



SURGICAL MANAGEMENT OF LATERAL PERIODONTAL CYST; A CASE REPORT

Dental Science

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ABSTRACT

Lateral periodontal cyst is a non-inflammatory cyst of developmental origin. It is presented as an asymptomatic swelling associated with lateral surface of a vital tooth root.

This case report describes the clinical, radiographic and histologic findings along with surgical management of lateral periodontal cyst. 55 year old systemically healthy female patient reported to OPD with a painless swelling on the distolabial aspect of mandibular right lateral incisor. Patient was asymptomatic. Associated and adjacent teeth were vital. Lesion was then managed surgically after initial periodontal therapy.

A full thickness mucoperiosteal flap raised and the cyst enucleation was performed. After thorough curettage the cystic bone cavity was grafted using allograft followed by placement of platelet rich fibrin membrane to stabilize graft. Flaps were sutured with 3-0 silk suture material. Antibiotics and analgesics were prescribed to prevent any post-operative complications. Satisfactory clinical and radiographic outcomes were achieved with surgical management of the lesion.

KEYWORDS

Lateral periodontal cyst, Odontogenic cyst, Platelet rich fibrin, Regeneration

INTRODUCTION

Lateral periodontal cysts are slow growing non expansile developmental odontogenic cysts derived from one or more rests of dental lamina.¹ It contains embryonic lining of one to three cuboidal cells and distinctive focal thickenings. They are usually found on the lateral aspect of the vital teeth. It more often occur in mandible than maxilla with a predilection on mandibular cuspid-premolar areas.² No specific age of onset but unusual in persons less than 30 years of age. This condition is unicystic but may appear as a cluster of small cysts and referred as botryoid odontogenic cysts. Clinically it appears as an asymptomatic localized enlargement associated with a vital tooth. Radiographically seen as a well defined round or oval radiolucency of <1 cm diameter with a definite cortical boundary.³ Histologically it appear as a cystic cavity with a connective tissue wall and nonkeratinized squamous epithelial lining of 1-5 cell thickness.⁴ The lesion is usually managed by conservative enucleation. Various regenerative approaches can also be used in intraosseous cystic cavities. Patient should be regularly followed-up to monitor for recurrence of the lesion.

CASE REPORT

A 55 year old female patient reported to the OPD with a painless swelling on distolabial aspect of mandibular right lateral incisor (42) for the past 6 months. Patient was systemically healthy and was not under any medications which may affect periodontal tissues. The lesion was 6.0*4.0 mm in size (Figure 1.a). No mobility of associated tooth noted. No tenderness noticed on both lateral and vertical percussion. On electric pulp testing tooth was found vital. The mean Plaque index, gingival index, and periodontal pocket depth (mm) measured from six sites of the lateral incisor was 1.1, 1.2, and 2 respectively.

Radiographic examination revealed an oval shaped radiolucency of <1 cm diameter with well-defined cortical borders (Figure 1.b). There was no access to the lesion area through periodontal sulcus. Clinical and radiographic examination suggested provisional diagnosis of the lesion as lateral periodontal cyst.



Figure 1: a) Clinical view b) Radiographic appearance of the lesion

Initial periodontal therapy including oral hygiene instructions, supragingival and subgingival scaling were done. Patient recalled after 4 weeks for the surgical intervention. Written informed consent obtained from the patient. Under local anesthesia a sulcular incision

was placed using no.15c Bard Parker blade from distal line angle of 41 to mesial line angle of 44 labially (Figure 2.b). A full thickness labial mucoperiosteal flap was elevated. The cyst was enucleated. All granulation tissues were curetted using Gracey curettes. On curettage a cystic bone cavity with intact lingual plate was seen (Figure 2.c). Cystic bone cavity was thoroughly irrigated using sterile normal saline. Bone defect was grafted with freeze dried bone allograft followed by placement of platelet rich fibrin membrane to stabilize the graft (Figure 2.d and 2.e). Flaps were sutured with 3-0 silk suture material (Figure 2.f). Post-operative antibiotics and analgesics were prescribed to prevent any potential post-operative complications. Post-operative healing was satisfactory without any complications (Figure 3.a). Initial radiolucency disappeared in 1 year post-operative radiograph (Figure 3.b). There was no evidence of clinical and radiographic recurrences for about 1 year follow up.



