

## Lateral periodontal Cyst Case Report -A Discrepant to Customary with Review of Literature

Gadadasu Swathi\*, B Venu Naidu<sup>1</sup>, K V Lokesh<sup>2</sup>, T Reshmi<sup>3</sup>

\*Assistant Professor,<sup>1,2</sup>Associate Professor,<sup>3</sup>Consultant And Independent Academician

<sup>\*,2</sup>Department Of Oral Medicine And Radiology,

<sup>3</sup>Oral Medicine And Maxillofacial Radiology,

<sup>1</sup>Department Of Oral And Maxillofacial Pathology,

Anil Neerukonda Institute of Dental Sciences, Visakhapatnam

**\*Corresponding Author:**

**Dr. Gadadasu Swathi**

Assistant Professor, Department of Oral Medicine and Radiology,

Anil Neerukonda Institute of Dental Sciences, Visakhapatnam

Type of Publication: Original Research Paper

Conflicts of Interest: Nil

### Abstract

Lateral periodontal cyst is a developmental cyst, most commonly located in mandible cuspid-bicuspid region and very rarely seen in mandible. It may develop initially as dentigerous cyst progressing into expansion of follicle in lateral aspect of a vital tooth. It is mostly originated from periodontium of tooth; thus, the name implies. The incidence of lateral periodontal cysts has been reported to be less than 1% and these cysts represent nearly 0.8% of all central cysts of the maxillary bone. The most prevalent radiographic picture is to lateral to a vital tooth with well circumscribed radiolucency with sclerotic border. Here we present a case which mimicked radicular cyst clinically and radiographically and to the beyond of a shot, turned out to be a Lateral periodontal cyst.

**Keywords:** Lateral periodontal cyst, incidental finding, radiographic features, diagnosis, treatment plan

### Introduction

World Health Organization classified Odontogenic cysts are as inflammatory and developmental according to their epithelial lining. Lateral periodontal cysts (LPC) have been regarded as an independent condition. LPCs are defined as nonkeratinized and non-inflammatory developmental cysts located adjacent or lateral to the root of a vital tooth. This cyst's most frequent location is at the level of mandibular premolars but it has been reported occurring in the other areas.<sup>[1]</sup>

LPC has least occurrence in 1% of odontogenic cyst in jaws. Predominance is mostly seen in males ranging from 40-70 years. The most common site of occurrence is mandible premolar-molar region followed by mandible anterior region, followed by

maxillary anterior region. The main aetiology of occurrence ought to be multifactorial, some claim it is due to cell rests of malassez or due to dental lamina. Here is a case report of female patient who came with complaint food lodgement in lower mandibular region which rose up as lateral periodontal cyst in histopathological examination.<sup>[1-3]</sup>

### Case Description-

A 24 years female patient came with a chief complaint of food lodgement in lower left back tooth region (fig 1). Personal history, medical history and family history are irrelevant. There are no evident palpable lymph nodes observed. On intraoral examination, grossly decayed tooth of 36 was noticed. There is no tenderness on percussion or vestibular obliteration or vestibular tenderness. There

is a pit on palatal aspect of 22. Both 38 and 48 were not visible clinically. Cusp tip of 38 was visible.

There is food lodgement in proximal region of 35 and 36. (fig 2)



**FIG 1-PROFILE PICTURE**

Radiovisiography image of 35 36 37 was prescribed (FIG 3) depicting dental caries involving pulp was noticed in relation to 36& radiolucency at periapical region of 36 with evident cortical border on superior aspect. This aspect failed to cover entire lesion. So, on OPG, (FIG 4) there was a well-defined solitary radiolucency measuring about 2cm anteroposterior and 1cm superior-inferiorly at apical region of 36 tooth surrounded with cortical border. Resorption or displacement of roots was not evident. There is



**FIG 2-INTRAORAL PICTURE**

localised bone loss noticed in region of 35,36,37region,15,16 region,25,26 region. Electric Pulp vitality test was done revealing nonvital in relation to 36. Fine needle aspiration was tried but couldn't able to insert needle. Based on investigations performed, lesion was suspected to be Radicular cyst. The differential diagnosis can be rarefying osteitis, traumatic bone cyst, central ossifying fibroma(initial stage),cementoosseous dysplasia(initial stage).



