

Mesiodens an Eruption Path Breaker: Review and Case Report

K.T.S.S. Rajajee^{1*} J. Sharada Reddy² Chaitanya Ram³ Madhavi Krishna⁴ Nikitha⁵ Tangudu Archana⁶

¹Professor and Head, Department of Pedodontics, Anil Neerukonda Institute of Dental Sciences, Visakhapatnam, A.P, India.

²Professor and Head, Department of Pedodontics, Government Dental College and Hospital, Hyderabad, Telangana, India.

³Reader, Department of Pedodontics, Anil Neerukonda Institute of Dental Sciences, Visakhapatnam, A.P, India.

⁴Senior Lecturer, Department of Pedodontics, Anil Neerukonda Institute of Dental Sciences, Visakhapatnam, A.P, India.

⁵Senior Lecturer, Department of Pedodontics, Anil Neerukonda Institute of Dental Sciences, Visakhapatnam, A.P, India.

⁶Reader, Department of Periodontics, Anil Neerukonda Institute of Dental Sciences, Visakhapatnam, A.P, India.

ABSTRACT

Background: A case report illustrating the orthodontic management of unerupted right central incisor in the maxilla which was impacted due to mesiodens tooth in the eruption path. Mesiodens is a supernumerary tooth present in the midline between the two central incisors. It usually results in oral problems such as malocclusion, food impaction, poor aesthetics, and cyst formation.

Keywords: Mesiodens, Eruption path, Median Diastema, Central incisor.

INTRODUCTION

The effect of mesiodens varies from impaction, displacement or rotation of the central incisors, space loss, median diastema and also interferes with the complex process of eruption of permanent teeth in that location. While rare in the primary dentition, supernumerary teeth are quite frequent in the permanent dentition and occur more frequently in the premaxilla.

Supernumerary teeth are divided into three main types:

- Supplemental teeth where its main effect on occlusion is to increase the crowding potential;
- Conical teeth or mesiodens near the midline which causes median diastema; and
- Tuberculate teeth which causes delayed eruption of permanent upper central incisor. Early detection and removal of supernumerary teeth is of importance to avoid such complications.¹⁻⁵

Literature Review

Mesiodens⁶ can be detected in the maxillary midline, usually present as single, in pairs or multiple supernumerary teeth.⁷ It can affect one or both central incisors.⁸ They are mostly conical in shape and poorly formed.⁹ Sometimes they resemble the normal teeth (supplemental teeth). These are mostly seen in the premolar region. Para molars are supplemental teeth seen in the end of the arch. Supernumerary teeth occur due to hypergenesis of the epithelial cord, hereditary, developmental defects as in cleft lip and palate and atavism.

A study conducted in ¹⁰ Saudi Arabia revealed that the anterior maxilla is the area predominantly involved, ¹¹ and that there is no significant difference in the distribution of unilateral and bilateral supernumerary teeth.¹² Supernumerary teeth can prevent the eruption of central incisors. They can cause bodily displacement, median diastema or torsion version which is usually associated with the inverted type of mesiodens.¹¹ Supernumerary teeth can be involved with other

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*Correspondence Dr. K.T.S.S. Rajajee.

Department of Pedodontics, Anil Neerukonda Institute of Dental Sciences, Visakhapatnam, A.P, India.

Email: Not Disclosed

problems as multiple impactions of teeth, compound odontoma, cyst, and root resorption of the adjacent teeth.¹²

Assessment and Management of the Effects of Supernumerary Teeth

A. Radiographic Assessment: In routine analyses of supernumerary teeth, radiographs required are periapical, orthopantomogram, and lateral skull radiograph. When suspecting a supernumerary tooth, an extra radiograph will help the diagnosis; an upper occlusal film will clarify the presence or absence of the supernumerary teeth. A lateral skull radiograph will assist in determining the depth and height of the supernumerary tooth.

B. Clinical Assessment: Careful and detailed clinical examination will be valuable in detecting the reason for an unerupted central incisor. Certain clinical features such as retention of the deciduous central incisor, bulging of the soft tissue on the labial or palatal mucosa, or loss of space in the arch will be observed.

Rotation of the central incisor is usually caused by the presence of mesiodens. The degree of rotation depends on the position, depth and angulation of the unerupted mesiodens. Erupted mesiodens will cause median diastema and displacement of one or both of the central incisors.

CASE REPORT

A 10-year-old girl was referred to Department of Pediatric dentistry, complaining of delayed eruption of the right upper central incisor(Fig.1). Clinical examination showed a labial bulge of the labial mucosa, lack of space, and absence of deciduous incisors with normal eruption of left upper central incisor. Routine radiographic analysis, with the assistance of upper anterior IOPA view (Fig.3) revealed the presence of a supernumerary tooth which was preventing the right upper central incisor from normal eruption. Upper anterior IOPA radiograph showing the presence of mesiodens tooth obstructing the upper right central incisor from eruption. The first stage of treatment was to surgically expose the tooth(Fig.2) and subsequently regaining space using the fixed orthodontics. The second stage was surgical removal of the supernumerary tooth (Fig.4), subsequently

regaining space using the fixed orthodontics and repositioning of the upper central incisor(Fig.5). The later was brought to the arch by light forces. The central incisor was retained for three months by a fixed appliance before debanding and changing the retaining fixed appliance to a Hawley retainer. When right maxillary central incisor was repositioned to its correct position in the arch(Fig.6), clinical crown length of the exposed central incisor is longer than its adjacent tooth.



Fig 1: Preoperative photograph.



Fig 2: Radiograph showing mesiodens obstructing the eruption of tooth no. 11.



Fig 3: After surgical exposure of tooth no. 11.



Fig 4: Surgical removal of mesiodens.



Fig 5: Begg's brackets bonded on teeth for alignment.



Fig 6: post-operative photograph.

In this Case, lack of space was also associated with unerupted right maxillary central incisor. After thorough investigation, the cause of lack of space was found to be due to drifting of the neighbouring teeth. The first step is to create enough space for the tooth to erupt, as is common in such cases, the clinical crown of treated impacted central incisor, is longer than its adjacent tooth. Such discrepancy is due to "window type" surgical exposure and the distance in which the impacted central incisor was moved. Minor periodontal surgery decreases such discrepancy. Some operators extract the central incisor and the supplemental supernumerary tooth which is built up with composite filling material or is crowned. This type of treatment has cosmetic and functional disadvantage in the long-term management. Satisfactory function and aesthetic results will be obtained with proper consideration of surgical, periodontal and orthodontic principles 14, 3 and 4 in the treatment.

DISCUSSION

Significant delay in the eruption of the maxillary incisor(s) suggests the presence of supernumerary teeth 13, 14. Surgical removal of the supernumerary tooth will accelerate the eruption of the unerupted central incisor to its ordinary position without any orthodontic treatment 1-5. If the roots of the central incisor are completed, the eruption force will be affected and orthodontic correction is necessary.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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