

Diagnosis and osseous healing of a lateral periodontal cyst mimicking a deep unusual interdental pocket in a young patient

K. N. DUBEY, SHALINI GARG¹, RAJEEV ATRI²

Abstract

A 17-year-old male patient presented for the evaluation of his nonhealing interdental deep pocket in relation to the mandibular second premolar and mandibular first molar. He denied any history of pain. Excessive food lodgment, salty taste, and smell related to the specific region were his chief complaints. The periapical radiograph exhibited well-defined interradiolar unilocular radiolucency with sclerotic margins between the vital mandibular second premolar and mandibular first molar. The lesion was completely enucleated with deep curettage and root planning. Histopathologic reports showed a heavy inflammatory infiltrate. Successive radiographs showed excellent bone healing. Teeth were endodontically treated for severe sensitivity to cold. Step-by-step radiographic follow-up showed osseous repair with no evidence of disease till 25 months.

Keywords: Interdental pocket, lateral periodontal cyst granuloma, gingival growth

Introduction

Interradiolar radiolucencies include easily recognizable anatomical structures, lesions related to teeth, or cysts and tumors of odontogenic origin. Lateral periodontal cysts are rare intraosseus developmental cysts which form beside a vital tooth.^[1] They occur from the fifth to seventh decades in life and are located in the mandibular canine or premolar region. They have two varieties: unicystic and multicystic (including botryoid).^[1] They are usually seen by chance in routine radiographs and usually cause no symptoms. Their name reflects their position. They arise in the periodontium and extend into the interproximal bone between the apex and alveolar crest beside a vital tooth.

The lateral periodontal cyst is an unusual cyst whose cause is unclear. Theories of the formation and development of a cyst hold that it arises due to one or more of these causes:

- An early dentigerous cyst left in place after eruption of tooth^[2]
- A primordial cyst
- Rests of Malassez in the periodontal ligament
- Reduced enamel epithelium
- Remnants of the dental lamina.^[3]

Case Report

A 17-year-old male patient was referred from a local dental

hospital for the evaluation of his nonhealing periodontal pocket. The patient had been aware of the presence of this lesion for last 2–3 months. The patient gave a history of excessive food lodgment, salty taste discharge, and local discomfort. He denied any history of pain. Clinical examination revealed good oral hygiene with localized interdental gingivitis in relation to the mandibular second premolar and permanent mandibular first molar. A deep intraosseus pocket was evident with a saucer-shaped bony hard base on probing. Gingival health in relation to all other teeth was normal. Mucosa covering the lesion was normal with no sign of inflammation. Lodged food debris and infiltrate could be cleared with irrigation. Both teeth related to the lesion tested vital with no pain on percussion.

The intraoral periapical radiograph for the region showed a well-defined, unilocular, tear-drop-shaped, intraosseus radiolucency with hyperostotic borders. The lesion extended from the tip of the crest of the interdental bone up to the junction of the cervical and middle third along the lateral border of roots of the mandibular second premolar and first permanent molar. No apparent root resorption was seen. Rest of the radiographic region had normal cortical and cancellous bone. The radiograph with the gutta-percha in the lesion revealed continuity with oral environment and cystic nature of the lesion. It resembled other odontogenic cysts radiographically apart from the specific location associated with the vital tooth. Total excisional biopsy with deep curettage of the lesion including periosteum and the affected periodontal ligament was done. Thorough root scaling of adjacent teeth and removal of other sources of irritation was done. Gelfoam was tucked in the cavity wound under the suture to control hemorrhage and facilitate healing of the empty space. A biological periodontal dressing was molded over the area. Regular radiographic follow-up was done. Excellent healing was evident in radiographs. The patient developed severe sensitivity to cold postoperatively which

Department of Oral and Maxillofacial Surgery, JCD Dental College, Sirsa, ¹Department of Pedodontics and Preventive Dentistry, MM College of Dental Sciences and Research, Mullana, Ambala, ²Department of Radiotherapy, Pt BD Sharma PGIMS, Rohtak, Haryana, India

