

Case Report

LATERAL PERIODONTAL CYST: A CASE REPORT

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ABSTRACT:

The lateral periodontal cyst (LPC) is a harmless developmental aberration derived from pulp infection, infection through the gingival crevice or odontogenic epithelia lying between the roots of vital teeth. The designation 'lateral periodontal cyst' is confined to those cysts that occur in the lateral periodontal position. Standish and Shafer (1958) commented that the lateral periodontal cyst was of varied aetiology but that the term 'lateral periodontal cyst' should be used to indicate all cysts developing in the anatomical region of the lateral periodontium. The purpose of this article is to report a case of lateral periodontal cyst, presenting with typical clinical features, review the relevant literature which describes the etiopathogenesis, radiological histopathological features and successful surgical therapy of lateral periodontal cysts.

Keywords- Lateral Periodontal Cyst, Etiopathogenesis of LPC, Odontogenic cysts.

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INTRODUCTION

Odontogenic cysts are classified by the World Health Organization as inflammatory and developmental according to their epithelial lining. The LPC is a developmental odontogenic cyst defined as a radiolucent lesion which develops along the lateral aspect of an erupted vital tooth.¹ The most frequent site of origin of LPC is the premolar region of the

mandible, followed by the anterior segment of the maxillary alveolar process. LPC arise preferentially in individuals aged between 40 to 70 years, irrespective of gender.² Neville et al reported that 75 to 80% of cases occur in the region of the lateral incisor, canine and lower pre-molar. The present case also have been reported in anterior mandibular area.³

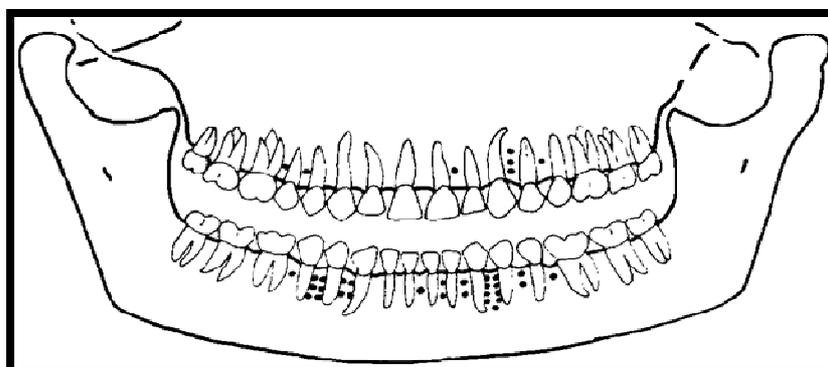


Figure 1: Diagrammatic representation of the jaws showing the distribution of LPC

CASE REPORT- A 25 years old female patient, referred to our college with complain of pain and swelling in right lower anterior region since 2 years, which gradually increasing. Intraorally the solitary palpable swelling, which was present labial vestibular area in relation to right mandibular canine and premolar regions (Pic- 1). Radiographically, well defined radiolucency was observed in the lateral aspect of mandibular canine root area, measuring approx 2x2cm, which caused displacement of right mandibular canine and premolar teeth (Pic-2). The lesion was enucleated under local anesthesia and removes the lesion in toto. Then the tissue was kept in buffered formalin solution for fixation. Grossly the tissue appeared as the cystic cavity enclosed by the capsule with the presence of cystic lumen having papillomatous growth.

The brownish chocolate color cheesy substance was present inside the cavity (Pic-3,4,5).Then the tissue kept for tissue processing and stained with Hematoxylin and Eosin stain.

The H & E stained section showed the cystic lumen lined by nonkeratized stratified squamous epithelium supported by connective tissue capsule. The lining epithelium is thin and showed areas of focal thickening that show swirling appearance of the cells. The epithelium thickenings were protruding into the lumen. The overlying connective tissue capsule consists of dense bundles of collagen fibers interspersed with fibroblast, endothelial cells lined blood vessels, mild inflammatory cells infiltrates chiefly consists of lymphocytes and plasma cells and extravasated RBCs. (Pic- 6,7)

Based on clinical, radiographical and histological features, the lesion was diagnosed as



