canines, definitive diagnosis is made only by histopathological findings. Microscopic findings reveal clusters of cells, also called as plaques or theques, which are largely glycogen rich, and are positive for periodic stains. The radiographic findings of lateral periodontal cyst reveal pear shaped radiolucency between roots of vital teeth. The treatment of choice is surgical removal and histopathological evaluation confirms the diagnosis. Relapses are infrequent. The purpose of this paper is to discuss about histopathological aspects of lateral periodontal cysts and role of special stains in their diagnosis.

Key words: Odontogenic cysts, Radiolucent lesions, Enucleation, PAS stains.

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INTRODUCTION

The lateral periodontal cyst is a relatively uncommon odontogenic cyst of developmental origin 1,2 and 3. These cysts are now considered to be an independent entity since the World Health Organization (WHO) classified them as such in the 1992 monograph on "The Histological Typing of Odontogenic Tumors." The first well-documented case of a lateral periodontal cyst was reported by Standish and Shafer in 1958. . The diagnosis of lateral periodontal cyst is primarily based on some characteristic histopathologic features. LPC is one of the cysts of lower incidence among developmental odontogenic cysts. Since pain or other clinical symptoms have seldom been reported, the lesion is often discovered on routine radiographic examination^{4, 5}. Radiographs of the lateral periodontal cyst show a well-circumscribed round or ovoid radiolucent area, usually with a sclerotic margin.

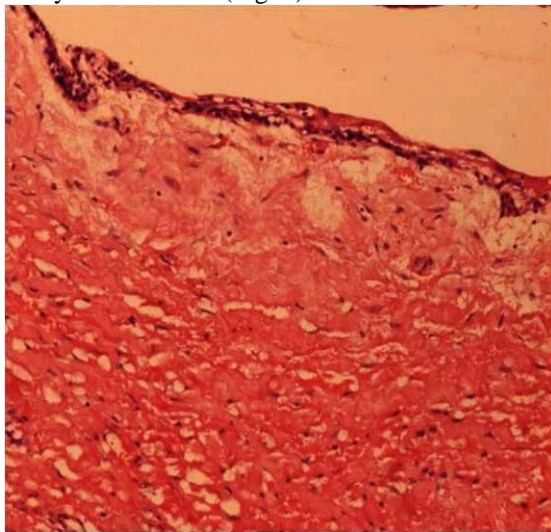
This paper reports unusual case of LPC which was symptomatic with extraoral swelling in angle of mandible

CASE PRESENTATION

30 year old, married female patient reported to the Oral diagnosis unit of Dr Z.A. Ziauddin College, Aligarh, India with a two-year history of growth in right mandibular premolar region. Clinical examination revealed extra-oral mass located in the region corresponding to angle of mandible. Intra-oral examination there was mild tenderness in premolar region. Radiograph of the area shows a well circumscribed, unilocular, pear shaped radiolucency between the roots of first and second premolar region (Fig: 1).



Surgical removal of the lesion, which was easily separated from the surrounding bone, revealed a nodule of rubber-like consistency measuring few cms in diameter. The surgical specimen was sent for histopathologic analysis, which showed a single cavity lesion lined by epithelium of variable thickness, so with one or two layers of cuboid cells. Some areas formed thick clusters of cells more voluminous than rest of cells. Few sections showed thickenings generally formed by oval, sometimes entangled, plaques. The capsule consisted of fibrous tissue with adequate collagen. There was no evidence of any inflammation (Fig: 2).



The histological diagnosis of the tissue supported the diagnosis of LPC.

DISCUSSION

Here we report a case of unusual clinical features of LPC, as it was symptomatic with extra-oral swelling. These features are very rare in LPC and can cause difficulty in diagnosis.