Correspondence: Dr. Shalini Garg, MM College of Dental Sciences and Research, Mullana, Ambala – 132 003, Haryana, India. E-mail: shaloosandeep@gmail.com

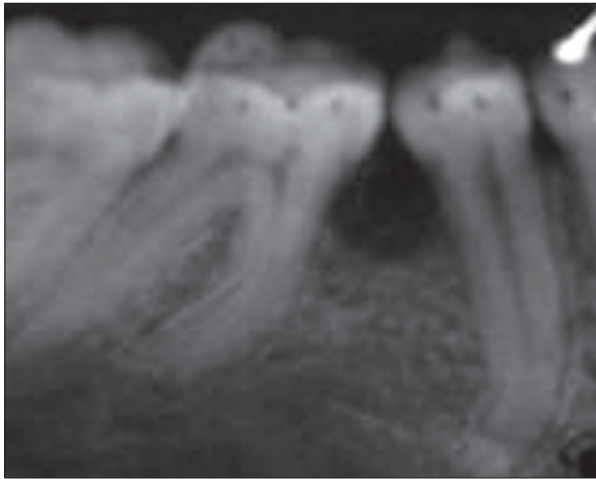


Figure 1: Preroperative X-ray showing well-defined unilocular tear-drop-shaped radiolucency with healthy teeth, hyperostotic borders, and specific location

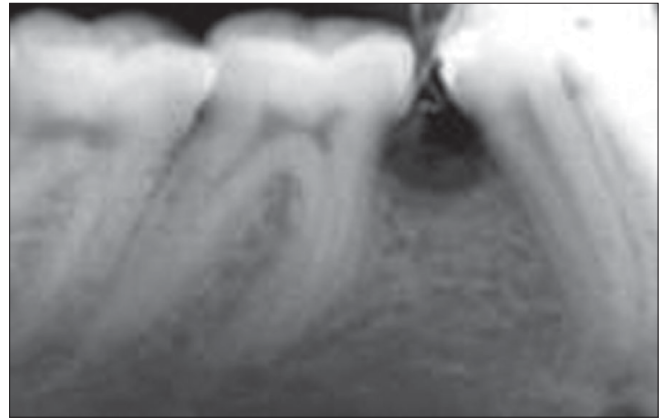


Figure 2: Diagnostic X-ray with gutta-percha

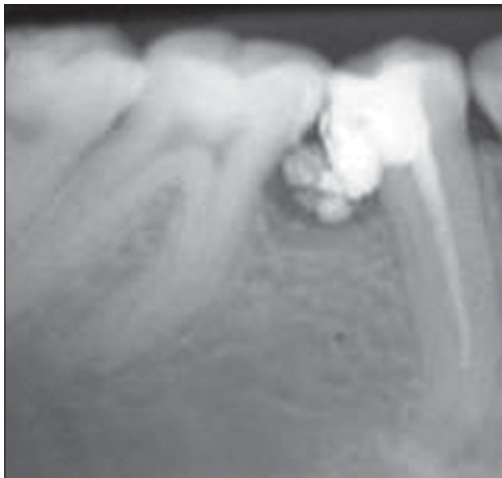


Figure 3: First postoperative X-ray with a radiopaque substance in the cavity

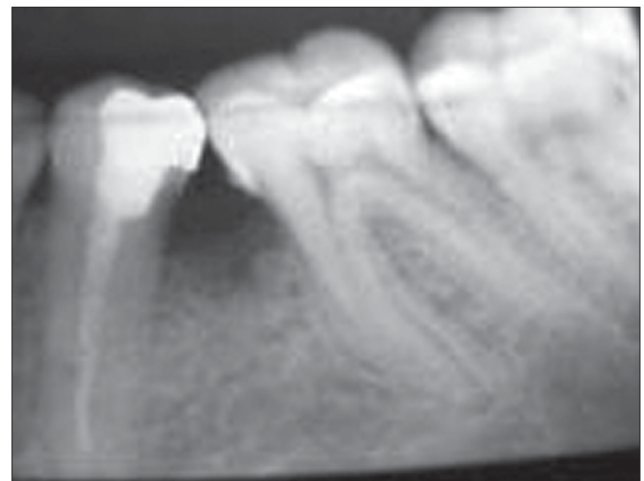


Figure 4: Follow-up X-ray showing osseous healing at the base of the lesion

was not responding to conservative treatment with excellent oral prophylaxis and desensitization methods. The root canal treatment of premolar and molar relieved the symptoms of sensitivity to cold. Excellent healing was observed after 8 months. The patient has no evidences of disease till 25 months of follow-up.

