

Supplemental Maxillary Lateral Incisor in the Primary Dentition: A Case Report

Patil Krishna¹, Shimpi Manasi Rajendra^{2*}, Chaudhary Shweta³ and Patil Smita⁴

¹Assistant Professor, Department of Paediatric Dentistry, Bharati Vidyapeeth Dental College and Hospital, Sangli, Bharati Vidyapeeth Deemed to be University, Maharashtra, India

²MDS III, Department of Paediatric Dentistry, Bharati Vidyapeeth Dental College and Hospital, Pune, Bharati Vidyapeeth Deemed to be University, Maharashtra, India

³Associate Professor, Department of Paediatric Dentistry, Bharati Vidyapeeth Dental College and Hospital, Pune, Bharati Vidyapeeth Deemed to be University, Maharashtra, India

⁴Assistant Professor, Department of Paediatric Dentistry, Bharati Vidyapeeth Dental College and Hospital, Pune, Bharati Vidyapeeth Deemed to be University, Maharashtra, India

***Corresponding Author:** Shimpi Manasi Rajendra, MDS III, Department of Paediatric Dentistry, Bharati Vidyapeeth Dental College and Hospital, Pune, Bharati Vidyapeeth Deemed to be University, Maharashtra, India.

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Abstract

Supernumerary teeth are regarded as one of the most significant dental anomalies that may be seen in the deciduous and early mixed dentition stage. They are often a great cause of concern to dentists and parents because of the occlusion, eruption and aesthetic problems they cause. Supernumerary teeth occur more frequently in the permanent dentition but rarely in primary dentition. Mesiodens is the most common type of supernumerary teeth associated with the upper arch. Early recognition and diagnosis of supernumerary teeth is important to prevent further complications in permanent dentition. This case report discusses a rare non-syndromic unilateral supplemental maxillary lateral incisor seen in the primary dentition and the subsequent treatment and lays emphasis on the early detection and management of supernumerary teeth.

Keywords: Hyperdontia; Lateral Incisor; Supernumerary Teeth; Primary Dentition; Supplemental Incisor

Introduction

The presence of supernumerary teeth in the premaxillary region often poses unique diagnostic and managerial concerns for the practitioner. Supernumerary teeth, also known as hyperdontia, is considered as an excess number of or additional teeth when compared to the normal dental formula. The dysfunctional nature of supernumerary teeth and their ability to create a variety of pathological disturbances in the normal eruption and position of adjacent teeth warrants their early detection and prudent management [1].

According to Stafne E., *et al.* (1932) approximately 90-98% of all supernumeraries occur in the maxilla with a particularly strong predilection (90%) for the premaxilla. Mesiodens is one of the most frequently encountered type of supernumerary teeth in humans which is commonly found located between the central incisors [2].

Supernumerary teeth have shown to have a 0.3 - 0.6% occurrence rate in the primary dentition, which is relatively much lesser than that of the prevalence in the permanent dentition. The probability of occurrence is five times less in the primary dentition than in the permanent dentition, as reported by Grahen H and Granath L (1931) [3]. The lower prevalence of supernumerary teeth in the primary dentition may partially reflect the difficulty in differentiating between gemination and fusion of a normal tooth with a supernumerary. These developmental disturbance in teeth (fusion and gemination) are found more commonly in the deciduous, rather than the permanent dentition [4,5].

The primarily found supernumerary teeth in the deciduous dentition are of the supplemental type, affecting lateral incisors, which rarely remain unerupted [4]. This case report describes one such case of a non-syndromic child with a supplemental primary lateral incisor in the maxillary right quadrant without an associated supernumerary tooth in the permanent dentition.

Case Report

A 4 year old male child reported to the Department of Paediatric Dentistry, Bharati Vidyapeeth Dental College and Hospital, Pune with the chief complaint of pain in the upper front region of the mouth and malaligned teeth in the upper front region leading to frequent laceration of the upper lip. The patient's Family and Medical Histories were non-contributory and extra-oral examination revealed no abnormality. Intraoral examination revealed the presence of an anteriorly placed (Figure 1) supplemental Maxillary Lateral Incisor in the upper right quadrant with caries involving enamel, dentin and approaching pulp (Figure 2).



Figure 1: Intra-oral photograph showing supplemental maxillary primary lateral incisor.



Figure 2: Intra-oral occlusal photograph showing labially placed supplemental lateral incisor in maxilla.

