

## Case Report

# Surgical and Orthodontic Management of Mesiodens and Dilacerated Supernumerary Tooth: A case report.

Revathi M<sup>1</sup>, Abhishekha Patil<sup>2</sup>, Hemavati walikar<sup>3</sup>, Kunal Agarwal<sup>4</sup>

<sup>1,3</sup> Post Graduate Student , Department of Pedodontics & Preventive Dentistry, Government Dental College & Research Institute, Bangalore.

<sup>2</sup> Post graduate student, Department of Prosthodontics, Government Dental College & Research Institute, Bangalore.

<sup>3</sup> Post graduate student, Department of orthodontics, Government Dental College & Research Institute, Bangalore .

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### ABSTRACT

Supernumerary teeth are described as the teeth formed in excess of the normal dental formula. A mesiodens is a supernumerary located in between the central incisors in the maxilla. They can delay or prevent eruption of central incisors, cause ectopic eruption, displacement or rotation of a central incisor. Less common complications involving the permanent incisors include dilaceration of the developing roots, root resorption and loss of tooth vitality. This report describes the successful treatment approach of a young boy who had a mesiodens and one supernumerary tooth which was slightly dilacerated.

### Introduction

Supernumerary teeth are developmental disturbances occurring during odontogenesis resulting in the formation of teeth in excess of the normal series. They occur both in the deciduous and in the permanent dentition, but their occurrence is more in permanent dentition. In the primary dentition the incidence is 0.3-0.8% and in the permanent dentition it is 1.5-3.5% with a male to female occurrence ratio of 2:1. Supernumerary teeth may be single or multiple, unilateral or bilateral, erupted or unerupted and in one or both the jaws. Single supernumeraries occur in 76 - 86% of cases, double supernumeraries occur in 12-23% of cases and multiple supernumeraries in less

than 1% of cases. These teeth can be classified in the following manner. Firstly, according to their location in the dental arch a supernumerary can either be classified as a mesiodens, paramolar or distomolar. Secondly, they can be classified according to their morphological forms as conical, tuberculate, supplemental or an odontome.<sup>1</sup>

A mesiodens is a supernumerary located in between the central incisors in the maxilla. A paramolar is one situated buccally or palatally to one of the maxillary molars. A distomolar is situated distal to the third molar.



(fig-1) Preoperative extraoral photograph



(fig-2) - preoperative intraoral photographs



(fig-3) - preoperative intraoral periapical radiograph



(fig-4) - Treatment progress

A conical supernumerary is a small peg shaped (coniform) tooth with a normal root. Tuberculate (multicusped) supernumerary tooth is a short barrel shaped tooth with normal or invaginated crown but rudimentary root. A supplemental tooth refers to a supernumerary tooth of normal size and shape and resembles the normal series (duplication). Most of the supernumerary in the primary dentition are of the supplemental type. In the permanent dentition they are more common in the maxillary lateral incisor region. Odontome is a supernumerary having no regular shape of a tooth but it is usually multiple in nature. There are many complications which have been associated with supernumeraries, like impaction of adjacent teeth, delayed or ectopic eruption of relevant teeth, crowding, rotation and development of midline diastema of permanent incisors. There are reports that a supernumerary may erupt into the floor of nasal cavity instead of oral cavity. A supernumerary teeth may give rise to dentigerous cyst.<sup>2</sup>

The aim of this report is to document an interesting case of mesiodens and mildly dilacerated supernumerary tooth without any associated syndrome resulting in the crowding of permanent central incisors and its management.

### CASE REPORT

A 9-year-old male patient reported to the Department of Pedodontics, with complaints of a funny-looking, small tooth between the upper two front teeth (fig-1). On intraoral examination, a mesiodens and a supernumerary teeth was seen between the upper two permanent central incisors. The upper right central incisor was buccally displaced. Dentition stage was early mixed, with both primary canines and molars present (fig-2).

Patient's concern was only esthetic. The molar relations were normal with centric occlusion and centric relations coincident. The mandibular dental arch was well aligned and dental midlines were coincident with facial midline. The profile was straight



(fig-5) - extracted supernumerary teeth



(fig-6) Intraoral postoperative treatment.



(fig-7) Extraoral postoperative treatment.

with good vertical balance and lip competence. Cephalometric analysis showed all skeletal and dental values were within normal limits. There was no pathologic finding with the supernumerary teeth between the upper central incisors in the IOPA (Fig-3).

Intraoral tissues were normal and healthy.

The treatment goal was to maintain class I incisor, canine and molar relationship and to achieve normal overjet and normal overbite.

Treatment plan was to extract the mesiodens and the supernumerary teeth, followed by orthodontic closure of diastema and correction of buccally displaced central incisor.

The two supernumerary teeth were extracted under local anesthesia. One supernumerary tooth was conical in shape, the other tooth was mildly dilacerated, the tooth was extracted with great care to avoid any damage to adjacent permanent teeth (fig-4). For the alignment of the buccally displaced central incisor, upper permanent first molars were banded and MBT brackets bonded to the upper incisors, a  $0.016 \times 0.022$  inch NiTi wire was placed followed by  $0.016 \times 0.022$  inch stainless steel wire (fig-5). After achieving a desired result debonding was done.

## DISCUSSION

The etiology of supernumerary teeth remains unclear, but several theories have been suggested. The hyperactivity of the dental lamina is the most accepted cause.<sup>3</sup> According to this theory, remnants of dental lamina are thought to induce development of an extra tooth bud which results in a supernumerary. A second theory is the dichotomy theory, which suggests that the tooth bud is split to create two teeth.<sup>4</sup> The supplemental teeth may explain the presence of this theory. Along with these two theories genetics has also been considered in the development of supernumerary teeth.<sup>5,6</sup> According to Munns, the earlier the offending tooth is removed the better is the prognosis.<sup>7</sup> But there are some controversies regarding the removal of supernumerary teeth in the mixed dentition period. Most of the authors recommend surgical removal of supernumerary tooth as and when half of the root of the adjacent permanent incisors was formed. This is to minimize injury to the developing permanent tooth. The treatment therefore comprised of surgical removal of supernumerary tooth followed by orthodontic intervention. The tooth is now well aligned in the maxillary arch after about 9 months of active treatment (fig 6). The patient was happy and confident about

esthetics (fig 7). The retention of this case was done with fixed appliance for a long period of time to prevent relapse.

Management always depends on the type of supernumerary teeth and its position, relation to other tooth and its effects on adjacent teeth. Extraction is not always the treatment of choice. Unerupted supernumerary teeth that are symptomless do not appear to be affecting the dentition in anyway and those which are found by chance are sometimes best left and kept under observation<sup>8</sup>.

### CONCLUSION

Successful management of dilacerated supernumerary tooth was achieved by extraction followed by a fixed edgewise appliance to correct the axial inclination and finishing. The timing for extraction and orthodontics is essential for treatment success. The earlier the offending tooth is removed the better is the prognosis

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