



**Case Report**

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## Non-syndromic multiple Mesiodens: Two case reports

Dr. Mohammad Mushtaq<sup>1</sup>, Dr. Sneh Kalgotra\*<sup>2</sup>

<sup>1</sup> Professor & Head, Post- Graduate Department of Orthodontics & Dentofacial Orthopaedics, Government Dental College & Hospital, Srinagar, Jammu & Kashmir, India

<sup>2</sup> Registrar, Post- Graduate Department of Orthodontics & Dentofacial Orthopaedics, Government Dental College & Hospital, Srinagar, Jammu & Kashmir, India

### Abstract

Any tooth appearing in any area of dental arch in addition to the regular number of teeth is called as supernumerary teeth and the condition is called as hyperdontia. Such teeth are most commonly found in pre-maxillary region, such teeth when present between two central incisors are called as mesiodens. The etiology of this condition is documented to be hereditary and also found to be associated with certain syndromes. Such teeth when present pose aesthetic or/and functional problem to the patient. The patients who reported to us, had no history of trauma or associated syndrome, came with a chief complaint of irregularly placed upper front teeth which did not look good and requested orthodontic treatment for the malalignment of their anterior teeth. The treatment options are further discussed.

**Keywords:** Non- syndromic, Malalignment, Mesiodens.

### INTRODUCTION

Tooth development & eruption is a process which consists of various morphologic stages & physiologic growth process. Any disturbance during these phases may cause hypodontia or hyperdontia (supernumerary teeth). Such teeth are in addition to the regular number of teeth in the oral cavity<sup>[1]</sup>. Such teeth when present between maxillary central incisors are called as mesiodens<sup>[2]</sup>. Literature quotes a racial variation with frequency higher than 3 % in Mongoloid races. Incidence in primary dentition is documented to be 0.3%-0.8%, whereas in permanent dentition it is 1.5%-3.5%. It is believed that supernumerary teeth are under- reported in primary dentition or overlooked, because they do not cause malalignment which may be the reason for lower incidence of prevalence in primary dentition<sup>[3]</sup>. There is no significant sex distribution in primary supernumerary teeth; however, males have been shown to be affected more in the permanent dentition than females.

Various theories have been suggested regarding the aetiology of supernumerary teeth, but it still remains unclear. Smith suggested the "phylogenetic theory"<sup>[4]</sup>, which relates atavism (evolutionary trend) to hyperdontia, suggesting that hyperdontia is a result of reversional phenomenon or atavism. Atavism is the return to or the appearance of an ancestral condition or type. Similar trends have been seen with third molars which are rarely impacted in the primitive dentition. The evolutionary trend shows that there is reduction in both the number and size of the teeth in human beings & appearance of supernumerary teeth may be an atavistic phenomenon<sup>[5]</sup>.

The second theory by Liu<sup>[6]</sup>; is "dichotomy theory", which postulates that supernumerary tooth is created as a result of dichotomy of the tooth bud<sup>[7]</sup>. Once the tooth bud splits, it may split equally or unequally giving rise to two teeth equal in size or one normal and one dysmorphic tooth respectively.

### CASE REPORTS

In this article we are presenting two case reports.

#### CASE 1

A 25 years old female reported with a chief complain of irregularly placed upper front teeth.

\*Corresponding author:

**Dr. Sneh Kalgotra**

Registrar, Post- Graduate  
Department of Orthodontics &  
Dentofacial Orthopaedics,  
Government Dental College &  
Hospital, Srinagar-190010,  
Jammu & Kashmir, India

**Oral findings:** Oral examination revealed three erupted mesiodens between the upper right and Left permanent central incisors (11 and 21). The upper right central incisor (11) was normal in morphology. The upper left permanent central incisor (21) had normal morphology. There was a large gap between the two with two of the mesiodens visible Figure 1A. Her upper right lateral incisor (22) erupted palatal to 11 and the upper left canine (23) was still unerupted. The upper right and left permanent canine (13, 23) was already into occlusion. The intraoral view is shown in Figure 1B.

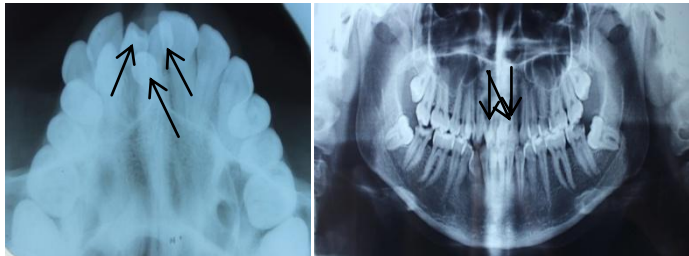


**Figure 1A:** Intra-oral frontal photograph showing mesiodens between maxillary central incisors

**Figure 1B:** Intra-oral occlusal view showing third mesiodens

**Radiographic findings:** A panoramic survey of the teeth and jaws revealed three erupted mesiodens in close proximity to each other and each lying in pre-maxillae region in between the two central incisors (11,21).

A standard maxillary occlusal radiograph (Figure 1C) was taken to determine the position of the erupted mesiodens which was found to be located palatally. The bucco-lingual position of the unerupted mesiodens can be located using the parallax technique. The panoramic view is shown in Figure 1D.



