

Molariform Mesiodens in Primary Dentition: A Case Report

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ABSTRACT

A supernumerary tooth is a developmental anomaly and it has been argued to arise from multiple aetiologies. Mesiodens is a midline supernumerary tooth which is commonly seen in the maxillary arch, and incidence of molariform mesiodens in the maxillary midline is rare in permanent dentition and extremely uncommon in primary dentition. A midline supernumerary tooth in the primary dentition can cause an ectopic or a delayed eruption of permanent central incisors, which will further alter occlusion and may compromise aesthetics and formation of dentigerous cysts. This paper reports a rare case which had the presence of a molariform mesiodens in the primary dentition. The treatment plan consisted of extraction of the supernumerary tooth and regular observation of permanent central incisors for proper eruption and alignment.

Keywords: Deciduous dentition, Hyperdontia, Mesiodens, Supernumerary tooth

CASE REPORT

A 5-year-old girl reported to the private clinic with a complaint of an un-aesthetic smile. The child had a Frankel's behaviour rating scale of 3 (positive +). Patient gave a past dental history of pulpectomies done in the upper incisors. On intraoral examination, patient had full complement of deciduous teeth, an extra tooth with two lobes and a cingulum was noticed in the anterior region of the maxillary arch, from the occlusal view. Since most of the teeth in the maxillary arch were involved with caries, she was at a high caries risk. Her medical and family histories were not relevant and non-contributory.

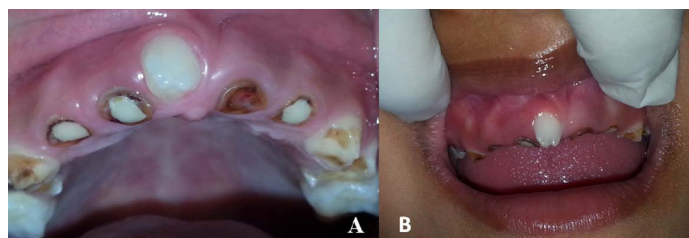
Careful evaluation of the supernumerary tooth revealed two separate lobes with well-formed developmental grooves on the occlusal surface of the mesiodens, which could be clearly distinguished. No interference was made in occlusion by the mesiodens [Table/Fig-1a,1b]. A radiographic examination which was done by using periapical radiographs, revealed a completely formed root and the presence of two cusps that were well-documented. Primary central incisors root showed physiological root resorptions. Lateral incisors revealed a radio opaque material in the pulpal chamber, which suggested pulpectomy. Permanent central incisors were in the Nolla's developmental stage 7 [Table/Fig-2].

Based on the clinical and radiographic examinations, the extra tooth was diagnosed as a – mesiodens with two lobes and a cingulum in the deciduous dentition. A comprehensive treatment plan was formulated, which included extraction of the deciduous central incisors and the mesiodens under local anaesthesia. The extracted mesiodens showed a completely formed root and the presence of two cusps that were well-documented [Table/Fig-3]. Extracted tooth was sent for a histopathological examination. Decalcification was done with 10% formic acid. H & E section revealed presence of dentin and pulp tissue. Structure of dentin appeared to be normal. [Table/Fig-4]. Pulp core consisted of loosely arranged cellular connective tissues with blood vessels [Table/Fig-5].

