CASE REPORT

An unfamiliar presentation of a lateral periodontal cyst

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SUMMARY

Lateral periodontal cyst, developmental in origin, typically is observed in the cuspid–bicuspid region of the mandible and less frequently in the maxilla. It may arise initially as a dentigerous cyst developing by expansion of the follicle along the lateral surface of the crown which eventually comes to lie on the lateral aspect of the root if tooth eruption is normal. Alternatively, it may arise from the cell rests of malassez. 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. Here we present one such case with unusual findings.

BACKGROUND

Lateral periodontal cysts (LPCs) are defined as non-keratinised and non-inflammatory developmental cysts located adjacent or lateral to the root of a vital tooth. These cysts arise along the lateral periodontium or within the bone between the roots of erupted vital teeth and present with specific histological features. The first well-documented case of a lateral periodontal cyst was reported by Standish and Shafer in 1958. In the past, the term lateral periodontal cyst was used to describe any cyst that developed along the lateral root surface, including lateral radicular cysts and odontogenic keratocysts.¹ These cysts, however, constitute a separate entity due to their typical clinicohistopathological features.

CASE PRESENTATION

A 54-year-old man presented with painless swelling in the right lower back teeth region of the jaw for past 1 month. History of presenting illness revealed that the swelling had gradually increased in size, with no associated symptoms of pus discharge. On examination all the vital signs were under normal limits. Intraoral examination showed a solitary swelling measuring 2×1 cm in diameter observed in relation to buccal gingiva of 44, 45, region, extending superoinferiorly from the gingival sulcus until the buccal vestibule and mesiolaterally from the mesial surface of 44 region to the distal surface of 45. The mucosa over the swelling appeared to be normal, margins of swelling were well-defined, surrounding area appeared to be normal and no discharge from sulcus or swelling were noticed (figure 1). On palpation, all inspectory findings were confirmed positive. The swelling was non-tender, cystic in consistency; it was not fluctuant with no compressibility; no discharge was noted and 44, 45 teeth non-tender on percussion. Provisional diagnosis was quoted as a lateral periodontal cyst in relation to 44, 45 with differential diagnosis of lateral radicular cyst and central ossifying fibroma.

Figure 1 Intraoral solitary swelling with respect to 44 and 45.

Radiological investigations showed a well-defined tear-drop-shaped unilocular radiolucency located laterally in relation to 44 and 45 measuring approximately 3×2 cm with thin corticated margin (figure 2). Fine-needle aspiration of the cystic lesion revealed clear fluid with blood granules (figure 3). A pulp vitality test performed for 43, 44, 45 and 46 revealed that all these teeth were vital.

On histopathological examination, a cystic cavity lined by two-layered to three-layered non-keratinised stratified squamous epithelium was observed. A few clear cells were noticed in the basal layer of the cystic lining. The cystic capsule comprised of delicate collagen fibres, vascular spaces, occasional inflammatory cells and

Figure 2 Intraoral periapical radiograph showing tear shaped unilocular radiolucency with 44 and 45.

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Figure 3 Fine-needle aspiration biopsy was showing clear fluid with blood granules.

odontogenic rests at places (figure 4). Correlating the clinical, radiological and histopathological findings a final diagnosis of lateral periodontal cyst in relation to 44 and 45 was made. In the present case the cyst was removed surgically by conservative enucleation under local anaesthesia and the patient is on regular follow-up with no signs of recurrence.

INVESTIGATIONS

- ▶ Pulp vitality test
- ▶ Intraoral periapical radiographic examination
- ▶ Histopathological examination

TREATMENT

The cyst was enucleated under local anaesthesia while the adjacent teeth were not extracted.

OUTCOME AND FOLLOW-UP

The patient is on regular follow-up with no signs of recurrence or pain in the region of 44 and 45.

Figure 4 Cystic cavity lined by two-layered to three-layered non-keratinised stratified squamous epithelium.

DISCUSSION

By definition, LPCs are the cysts 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.¹ Clinically, lateral periodontal cyst appears as a small, soft-tissue swelling, slightly inferior or within the interdental papilla. Radiographically it presents as a round, occasionally teardrop-shaped, well defined, with an opaque margin along the surface of the tooth root,^{2 3} as was noted in the present case. Although uncommon, resorption of adjacent teeth has been reported, while loss of lamina dura and widening of periodontal ligament space may also be present.⁴ Usually asymptomatic in nature, lateral periodontal cysts are discovered during routine radiological examinations.⁵ Occasionally a swelling is observed on the labial surface of the gingiva and may be misdiagnosed as a periapical or periodontal abscess. In the present case, the teeth involved were vital and radiographically no distinct hyperostotic border was noticed. Though the radiographic features of LPC in the present case were in accordance with that of the routine findings,⁶ clinically the cyst measured about 3×2 cm that categorises the present case into one of the unusual types of LPC, in addition to it being present in the mandible.

The lateral (developmental) periodontal cyst is an unusual odontogenic cyst, the pathogenesis still being unclear. Theories of the formation and development of the cyst hold that it is or results from, either an early dentigerous cyst left in place after eruption of the tooth, or a primordial cyst.⁷

Epidemiologically, the LPCs present at a low frequency constituting about 0.8–1.5% of all the maxillary cysts, without a distinct gender predilection.^{7 8} They are differentiated from inflammatory cysts and keratocystic odontogenic tumours on basis of clinical, radiographic and histopathological findings. Differential diagnoses of LPC include gingival cyst, lateral radicular cyst, odontogenic keratocyst, odontogenic tumours and benign mesenchymal tumours.⁸

Conservative surgical approach either by enucleation or excision of the cyst is the treatment of choice for LPCs. However, the patient should be followed radiographically for several years thereafter to monitor for recurrence.^{8 9} The present case was treated by enucleation of the cyst and the patient is being followed up at regular intervals, with no signs of recurrence until date.

Histologically, these cysts are characterised by 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 displaying a palisade distribution.^{2 9 10} The case presented here showed a cystic cavity lined by two-layered to three-layered non-keratinised stratified squamous epithelium, though very few clear cells were noticed in the basal layer of the cystic lining.

Learning points

- ▶ Lateral periodontal cysts (LPCs) are usually detected during routine radiographic examination.
- ▶ Diagnosis of LPC is completely based on histopathological examination, clinical and radiographic findings being non-specific.
- ▶ Conservative surgical excision or cyst enucleation is the treatment of choice.

In conclusion, LPCs arise along the lateral periodontium or within the bone between the roots of erupted vital teeth. Though the clinical and radiographic presentation are important; the diagnosis of these cysts is primarily based on histopathological features, as certain characteristic histological features separate it from other odontogenic cysts.

Contributors ARB was involved in conception and design. SK was involved in acquisition of the data. PMK was involved in revising the manuscript critically for important intellectual content. TR was involved in interpretation of the data.

Competing interests None.

Patient consent Obtained.

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