Discussion

Lateral periodontal cysts are rare developmental cysts, most often seen in adults, predominantly localized to the canine and premolar region affecting the mandible as also mentioned for the gingival cyst.^[1] Lateral periodontal cysts occur in the lateral periodontal position and are usually symptomless. It is usually observed by routine radiography and sometimes it has features in common with marginal periodontitis. These cysts are intraosseous and interradicular in position. The mean

age of occurrence is 50 years. On radiographic examination, they are found between the crest of the alveolar bone and the apex of the tooth. They appear as small round or tear-drop-shaped cysts and usually have a marginated hyperostotic border. Microscopically, they show thin nonkeratinized epithelial lining 1–5 cells thick. Entities among those to be considered in the differential diagnosis are gingival cyst, lateral radicular cyst, lateral (inflammatory) periodontal cyst, odontogenic keratocyst, radiolucent odontogenic tumors, and benign mesenchymal tumors. If a cyst occurs intraosseously, it is a lateral periodontal cyst, but if it appears to be attached to the gingiva, it is a gingival cyst. The vitality of the adjacent tooth is not a factor in the development of cysts. Microscopically, these cysts seldom show evidence of infection. If they become secondarily infected, they may mimic periodontal abscess.^[4] Differential diagnosis is done from mental foramen, small neurofibromas, and radicular cyst at the foramen of a lateral (accessory) pulp canal. Multiple (botryoid) cysts with a multilocular appearance may resemble a small ameloblastoma. In the present case, we had typical unilocular interradicular intraosseous tear-drop-shaped

