

Radicular Cysts Involving Primary First Molar – A Rare Case Report

Abstract

Radicular cyst are the most common inflammatory jaw cyst. Inflammatory jaw cysts comprise a group of lesions that arise as a result of epithelial proliferation within an inflammatory focus due to number of causes. It comprises about 52% to 68% of all the cysts affecting the human jaws. They are most commonly found at the apices of the involved teeth, however they may also be found on the lateral aspects of the roots in relation to lateral accessory root canals

Key Words

Inflammatory Jaw Cyst, epithelial proliferation, Lateral Accessory Root Canal.

Introduction:

Radicular cysts are the most common inflammatory cysts.^[1] Radicular cysts are defined as a cyst arising from epithelial residues (cell rests of Malassez) in the periodontal ligament as a consequence of inflammation, usually following the death of the dental pulp.^[3] They are found most commonly at the apices of the involved teeth but may also found on the lateral aspects of the roots in relation to lateral accessory root canals.^[2] Radicular cysts are relatively rare in the primary dentition because of the distinct biological cycle of primary teeth.^[4]

It develops as a sequel of untreated dental caries with pulp necrosis and periapical infection.^[5] Also radicular cysts associated with primary incisor teeth are very rare.^[4]

Their incidence is highest in third and fourth decade of life with male predominance. Anatomically the periapical cysts occurs in all tooth bearing sites of the jaw but are more frequent in maxillary then in mandibular region.^[6]

Treatment of radicular cysts includes enucleation, marsupialization, curettage or combination of these techniques. Enucleation is defined as a complete removal of the cystic lining with healing by primary closure, while marsupialization is conversion of cyst into a porch.^[7]

Here we are presenting a case report of radicular cyst of 9 year old male patient associated with mandibular posterior

region.

Case Report:

A male Patient aged 09 years reported to the department of oral Medicine and Radiology with a chief complaint of pain in lower rightback tooth region since 10 days back. Pain is dull, intermittent and non-radiating in nature which aggravates on mastication. Patient had also visited to local dentist 2 days back for the same complains where he had prescribed medication on which he got relieved. No relevant medical history had been reported (Fig 1, 2, 3).

Extraorally a bony hard swelling is seen in right mandibular posterior region

There was a presence of a soft fluctuant swelling palatal to the above mentioned



Fig 1: Extraorally A Bony Hard Swelling Is Noticed On Right Mandibular Posterior Region

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teeth with pus discharge. Swelling was approximately 3 cm in diameter. The cyst was curetted by raising the flap and tissue was submitted for histopathological examination. All the affected teeth were root canal treated and were kept under observation for the healing of the cystic space.

On Intraoral examination, decayed 54, 65, 36, 74, 75 were present and 26, 85 were grossly decayed.

Orthopantomogram (OPG) (Fig 4) revealed a radiolucency of 1.5 × 1.5 cm size, approximately at the apex of 85 and



Fig 2: Intraorally, A Bony Hard Swelling Is Noticed On Right Mandibular Posterior Region

extending from 84 to the distal aspect of 46. Slight blunting of the apices of tooth 46, along with loss of lamina dura with the same was noted. The radiolucency was less intense along the distoinferior and inferior aspect of the lesion.

The cyst was curetted by raising the flap and tissue was sent to the department of oral pathology and microbiology for histopathological examination. Histopathological report revealed that under scanner view epithelium overlying connective tissue stroma is seen. On higher magnification, epithelium is thin, nonkeratinized with forking rete ridges and vaculation on some fragments of epithelium. Connective tissue stroma shows loose collagen fibers with dense infiltration of chronic inflammatory cells chiefly comprising of lymphocytes, plasma cells with few macrophages along with blood vessels with extravasated RBC. (Fig 5 & Fig 6). A diagnosis of radicular cyst was given.

Discussion

Radicular cysts originating from primary teeth are very rare and only a few cases have been published.^{[8], [9]} Radicular cysts are the most common inflammatory jaw cysts and develop as a sequel of untreated dental caries with pulp necrosis and periapical infection.^{[10], [11]} They are most commonly found at the apices of the involved teeth, however they may also be found on the lateral aspects of the roots in relation to lateral accessory root canals.^[2] Radicular cysts arise from the epithelial residues in the periodontal ligament as a result of inflammation. They generally result due to pulpal infection following dental caries. Bacteria from the gingival sulci or periodontal pockets have been suggested to reach the root canals of these teeth through severed periodontal blood vessels.^{[12], [2]}

Clinically most of the radicular cysts are symptomless and are discovered when periapical radiographs are taken of teeth with non-vital pulps. Patient often complains of slowly enlarging swellings. At first the enlargement is bony hard but as the cyst increases in size, the covering bone becomes very thin despite subperiosteal bone deposition and the swelling then exhibits 'springiness'. Only when the cyst has completely eroded the bone, there will be fluctuation. In the maxilla there may be buccal or palatal enlargement whereas in the mandible it is



Fig 3: Intraorally Crowding Is Seen On Anterior Aspect Of Mandibular Region



Fig 4: Opg Showing Radiolucent Area Below The Carious Tooth 85.