Figure 2: a) Trans gingival probing b) Intra sulcular incision c) Cystic bone cavity after enucleation d) Bone grafting with FDFA e) PRF f) Interrupted sutures

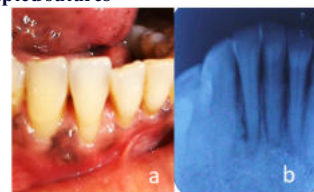


Figure 3: Post-operative 1 year a) Clinical view b) Radiographic view

The tissue specimen was then fixed using 10% formaldehyde solution and send for histologic examination of the lesion. The specimen sectioned and stained using hematoxylen-eosin stain. Histologic examination under light microscope showed non keratinized squamous epithelial lining with underlying connective tissue infiltrated with chronic inflammatory cells and granulomatous structures suggestive of lateral periodontal cyst (Figure 4).

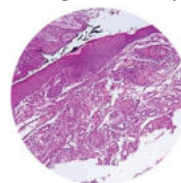


Figure 4: Histologic image

DISCUSSION

Lateral periodontal cyst (LPC) is a relatively rare developmental odontogenic cyst of epithelial origin.⁵ Clinically, LPC presents as an asymptomatic gingival swelling occurring on the facial aspect in between two teeth, most frequently in mandibular canine and premolar regions, followed by the anterior maxilla.⁵ Radiographically it presents as a tear shaped radiolucency with well demarcated cortical borders. It is usually asymptomatic thus diagnosis established through routine radiographic examination. As LPCs share some clinical and radiographic features with gingival cyst, odontogenic keratocyst, or a residual cyst it should be differentially diagnosed from these lesions.⁵

In this case report patient was reported with painless swelling in relation to mandibular right lateral incisor. The tooth was found vital and non-mobile. Radiographic examination showed an oval shaped radiolucency with sclerotic borders lateral to the associated tooth suggestive of lateral periodontal cyst. Diagnosis was then confirmed by histologic examination.

LPC can be managed conservatively by cyst enucleation and allowing the cyst cavity to heal spontaneously.^{6,7} But Simple enucleation of LPC leaves behind a significant bone cavity that might adversely affect the periodontal health of associated teeth in future.⁸ Various regenerative approaches are performed in intraosseous cyst cavity to prevent such adverse scenarios. Bone graft substitutes alone or in combination with guided tissue regeneration, autologous platelet derivatives are used to regenerate cystic cavity. Meseli et al⁹ reported satisfactory healing and regenerative outcomes of LPC using principles of GTR. He used combination of bovine derived xenograft with resorbable collagen membrane. Ramalingam et al¹⁰ reported a case managed with guided bone regeneration using xenograft and resorbable collagen membrane. Subramaniam et al¹¹ treated intrabony cystic cavity using platelet rich plasma without any graft material. While in this case report after enucleation of the lesion we used freeze dried bone allograft along with platelet rich fibrin membrane for regenerating the residual cystic bone cavity. Role of PRF in bone regeneration, soft tissue healing have been established.¹² Use of PRF along with various bone substitutes for regeneration of cystic bone cavity have been reported in literature.^{13,14}

CONCLUSION

Lateral periodontal cyst is an uncommon cyst of developmental origin. Clinically it resembles other intraoral cystic lesions. So, it is very important to diagnose it properly from case history, clinical findings, radiographic examination and histopathologic study. Proper diagnosis aids in definitive management of the lesion. Even though conservative enucleation is a treatment of choice, additional regenerative approaches using various bone substitutes along with platelet rich fibrin can attribute to regeneration of cystic cavity and prevent any recurrence of the lesion. Regular follow up after surgical procedure is encouraged to monitor the recurrence of the lesion.

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