Journal of Dentistry and Oral Biology

Case Report
Published: 31 Mar, 2022

Odontogenic Cysts of Oral Cavity: Lateral Periodontal Cyst: A Case Report with a 14-Year Follow-Up

Alparslan Dilsiz and Sema Nur Sevinc Gül*

Department of Periodontology, Atatürk University, Turkey

Abstract

Lateral Periodontal Cysts (LPCs) are defined as non-keratinized and non-inflammatory developmental cysts located adjacent or lateral to the root of vital teeth. There have been a few cases reported of outcomes of treatment of LPCs. The purpose of this study was to illustrate the case of LPC in a patient and to describe the successful treatment of this case.

A 19-year-old Turkish boy was referred by his dentist to the periodontology clinic of the Faculty of Dentistry in July 2008, for the treatment of cyst in the lower right premolar region. The diagnosis of LPC suggested clinically and radiographically was confirmed by the histopathological study. Treatment consisted of oral hygiene instruction, periodontal treatment and enucleation of cyst. Four weeks after surgery healing was occurred and fourteen years later area of the lesion appeared completely normal as clinical and radiographically. The LPC was treated successfully by surgical periodontal treatment.

Keywords: Odontogenic cysts; Developmental cyst; Lateral Periodontal cyst; Non-Surgical periodontal Debridement; Enucleation

Introduction

The differential diagnoses of radiolucencies that occur in the jaw bones include a broad spectrum of cysts and tumors of odontogenic and non-odontogenic origin. Odontogenic cysts are one of the most common lesions affecting the maxilla and mandible. Based on their origin and pathogenesis, odontogenic cysts are best classified as inflammatory and developmental [1,2]. Lateral Periodontal Cyst (LPC) is an uncommon developmental odontogenic cyst, representing less than 1% all cysts of the jaw bones [1-3]. LPC is defined as a radiolucent lesion which develops along the lateral aspect of an erupted vital tooth, in which an inflammatory etiology has been excluded, based on clinical and histological features [4-9].

The clinical manifestations tend to be mild, and the diagnosis is generally established by means of a routine radiographic examination [10-20]. Radiographically, LPCs usually present as unilocular, well-defined, oval or teardrop-shaped radiolucencies between the roots of teeth, and they are smaller than 10 mm in diameter [5,15]. Histological features of these cysts are characterized by the presence of epithelial remnants originating from the dental lamina, and by the visualization of epithelial plaques composed of clear fusiform cells (rich in glycogen). LPCs are delimited by a cubic or non-keratinized squamous epithelium composed of 1-5 layers of cells displaying a palisade distribution [1,2]. The pathogenesis of the LPC 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 [4-10].

LPC was first described by Standish and Shafer in 1958 [19]. Since then, several cases of LPC have been reported in the literature [5-20]. These reports are single case reports or series with limited number of cases and most follow-up information of its, are not available. Therefore, the purpose of this study was to illustrate the case of LPC in a patient and to describe the successful treatment of this case. This case has been reported in accordance to the SCARE criteria [21].

Case Presentation

In July 2008, a 19-year-old Turkish boy was referred by his dentist to the periodontology clinic of the Faculty of Dentistry, Atatürk University, for the evaluation and treatment of radiolucent lesion in the lower right premolar region.

The patient's medical history was non-contributory; he did not take any medications, had no

OPEN ACCESS

Correspondence:
Alparslan Dilsiz, Department of Periodontology, Atatürk University, 25240-Erzurum, Turkey, Tel: +90 442 2313967; Fax: +90 442 2361375; E-mail: aydilsiz@yahoo.com

Received Date: *18 Feb 2022*
Accepted Date: *18 Mar 2022*
Published Date: *31 Mar 2022*

Citation:
Dilsiz A, Sevinc Gül SN. Odontogenic Cysts of Oral Cavity: Lateral Periodontal Cyst: A Case Report with a 14-Year Follow-Up. J Dent Oral Biol. 2022; 7(2): 1193.

ISSN: 2475-5680

Figure 1: a) Panoramic radiography showing LPC located in the mandible between the right first premolar and second premolar. **b**) Clinical view of the associated region. **c)** Intra-operative view following surgical removal of a LPC in the right mandible. **d)** Histopathological specimen; (x40 magnification, HE staining). **e)** Postoperative result 14-year following surgical periodontal therapy. **f)** Postoperative panoramic radiography view fourteen years after surgical periodontal therapy.

known allergies, and was non-smoker. The patient reported that the lesion was discovered as an incidental finding by his dentist during the radiographic examination (Figure 1a). The patient denied pain or any other symptoms.

On intra-oral examination, there was a moderate gingival bleeding and gingival reddish associated with accumulation of dental plaque and the gingival tissues were swollen (Figure 1b). Other findings included a mild supra-gingival calculus around his teeth, presence of carious lesions and tooth mal-positioning of right premolar teeth. The periodontal pocket and gingival recession were not detected in the associated region. Two teeth adjacent to the lesion were not mobile and a diastema had not formed between 44 and 45 teeth. The teeth were not sensitive to percussion. The teeth showed normal response to thermal (cold) test and were found to be vital to electric pulp testing.