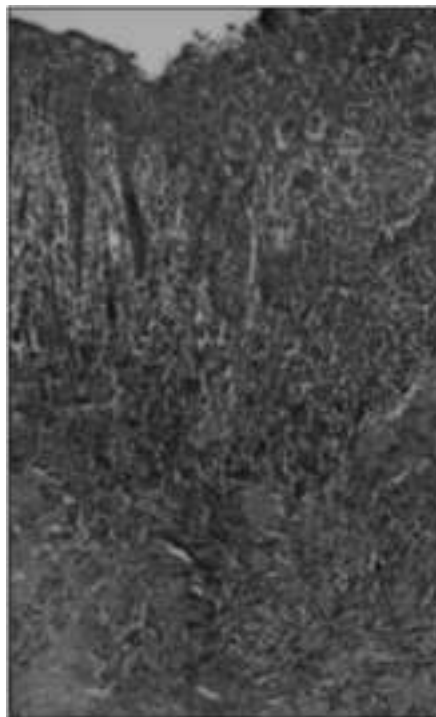


Fig 5: H And E Stained Section Under 10x Magnification Shows Cystic Lining With Inflamed Underlying Stroma

usually labial or buccal and only rarely lingual as in our case involving buccal mandibular region.^[1]

There are two main theories regarding the formation of the cyst cavity.^[2]

First one is the 'nutritional deficiency theory' is based on the assumption that the central cells of the epithelial strands become removed from their source of nutrition and undergo necrosis

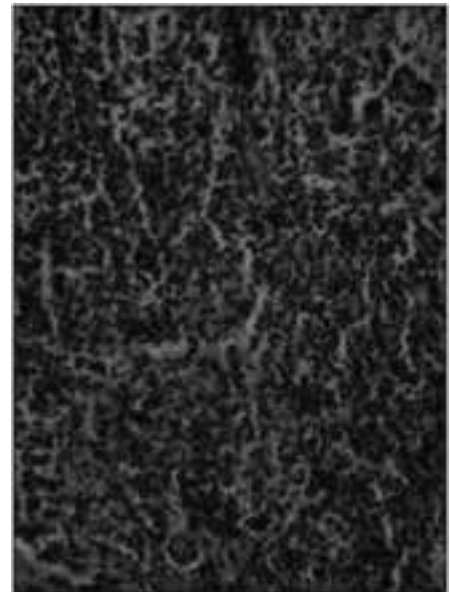


Fig 6: H And E Stained Section Under 40x Magnification Shows Loose Collagen With Chronic Inflammatory Cells Within Underlying Stroma

and liquefactive degeneration, the accumulating products in turn attract neutrophilic granulocytes into the necrotic area. Such microcavities containing degenerating epithelial cells, infiltrating mobile cells and tissue fluid coalesce to form the cyst cavity lined by stratified epithelium.

Second one is the 'abscess theory' which postulates that the proliferating epithelium lines an abscess cavity formed by tissue necrosis and lysis because of the innate nature of the epithelial cells to cover exposed connective tissue surfaces. During the third phase the cyst grows, but whose exact mechanism is still unknown. It is generally believed to be by osmosis. The presence of necrotic tissue in the cyst lumen attracts neutrophilic granulocytes, which extravasate and transmigrate through the epithelial lining into the cyst cavity where they perish. The lytic products of the dying cells in the cyst lumen release a greater number of molecules. As a result, the osmotic pressure of the cyst fluid rises to a level higher than that of the tissue fluid. The latter diffuses into the cyst cavity so as to raise the intraluminal hydrostatic pressure well above the capillary pressure. The increased intracyst pressure may lead to bone resorption and expansion of the cyst.^[2]

Several treatment options are available for radicular cysts such as surgical endodontic treatment, extraction of offending tooth, enucleation with

primary closure and marsupialization followed by enucleation.^[6] In our case extraction of offending tooth i.e. 85 was preferred and performed uneventfully.

To conclude radicular cyst is a commonly encountered cysts in oral cavity. It usually goes unnoticed and rarely exceeds the palpable dimension. This case illustrates a common condition that occur in an uncommon age group.^[6]

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