Other findings included presence of caries involving enamel and dentin with respect to 52, 51, 62. Maxillary anterior occlusal radiograph (Figure 3) and Intra oral periapical radiograph in relation to 52 revealed a unilateral right supplemental primary lateral incisor in which pulpectomy was indicated (Figure 4). Due to its anterior position and the history of pain and repeated lip laceration, the treatment was aimed at extracting the supplemental incisor:

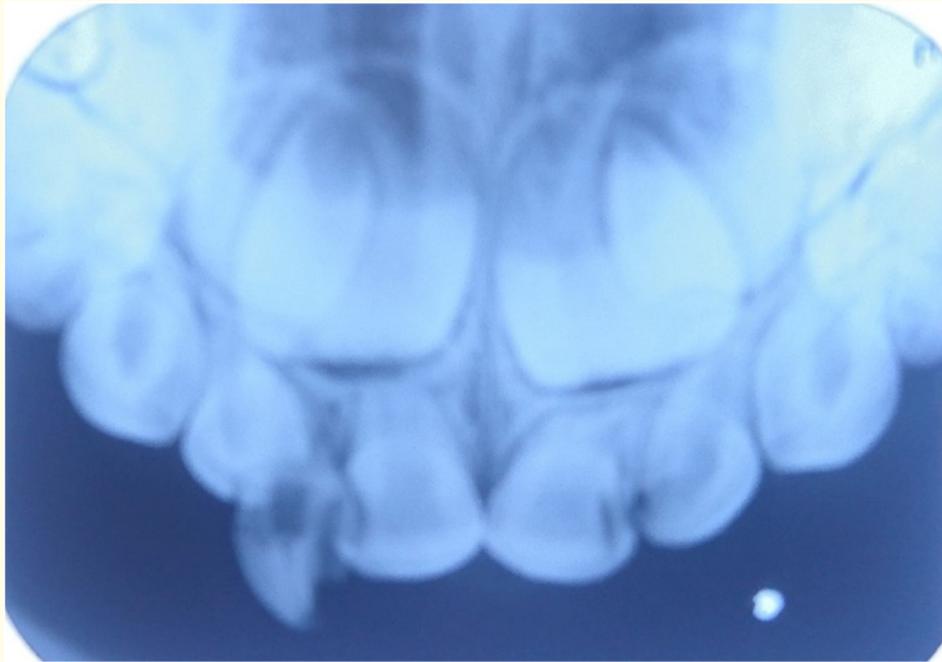


Figure 3: Maxillary occlusal radiograph showing supplemental maxillary right lateral Incisor.



Figure 4: Pre-operative IOPA showing complete root formation of supplemental lateral incisor.

Extraction of the supplemental Maxillary right lateral incisor was carried out under local anaesthesia after obtaining parental consent (Figure 5). On extraction, the tooth was 16mm in length with a crown length of 7 mm (Figure 6). In the subsequent visit, Glass Ionomer Cement Restorations of the carious teeth were carried, followed by topical fluoride application of the upper and lower arches (Figure 7).



Figure 5: Total length of the tooth= 16 mm.



Figure 6: Per-operative intra-oral frontal view.



Figure 7: Post-operative intra-oral frontal view.

Discussion

Supernumerary teeth are infrequent in the deciduous dentition with a reported incidence of 0.3 - 0.6%. This may be explained by the fact that these teeth are often gone unnoticed by the parent. i.e. less detection by parents, as the spacing that is an attribute of the deciduous dentition is often utilized to allow the supernumerary tooth or teeth to erupt with reasonable alignment without causing an interference in function. Usually most children undergo an initial dental examination after the eruption of the permanent anterior teeth. This makes the anterior deciduous supernumerary teeth go unnoticed as they may have already undergone physiological eruption and exfoliation without detection [6].

The first documented evidence of supernumerary teeth was found in ancient human skeletal remains dating back to the Lower Pleistocene era. Later, its presence was noted in the remains of an Australian aborigine that existed almost 13000 years ago. Documented evidence showed archeological remains in Germany from 7th century BC that showed the presence of an inverted mesiodens that had erupted into the nasal cavity [7].

Being normal in shape and size when compared to supernumerary teeth, Supplemental teeth are often overlooked. The removal of supernumerary teeth is recommended in those cases where there is a difficulty in oral hygiene maintenance, pathological changes secondary to the presence of such teeth or crowding along with a compromise on aesthetics is seen. In the present case, due to interference of the supplemental tooth and repeated lip laceration and frequent trauma to the soft tissue, the treatment plan that was decided was to carry out an extraction.

The prevalence of supernumerary teeth in the primary dentition varies from 0.8% in the British and the Belgian children, to 0.4% in the Bengali population and 0.05% in the Japanese with the maxillary lateral incisors being the most frequently encountered supernumeraries in the deciduous dentition. Additionally, in 35% - 50% of cases, primary supernumeraries display permanent supernumeraries in the same location [8]. However, this was not noted in the present case. Most supernumerary primary teeth are either midline mesiodens or supplemental lateral incisors [5,9].

Because the shape of supernumerary teeth in the anterior permanent dentition varies, several descriptive classification systems have been proposed. Di Biase, *et al.* divided them into two types according to shape: supplemental and rudimentary [10]. Supplemental refers to eumorphic supernumerary teeth of normal shape and size and may also be termed incisiform. Rudimentary teeth are dysmorphic teeth that have an abnormal shape and a smaller size as compared to the normal dentition. Rudimentary forms seen are either conical, or molariform or tuberculate in type [10].

