

Management of an erupted mesiodens causing severe displacement of maxillary permanent central incisor

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Abstract:

Mesiodens is a supernumerary tooth occurring in the anterior maxilla, located between the maxillary central incisors. Extraction of a mesiodens at a time appropriate for promoting self-eruption in the early mixed dentition may result in better alignment of the teeth and may minimize the need for orthodontic treatment. This case report features management of erupted mesiodens which caused the permanent maxillary right central incisor to be displaced labially in a ten year old female who was treated successfully by timely intervention in her mixed dentition.

Keywords: Erupted, Labial displacement, Mesiodens.

Introduction

Supernumerary teeth are defined as any teeth in excess of the normal number. Approximately 95% present in the maxilla, with a strong predilection for the anterior region. The prevalence of supernumerary teeth in whites is between 0.1% and 3.8%, with a slightly higher rate seen in Asian populations.¹ The term 'mesiodens' refers to a supernumerary tooth occurring in the anterior maxilla located between the maxillary central incisors.² The prevalence of mesiodens in Indian population ranges from 0.77% - 3.18%.³⁻⁷ They occur more commonly in the permanent dentition (prevalence of 0.10-3.6%) when compared to the primary dentition (prevalence of 0.02-1.9%).⁸ Clinical problems encountered with supernumerary tooth include rotation or displacement / delay in eruption of the maxillary anterior permanent teeth.⁹

Case report

A 9 year old female was referred to the Department of Pedodontics and Preventive Dentistry, College of Dental Sciences, Davangere with the chief complaint of irregularly placed upper front teeth and wanted treatment for the same. She was a normal healthy child with a medical and dental history which was both

non-contributory. On intraoral examination an extra tooth (supernumerary tooth) was noticed in the midline between the maxillary central incisors. Patient was in her mixed dentition stage with primary molars and primary canines relating as Class I, carious lesion i.r.t 64, 65 and stains on the palatal and lingual aspect of maxillary and mandibular teeth respectively. As this tooth occupied the midline position, there was no place for the permanent teeth and hence the maxillary right central incisor was displaced labially (Fig. 1A, 1B). Based on the clinical findings, the supernumerary tooth was diagnosed as mesiodens associated with a labially displaced maxillary right permanent central incisor. Since patient expressed dissatisfaction with this tooth, extraction followed by orthodontic treatment for labially placed incisor was planned. The mother was informed of the condition and consent was obtained before treatment initiation.

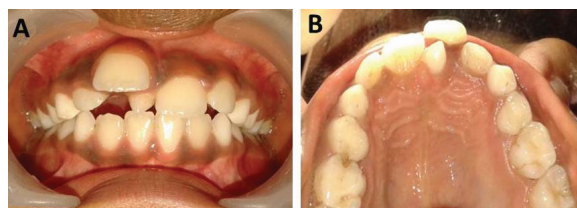


Fig. 1A. Preoperative photograph of mesiodens and labially displaced right maxillary permanent central incisor.

Fig. 1B- Occlusal view of the same.

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Treatment

The cariously involved teeth were restored. Extraction of the mesiodens was performed under local anaesthesia 2% Lidocaine with 1:100,000 Epinephrine, was administered slowly via labial and palatal infiltration with a 30-gauge needle.

Removable Hawley's plate with active labial bow was planned to align the displaced permanent central incisor. Patient was recalled after one week and impression of both the arches were made using alginate impression material. Hawley's appliance with active labial bow was constructed and delivered (Fig. 2A, 2B). Following a period of two activations, the incisor was seen to be retruded, but still not in alignment. Space deficiency was observed for further retrusion, therefore disking of primary canines was performed. After 2 months the incisor had come into alignment in the arch and the patient was happy (Fig. 3A). She was observed to have tongue thrust habit, hence is currently on fixed tongue crib therapy. 1 year follow up photograph of the patient (Fig. 3B).

