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Case report

Bilaterally symmetrical infected radicular cysts: Case report and review of literature

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ABSTRACT

Radicular Cysts (RCs) are the most common inflammatory cysts arising from the odontogenic remnants. It is usually associated with carious, non-vital, or fractured tooth. Although the occurrence of RCs is not uncommon, but bilaterally symmetrical presentation of these cysts in young patient is quite rare. Present case was treated successfully with endodontic treatment of the adjoining involved teeth, followed by extraction of the offending teeth and enucleation of the cysts. Hereby we report case of bilaterally infected RCs in a 14 years old female patient. Also an attempt has been made to discuss its pathogenesis and clinical features in light of current information from the literature.

1. Introduction

The Radicular Cysts (RCs) are the most common inflammatory cysts of the oral and maxillofacial region. It arises from the epithelial remnants in the periodontal ligament following necrosis of the pulp [1]. In adulthood, RCs are the most common cystic lesions found at the apices of the teeth [2,3] and represent 52–68% of all cysts found in jaws [4]. RCs can occur at any age, however, they appear to be rare in the primary dentition, in children, representing only 0.5–3.3% [5]. Killey et al. [6] in their series reported that the incidence of RC was 68% and in the series of Jones et al. [7] it represented 63.3% of all odontogenic cysts. The age distribution showed very few cases in first decade and peak frequency in the third decade. There are a large number of cases in the fourth and fifth decades, after which there is a gradual decline [1]. The lower incidence of RCs associated with deciduous teeth has been shown in a number of studies despite high incidence of dental caries. This feature is attributable to the few epithelial cell rests resulting from the development of primary teeth [5]. The purpose of this paper is to present a case of bilateral symmetrical RCs in a young female patient and to discuss its pathogenesis and clinical features.

2. Case report

A 14 years old female presented with a chief complaint of mild pain and swelling on the right side of the lower jaw of two months duration. There was no difficulty in chewing and swallowing. Mild halitosis and pus discharge was noticed in that area. The medical history was non-contributory. The extra-oral examination was remarkable for a 3 × 2 cm firm, localized, and tender swelling over the right body of mandible. Mouth opening was adequate. The intra-oral examination was remarkable for a localized swelling on the right side, due to the expansion of buccal cortical plate extending from canine to second molar. There was no expansion of lingual cortical plate in this region. Mandibular right first molar was broken down and only the roots were present. Oral hygiene was poor. Mandibular right first and second premolars and second molar were non-vital, and exhibited tenderness to percussion. Mandibular right second molar exhibited grade I mobility. Further examination revealed expansion of buccal cortical plate in the region between mandibular canine and second molar on the left side. Mandibular left first molar was also badly broken down with

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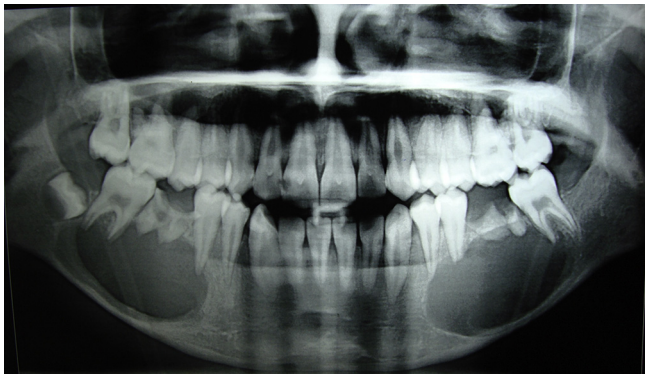

Fig. 1. Pre-operative OPG showing well-defined bilateral radiolucency involving remaining roots of #46 & #36. The teeth #47, #45 and #35 #37 are showing resorption of the roots.

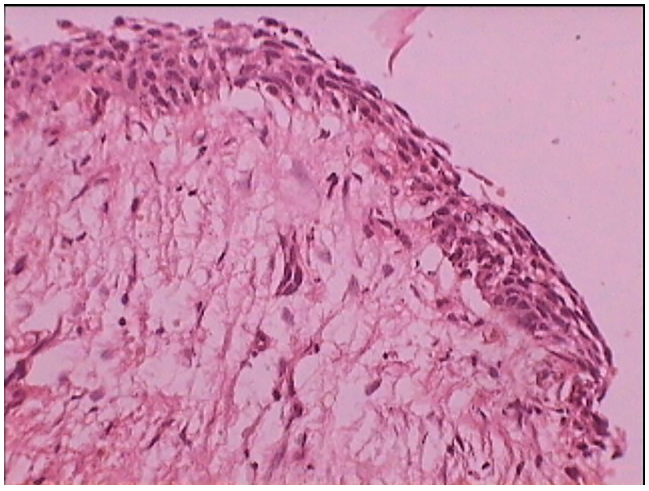

Fig. 2. H & E, 10X, photomicrograph showing a non-keratinized stratified squamous lining.

remaining roots but first and second premolars and second molar were non-vital and did not exhibit tenderness to percussion. Rest of the dentition was normal. Panoramic radiograph (OPG) showed well-defined, corticated, bilateral oval radiolucent areas in the body of the mandible related to both mandibular first molars. The radiolucent area extended anteroposteriorly to involve mandibular first and second premolars and second molars, bilaterally. The radiograph also showed resorption and loss of lamina dura of the apices of roots of mandibular second premolars and second molars bilaterally (Fig. 1).

