Esthetic Rehabilitation in a Patient with Mesiodens

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Abstract
Supernumerary tooth is one that is additional to the normal series and can be found in almost any region of the dental arch. They may be single, multiple, unilateral or bilateral erupted or unerupted and in one or both jaws. Mesiodens is the most common type of supernumerary tooth found in the premaxilla between two central incisors. Presented here is a case of ten year old male child with supplemental mesiodens with talons cusp erupted in the oral cavity causing malocclusion and another horizontally impacted mesiodens near the nasal floor. Mesiodens was extracted and esthetic reconstruction of the patient was done by bringing left maxillary central incisor to correct position by orthodontic treatment.

Key words: Supernumerary tooth, Mesiodens, Permanent teeth, Supplemental supernumerary tooth.

Introduction
Supernumerary tooth denotes duplication of tooth in the normal series. It is a developmental anomaly and has been argued to arise from multiple etiologies. These teeth may remain embedded in the alveolar bone or can erupt into the oral cavity. Etiology of the development of supernumerary teeth is not clear. It may be due to dichotomy of the tooth bud or due to hyperactivity theory, suggesting that they are formed as a result of local, independent, conditioned hyperactivity of dental lamina.¹

Supernumerary teeth are classified according to morphology and location. In the primary dentition, morphology is usually normal or conical. There is a greater variety of forms presenting in the permanent dentition. There are four morphological different types of supernumerary teeth; conical, tuberculate, supplemental and odontome.² Classification on the basis of position: (a) Mesiodens - present in the incisor region, (b) Paramolar - present beside a molar and a (c) Distomolar - present distal to the last molar. Among the supernumerary teeth, mesiodens is the most common type. The term mesiodens refers to a supernumerary tooth present in the premaxilla between the two central incisors. Mesiodens are more common in the permanent than in the primary dentition. The incidence of occurrence of mesiodens is 0-1.9% for deciduous teeth and between 0.15-3.8% for permanent teeth with male to female occurrence ratio of 2:1.³

The various problems associated with the supernumerary teeth are: failure of the eruption of permanent teeth, or their displacement. They can also cause crowding and may also be associated with a pathology like cyst. Occasionally, supernumerary teeth are not associated with any adverse effects and may be detected as a chance finding during radiographic examination.⁴

The supernumerary teeth may be single, multiple, unilateral or bilateral, erupted or unerupted and in one or both jaws. Multiple supernumerary teeth are rare in individuals with no other associated diseases or syndrome.⁵ Multiple supernumerary teeth are usually associated with conditions such as cleft lip and palate or syndromes like cleidocranial dysplasia and Gardner's syndrome. Cases involving one or two supernumerary teeth most commonly involve the anterior maxilla, followed by mandibular premolar region. When multiple supernumerary teeth are present the most common site is mandibular premolars.⁶

We present here a case of ten year old male child with supplemental central incisor with talons cusp erupted in oral cavity causing malocclusion and another horizontally impacted mesiodens near the nasal floor. Treatment was carried out by extracting the mesiodens and the left maxillary central incisor which was proclined labially was orthodontically brought to its normal position.

Case Report
A ten year old male reported to the Department of Pedodontics and Preventive dentistry at Dr. HSJ Institute of Dental Sciences & Hospital, Chandigarh with a complaint of irregular front teeth. Intra oral examination revealed a supplemental mesiodens with an irregular labial surface (Fig.1). The incisal aspect of the mesiodens showed an extra cusp on the labial surface and talons cusp palatally. The left maxillary central incisor was proclined labially while all the other teeth were in the normal alignment. Oral hygiene of the patient was poor with chronic generalized gingivitis.

Routine radiographic investigations were carried out to evaluate the status of all the teeth. Radiograph revealed
presence of horizontally impacted supernumerary tooth. Occlusal view revealed an aberrant morphology of supplemental supernumerary tooth and also the presence of an impacted mesiodens high up in the palate (Fig. 2).

A multidisciplinary approach was adopted for the management of the case. Extraction of supplemental mesiodens was planned for the proper alignment of the teeth. The impacted mesiodens was asymptomatic and high up in the palate near the nasal floor so it was decided not to extract the tooth and keep the patient on regular follow up.