**FIG 3-INTRA ORAL PERIAPICAL RADIOGRAPH**

Excisional biopsy was performed and histopathological examination done depicting thin

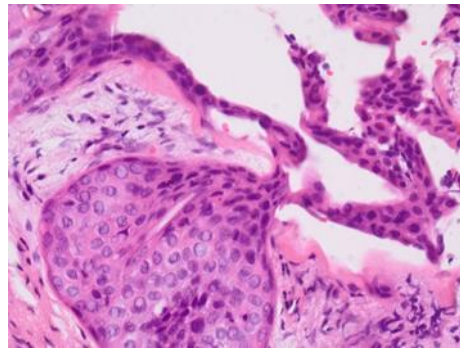


**FIG 4-ORTHOPANTAMOGRAP**

non keratinised stratified squamous epithelium arranged in 3-4 layers thickness with evidence of

clear cells. Diffuse mixed inflammatory cell infiltrate of plasma lymphocytic type with neutrophils were

seen giving final diagnosis as Lateral periodontal cyst.(FIG 5).



**FIG 5 Histopathological picture**

### Discussion

Lateral periodontal cyst is defined as the cyst occurring in the lateral periodontal position and in which an inflammatory aetiology and a diagnosis of collateral primordial cyst have been excluded on clinical and histological grounds.<sup>[4]</sup> Standish & Shafer first discovered LPC in 1958. In the 1973, Wysocki *et al.* advocated it as a representation of intra-bony presentation of the gingival cyst of adults. Botryoid odontogenic cyst, rare form of LPC was pioneered by Weather and Waldron. It was named due to its appearance as a bunch of grapes. Wysocki *et al.* postulated that cystic transformation of multiple islands of dental lamina gives rise to the polycystic variant.<sup>[4]</sup>

Lateral periodontal cyst is an unusual cyst in jaws for which no clear etiology was advocated. Many others gave different theories explaining origin and development of cyst. Shafers postulated that it was a form of lateral dentigerous cyst but when eruption pattern was normal, expanded follicle was left on lateral side of tooth. Some postulated that LPC may originate from Cell rests of Malaseez which are present in periodontium. But research material supporting this is scanty. Buchner and Hanssen postulated morphological similarities between LPC and gingival cyst. In case of LPC, the reduced enamel epithelium detaches early in the process of tooth eruption, post-functional epithelium after eruption of a tooth may give rise gingival cyst. Hence the LPC is developing inside the alveolar process & the gingival cyst is situated outside the alveolar process.<sup>[5]</sup>

Epidemiologically, the LPCs present at a low frequency constituting about 0.8–1.5% of all the maxillary cysts, without a distinct gender predilection. They are differentiated from inflammatory cysts and keratocystic odontogenic tumours on basis of clinical, radiographic and histopathological findings.<sup>[6]</sup> The LPC is most commonly known to occur at a mean age of 50 years (22-85 years) and is more common in males. The age of the present case was more or less consistent with the mean age of occurrence of an LPC. However, the reported LPC occurred in a female patient, which is not common. It most commonly shows the predominance in the mandibular canine-premolar region (present case in molar region), followed by the mandibular incisor region (67%) and then in the maxillary anterior teeth (33%). The majority of cases have no signs and symptoms; it is revealed on routine radiographic examination where occasionally a swelling is appreciated on the labial or buccal surface of the teeth and the involved teeth are always vital (in present case it was associated with a nonvital tooth).<sup>[4]</sup>

The characteristic radiographic appearance of LPC is the well-defined mostly unilocular radiolucency not more than 1cm in diameter surrounded by sclerotic border, most frequently noticed on lateral aspect of a healthy vital tooth. Well, present case was a complete contrast to a routine scenario that made it a unique one. In present case lesion was larger than usual with cortical border around lesion. LPC usually cause displacement of teeth which was absent in present case.<sup>[5]</sup>

Differential diagnosis of Lateral periodontal cyst were lateral radicular cyst, gingival cyst, odontogenic keratocyst, odontogenic tumours and benign mesenchymal tumours.<sup>6</sup> In contrast due to complete unique clinical & radiographic appearance differential were given as rarefying osteitis, traumatic bone cyst, central ossifying fibroma (initial stage), cement osseous dysplasia (initial stage).