**Figure 1C:** Maxillary occlusal view showing multiple mesiodens

**Figure 1D:** OPG showing multiple mesiodens

## CASE 2

A 20 years old male, who reported with a chief complain of improperly placed upper teeth. Patient gave an history of younger sister having the same condition.

**Oral findings:** Oral examination revealed two erupted and one unerupted mesiodens between the upper right permanent lateral incisor and left permanent central incisors (11 and 21). The upper right central incisor is impacted (11) and upper left central incisor is normal in morphology. There was a large gap between the left and the right lateral incisor with two of the mesiodens visible Figure 2A. His upper right central incisor (11) and upper left permanent canine(23) were impacted. Deciduous right upper canine was retained (53). The intraoral occlusal view is shown in Figure 2B.

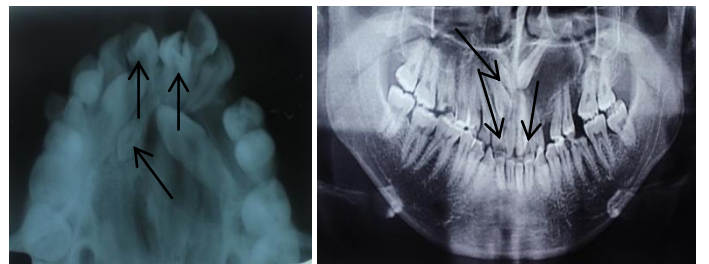
**Radiographic findings:** A panoramic survey of the teeth and jaws revealed two erupted mesiodens in close proximity to each other and each lying in pre-maxillae region in between central incisor (21) and lateral incisor (12) and an unerupted mesiodens is also visible. The upper right central incisor and left upper permanent canine are impacted. Fig: 2C A standard maxillary occlusal radiograph (Figure 2C) was taken to determine the position of the erupted mesiodens which

was found to be located palatally. The panoramic view is shown in Figure 2D.



**Figure 2A:** Intra-oral frontal photograph showing mesiodens between maxillary central incisors

**Figure 2B:** Intra-oral occlusal view showing multiple mesiodens



**Figure 2C:** Maxillary occlusal view showing multiple mesiodens

**Figure 2D:** OPG showing multiple mesiodens

## Treatment

Keeping in view the patient's chief complaint, age, aesthetics requirements of the patient, interdisciplinary approach was decided as the treatment protocol with consultation with the specialties of Oral Surgery and Periodontics.

An upper and lower impression (Alginate) was taken for construction of study model to monitor changes in tooth movement. A lateral cephalogram was recorded for the further treatment planning.

- Surgical removal of three mesiodens at pre-maxillary region was planned in consultation with Oral Surgery.
- Since removal of three mesiodens at the pre-maxillary region would lead to a lot of bone loss in that region, so bone grafting was planned in consultation with the Periodontist.
- After 4- 6 months Orthodontic fixed intervention was planned from aesthetics, functional and speech point of view.

## DISCUSSION

Supernumery teeth have been found to be associated with no. of syndromes like Gardner's syndrome<sup>[8]</sup> (which is also associated with other medical conditions like cancer of the large colon, multiple jaw osteomas, multiple impacted teeth, multiple odontomas, congenital hypertrophy of retinal pigment epithelium), cleidocranial dysplasia (which is also associated with other features like partly missing clavicles, narrow chest, prognathic mandible due to hypoplastic maxillae) and also cleft lip and palate<sup>[9]</sup> (other associated features being dens invaginatus, dens evaginatus, impaction, taurodontism, pulp stones, ectopic eruption) many others like Fabrys Anderson's syndrome, Ellis Van Creveld syndrome, Ehler's Danlos Syndrome<sup>[10]</sup>, Tricho-Rhino-Phlangeal syndrome. In both the above given cases there was no associated history of any other condition. Thus making the supernumery teeth purely non-syndromic.

Such cases when report to the clinician, have to be identified not only clinically but also radiographically before a definitive diagnosis can be made and before a treatment plan cab be formulated<sup>[11]</sup>. The aetiology

in the cases under discussion could be related to the dichotomy theory; probably originated from the permanent tooth bud. There have been several cases reported with supernumerary teeth, these cases are unique as they report multiple supernumerary teeth in a male and a female patient without any associated syndrome. Although the patients reported with a chief complaint concerning aesthetics, but such teeth have been reported to cause other complications like delayed eruption, erupting of mesiodens in the nasal cavity<sup>[12]</sup>. So an early diagnosis & treatment of such cases should be taken up. Different treatment protocols may be followed depending on the position, status of eruption, root formation & site of tooth in question and most importantly patient co-operation.

## CONCLUSION

The patients reported with a chief complaint of irregularly placed upper front teeth. On investigations it was found that there were more than one mesiodens in both the patients, which caused a midline diastema, rotation of maxillary central incisors and unpleasant smile. Any associated medical condition or syndromes were ruled out. The mesiodens were extracted followed by a bone graft and then patients were taken up for fixed orthodontic treatment to address the chief complaint of the patient.

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