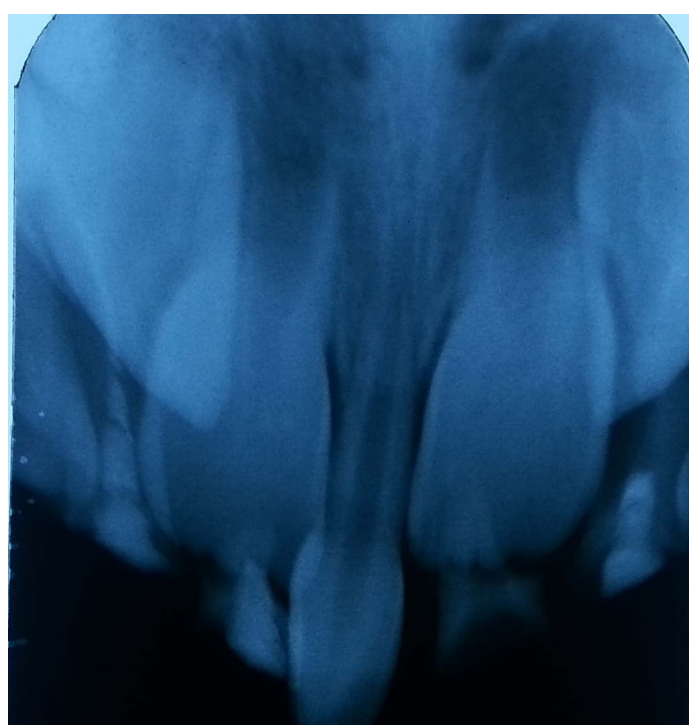
DISCUSSION

Supernumerary teeth or hyperdontia can be defined as teeth that exceed the normal dental complement, regardless of their locations and morphologies. Supernumerary teeth may occur singly, or multiply, unilaterally or bilaterally, and in one or both jaws [1].

The term, 'mesiodens' refers to a supernumerary tooth which is present in the midline of the maxilla, between the two maxillary central incisors. Although the mesiodens is considered as the most common dental abnormality, its occurrence in primary dentition is quite rare [2].



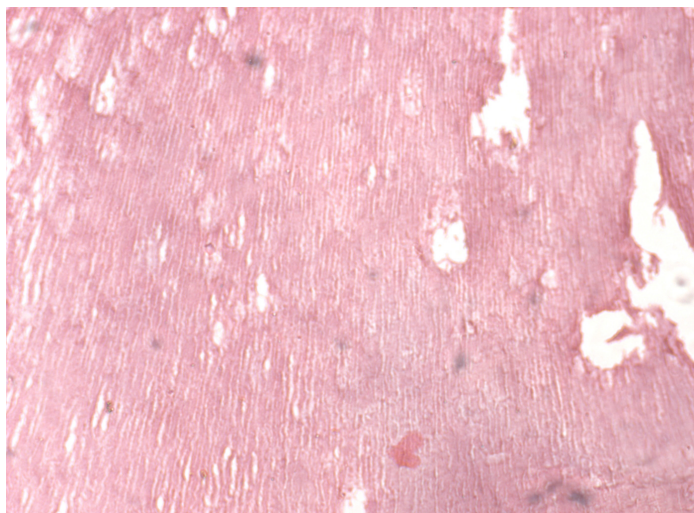
[Table/Fig-1]: Clinical picture showing mesiodens



[Table/Fig-2]: Intra-oral periapical radiograph showing mesiodens



[Table/Fig-3]: The extracted mesiodens



[Table/Fig-4]: Histopathology 40X view of dentin structure

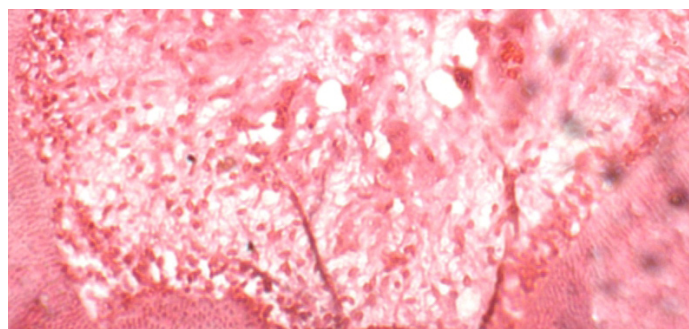
The prevalence of supernumerary teeth in permanent teething, oscillates to 0.5-3.8%, in comparison to 0.3-0.6% that is seen in primary teething. Supernumerary teeth appear with a higher frequency in males than in females, with a 2:1 ratio [3]. Supernumerary teeth are estimated to occur in the maxilla, 8.2 to 10 times more frequently than the mandible, and they most commonly affect the premaxilla [4]. Cases which have involvement of one or two supernumerary teeth most commonly show occurrences in the anterior maxilla, followed by the mandibular premolar region. The exact aetiology is unknown, but it has been believed that environmental factors, along with hereditary factors, in combination, cause the condition [5]. However, the presence of multi-lobed or tuberculate forms of mesiodens in the deciduous dentition is extremely rare and not many cases have been reported in the literature [4].