Picture 1: Intra oral view of LPC



Picture 2: Orthopantomograph



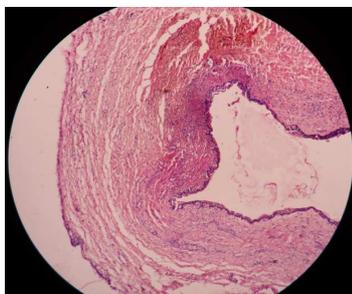
Picture 3: Cystic mass



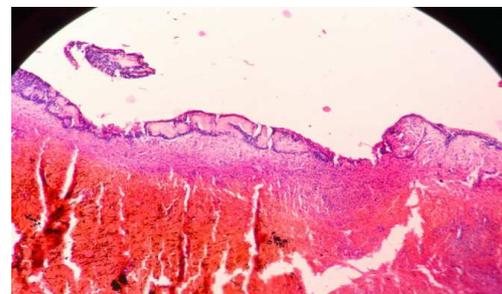
Picture 4: Inner foldings inside cystic cavity



Picture 5: Grossing of cystic mass



Picture 6: Histopathological picture showing cystic lumen(4X)



Picture 7: Thin lining epithelium and areas of focal thickening showing swirling appearance of cells (10X)

DISCUSSION-This case report details some morphological features of a LPC. LPC is a harmless developmental anomaly most likely derived from odontogenic epithelium.¹ In odontogenic epithelium the three possibilities are reduced enamel epithelium, remnants of dental lamina and cell rests of Malassez. In histological features, the cyst is lined for the most part by a narrow non-keratinised epithelium which resembles reduced enamel epithelium. As such, the proposal that it arises initially as a dentigerous cyst developing by expansion of the follicle along the lateral surface of the crown (Shafer *et al.*, 1983) is attractive, albeit not a definitive one. The schematic diagram (fig-2) is such a phenomenon, which is usually referred to as a lateral dentigerous cyst. If tooth eruption is normal, the expanded follicle may finally lie on the lateral aspect of the root. LPC and gingival cysts share same morphological findings. Given the pathogenesis of LPC derived from reduced enamel epithelium, the distinction between both cysts is explained by growth directions

of odontogenic epithelia during the emergence of the affected tooth. In contrast to the early detachment of the reduced enamel epithelium during the process of tooth eruption giving rise to the periodontal cyst, the development of the morphologically similar gingival cyst is proposed to arise from such post-functional epithelium after eruption of a tooth. Therefore, the gingival cyst is located outside the alveolar process and the LPC is developing inside the alveolar process.

In figure-3, illustrating the different topographies of lateral periodontal (left) and gingival cysts (right). Both cysts are derived from the reduced enamel epithelium or dental follicle. In LPC, the cavity forming epithelia detach from the emerging tooth prior to the contact of the crown to the alveolar limbus and formed before the eruption of the tooth. In gingival cysts of adult, these cystic epithelia lose the contact to the dental follicle above the alveolar crest which occurred after the eruption of the tooth.