A panoramic radiography revealed radiolucent, a well-circumscribed, unilocular lesion, located in the mandible; laterally and between the roots of the right lower first- and second-premolar, measuring about 5 mm × 10 mm in diameter. Loss of lamina dura surrounding the adjacent teeth was observed. Resorption of adjacent teeth was absent. In addition, a slight divergence of the roots of the teeth was observed (Figure 1a). It was provisionally diagnosed as a LPC of developmental origin. Written informed consent was obtained from the patient after all treatment procedures had been fully explained.

Before the surgical therapy of the cyst, the patient underwent scaling; root planning, and crown polishing. The patient was educated regarding good oral hygiene maintenance practices.

Surgical Procedure

Periodontal surgery was done under strict aseptic conditions using local anesthesia (Ultracaine DS Forte®, Hoechst Roussel, and Frankfurt, Germany). A crevicular incision was made around the labial surfaces of the mandibulary right first- and second-premolar, and a vertical incision was made the mesial aspect of first-premolar, a full-thickness flap was elevated to expose the bone. The lesion was completely excavated and irrigated with saline solution (Figure 1c). The flap was sutured with 3-0 non-resorbable silk suture and covered with periodontal dressing. Histopathological examination showed the typical features of a LPC (Figure 1d). After having undergone clinical and radiographical examinations and laboratory evaluation in the pathology department, he was diagnosed as having LPC.

The patient was prescribed analgesics (Apranax®, Abdi İbrahim Drug Ltd., Istanbul, Turkey) every 12 h, 5 days, and instructed to rinse twice daily with 0.12% chlorhexidine rinse (Kloroben®, Drogsan Drug Ltd., Istanbul, Turkey) for 2 weeks postoperatively and to avoid trauma or pressure at the surgical site. Toothbrushing activities in the operated sites were discontinued during this time. The sutures were removed 10 days after surgery, home care instructions were given. Professional prophylaxis was done weekly for the first month and then at 6-month interval.

Clinical Observations

Four weeks following surgery, the affected area had completely healed, and there were no complications. The patient's plaque control was good, although moderate tooth staining was apparent. The patient was periodically observed until fourteen years after our treatment began. Follow-up of the case, fourteen years after operation, showed uneventful recovery and spontaneous regeneration of bone in panoramic radiography (Figure 1e, 1f).

Discussion

The LPC is an uncommon developmental odontogenic cyst, which develops in the alveolar bone along the lateral surface of vital teeth [4,7,13]. The lesion is often discovered on routine radiographic examination, since pain or other clinical symptoms have seldom been reported, as was observed in this case. However, the lesions can present a gingival swelling during their development and growth [9,12]. The adjacent teeth are characteristically vital, unless non-vital for other reasons.

Developmental LPC is more common in adults. The patient age range is broad, although there is a clear predominance of males in the fifth or sixth decade of life [3,5,17]. Most LPCs are located in the mandibular premolar area, followed by the anterior region of the maxilla [10-17]. The case described here demonstrates that an adolescent male patient has a LPC in the mandibular right premolar

region.

Radiographs of the LPC show a well-circumscribed radiolucent area, usually with a sclerotic margin [1,2]. Loss of lamina dura and periodontal ligament space may be noted [13,14]. Divergence of the roots is a common, especially with larger LPCs, but resorption of adjacent teeth has not be documented [2,6]. Most of lesion are smaller than 10mm in diameter and are located on the cervical margin of the tooth [15]. In the present case, radiographic features of LPC were observed.

While clinical and radiographic assessments are necessary, the diagnosis of LPCs is ultimately dependent on histopathologic findings [1]. There have been reports of lesions clinically diagnosed as corresponding to developmental cysts, but which were found to be malignant lesions in the histological study [22]. This illustrates the importance of histopathological evaluation. Therefore, histopathological examination was done in our case.

The differential diagnosis of LPC includes gingival cyst, radicular cyst, and odontogenic keratocyst/keratocystic odontogenic tumor. The gingival cyst is a rare soft tissue odontogenic cyst that presents similar epidemiological features to the LPC. In contrast, there are no radiological findings for the gingival cysts [1,6,11]. In most cases the differential diagnosis must be established with radicular cysts, in view of their high frequency. These lesions are characterized by necrosis of the affected teeth, as a result of which vitality testing proves negative [6]. The LPC must be distinguished from lateral radicular cysts in order to avoid unnecessary endodontic therapy. In the present case, detailed clinical and radiographic exams were carried out.

