

Radicular Cyst Involving Deciduous Maxillary Incisor along with Bilateral Supernumerary Teeth: A Case Report

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ABSTRACT

Radicular cyst involving the deciduous dentition is rare. Most of the cases reported it with primary molar teeth with apical infection. But very rare literature is available regarding radicular cysts associated with primary incisors.

Case report: A case of 9-year-old boy, who had bilaterally impacted supernumerary teeth, had developed a radicular cyst associated with a previously traumatized and intruded right upper primary lateral incisor is reported. Supernumerary teeth and intruded primary lateral incisor were removed along with enucleation of a radicular cyst.

Conclusion: The importance of correct diagnosis and management of radicular cyst in pediatric patients is important as most of the radicular cysts of primary teeth go undiagnosed, which can affect the developing succedaneous tooth bud.

Keywords: Deciduous teeth, Enucleation, Intrusion, Radicular cyst, Supernumerary teeth.

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INTRODUCTION

Radicular cysts are the most common inflammatory cysts of jaw which develop as sequelae of periapical infection due to trauma or pulpal necrosis associated with untreated caries. Around 60% of all jaw cysts are radicular cyst. But radicular cyst of deciduous dentition comprises only 0.5–3.3% of total number of radicular cysts seen in both deciduous and permanent dentition.¹

Supernumerary teeth are extra teeth in the dentition referred to as hyperdontia, which are defined as those teeth in addition to the normal series of deciduous or permanent dentition. They may occur anywhere in the mouth or may appear as a single tooth or multiple teeth, unilateral or bilateral, erupted or impacted, and in mandible/maxilla or both the jaws. The prevalence of supernumerary teeth varies between 0.1 and 3.8% and is more common in the permanent dentition.²

Most of these supernumerary primary teeth are either mesiodens or lateral incisors. They occur in conical, tuberculate, or molariform type of which conical is most common and occurs as single in midline (mesiodens) or bilateral (mesiodentes) structure. Single supernumerary teeth are conical in shape with complete root formation and bilateral supernumerary teeth are tuberculate shaped with incomplete root formation which occurs only in 13% of cases.

Majority of these impacted supernumerary teeth have to be treated early because they can create clinical complications such as retarded eruption, diastema, root resorption, nasal eruption, and cystic degeneration.

CASE DESCRIPTION

A 9-year-old boy was reported to the hospital with a chief complaint of missing upper front teeth. There was no relevant medical history.

Clinically, on intraoral examination upper maxillary primary teeth from lateral incisor to molars were present with only left maxillary central incisor (21) erupting (Fig. 1). Any swelling and pain were absent in the maxillary region. There was a history of trauma in the upper front tooth region at the age of three resulting in the

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intrusion of the maxillary left primary lateral incisor. The presence of supernumerary teeth was accidentally noted on radiographic examination (Figs 2 and 3). Cone-beam computed tomography (CBCT) was advised and the following findings were noted:

- CBCT findings revealed that there was a well-defined unilocular, circular radiolucency measuring 19.0 × 15.3 × 11.7 mm extending from mesial aspect of impacted tooth 11 to distal aspect of tooth 13.
- Superiorly, it is causing thinning of the floor of nasal fossa and inferiorly it is involving the alveolar ridge in tooth 11 and 12 regions. Buccally it is causing thinning of the buccal cortical plate in tooth 11 region.
- Along with this, CBCT findings showed the presence of palatally impacted 11 along with bilateral supernumerary teeth with large crowns and absence of root resembling palatodont³ which were in close proximity to the nasal floor (Fig. 4).



Fig. 1: Preoperative image



Fig. 2: IOPA of the impacted central incisor



Fig. 3: Preoperative OPG

Treatment Plan

With prior preanesthetic evaluation and with proper consent, the patient was operated under general anesthesia. Mucoperiosteal flap from maxillary left canine to right canine was raised. To get access to the impacted supernumerary teeth, palatal bone was drilled (Fig. 5). Bilateral supernumerary teeth were removed along with intruded lateral incisor with complete enucleation of cyst (Fig. 6).

The tissue sample on histopathological examination revealed cystic lumen composed of delicate collagen fiber bundles, fibroblasts, and numerous dilated and engorged blood vessels. The cystic lumen was lined by non-keratinized stratified squamous epithelium of various thickness and supporting connecting tissue capsule. The cystic lumen contained extravasated RBCs (Fig. 7).