LPC is considered as developmental odontogenic cyst with unusual occurrence usually associated with vital teeth.^{6,7} LPC represents approximately 0.8% to 2% of all odontogenic cysts^{8,19}. LPC is more prevalent in adults in the 5th - 7th decades, with equal sex predilection¹⁰. The most frequently

reported location is mandibular premolar area, followed by the anterior region of maxilla^{6,8}. Most of the studies have found LPCs to be less than 1 cm in diameter^{11,12,13}

LPC may arise from reduced enamel epithelium, remnants of dental lamina and cellular remnants of

Malassez^{14,15}. The first hypothesis is that the cyst is lined by non-keratinized epithelium, which resembles reduced enamel epithelium and may be the source of origin. One more hypothesis believes dental lamina remnants important for its origin, based on the fact that LPC histo-pathologically presents glycogen-rich clear cells, which are also seen in the dental lamina. Some believe that epithelial remnants of Malassez are important in its etio-pathogenesis. Clinically, LPCs are differentiated from inflammatory cysts and keratocystic odontogenic tumours on basis of clinical, radiographic and microscopic findings.^{16,17,18} This type of cyst should not be confused with a radicular cyst in a lateral position developing as a consequence of inflammation from infected or necrotic branch of the pulp canal. Clinically, there must not be a communication between the cyst's cavity and the oral environment^{19, 20, 21}. In order to establish the proper diagnosis, an inflammatory origin as well as exclusion of a possible odontogenic keratocyst must be ruled out clinically and histologically. Occasionally, LPC may be multicystic, and called as odontogenic botryoid cyst, because macroscopic features resemble "bunch of grapes" (from the Greek word "botrios")²². It is believed to have high recurrence rate²².

Radiographically, the cyst presents as a well circumscribed round or teardrop-shaped radiolucent area with a radiopaque rim, located laterally to the root of a vital tooth. The periodontal ligament space doesn't show any abnormality. X-ray findings resemble anatomic radiolucencies, such as the mental foramen, maxillary sinus and the nutrient canals, radicular cysts or other cysts of the jaws. It may resemble a cyst that develops laterally through a side channel accessory in a non vital tooth¹². Histopathologically, LPC is a developmental cyst characterized by a thin layer of nonkeratinized epithelium with a thickness of 1 - 5 mm, which resemble the reduced enamel epithelium^{14, 21}. Nonkeratinized squamous epithelium is composed of 1 - 5 layers of cells displaying a palisade distribution. The epithelium lining can be rich in epithelial plaques composed of the clear fusiform cells rich in glycogen. Some areas of the epithelial thickening, referred to as plaques or theques, are commonly found, and the connective tissue subjacent to the epithelium exhibits a zone of hyalinization. The walls of the cyst consist of mature collagen fibrous tissue^{12, 21}. A rare variant of LPC, Odontogenic botryoid cyst has higher rate of recurrence^{23, 24} and unusual presentation^{25, 26}. Histopathological findings reveal multiple cystic spaces lined by

nonkeratinized stratified squamous epithelium^{14, 25}. LPC is believed to cause isolated bone defects according to some studies²⁵.

The treatment of the lateral periodontal cyst is surgical ablation and if at all possible the affected tooth should be preserved, which sometimes is difficult^{13, 17}. The recurrence is uncommon with good prognosis.

CONCLUSION

Lateral periodontal cysts although easy to diagnose pose challenges occasionally due to clinical resemblance with alveolar abscess or reactive lesions. PAS stains readily help in differentiating LPC from reactive lesions due to their ability to selectively stain different epithelial components of Lateral periodontal cysts LPC is an uncommon intra-osseous cyst that is predominantly located in the interradicular space between mandibular vital premolars. However, it can rarely present as symptomatic swelling with tenderness in premolar region. Therefore, as supported by the WHO, it would be preferable to primarily define LPC based on its specific histological features and secondarily on its clinical, radiological, and epidemiological characteristics, which are less consistent.²⁶

COMPETING INTERESTS

The authors declare that they have no competing interests.

AUTHORS' CONTRIBUTIONS

All authors read and approved the final manuscript.

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