The classical histopathological features like the presence of epithelial remnants originating from the dental lamina (known as rests of Serres), and by the visualisation of epithelial plaques composed of clear fusiform cells (rich in glycogen). LPCs are lined by a non-keratinised squamous epithelium composed of 1–5 layers of cells demonstrating clear cells stained by periodic acid schiff (PAS) that are glycogen-rich cytoplasmic cells which are usually. The other characteristic features include subepithelial hyalinization, remnants of dental lamina in the connective tissue (sometimes), and the rete pegs are usually devoid of inflammatory cells (except in secondary infection), thick, fibrous, and non-inflamed cyst wall. The cyst on FNAC usually yields a straw-coloured fluid.<sup>[1-3]</sup> FNAC of present case gave negative aspiration.

Treatment of LPC usually involves conservative surgical enucleation of the cyst and curettage to eliminate any remnants. In the majority of the cases, the associated teeth are vital, so will be left accordingly.<sup>[7]</sup> In present case cyst was enucleated and curettage and respective nonvital tooth was endodontically treated.

In spite of conservative management of LPC, surgical enucleation may cause a dead space and major bony defect back in bone that later can cause various periodontal problems. Wide variety of tissue regenerative techniques have been proposed to attain required postoperative periodontal health following surgical treatment of LPC. Guided Bone Regeneration (GBR) is commonly used for the treatment of periodontal bone defects and alveolar ridge augmentation prior to implant placement, wherein regeneration of an osseous defect is achieved within 6-10 months by placement of an osteo-conductive bone substitute material in the defect and covering it with a barrier membrane. While several osteo-conductive materials including tri-calcium phosphate, hydroxyapatite, xenograft and

deproteinized allograft and are reportedly used in GBR, a resorbable collagen barrier membrane (RCM) is preferred. In addition to preventing fibrous tissue invasion into the osseous defect, RCM enables haemostasis and neovascularization and promotes attachment of osteoblasts. In present case xenograft with RCM was placed to fill empty bony cavity. Patient was called after 6 months and one year with evidence of good bony healing.<sup>[7,8]</sup>

Recurrence of LPC is very rare about 3-4 % with botryoid type with highest recurrence of about 30-40%, often require regular follow-up.<sup>[4]</sup> In present case no recurrence noted even after one year, second year of follow up.

### Conclusion

LPC is a rare anomaly representing in jaws. It is most frequently asymptomatic and becomes incidental finding on radiographs. The diagnosis of LPC is mostly depends on radiographical and histopathological examinations. The lesion in present case had a unique presentation at apex of nonvital tooth which ought to be turned as LPC on H&E examination. Any Lesion in oral maxillofacial region don't presume to their normal presentation as depicted in literature. Wide variety of clinical, radiographical and H&E examination are evident. The paramount decision has to be taken in accordance with histology as it the Golden standard of Diagnosis. Henceforth, to diagnose any lesion thorough update of recent literature with plenary of knowledge with integrated approach can help to arrive at a proper diagnosis.

### References

1. Shear M. Cysts of the jaws: recent advances. *J Oral Pathol.* 1985 Jan;14(1):43-59. Review. [Medline: [3918153](#)][doi: [10.1111/j.1600-0714.1985.tb00465.x](#)]
2. Shafer , Hine , Levy , Text book of oral pathology 8th edition 4 page 264
3. Neville ,Damm , Allen , Bouquot ,oral& maxillofacial pathology 2nd edition 15 page 602
4. Adamala SR, Talla H, Medikonda SK, Soujanya S. Lateral periodontal cyst: An outlandish anamnesis. *J Indian Acad Oral Med Radiol* 2014;26:351-4.



5. Sarkar S, Khursheed O, Bansal R, Gaur A. Lateral Periodontal Cyst: A Case Report. *J Adv Med Dent Scie Res* 2015;3(2):119-122
6. Byatnal A, K P, Rukmangada T, Koppal S. An unfamiliar presentation of a lateral periodontal cyst. *Case Reports*. 2013;2013(oct09 1):bcr2013200852-bcr2013200852.
7. Ramalingam S, Alrayyes Y, Almutairi K, Bello I. Lateral Periodontal Cyst Treated with Enucleation and Guided Bone Regeneration: A Report of a Case and a Review of Pertinent Literature. *Case Reports in Dentistry*. 2019;2019:1-8.
8. Almehmadi A. MANAGEMENT OF LATERAL PERIODONTAL CYST EMBEDDED IN BONE. *Egyptian Dental Journal*. 2019;65(4):3505-3510.