Follow-up of patient after 9 months showed normal healing of the lesion with normal eruption of central incisor without any abnormal swelling or pain. Follow-up OPG (Fig. 8) shows the absence of any abnormality.

CBCT findings, surgical resection, and histopathological reports confirmed the diagnosis of a radicular cyst associated with intruded lateral incisor.

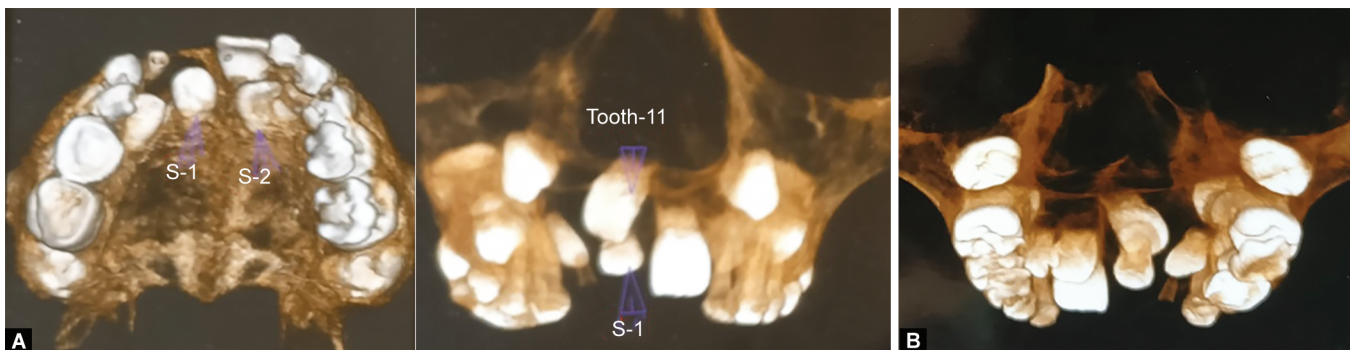
DISCUSSION

The presence of supernumerary tooth in the premaxillary region poses a unique diagnostic concern which is mostly diagnosed accidentally. The etiology of the supernumerary teeth is still unknown. They are seen in systemic conditions like cleidocranial dysplasia, Gardner's syndrome, or cleft lip and palate. Split in the tooth bud (dichotomy theory) is one of the other explanations for their occurrence. It may also be developed from locally conditioned hyperactivity of the dental lamina.³

Generally, supplemental or rudimentary are the two types of supernumerary teeth. Rudimentary forms include conical, tuberculate, and molariform types. The most common supernumerary teeth are the conical shaped which occur as single, midline (mesiodens), or bilateral (mesiodentes) structures.³

The vast majority of supernumerary teeth will create some clinical complications as the presence of these teeth is an innocent finding. Their ability to interfere with normal developmental occlusion is the most common deleterious effect of supernumerary teeth. They can cause displaced teeth, unerupted or impacted mostly causing impaction of central incisor. Nasal eruption, cystic degeneration, and dentigerous cyst formation are some of the other complications seen.

Radicular cyst is an inflammatory cyst as it is a consequence of periapical infection. They are rarely seen associated with primary dentition even though they occur at periapical region of any teeth