The prevalence of supernumerary teeth in non syndromic, south Indian population is 1.24% with a slight male predilection, conical shaped mesiodens being the commonest condition which is seen [6].

This case report presents a case of mesiodens which had morphological features which were similar to those of molars and it had occurred in a female. A similar case was reported by Mangalekar et al., [7].

Possible explanations for the less frequent reporting of deciduous supernumerary teeth include its lesser detection by parents, as the spacing which is frequently encountered in the deciduous dentition could be utilized to allow the supernumerary tooth or teeth to erupt, with reasonable alignment.

It is essential, not only to enumerate, but also to identify the supernumerary teeth which are present, clinically and radiographically, before a definitive diagnosis and treatment plan can be formulated. Early



[Table/Fig-5]: Histopathology 40X view of pulp core

diagnosis and extraction of a mesiodens may prevent malocclusions and dental abnormalities such as delayed eruptions of permanent incisors, rotations of the permanent incisors and diastema [8].

Although abundant information is available on normal tooth development, the genetic aetiology and molecular mechanisms that lead to congenital deviations in tooth number have not been clearly understood. The theories that have been proposed to support the patterns of presentation and incidences of supernumerary teeth are:

- A. Dental lamina that fail to degenerate, become reactivated to form accessory tooth organs.
- B. The dental lamina continue to proliferate due to failure, if programmed cell death, which may be brought on by defects in signalling between epithelium and mesenchyme.
- C. Supernumerary teeth may arise from division of a single tooth bud [1,9].
- D. Supernumerary teeth may be partly genetic, since they are commonly found in the relatives of affected individuals; however, inheritance pattern does not follow Mendelian principles [10].

In addition to the above theories, the other proposed aetiological factors include phylogenetic process of atavism, syndromes and medical conditions [11].

Classification of supernumerary teeth may be done on the basis of their positions or forms [12]. Positional variations include mesiodens, paramolars, distomolars and parapremolars. Variations in their forms include conical types, tuberculate types, supplemental teeth and odontomes. Supernumerary teeth may therefore, vary from a simple odontome, through a conical or tuberculate tooth, to a supplemental tooth which closely resembles a normal tooth.

Supernumerary teeth may occur in isolation or as part of a syndrome. The most common syndromes that show a significant incidence of multiple supernumerary teeth, are cleft lip and palate, cleidocranial dysostosis and Gardner's syndrome. The present case was not associated with any syndrome.

A supernumerary tooth may be discovered by chance as a radiographic finding, with no associated complications. However, if complications arise, they may include the following: [13-15].

Crowding

- A. Prevention or delay of/in eruption of associated permanent teeth;
- B. Displacement or rotation of permanent teeth;
- C. Incomplete space closure during orthodontic treatment;
- D. Dilaceration, delayed or abnormal root development of associated permanent teeth;
- E. Root resorption of adjacent teeth;
- F. Complications associated with the supernumerary tooth itself;

Different treatment modalities have been described in literature, for patients with multiple hyperdontia which is not associated with complex syndromes. Treatment is partly dependent upon the position and clinical manifestation of the supernumerary tooth. Thus, making an early diagnosis is very important, in order to decide from among extraction, extraction followed by orthodontic treatment, or simply

monitorization or control of the supernumerary teeth, with a view to minimizing the risk of complications which occur secondary to the presence of these teeth. Surgical management in turn, ranges from removal of the supernumerary teeth, to removal of the latter, followed by orthodontic treatment which aims to ensure a correct occlusion. In the more complex cases, the possible existence of multiple impactions of supernumerary teeth gives rise to destructuring of the dental arch, with numerous malpositioned teeth. These situations require a close cooperation among professionals, to define a combined surgical orthodontic management [11].

CONCLUSION

Careful clinical and radiographic evaluations of supernumerary teeth and macrodonts should always be thoroughly done, in order to detect their presence. It is a great challenge for the clinicians to decide timely management of supernumerary teeth, to prevent complications which are associated with them. The reported data on supernumerary teeth in primary dentition are less. The dental anomalies in primary dentition should be evaluated thoroughly. An early referral to a multidisciplinary clinic can be done in the patient's best interest.

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