

# RADICULAR CYST OF PERMANENT INCISORS AND ITS MANAGEMENT: A CASE REPORT

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## Abstract

Radicular cysts are one of the most common odontogenic cyst of the jaws. However, those arising from primary teeth are rare. An 24-year-old male reported to the Department of Oral & Maxillofacial Pathology with the chief complaint of pain and swelling on the lower front permanent Incisors tooth region. Radiographic examination revealed a well-defined radiolucency with continuous hyperostotic border with respect to left mandibular incisor. Considering the age of the patient, size of lesion, marsupialization was preferred as a conservative treatment of choice. The success of the treatment was evident both clinically and radiographically during the follow-up period.

**Keywords:** Central Incisor, Marsupialization, Radicular Cyst

## Introduction

Radicular cyst also known as periapical cyst, apical periodontal cyst, root-end cyst, or dental cyst; originates from epithelial cell rests of Malassez in periodontal ligament as a result of inflammation due to pulp necrosis or trauma. Radicular cysts are rare in the primary dentition, with an incidence of 0.5-3.3% of the total number in both primary and permanent dentition.<sup>1</sup> Radicular cysts are usually asymptomatic and are left unnoticed, until detected by routine radiographic examination whereas some long standing lesions may undergo an acute exacerbation of the cystic lesion and develops signs and symptoms such as swelling, tooth mobility and displacement of an unerupted teeth.<sup>2</sup> It clinically exhibits as a buccal or palatal enlargement in maxilla, whereas in mandible it is usually the buccal and rarely lingual. At first, the enlargement is bony hard; but as the cyst increases in size, the bony covering becomes very thin and the swelling then exhibits springiness and becomes fluctuant when the cyst has completely eroded the bone.<sup>3</sup>

Definitive diagnosis must be based upon the clinical, radiographic, and histological evaluation. Marsupialization is usually preferred in case of radicular cyst of primary teeth to preserve the vitality of unerupted successors, where a surgical window is created by removing a part of cystic lining to enable drainage of cystic content and loss of cystic pressure followed by which a pack is given to promote reepithelization and to provide antimicrobial property. Radicular cyst associated with primary lateral incisor following incomplete pulp therapy and its management is presented.

## Case Report

A 24 year old male patient (Figure 1) reported to Department of Oral and Maxillofacial Pathology, D J College of Dental Sciences and Research, Modinagar with the chief complaint of pain in lower left front region of the jaw since 2 months. The patient had history of trauma 6 months back. The pain was insidious in onset, intermittent,

dull aching type, and aggravates during the night and relieves on taking medication.



Figure 1: - Extraoral view

The patient was alert, conscious, moderately built, and nourished. On extraoral examination, a diffuse swelling was present on the lower left front tooth region, extending from central incisor, lateral incisor and central incisor of right side with local rise in temperature. Intraoral examination revealed vestibular tenderness Mandibular left central and lateral incisor was tender on percussion. The intraoral lesion was rubbery and fluctuant on palpation.

The radiographic examination (Figure 2) revealed a well-defined unilocular radiolucency in left mandibular anterior region with continuous hyperostotic border extending from the mesial surface of right central incisor, involving entire left central incisor and mesial surface of lateral incisor suggestive of a cyst. Marsupialization was performed under local anaesthesia, Cystic content was drained out and the bony tissue obtained was sent for histopathological evaluation (Figure 3), which confirmed the diagnosis of radicular cyst. Surgical pack and sutures were given. A part

of the pack was left out of the cystic space for easy retrieval. The child was prescribed with antibiotics and analgesics and also guided to maintain good oral hygiene measures. The sutures and the pack were removed after 1 week. During the follow-up period, the child responded well for the treatment with good soft tissue and hard tissue healing .

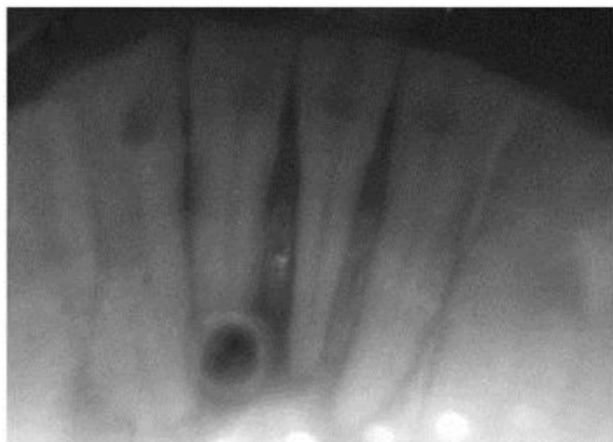


Figure 2: - Radiographs shows a periapical cyst involving lower anteriors with respect to 31,32,41.