Figs 4A and B: (A) CBCT, (B) CBCT

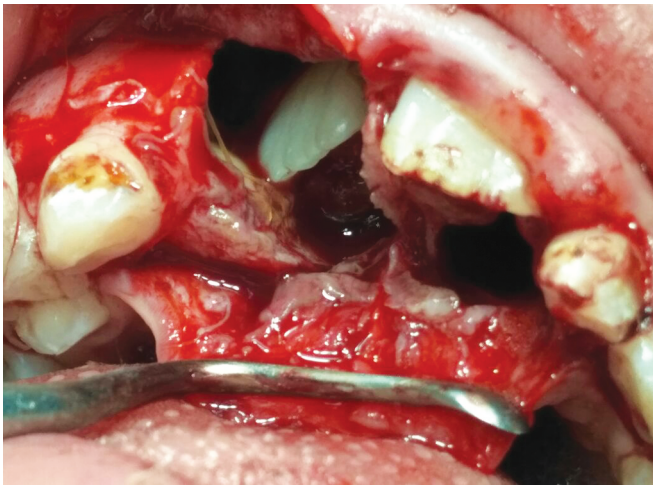


Fig. 5: Intraoral view after raising mucoperiosteal flap

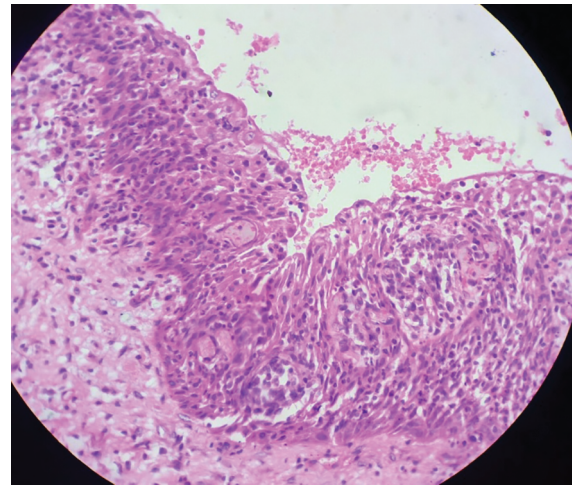


Fig. 7: Histopathological image of radicular cyst



Fig. 6: Supernumerary teeth with radicular cyst



Fig. 8: Follow-up OPG

at any age. Radiologically, it arises from the apex of the carious tooth or a traumatized tooth and is surrounded by a thin rim of cortical bone. The differential diagnosis of radicular cyst includes dentigerous cyst, traumatic bone cyst, or periapical cyst.

These are the most common of all jaw cysts even though their occurrence in primary dentition has been poorly reported. Only 0.5% of the low incidence rate of radicular cyst arising from primary dentition was recorded by Lustmann and Shear.⁴ Main (1970) recorded only 0.34% of radicular cysts involved with primary teeth.

Radiolucencies in the radicular region related to deciduous dentition are mostly neglected and are resolved after the removal of the tooth.¹ These teeth remain untreated as less severe symptoms are seen because the infections drain away more easily either through marginal gingiva or sinus tract. Mostly the extracted deciduous teeth are not submitted for histopathological examination which causes lesser reporting of true occurrence of cysts associated with them as compared to the permanent dentition.⁵

A number of distinguishing features are seen between the radicular cyst originating from deciduous teeth and permanent teeth. Radicular cysts are most commonly seen in the mandibular deciduous dentition as compared to the maxillary predilection in the permanent dentition.¹ Various etiological factors determine the difference in the site of distribution in the deciduous and permanent

dentition of radicular cysts. Pulpally necrosed carious tooth is the most common cause of radicular cyst in deciduous dentition affecting mostly mandibular molars whereas in permanent dentition it is trauma or caries. Trauma, caries, and old silicate restorations are the cause for high frequency of radicular cysts in the permanent maxillary incisors.¹

Based on location, in deciduous molars, most cysts are located in the inter radicular area and around the roots, whereas in case of permanent molars these cysts are usually located adjacent to the apex. The presence of short and sometimes partially resorbed roots and the existence of accessory canals in the roots of deciduous molar can be the reason for this. Thus, the term periradicular cyst in primary molars is more appropriate than periapical or radicular cyst.

The possible role of retained deciduous roots in the etiology of radicular cysts was considered by Stafne, which is a very rare occurrence.⁶

Most of the cases of radicular cysts involving deciduous teeth have pulpally necrosed teeth as the causative factor. This case report presents a case of radicular cyst involving deciduous teeth, affects maxillary incisor with the cause being trauma, along with association of multiple supernumerary teeth, which is unique in itself.

The complications of an untreated or undiagnosed radicular cyst could be harmful to the patient's future dental development, presenting with the following: swelling, tenderness, tooth mobility, and a bluish tinge caused by buccal expansion of the cortical plates.⁷ It can even lead to the displacement of the successor tooth or the loss of its vitality.^{8,9} It is therefore important to be aware of the sequelae of an untreated or undiagnosed radicular cyst for the prevention of adverse effects to the underlying permanent successor as well as the need for invasive surgical treatment.¹⁰

Total enucleation in case of small lesions and marsupialization for decompression of larger cyst is the normal treatment plan for radicular cysts.¹¹

To conclude, radicular cyst with impacted primary incisors with traumatic history and the presence of bilateral supernumerary teeth causing impaction of central incisor is rarely reported. Supernumerary teeth usually present with orthodontic problems like delayed eruption or impacted permanent teeth or may even be associated with the cyst. In this case, along with the enucleation of radicular cyst, the bilateral supernumerary impacted teeth with a close proximity to nasal floor were also removed surgically to avoid future complications. The treatment succeeded in rapid healing of lesion with the eruption of the permanent incisor.

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