

MANAGEMENT OF RARE LATERAL PERIODONTAL CYST

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ABSTRACT: Lateral periodontal cyst (LPC) is an uncommon type of odontogenic cyst of developmental origin that typically occurs laterally on the root surface of a tooth. They are frequently located in the mandibular premolar area followed by the anterior region of the maxilla. It is usually asymptomatic and is discovered on a routine radiograph. The involved teeth are usually vital. Although the occurrence of lateral periodontal cyst is rare, the precision of its diagnosis is necessary so that the correct treatment can be established. The features of a LPC can be easily confused with a odontogenic keratocyst and radicular cyst

KEYWORDS: lateral periodontal cyst, odontogenic Keratocyst, radicular cyst

INTRODUCTION

Kramer (1974) has defined a cyst as 'a pathological cavity having fluid, semifluid or gaseous contents and which is not created by the accumulation of pus'. Epithelium lined cysts in bone are seen only in the jaws, with rare exceptions.¹

Cysts are classified by the World Health Organization, described by Kramer et al in 1992 as inflammatory and developmental according to their epithelial lining. Since then lateral periodontal cysts (LPC) have been regarded as an independent condition.² The LPC is a developmental odontogenic cyst defined as a radiolucent lesion which develops along the lateral aspect of an erupted vital tooth, in which an inflammatory etiology and a diagnosis of collateral keratocyst have been excluded based on clinical and histological grounds.³ Epidemiologically the incidence of lateral periodontal cyst is low, representing approximately 0.8% to 2% of all odontogenic cysts.²

The present case describes the management of a rare case of LPC in a pediatric patient with postoperative follow-up. LPC is a relatively rare anomaly commonly seen in the 5th to 7th decade of life, mostly present in the mandibular anterior region having a male predilection.

Case report

A female patient of 12 years of age reported to our department with the chief complaint of pus discharge from the left upper back teeth region of the jaw since the last 6 months associated by halitosis. Medical history was non contributory. Intra oral examination revealed that there was pus discharge between 24 and 25 region. On probing pocket depth was found to be more than 10 mm in this

region. The patient's parent revealed history of an extraction of a deciduous tooth in the same region two years back. (Fig.1 and Fig 2)

An intra oral periapical radiograph showed bone loss in the region of 24 and 25. Displacement of roots of both premolars was also seen in Orthopantomogram (Fig.3). Routine blood investigations were advised and were found to be within the normal range. Total cystic enucleation was done and the specimen was sent for histopathological examination (Fig.5, Fig.6 and Fig.7). Patient was called after 6 months for follow up and was uneventful (Fig.8).

Histological Features

LPC is composed of a cystic cavity and connective tissue wall. The cyst lining of the LPC is generally composed of 1-5 cell layers of cuboidal to stratified, non-keratinized, squamous epithelium with focal plaque like thickenings that appears as whorls and mural protrusions. The connective tissue subjacent to the epithelium exhibits a zone of hyalinization. Clear glycogen-containing epithelial cells have often been found. The connective tissue subjacent to the epithelium exhibits a zone of hyalinization. The connective tissue showed only a chronic inflammation showing multiple layers of cuboidal cells, and focal plaque like thickening that appears as whorls. (Fig.9)

Discussion

By definition, LPCs are the cysts occurring in the lateral periodontal position which are thought to be inflammatory in origin. The first well documented case of LPC by STANDISH and SHAFERS in 1958⁴. In the past, the term LPC was used to describe any cyst that



Fig.1.Extra oral Photograph



Fig.2.Intra oral Photograph



Fig-3 preoperative intra oral periapical radiograph



Fig-4 pre-operative OPG

develop along lateral root surface, including lateral radicular cyst and odontogenic cyst. . The pathogenesis of the lateral periodontal cyst is not fully known. There seem to be three possibilities: reduced enamel epithelium, remnants of dental lamina and cell rests of Malassez.⁵

The lateral periodontal cyst is an uncommon developmental odontogenic cyst that is located along the lateral aspect of a root of a tooth, with special prevalence in the mandibular premolar and canine region. Clear cells in the lateral periodontal cyst present morphologic resemblance to the clear cells in the dental lamina rests. These clear cells are not found in either the rests of Malassez or the reduced enamel epithelium, nor are they found in radicular or dentigerous cysts, which are derived from these two sources of epithelium. Most authors separate the lateral periodontal cyst of the adult and the gingival cyst. Wysocki et al, Gorlin and Damante believe that they are only intraosseous and extraosseous manifestations of the same lesion. Lesions should be removed by surgical enucleation and the patients followed for several years there after. Special care should be taken not do damage the roots of the adjacent teeth.⁶ Neville et al reported that 75 to 80% of cases occur in the region of the lateral incisive, canine and lower pre-molar. The present cases also have been reported in anterior maxillary area.⁷