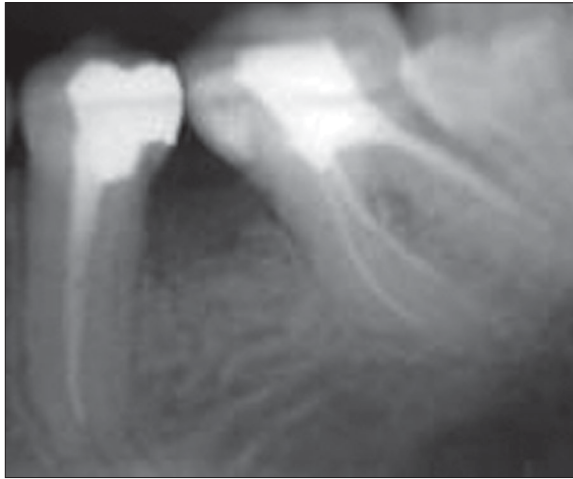


Figure 5: Healing of the lesion irrespective of the root canal treatment



Figure 6: Complete osseous healing after 8 months

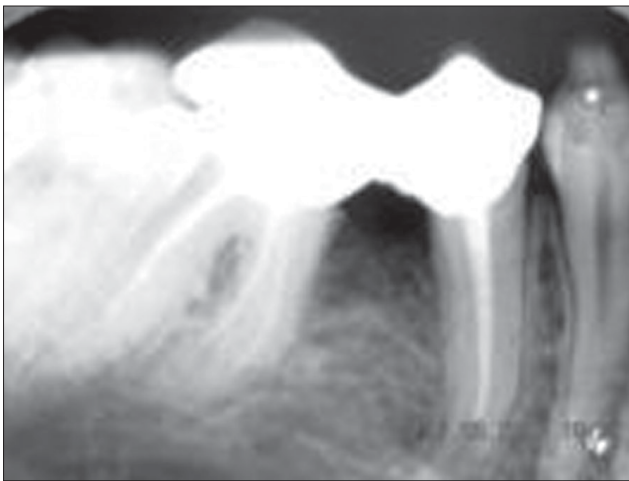


Figure 7: X-ray after 25 months of follow-up

lateral periodontal cyst with classic hyperostotic borders adjacent to both vital teeth in an adolescent patient. The clinical picture showed healthy mucosal covering over the lesion except that there were symptoms of marginal periodontitis and excessive lodgment of food in the pocket. Bad taste, discharge, and smell from the region were patient's consistent problems. As the cyst wall was chronically inflamed, there were not characteristic histologically thickened plaques or clear cells in the epithelial lining. The lesion was densely populated by heavy inflammatory infiltrate on histologic examination. The histogenesis of the lateral periodontal cyst remains uncertain, although a number of possible sources of odontogenic epithelium including the rests of Malassez and reduced enamel epithelium have been ruled out as candidates. Wysocki *et al.*^[3] noted that majority of lateral periodontal cysts occur in the facial aspect of alveolus, a distribution consistent with that of epithelial rests of Malassez that surround the roots of teeth and are

most plentiful in periapical area. Our case is supported by this point of view.

The radiographic features of the lesions in the present study were generally consistent with this classic description of the lateral periodontal cyst. The cyst in the present case matched the previous findings with respect to size. The majority are described as between 3.1 and 10 mm in size. The clinical course of the lateral periodontal cyst is usually one of insidious and slow growing.^[5] Rasmus *et al.*^[2] detected a mean growth of 0.7 mm/year in a series of four untreated cases of the lateral periodontal cyst that were followed from 5 to 14 years. In the present case, the lesion area exhibited root displacement of the molar tooth.^[6] The lesion was removed and close radiographic follow-up was done. The patient had no evidence of disease even after 25 months. Moreover, the spectrum of neoplastic transformation reported in the pre-existing lateral periodontal cyst is similar to other odontogenic cysts and includes the development of mural ameloblastoma and squamous cell carcinoma. This case report is valuable to clinicians as it's helpful in the formulation of working diagnosis and management. All these findings give a unique picture of the present lesion as a lateral periodontal cyst and separate this entity from others that occur in the interradicular bone.

Treatment contained excisional biopsy with meticulous root planning including blocking the empty space to promote healing. The root canal treatment of adjacent teeth had to be done only because patient complained of extreme sensitivity to cold postsurgically though it was not planned previously. Healing of the lesion was irrespective of the root canal treatment of adjacent teeth. Step-by-step radiographic follow-up showed complete osseous repair with no evidence of disease thereafter till 25 months.

References

1. Altini M, Shear M. The lateral periodontal cyst: An update. *J Oral Pathol Med* 1992;21:245-50.
2. Rasmusson LG, Magnusson BC, Borrmann H. The lateral periodontal cyst: A histopathologic and radiographic study of 32 cases. *Br J Oral Maxillofac Surg* 1991;29:54-7.
3. Wysocki GP, Brannon RB, Gardner DG, Sapp P. Histogenesis of the lateral periodontal cyst and the gingival cyst of the adult. *Oral Surg Oral Med Oral Pathol* 1980;50:327-34.
4. Carter LC, Carney YL, Perez-Pudlewski D. Lateral periodontal cyst: Multifactorial analysis of a previously unreported series. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 1996;81:210-6.
5. Legunn KM. Bilateral occurrence of the lateral periodontal cyst: A case report. *Periodontal Case Rep* 1984;6:56-9.
6. DiFiore PM, Hartwell GR. Median mandibular lateral periodontal cyst. *Oral Surg Oral Med Oral Pathol* 1987;63:545-50.
7. Lehrhaupt NB, Brownstein CN, Deasy MJ. Osseous repair of a lateral periodontal cyst. *J Periodontol* 1997;68:608-11.
8. Eliasson S, Isacsson G, Köndell PA. Lateral periodontal cysts: Clinical radiographical and histopathological finding. *Int J Oral Maxillofac Surg* 1989;18:191-3.

Source of Support: Nil, **Conflict of Interest:** None declared.