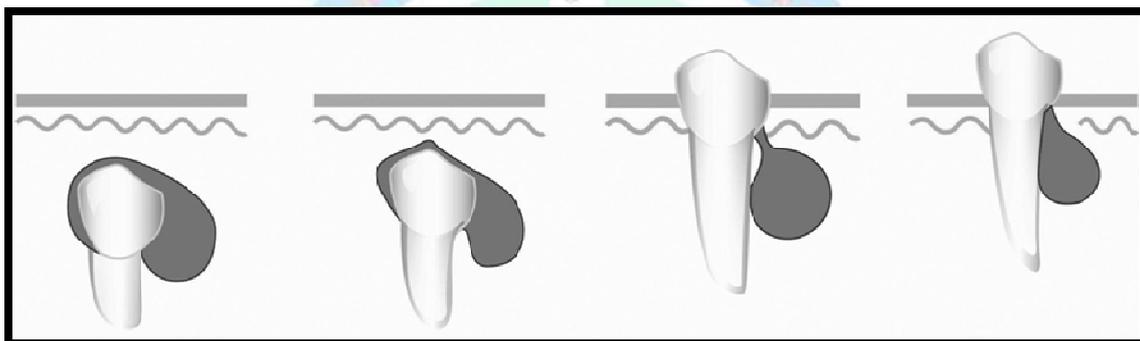


Figure 2: Progression of LPC

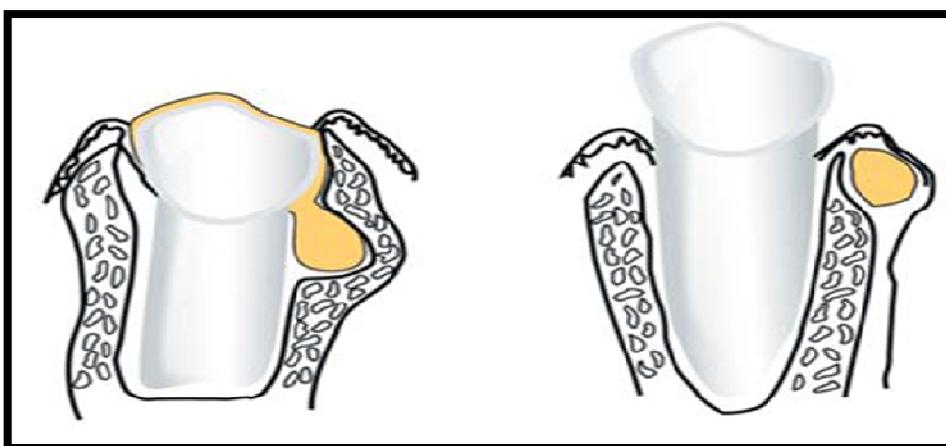


Figure 3: Illustrating the possible mode of formation of epithelial plaques by localized proliferation of cell

In figure-4 (a) Cyst lined by thin epitheliumresembling reduced enamel epithelium. (b)Early epithelial thickening by basal cell proliferation.(c) Basal cells continue to proliferate.Superficial cells swell by accumulation of intracellularfluid. (d) and (e) Basal proliferation ceasesor slows down. Superficial cells are waterloggedand swollen. Plaque protrudes into cyst cavity andcyst wall where it can undermine and raise adjacentcyst lining. (f) Epithelial plaque can formconvolutions. Protrusions into cyst wall as in (c–f)may be ‘pinched off’ and develop into daughter cysts, leading to the formation of the botryoidvariety of lateral periodontal cyst.⁵

Altini and Shear (1992) have made the point that thelateral periodontal cyst occurs predominantly in the fifthand sixth decades, particularly the sixth, and hence isprobably a slowly developing and growing lesion. If thepostulate is correct that the reduced enamel epitheliumfrom which the cyst appears to develop is derived from aportion of the covering of the tooth crown, this epitheliummust lie dormant for many decades before the cystmanifests. They suggested therefore that the developmentof the lateral periodontal cysts, particular the multicysticand botryoid varieties, may be stimulated by some genetic factor, as are some other jaw cysts, later in life. The formationof the epithelial plaques, their budding off to formepithelial islands which in turn become cystic and the repetitionof this process through numbers of generations,are indicative of an active process of proliferation of theodontogenic epithelium in their genesis.⁵

The another possibility of development of LPC is origin from the cell rests of Malassez. The rests of Malassez occur in the periodontium and they are well positioned for a lateral periodontal cyst but the support for this theory of origin is scanty. Buckley *et al.* (1989) reported a case in which two separate developmental odontogenic cysts were associated with an unerupted lower third molar tooth. Radiological and histological examination showed that these were a lateral periodontal cyst and a dentigerouscyst. The authors contended that this provided evidence that the periodontal cyst may have an origin from the cell rests of Malassez.⁶

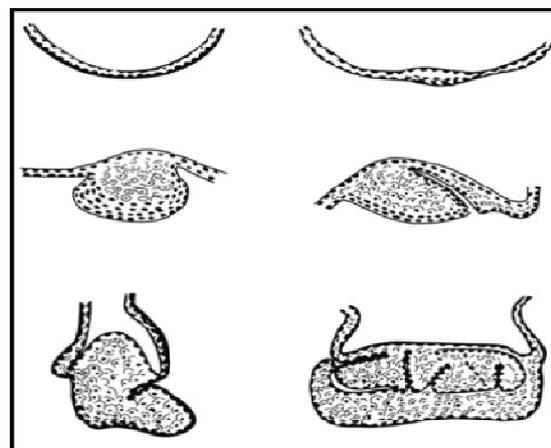


Figure 4: Illustrating the possible mode of formation of epithelial plaques by localized proliferation of cell

CONCLUSION: LPC is a rare odontogenic cyst with therapy mostly surgical enucleation and the patient is followed for several years.Specialcare should be taken not to damage theroots of the adjacent teeth. Recurrence is uncommon, but has sporadically beenreported.

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