Lateral periodontal cyst appears as a small, soft-tissue swelling, slightly inferior or within the interdental papilla. Radiographically it presents as a round (sometimes teardrop-shaped), well-defined, with an opaque margin along the surface of the root tooth. There are no associated clinical symptoms. Root divergence may be present. Most frequently the LPC presents as a monocystic radiolucency.⁴ An estimated 50-75% of LPC occur in the mandible. It is a intraosseous (central) cyst, associated with the root of a vital tooth. The lateral periodontal cyst occurs particularly between the 5th through 7th decades decade of life, with male prediliction. Generally it is asymptomatic and diagnosed only on radiographic examination.⁵



Fig.5. Creation of window on Buccal cortical plate during surgery



Fig.6. Enucleated Cystic lining



Fig.7.Suture placed



Fig.8. Post-operative after one Week showing complete healing

Many lateral periodontal cysts normally do not exceed 10 mm to 12mm. In the some case, there was rupture of the palatine cortical bone. Carter et al. who described the occurrence of perforation of the cortical bone associated with this lesion. There was no loss of pulp vitality in any of the cases, which generally does not occur, unless the dental pulp has been affected in another way.⁸Recurrence is uncommon, even though it has been reported as a botryoid variant, probably due to its polycystic nature. There is also the report of an extremely rare case of squamous cell carcinoma which apparently originated from a lateral periodontal cyst.⁹Differential diagnosis is of paramount importance, since misdiagnosis may lead to extraction of teeth or unnecessary periodontal treatment. Many authors suggest many differential diagnosis such as residual cyst, radicular cyst, odontogenic keratocyst, gingival cyst of adult.

The botryoid odontogenic cyst(BOC) is a polycystic variant of LPC. In 1973 **WEATHERS** and **WALDRON** reported first case of multi-ocular region of the jaw which they called a Botryoid odontogenic cyst.²

In year 1992 Altini and Shear stated with further growth LPC can take on a Botryoid appearance.He proposed a hypothesis of how a unicystic LPC may progress to a multicystic, yet encapsulated lesion,and then by progressive enlargement of the many microcyst, develop into an irregular thin walled multicystic structure. He classified LPC into 3 morphological types (a) unicystic (b) multicystic (c) botryoid.¹⁰ Same year Vander Waal stated that BOC cannot be considered a variant of LPC as it extend well beyond the lateral area of root .but he did not deny the possible cells of origin for both cysts are same.¹⁰

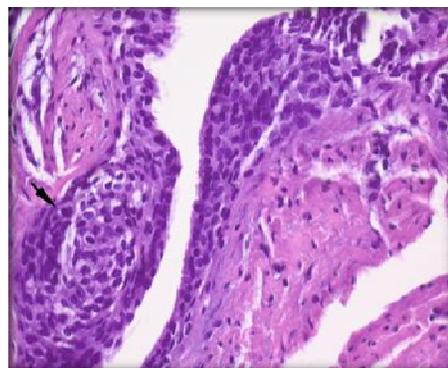
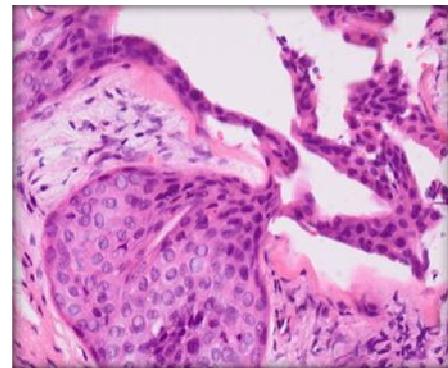


Fig.9. Histological specimen showing the cystic lining with cuboidal to stratified, non-keratinized, squamous epithelium and focal plaque like thickenings

CONCLUSION

This case was a rare presentation of LPC seen in female patient in the second decade of life unusually positioned in the maxillary premolar region. The lateral periodontal cyst can be considered in the differential diagnosis when a radioloucent lesion appears adjacent to the roots of vital teeth. A histological study is essential in order to confirm the diagnosis. The treatment of choice is surgical removal and subsequent histological evaluation to confirm the diagnosis. Relapses are infrequent.

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