

# Mesiodens: A Case Report

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## ABSTRACT

The presence of an extra supernumerary tooth in the central position of the upper or lower jaw is called mesiodens. These teeth can be present as part of a syndrome or can be found as an isolated finding. Mesiodens is the most frequently found extra tooth, with prevalence in the general population of 0.15-1.9%, and with a higher frequency in males than females. Usually the shape is conical and mesiodens is smaller than the neighbour incisor. Several hypotheses have been suggested for the formation of supernumerary teeth. Early diagnosis and treatment are needed to support right dental occlusion.

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## INTRODUCTION

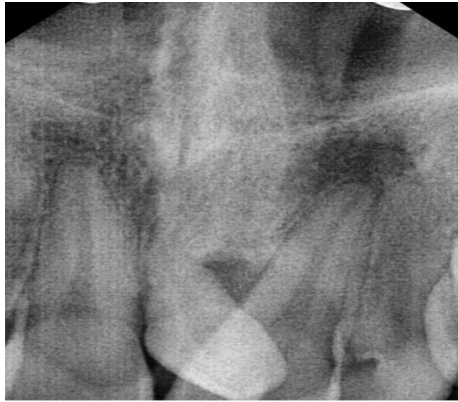
A supernumerary tooth is a developmental anomaly characterized by more number of teeth than normal series <sup>[1,2]</sup>. The prevalence varies between 0.3 and 3.8% of the population. This anomaly of unknown etiology <sup>[1]</sup>. Supernumerary teeth may occur as a single isolated anomaly or in association with specific developmental syndromes like cleft lip and palate, Downs syndromes, Cleidocranial dysplasia, chorhinopalangeal syndrome and Gardner's syndrome etc <sup>[1,2]</sup>. Supernumerary teeth in the maxillary anterior region may also compromise facial esthetic series <sup>[2]</sup>. Mesiodens, most common supernumerary teeth accounts around 80% of all supernumerary teeth series which may erupt normally, appear inverted, stay impacted or take a horizontal position series [1]. The shape may be tuberculate, conical, odontome, or closely resemble the normal tooth, based on their morphology series <sup>[2]</sup>. Mesiodens can occur individually or as multiples called as mesiodentes <sup>[3]</sup>.

The etiology of these teeth is still obscure although several theories have been suggested such as genetics, dichotomy of the tooth bud, hyperactivity of the dental lamina, and a combination of genetic and environmental factors, proliferation of odontogenic cell rests, palatal off shoot from continued activity of the dental lamina after the normal number of tooth buds are formed, atavism and consanguineous marriages <sup>[1-7]</sup>.

Mesiodens may give rise to a variety of complications such as delayed eruption, ectopic eruption of adjacent teeth, midline diastema, impaction, malalignment of incisors, displacement and axial rotation of adjacent teeth, radicular resorption of adjacent teeth, crowding, dilacerations, possible development of dentigerous cyst and migration into nasal cavity or maxillary sinus and fistula between oral and nasal cavity series <sup>[1,2,8]</sup>. This case report describes an extremely rare occurrence of bilaterally impacted mesiodentes with an inverted mesiodens in the hard palate area with its associated anomalies. It also describes about early diagnosis with treatment planning.

## CASE REPORT

A 24 year old male patient came with a chief complaint of an extra tooth in upper front teeth region. Patient complaints of irritation from this tooth. There was no associated history of trauma and pain. Medical and family history was non-contributory. There were no signs of any syndrome. On intra oral examination it was observed that a mesiodens was present palatally between 11 and 21 (Figure 2). On IOPA radiograph examination showed the presence of mesiodens of conical shape parallel to the teeth between 11 and 21 (Figure 1). Blood investigations were done and the reports were well within normal limits. Treatment was planned to extract the mesiodens. The wound healing was uneventful and the patient presented with no post-operative complications.



**Figure 1: IOPA showing mesiodens**



**Figure 2: Mesiodens (Clinical View)**



**Figure 3: Site of removal of mesiodens**



**Figure 4: Mesiodens**

## DISCUSSION

It was originally postulated that mesiodens represented a phylogenetic relic of extinct ancestors who had three central incisors.<sup>[9]</sup> A second theory known as dichotomy suggests that the tooth bud is split to create two teeth, one of which is the mesiodens.<sup>[10]</sup> The third theory involving hyperactivity of the dental lamina is the most widely supported.<sup>[11]</sup> According to this theory, remnants of the dental lamina or palatal offshoots of active dental lamina are induced to develop into an extra tooth bud, which results in a supernumerary tooth.

Genetics are also thought to contribute to the development of mesiodens as such teeth have been diagnosed in twins, siblings and sequential generations of a single family.<sup>[12]</sup> Autosomal dominant inheritance with incomplete penetration has been the proposed genetic theory. A sex-linked pattern has also been proposed as males are affected twice as frequently as females. Anomalous proliferation of the external epithelial layer of the enamel has also been proposed as one of the aetiological factors.<sup>[31]</sup> Mesiodens can be classified on the basis of their occurrence in the permanent dentition (rudimentary mesiodens) and according to their morphology (conical, tuberculate or molariform).<sup>[14]</sup> Supplemental mesiodens resemble natural teeth in both size and shape whereas rudimentary mesiodens exhibit abnormal shape and smaller size. Conical mesiodens are generally peg-shaped and are located palatally between the maxillary central incisors. They have a completely formed root and can erupt into the oral cavity. However, they may also be inverted with the crown pointing superiorly in which case they are less likely to erupt into the oral cavity.<sup>[15]</sup> Tuberculate mesiodens are barrel-shaped with several cusps or tubercles and have incomplete or abnormal root formation. They rarely erupt into the oral cavity. A much rarer type of mesiodens is the molariform mesiodens, which has a premolar-like crown and a completely formed root.<sup>[16]</sup>

The mesiodens in this case had an abnormal incisal morphology. Developmentally, anterior teeth develop from four lobes, three on the labial and one on the lingual / palatal represented by the cingulum.<sup>[17]</sup> We propose that a lack of fusion of the lobes during development probably gave rise to a mesiodens with an abnormal morphology. The cases of

non-syndromic multiple impacted supernumerary teeth are more likely to occur in patients whose relatives also possessed supernumeraries, although inheritance does not follow a simple Mendelian pattern.<sup>[18]</sup> In our case, there was no familial tendency for supernumerary teeth.

### CONCLUSIONS

Mesiodens is the most prevalent form of supernumerary teeth in permanent dentition that occurs as a result of genetic and environmental factors and hyperactivity of dental lamina. Males are affected two folds than the females. Early diagnosis of a mesiodens reduces the treatment required and prevents development of associated problems. Diagnosis of mesiodens can be done by clinical and radiographic examination and extraction of mesiodens in the early mixed dentition helps spontaneous alignment of the adjacent teeth. If the permanent incisors fail to erupt spontaneously, further surgical and orthodontic treatment may be required.

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