

Conservative Management of a Radicular Cyst Associated with a Primary Molar: A Case Report

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ABSTRACT

Radicular cysts associated with deciduous teeth are rare findings and affect mostly the mandibular teeth. Pain or loosening of tooth, swelling of jaw is a common clinical findings. A 7-year-old boy presented to the department with complaint of pain and swelling in the left side of face since one month. Orthopantomogram revealed radiolucent lesion with respect to the lower left second primary molar. Extraction of the offending tooth was done followed by marsupialization. Cystic lining sent for histopathological examination confirmed radicular cyst. Early diagnosis and treatment of radicular cyst is quite essential to avoid harm to the adjacent teeth and other vital structures, not to miss the essence of impact on the tender growing mind and body.

Keywords: Marsupialization, primary dentition, radicular cyst.

INTRODUCTION

Inflammatory cyst like radicular cyst rarely occurs in non-vital deciduous teeth with the frequency of only 0.5%-3.3%.¹ Pulp necrosis leads to periapical inflammation which stimulates proliferation of the epithelial cell rests of Malassez in the periodontal membrane resulting in cyst formation.² Mandibular molars are most commonly involved in primary dentition. Pain or loosening of tooth, swelling of jaw are some of the clinical findings.³ Treatment options are complete enucleation or marsupialization of the cyst with extraction of the associated teeth.² This report presents rare case of a radicular cyst associated with a primary molar and its management.

CASE REPORT

A 7-year-old male child reported to the Department of Pedodontics and Preventive Dentistry, BPKIHS, Dharan,

accompanied by his father with the chief complaint of pain and swelling in the left side of face since one month (Figure 1). Patient was asymptomatic one month back when he complained of pain in the lower left back teeth region. He visited a nearby dental clinic and was undergoing treatment for the carious tooth. However, the pain and swelling exacerbated since three days and he was referred to B.P. Koirala Institute of Health Sciences (BPKIHS). Past dental history revealed root canal therapy of the same tooth one year back. Medical history was non-contributory.

On extraoral examination, a diffuse, tender, firm bony swelling in the left side of face extending superiorly from zygoma to the lower border of mandible and mesially from left corner of mouth to the ramus of the mandible was seen. Intraoral examination revealed carious 75 with gingival swelling and vestibular obliteration (Figure 2).

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Figure 1. Pre-operative extraoral photograph.



Figure 2. Gingival swelling in the buccal aspect of 75.

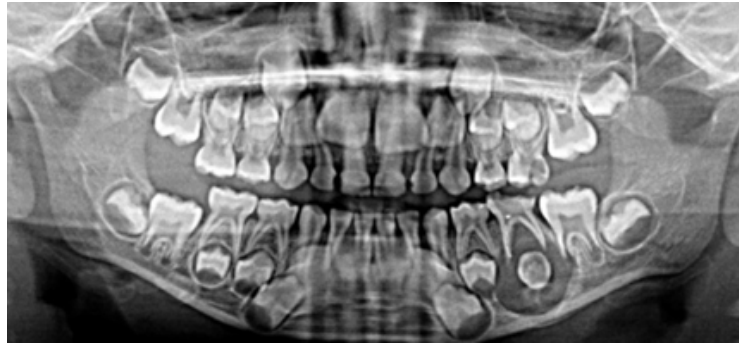


Figure 3. OPG showing radiolucent lesion involving tooth bud of 35.



Figure 4. Blood on aspiration.



Figure 5. Extracted tooth with epithelial lining.

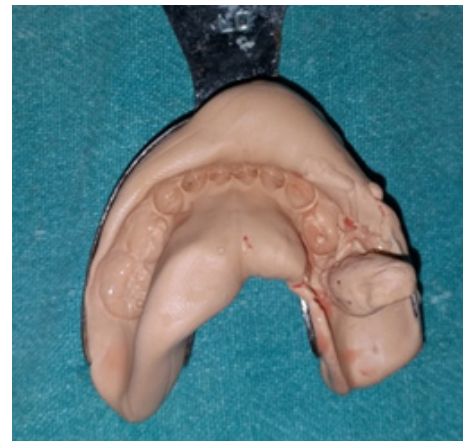


Figure 6. Impression of the mandibular arch for acrylic stent.



Figure 7. Marsupialization with silk suture.



Figure 8. Acrylic stent placed.

Orthopantomogram revealed a single localized well defined, roughly spherical homogenous radiolucency with regular border of size approx 1.5 cm x 1.8 cm involving 74, 75 and 36. Floating tooth appearance was present in 35 (Figure 3). On aspiration, straw colored fluid followed by blood was evident (Figure 4). Based on the history, clinical and radiographic examination, differential diagnosis of dentigerous cyst or radicular cyst associated with 75 was made. As the cystic lesion was large, treatment plan included extraction of 75 followed by marsupialization.

Informed consent from the parents and assent from the patient was taken for the procedure. Patient was admitted

to the pediatrics ward and kept under intravenous antibiotics (Ceftriaxone and Metronidazole). Extraction of 75 was done under local anesthesia the next day. Socket was carefully curetted and the specimen was sent for histopathological examination (Figure 5). Impression of the mandibular arch was made (Figure 6) for the acrylic stent fabrication. Marsupialization was done by suturing the cystic lining with the epithelial lining with 3-0 silk suture (Figure 7) followed by placement of the acrylic stent (Figure 8). Finally, patient was discharged the following day with oral antibiotics (Clavum and Metronidazole) and oral hygiene instructions which included flushing of the socket with saline after every meal.



Figure 9. Three weeks follow up.