Provisional diagnosis of infected bilateral RCs was made. Differential diagnosis of Odontogenic keratocystic tumour, Unicystic ameloblastoma, Central giant cell granuloma and Cherubism were considered.

The treatment plan included endodontic treatment of #37, #35, #34, #44, #45 and #47 under local anaesthesia, followed by extraction of #36 and #46, apicectomies of the endodontically treated teeth, and enucleation of both the cysts with primary closure, under general anaesthesia. Endodontic treatment of mandibular first and second premolars and second molars bilaterally was carried out prior to the surgery. The extraction of #36 and #46, apicectomies of the endodontically treated teeth, and enucleation of both the cysts with primary closure, was carried out under general anaesthesia.

The pathological tissues from both the lesions were sent for histological examination. The recovery was uneventful. The histological report was consistent with that of a RCs (Figs. 2 and 3).The patient was given a temporary partial denture. The patient was followed up for two years post-operatively without any complications (Fig. 4).

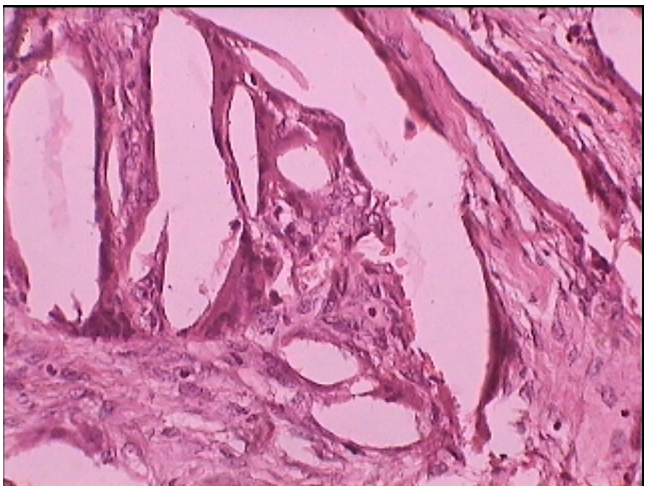

Fig. 3. H & E, 40X, photomicrograph showing cholesterol clefts in the connective tissue wall, characteristic of inflammatory cysts.

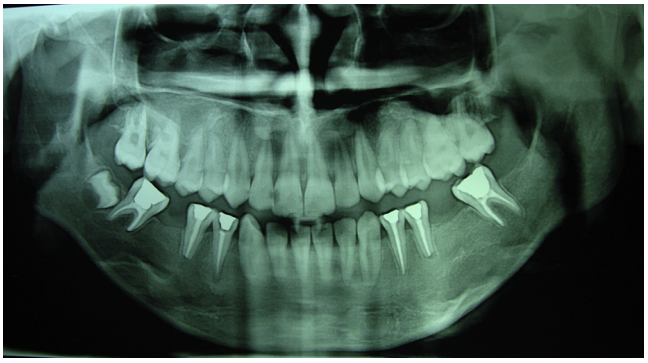

Fig. 4. Postoperative OPG three years after the surgery showing good healing and no recurrence.

3. Discussion

RCs are the most common inflammatory cysts arising from the epithelial residues as a result of periapical periodontitis following necrosis of the pulp. It occur in all tooth-bearing areas of the jaws and 60% are found in the maxilla and 40% in the mandible [1]. Its size rarely exceeds 1 cm with higher incidence in the maxillary anterior region [1]. Hill reported that cysts in the primary dentition develop at a rate of 4 mm per year [8,9]. Sprawson proposed that the short physiological life of the deciduous tooth might account for the lower prevalence in the deciduous dentition [10].

The pathogenesis of RCs may be considered in three phases: phase of initiation, phase of cyst formation and phase of enlargement.

3.1. Phase of initiation

The origin of the cystic epithelium lies with cell rests of Malassez, which are the epithelial remnants of Epithelial Root Sheath of Hertwig. The epithelial cell rests are initiated to proliferate by inflammation as a result of necrotic debris and bacterial antigens/endotoxins derived from the necrotic pulp. These endotoxins have a direct effect on the epithelial proliferation, and also initiate an inflammatory response resulting in production of cytokines with pro-inflammatory and bone-resorbing activities.

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