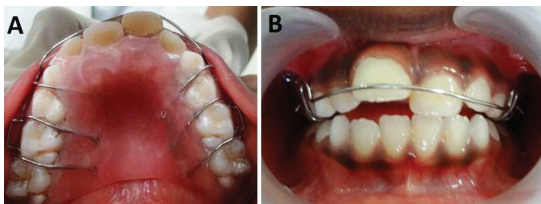


Fig. 2A - Hawley's appliance with active labial bow. Frontal view

Fig. 2B - Occlusal view of the same.

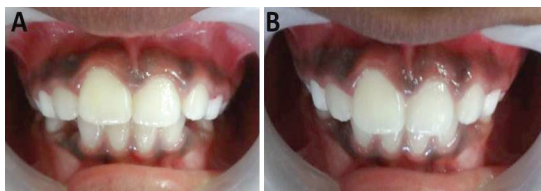


Fig. 3A - Post operative photograph at two months

Fig. 3B - 9 months follow up photograph.

Discussion

A supernumerary tooth is an additional entity to the normal series and is seen in all the quadrants of the jaws.¹⁰ Reports of supernumerary teeth are quite common in dental literature. It may occur individually or in multiples (mesiodentes).

The etiology of supernumerary teeth is not completely understood. It has been suggested that they develop from a third tooth bud arising from the dental lamina near permanent tooth bud, or possibly from the splitting of the permanent bud itself, or another well supported theory is the hyperactivity of dental lamina.¹⁰ 75% of supernumerary teeth in the anterior maxilla fail to erupt and exhibit a 2:1 male predominance.¹ It is less probable

for mesiodens to erupt if it occurs in multiples.¹¹ It has been stated that only 25% of maxillary anterior supernumeraries erupt. Nazif et al¹² reported that only 6% of the impacted mesiodens are found to be in a labial position. The vast majority (80%) are reported to be positioned palatally with the remaining 14% located between the roots of the permanent central incisors.¹² The small percentage that are labially positioned are due, in large part, to growth changes of the premaxilla that influence the position of the mesiodens.¹³

Mesiodens in the primary dentition show no sex predilection and are usually normal or conical in shape. In the permanent dentition, they show great variation of forms. Primosch¹¹ classified them into supplemental and rudimentary, according to its shape. Supplemental or eumorphic refers to supernumerary teeth of normal size and shape, and may also be termed incisiform. Rudimentary or dysmorphic defines teeth of abnormal shape and smaller size, including conical, tuberculate and molariform types. A conical mesiodens is small, peg-shaped (coniform) teeth with normal root; a tuberculate mesiodens is short, barrel shaped with normal appearing crown, or invaginated, but having rudimentary, incompletely developed root, and molariform is small premolar like or molar like.¹¹ Presence of mesiodens may be seen as an isolated finding or are frequently associated with various craniofacial anomalies, including cleidocranial dysostosis, Gardner's syndrome, cleft lip and palate and so forth.¹⁰ In our case the patient was non syndromic.

Problems that arise due to the presence of mesiodens include: Crowding or diastema formation, displacement and / or rotation of adjacent teeth, failure of eruption, hindrance to orthodontic tooth movement, enlargement of the follicle, dilacerations of the developing root and even space loss. In the present case, the erupted mesiodens was positioned palatally to the maxillary central incisors and had caused the right permanent central incisor to displace labially, such that the patient showed a lower lip trap. Removal of the supernumerary teeth with early orthodontic correction was successfully achieved in this case. It is crucial to retrude the labially displaced incisor earliest possible after extraction. The advantages of this being that there is no space loss and retrusion of incisor into the arch is easily accomplished. Literature shows that early surgical removal of mesiodens can be performed without the loss of vitality of the permanent incisors and without causing an undue negative psychological experience for the child,^{14,15} especially in countries like India wherein parents are more concerned about the social acceptability of a girl child's appearance.

Discussion

Early detection and management of all supernumerary teeth is a necessary part of preventive dentistry. Extraction of mesiodens in the early mixed dentition helps spontaneous alignment of the adjacent teeth. In this way orthodontic problems and traumatic dental injuries to adjacent teeth and / or dental pathology associated with this dental anomaly can be avoided. The present case enlightens us about the benefits of early interception and treatment of mesiodens in mixed dentition children. Thus, it can be concluded that early diagnosis is important for the preservation of the dentition and the development of the occlusion.

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