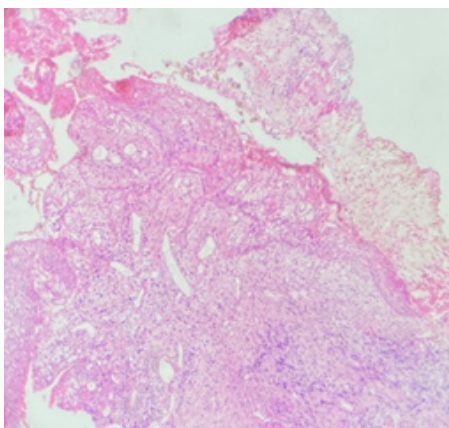


Figure 10. Histopathological picture (10X resolution).

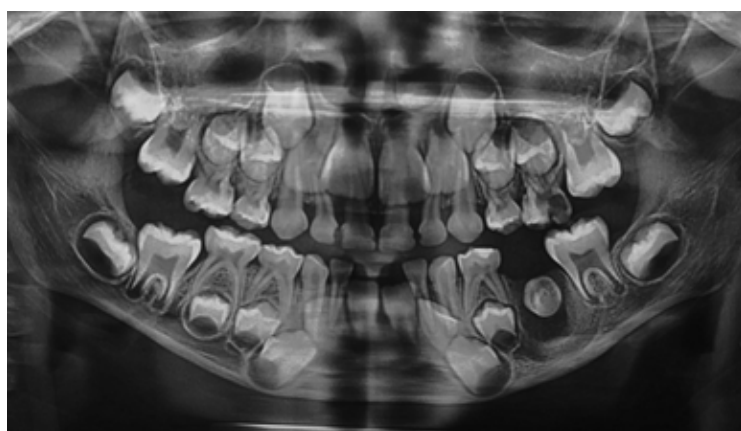


Figure 11. Three months follow up OPG.



Figure 12. 14 months follow up showing eruption of 35.

Three weeks follow up revealed satisfactorily healing socket of 75 with absence of extra and intra oral swelling (Figure 9). The acrylic extension was trimmed to allow eruption of 35. Histopathological report confirmed the diagnosis of radicular cyst (Figure 10). Radiographic evaluation after three months revealed bone formation around the tooth bud of 35 (Figure 11) and clinical evaluation after 14 months revealed erupting 35 (Figure 12).

DISCUSSION

According to Sprawson,⁴ radicular cyst is a rare clinical finding due to the biological cycle of primary teeth. Such cyst frequently goes unnoticed and resolves following tooth extraction. They also have a tendency for drainage more than the permanent teeth.⁵ Primary teeth after extraction are not submitted for pathological examination which undermines the frequency of cysts associated with primary teeth.

Pulp therapy carried out for necrotic primary teeth can have unfavourable outcomes like cyst formation, delayed eruption or enamel defects of the successor teeth. The intracanal medicaments used in pulp therapy is hypothesized to act as possible stimulants for the rapid growth of cysts.⁶ Ramakrishna et al,³ in his case report mentioned that Grundy, Adkins and Savage reported a series of cases of radicular cysts associated with deciduous teeth that had been treated endodontically with materials containing formocresol.

The common signs of radicular cysts are expansion of the buccal cortical plate, well-defined radiolucency, thin reactive cortex and displacement of permanent successor teeth.³ Patients do not experience pain unless the presence of acute inflammatory exacerbation.⁵ According to Formigli et al.⁷ radicular cysts represent potent bone destroying lesions of the maxillofacial skeleton. In the present case, although a differential diagnosis of dentigerous cyst was made (since the lesion appeared as

well defined, round lucent lesion around the crown of 35); histopathologic examination revealed non-keratinized stratified squamous epithelium with inflammatory cell infiltrate and some Russel bodies in the connective tissue, confirming the diagnosis of radicular cyst.⁸

There are some differences between radicular cysts involved with primary and permanent teeth. In primary dentition, mandibular molars are mostly affected since caries is more common in these sites. However, maxillary anterior teeth are involved in the permanent dentition since trauma and caries is more common here.⁹

The objective of marsupialization was to decompress the lesion. Due to appositional growth of bone, the size of the lesion decreases progressively. This technique was chosen as the size of the lesion was quite huge and it being a more conservative intervention compared to enucleation of the cystic lesion preventing any damage to the crowns of the developing permanent tooth bud. The procedure after counseling was readily accepted by both the child and parents. After marsupialization, a removable appliance with a resin projection was used to decompress the cystic lesion as well as prevent entry of food debris into the cystic cavity. It also prevented the formation of fibrous healing tissues which could have impaired the eruption of premolar. The co-operation of the

patient and parents was fundamental to the success of the treatment as they fully complied with the post-operative oral hygiene measures. Despite the large size of the lesion, the technique was successful and no further surgical or orthodontic intervention was required. Although there is less chance for inflammatory cysts to recur after adequate treatment,¹⁰ post-operative follow-up care for children should continue until the eruption of involved permanent tooth as illustrated by this report.

CONCLUSIONS

Radicular cysts are asymptomatic unless secondarily infected and can reach to a remarkable size until diagnosed, causing anguish among the parents. Hence, early diagnosis and treatment of radicular cyst is important to avoid harm to the adjacent teeth and other vital structures. Deciduous molar undergoing pulp therapy should be monitored for development of any cystic lesion. The cystic lesion can be effectively and efficiently managed with a conservative approach like marsupialization, however, regular follow-up and compliance from the patient is required for the success of treatment.

Conflict of Interest: None

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