Conical-shaped supernumerary teeth are seen most frequently and are encountered as single isolated structures either located in the midline (mesiodens) or bilaterally (mesiodentes) with complete root formation. They are seldom found in a labial position to the adjacent teeth, especially if they occur in the inverted conical form. Di Biase termed them as "mesiodonts" because of the usual mesial position of the conically shaped teeth. Because of their shape and position, mesiodonts often erupt, only rarely delaying the eruption of other teeth [10].

The tuberculate type is seen as a barrel-shaped structure (width is equal to its length) with the coronal anatomy including several tubercles that have either stunted roots or a complete absence of roots. They rarely erupt and are often seen as a cause of delayed eruption of the teeth adjacent to them. Since they are commonly seen located palatally to the normal dentition, Di Biase referred to them as "palatodonts." Being in close proximation to the incisors, and the narrow width of the alveolus in the premaxilla, palatodonts have an ability to cause labial displacement.

The third type, i.e. the molariform type has very few cases that have been reported in literature. In this type, the crown closely resembles the morphology of a premolar. Hence it is referred to as the 'molariform' type. A unique feature of this type is that it often occurs in pairs in the region of the central incisors and shows complete root formation.

Earlier, it was theorised that hyperdontia was the result of atavism or phylogenetic reversion to extinct primates with three pairs of incisors. However, this theory was not accepted. A second theory i.e the dichotomy theory proposed that hyperdontia occurred due to a split in the tooth bud where a complete, equal split of the bud resulted in two supplemental forms (twinning), whereas an unequal split resulted in one normal tooth and one smaller form. A third theory, which is regarded as the most widely accepted one, states that hyperdontia results from locally occurring hyperactivity of the dental lamina where the supplemental form arises from a lingual extension of an accessory tooth bud, whereas the rudimentary form is derived from the proliferation of epithelial remnants of the dental lamina [11].

Sedano and Gorlin suggest that hyperdontia might follow an autosomal dominant inheritance with lack of penetrance, there is little supportive evidence [12]. It is associated with several systemic disturbances such as craniofacial dysostosis (oral-facial digital syndrome), cleidocranial dysostosis, and Gardner syndrome.

Rotberg and Kopel recommend supernumerary removal when first radiographically identified, regardless of age. In a longitudinal study of 375 cases, they concluded that immediate removal (before five years of age) was superior to delayed removal (after seven years of age), since the prevalence of future complications such as displacement and retarded eruption was reduced by 39%, and additional surgical/orthodontic treatment by 45%. In addition, they indicated that there is less palatal bone loss when surgery is performed before five years of age, and that excessive concern for the psychological impact of early surgery on a young child is unwarranted [13].

A case report by Acharya S., *et al.* (2014) discusses a five-and-a-half-year-old healthy and medically fit girl child with the complain of an abnormal looking tooth in the upper front jaw. Oral examination revealed unerupted permanent central incisors and an exfoliated primary central incisor of right side (51). A conical supernumerary mesiodens was also present in between central incisors. Intraoral periapical radiographs further revealed the presence of an additional inverted supernumerary tooth in relation to erupting right central incisor (21). The treatment plan formulated involved surgical removal of the supernumerary teeth in order to facilitate the eruption of the incisors. The extracted teeth were deciduous as they had completed root development which the permanent teeth did not show as well as resorption in one of the teeth had started [14].

Badhure., *et al.* (2012) reported the occurrence of a mesiodens in a 6-year-old male with a missing right primary central incisor. Intraoral periapical radiograph revealed a slight deviation in the path of eruption of 11 due to the presence of mesiodens. The mesiodens was not extracted. Patient was kept under observation till the eruption of permanent right central incisor [6].

Badhure further reported a 5-year-old male patient with a conically shaped mesiodens in the maxilla. Radiographically, it was rotated and only the coronal portion of the tooth was formed. The case was kept on regular follow up in order to intervene if the mesiodens caused a hindrance to the eruption of the permanent teeth.

Gupta DK, *et al.* (2012) reported a 2 year 9 months old female child with a supplemental tooth that resembled a primary maxillary lateral incisor in upper right quadrant, similar to that observed in our case. Since there was no hindrance in function, the patient was kept under regular follow-up and the parents were cautioned about the problems that may arise in the future due to the presence of the supplemental tooth which include delayed or ectopic eruption of the permanent successors, crowding, etc [15].

Conclusion

It is a rare occurrence to find Supernumerary teeth in the primary dentition. Our patient had a unilateral supplemental primary maxillary lateral incisor without the presence of an associated supernumerary tooth in the permanent dentition which was confirmed by radiographic investigations. Since primary supernumeraries are associated with supernumeraries in the permanent dentition, radiographic examination is necessary. The presence of supernumerary teeth may affect the alignment of the permanent dentition causing crowding, altered path of eruption of the permanent dentition, or cause pathological disturbances due to impaction of the successor teeth. Thus, the decision on carrying forth the treatment of supernumerary teeth should be based on the entire clinical scenario, case history and the past dental history. Further research can be aimed at analysing the arch length in patients with supernumerary teeth in order to analyse the effect of these teeth on the development of jaw bone as well as the succedaneous teeth.

Conflict of Interest

The authors do not have any financial interest or any conflict of interest.

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