The extraction of supplemental mesiodens was done (Fig.3). The orthodontic treatment with preadjusted edgewise appliance (PEA) was used to bring left maxillary central incisor to its normal alignment (Fig.4). After orthodontic treatment was finished; the teeth were well aligned. Patient was maintained on follow ups and showed a satisfactorily outcome without complications (Fig. 5).

**Discussion**

The etiology of supernumerary teeth is not completely understood. Various theories exist for the different types of supernumerary. One theory suggests that the supernumerary tooth is created as a result of a dichotomy of the tooth bud. Another theory, well supported in the literature, is the hyperactivity theory, which suggests that supernumeraries are formed as a result of local, independent, conditioned hyperactivity of the dental lamina. Heredity may also play a role in the occurrence of this anomaly, as supernumeraries are more common in the relatives of affected children than in the general population. However, the anomaly does not follow a simple mendelian pattern.

Clinical and radiographic identification of all the teeth is very important for a good treatment planning. It may be difficult to formulate an ideal treatment plan for all cases with supernumerary teeth. But an effort can definitely be made.
Treatment may vary from extraction of supernumerary teeth or extraction coupled with orthodontic correction to establish a good aesthetic as well as occlusion. In the present case, it was decided to extract the supplemental mesiodens and a multidisciplinary approach was adopted for the management of the case. Extraction of supplemental mesiodens was planned for the proper alignment of the teeth. The impacted mesiodens was asymptomatic and high up in the palate near the nasal floor so it was decided not to extract the tooth and keep the patient on regular follow up. The supplemental mesiodens was extracted and the alignment of the teeth was done orthodontically. Nance palatal arch was given followed by banding of maxillary first molars and bracket placement on 11, 21, 12, 13, 14, 15, 22, 23, 24, 25 maxillary teeth. The orthodontic treatment with pre-adjusted edgewise appliance (PEA) was used to bring left maxillary central incisor to its normal alignment. After orthodontic treatment was finished the teeth were well aligned.

Yusof,8 in a literature review of multiple supernumerary teeth occurring in the absence of a syndrome, found the anterior maxilla to be an unusual site for this occurrence as found. Similar findings were reported in our case where two supernumerary teeth; one erupted and other impacted, were found in upper anterior region that resulted in delayed eruption and displacement of 21. It is essential to enumerate and identify the teeth present clinically and radiographically before a definitive diagnosis and treatment plan regarding supernumerary teeth can be formulated. Radiographs played an important role to rule out the presence of impacted supernumerary teeth or other associated anomalies. A thorough radiographic examination at various angles may help us in estimation of exact location of the tooth. Timing of interceptive treatment should be as soon as possible following clinical detection of an abnormal eruption pattern. If a significant delay, i.e., more than six months in the eruption of maxillary central incisors with respect to its antimere was noted, the presence of mesiodens should be suspected and investigated radiographically. Controversy exists regarding the optimal treatment of delayed eruption due to supernumerary involvement. The options include removal of the supernumerary only, removal of the supernumerary, and orthodontic treatment to re-establish sufficient space, with or without surgical exposure of the unerupted tooth at the time of supernumerary tooth removal.

Gomes et al.9 verified that the most common treatment of choice was surgery followed by orthodontic therapy, i.e., in 62.0% of cases. In our present case also extraction followed by orthodontic treatment was used. This was also in accordance to case report presented by Kumar Arun et al10 in which four unusual cases of supernumerary teeth that resulted in varying degrees of disturbances in permanent dentition were presented. Conservative surgical intervention and light orthodontic forces were used to bring the teeth into normal position with minimal disturbance to the surrounding oral structures.

The present case is rare due to the presence of a mesiodens with talons cusp erupted in the oral cavity causing malocclusion and an another horizontally impacted mesiodens near the nasal floor. Whenever supernumerary teeth are diagnosed, single or multiple, a decision regarding the appropriate management should be made carefully. In our opinion, the clinical management of multiple supernumerary teeth poses a great challenge to clinicians. Therefore, it is important to initiate appropriate consultation and each case should be individually assessed.

References

Source of Support: Nil. Conflict of Interest: None Declared.