In the case presented here, treatment of the LPC was done surgical periodontal therapy. The treatment of LPC normally entails complete enucleation/curettage of the lesion [3,5,11]. A careful approach is needed to avoid damaging the adjacent root during the surgery. It is important to point out that information about follow-up was not available or the follow-up was relatively short [5]. Therefore, the true recurrence rate of LPCs may well be unclear. Our patient was scheduled for regular follow-up visits and recurrence of lesion was not observed during the fourteen years.

Conclusion

The LPC was treated successfully by surgical periodontal treatment. Histopathological evaluation is essential for this lesion, since it is the only way to discard a malignant process. Long term follow-up of patients would be prudent.

References

1. Soluk-Tekkeşin M, Wright JM. The World Health Organization Classification of odontogenic lesions: A summary of the changes of the 2017 (4th Ed). Turk Patoloji Derg. 2018;34(1).
2. Kramer IR, Pindborg JJ, Shear M. The WHO histological typing of odontogenic tumors. A commentary on the Second Edition. Cancer. 1992;70(12):2988-94.
3. Chrcanovic BR, Gomez RS. Gingival cyst of the adult, lateral periodontal cyst, and botryoid odontogenic cyst: An updated systematic review. Oral Dis. 2019;25(1):26-33.
4. Açikgöz A, Uzun-Bulut E, Özden B, Gündüz K. Prevalence and distribution of odontogenic and nonodontogenic cysts in a Turkish population. Med Oral Patol Oral Cir Bucal. 2012;17(1):e108-15.
5. de Andrade M, Silva AP, de Moraes Ramos-Perez FM, Silva-Sousa YT, da Cruz Perez DE. Lateral periodontal cyst: Report of case and review of the literature. Oral Maxillofac Surg. 2012;16(1):83-7.
6. Siponen M, Neville BW, Damm DD, Allen CM. Multifocal lateral periodontal cysts: A report of 4 cases and review of the literature. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2011;111(2):225-33.
7. Formoso Senande MF, Figueiredo R, Berini Aytés L, Gay Escoda C. Lateral periodontal cysts: A retrospective study of 11 cases. Med Oral Patol Oral Cir Bucal. 2008;13(5):E313-7.
8. Arora P, Bishen KA, Gupta N, Jamdade A, Kumar GR. Botryoid odontogenic cyst developing from lateral periodontal cyst: A rare case and review on pathogenesis. Contemp Clin Dent. 2012;3(3):326-9.
9. Salaria SK, Gulati M, Ahuja S, Goyal S. Periodontal regenerative management of residual tunnel osseous defect results from the enucleation of lateral periodontal cyst in anterior maxilla: A rare case report. J Indian Soc Periodontol. 2016;20:638-642.
10. Ramesh R, Sadasivan A. Lateral periodontal cyst - a diagnostic dilemma: Report of a rare case with CBCT and histological findings. Int J Surg Case Rep. 2020;75:454-7.
11. Rasmusson LG, Magnusson BC, Borrman H. The lateral periodontal cyst. A histopathological and radiographic study of 32 cases. Br J Oral Maxillofac Surg. 1991;29(1):54-7.
12. Nart J, Gagari E, Kahn MA, Griffin TJ. Use of guided tissue regeneration in the treatment of a lateral periodontal cyst with a 7-month reentry. J Periodontol. 2007;78:1360-4.
13. Lehrhaupt NB, Brownstein CN, Deasy MJ. Osseous repair of a lateral periodontal cyst. J Periodontol. 1997;68:608-11.
14. Tolson GE, Czuszak CA, Billman MA, Lewis DM. Report of a lateral periodontal cyst and gingival cyst occurring in the same patient. J Periodontol. 1996;67(5):541-4.
15. Gurol M, Burkes EJ Jr, Jacoway J. Botryoid odontogenic cyst: Analysis of 33 cases. J Periodontol. 1995;66:1069-73.
16. Cohen DA, Neville BW, Damm DD, White DK. The lateral periodontal cyst. A report of 37 cases. J Periodontol. 1984;55(4):230-4.
17. Filipowicz FJ, Page DG. The lateral periodontal cyst and isolated periodontal defects. J Periodontol. 1982;53(3):145-51.
18. Moskow BS, Siegel K, Zegarelli EV, Kutscher AH, Rothenberg F. Gingival and lateral periodontal cysts. J Periodontol. 1970;41:249-60.
19. Standish SM, Shafer WG. The lateral periodontal cyst. J Periodontol 1958;29:27-33.
20. Holder Td, Kunkel Pw Jr. Case report of a periodontal cyst. Oral Surg Oral Med Oral Pathol. 1958;11:150-4.
21. Agha RA, Borrelli MR, Farwana R, Koshy K, Fowler AJ, Orgill DP; SCARE Group. The SCARE 2018 statement: Updating consensus Surgical CAse REport (SCARE) guidelines. Int J Surg. 2018;60:132-6.
22. Wysocki GP. The differential diagnosis of globulomaxillary radiolucencies. Oral Surg Oral Med Oral Pathol. 1981;51:281-6.