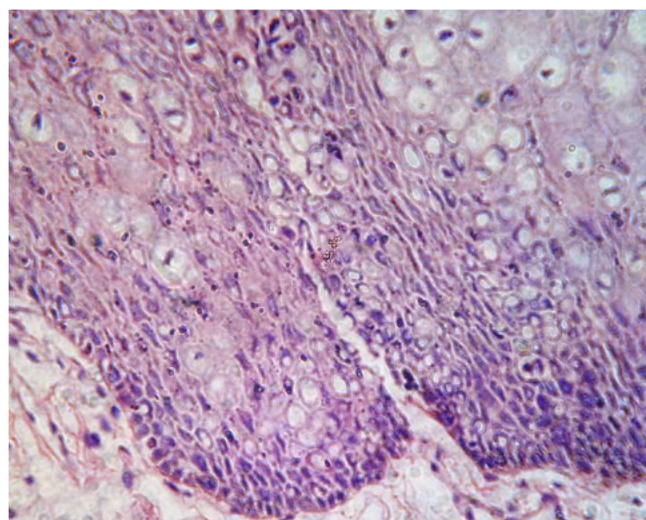


Figure 3: - Histopathology reveals the irregular arcading pattern with inflammatory cells

### Discussion

The term, ‘cyst’ is derived from the Greek word, ‘Kystis’, meaning, ‘sac or bladder’.<sup>4</sup> Cyst is defined as a pathological cavity that is usually lined by epithelium and which has a centrifugal, expansive mode of growth.<sup>5</sup>

Radicular cyst is generally defined as fluid-filled cavity arising from epithelial residues (rests of Malassez) in the periodontal ligament as a consequence of inflammation, usually following the death of dental pulp.<sup>6</sup> Radicular cysts are the most common cystic lesions which affect the jaw. They are most common of all the jaw cysts and comprise about 52% to 68% of all the cysts which affect the human

jaw.<sup>7,8</sup> They arise from epithelial remnants which are stimulated to proliferate, by an inflammatory process which originates from pulpal necrosis of a non-vital tooth. The natural history begins with a non-vital tooth which remains in situ, long enough to develop chronic periapical pathosis.<sup>9</sup> 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<sup>10</sup>. They are symptomless and are diagnosed during routine radiologic investigations. The treatment for radicular cysts includes conventional nonsurgical root canal therapy when lesion is localized or surgical treatment like enucleation, marsupialization or decompression when lesion is large.<sup>11</sup>

Radicular cysts generally originate after trauma or dental caries. Dental caries cause inflammation of the pulp cavity, leading to pulp necrosis.<sup>12</sup> The infection then spreads to the tooth apex of the root, causing periapical periodontitis, which leads to either an acute abscess or a chronic granuloma. Persistent chronic infection can lead to formation of a periapical cyst.<sup>13</sup> In the current case, patient had given a history of trauma previously; it could be the probable etiology.

Cortical expansion and root resorption of the affected tooth and displacement of the adjacent teeth are common features of radicular cysts.<sup>13</sup> In the current case, there was cortical perforation and adjacent teeth in relation to the cyst were non-vital, which is not common. It has been stated that as the cyst enlarges, adjacent teeth can become non-vital.<sup>14</sup>

The surgical approach to cystic lesions of the jaws is either marsupialization or enucleation. The treatment of choice is dependent on the size and localization of the lesion, the bone integrity of the cystic wall and its proximity to vital structures.<sup>15</sup>

### Conclusion

The current concept in management of periapical cysts is using nonsurgical means. However, depending on size and extent of lesion, surgical management might be necessary, for achieving success. Current case was managed successfully by performing endodontic therapy with thorough irrigation, cleaning and shaping and obturation of the canal space, followed by surgery

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