



## Lateral Periodontal Cysts: A Retrospective Study of 7 Cases

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### KEYWORDS

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### ABSTRACT:

**Aim-** The study aimed to outline the clinical, radiographic, and histopathological attributes of lateral periodontal cysts in patient cases.

**Materials and methods-** An observational retrospective study was conducted on 7 lateral periodontal cyst cases, all diagnosed after comprehensive clinical, radiological, and subsequent histological examinations.

**Results-** Patients averaged 35 years in age, with a slight male predominance. The average lesion size was 1.5 cm. A solitary case of relapse was noted 4 years post-initial lesion removal. Surgical removal was the chosen treatment for all cysts.

**Conclusion-** Lateral periodontal cysts are rare occurrences marked by the maintenance of vitality in neighbouring teeth. While initial identification relies on clinical observations, a histological examination is essential for definitive diagnosis confirmation.

### Introduction

Lateral periodontal cysts (LPCs) are categorized by the World Health Organization as developmental odontogenic cysts distinct from inflammatory types. These non-keratinized, non-inflammatory cysts are positioned adjacent to or laterally from the root of a vital tooth, with a primary occurrence in the mandibular premolar region, though reports indicate their presence in other areas.<sup>1</sup>

Typically discovered incidentally due to their asymptomatic nature, LPCs are usually identified through routine radiographic examinations. Radiographically, they manifest as well-circumscribed round or ovoid radiolucent areas with a sclerotic margin, often measuring less than 1 cm in diameter.<sup>2,3</sup>

Histologically, LPCs display a unique thin, non-keratinized epithelium usually with 1 to 5 cell layers resembling the reduced enamel epithelium.<sup>4</sup> The epithelial lining may exhibit focal thickenings or plaques containing glycogen-rich clear cells, with an underlying connective tissue showing hyalinization.<sup>5</sup>

The distinct characteristics of LPCs necessitate a careful differential diagnosis, particularly from lesions of endodontic and periodontal origin as well as other cysts within the same group. The pathogenesis of LPCs, gingival cyst of the adult, botryoid odontogenic cyst, and glandular odontogenic cyst might be interconnected. Some authors argue that LPCs and the gingival cyst of the adult share a common histogenesis, suggesting similarities in their extra-osseous and intra-osseous



characteristics, respectively.<sup>6,7</sup> The study aimed to outline the clinical, radiographic, and histopathological attributes of lateral periodontal cysts in patient cases.

## Materials and methods

This retrospective observational study examined 7 lateral periodontal cysts (LPCs) identified through histological biopsies that adhered to specific diagnostic criteria. These criteria included the detection of Serres' rests, squamous non-keratinized or cuboidal epithelium spanning one to three cell layers, and epithelial plaques comprised of fusiform clear cells. The data collection process encompassed several parameters such as age, gender, lesion size, variant, location, administered treatment, histopathological characteristics, follow-up duration, and the occurrence of relapses.

## Results

The study found that the average age of patients with lateral periodontal cysts (LPCs) was 35 years, with ages ranging from 18 to 75 years. In all cases, the lesions were incidentally diagnosed during routine radiological studies performed for other reasons. Panoramic radiography revealed rounded or oval radiolucent images, typically located at the mandibular premolar level or in the anterior region of the upper maxilla. In the upper maxilla, an inverted pear-like shape was prevalent in 2 cases, with the lesions clustered in the anterior sector beside lateral incisor. Regarding the mandible, 4 lesions were situated in the canine-premolar region. The lesion sizes ranged from 0.5 to 2 cm in diameter, with an average of 1.5 cm, and the larger lesions were predominantly identified in the upper maxilla. In all cases, the treatment involved surgical removal of the lesions, followed by histological evaluation. No endodontic treatment or periapical surgery was performed, as all affected teeth were found to be vital. A solitary case of relapse was noted 4 years post-initial lesion removal. Surgical removal was the chosen treatment for all cysts.

## Discussion

Lateral periodontal cysts (LPCs) are characterized as developmental odontogenic cysts with a unique occurrence that can be linked to vital teeth. They constitute approximately 0.8% to 2% of all odontogenic cysts. Research indicates that LPCs are more commonly observed in adults between the 5th and 7th decades, with

an average age of 52 years, showing no specific predilection for race or gender.<sup>8</sup> Radiographically, they appear as well-circumscribed round or teardrop-shaped radiolucent areas, generally not exceeding 1 cm in diameter, particularly located laterally to the root of a vital tooth. Histopathologically, LPCs are characterized by thin non-keratinized epithelium, 1-5 layers thick, with palisade distribution and hyalinization. While LPCs usually do not grow extensively, distinguishing them from lesions of inflammatory or cystic origins is essential. There may also be confusion with cysts that develop from inflammatory processes during advanced periodontal disease.<sup>9,10</sup> The soft tissue variant of LPC corresponds to the adult gingival cyst and shares similar characteristics though it grows in soft tissues, not bone. LPCs can be confused with more aggressive keratocystic odontogenic tumors, demanding more invasive treatments due to their infiltrative growth and high recurrence rates. Enucleation is the common treatment for LPCs with rare cases of recurrence, especially in the botryoid variant.<sup>11,12</sup> A histological examination is crucial for confirming a diagnosis of LPC. There have been instances where lesions clinically presumed to be developmental cysts were found to be malignant upon histological evaluation. For instance, a case reported by Svirsky et al. initially diagnosed as a lateral periodontal cyst was later identified as a metastatic carcinoma upon biopsy, emphasizing the critical role of histopathological assessment in accurately diagnosing such lesions.<sup>13</sup>

## Conclusion

Lateral periodontal cysts are rare occurrences marked by the maintenance of vitality in neighbouring teeth. While initial identification relies on clinical observations, a histological examination is essential for definitive diagnosis confirmation.

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