

# Overview of Diagnosis, Management of Mesiodens and its Impact on Children: A Series of Case Report

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## ABSTRACT

Supernumerary teeth are a developmental anomaly having extra teeth in addition to the normal dentition. 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. Malocclusion due to mesiodens has also physical, psychological, and social effects on Quality of Life (QoL). The present overview and series of case reports describes cases of surgical removal of supernumerary teeth (mesiodens) which were detected on clinical or radiographic examination. The article highlights the psychological and social impact of supernumerary tooth on the oral health-related quality of life and need for regular follow-up of permanent teeth eruption in young children.

**KEYWORDS:** Supernumerary, Mesiodens, Psychological, Quality of life.

## Overview

The paediatric patient presents with a variety of minor oral surgical problems that differ from those seen in adults. In children, a mesiodens is the supernumerary tooth most frequently requiring extraction. Impact of dento-alveolar problems occurring in child and its management is the subject of this article. The techniques described here are not necessarily new or unique, but they are ones with which we have had extensive clinical experience.<sup>3</sup>

Hyperdontia is developmental anomaly of having supernumerary tooth or teeth to arise due to multiple aetiologies such as intrusion injuries to deciduous teeth, genetic predilection and hyperactivity of the dental lamina. The prevalence reported in the general population ranges between 0.15% and 1.9% and is seen as more common in males than females.<sup>1</sup> It can be classified by their location in the dental arch: mesiodens, paramolar and distomolar have a variety of forms, i.e. conical, tuberculate, supplemental or odontoma type. Mesiodens is the term used to refer to an unerupted supernumerary tooth in the central region of the premaxilla between the two central incisors.<sup>3</sup>

The complications such as crowding, delayed eruption, impaction, spacing, malposition of the erupted permanent teeth, abnormal root formation, median diastema, cystic lesion, rotation, and root resorption of the adjacent tooth, all of which can negatively affect the oral health-related quality of life. It observes individual's comfort chewing, speaking, and socialization and satisfaction with oral health. Good oral

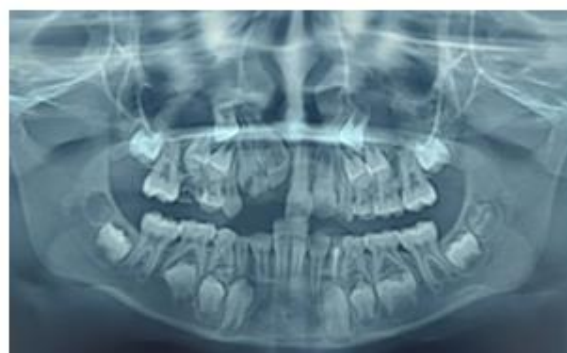
health encourages children to acquire better physical activities, academic performance, and social skills. On the contrary poor oral health often leads to functional disabilities, lower self-esteem, depression, fear of awkwardness, loss of self-confidence and the impairment of daily activities. Thus, early detection and removal of mesiodens is very important to prevent such complications.<sup>5</sup>

Studies have shown the relationship between presence of mesiodens and oral health related quality of life leading to psychological trauma in children and adolescents. It was reported a decrease in the Quality of Life associated with emotional wellbeing when missing anterior teeth due to the impaction of permanent anterior caused by mesiodens.<sup>7</sup> The presence of erupted mesiodens is best diagnosed by clinical examination and the unerupted mesiodens can be diagnosed by both clinical and radiographic evaluation.<sup>15</sup>

The aim of the present series of case reports is to highlight an impact of supernumerary tooth on social and psychological aspects of children and its successful management along with regular follow-up.

### **CASEREPORT 1**

A 09 year old female patient reported to the Department of Paediatric and Preventive Dentistry of Rajarajeswari Dental College and Hospital with a chief complaint of missing teeth in upper front teeth region since 1 year with aesthetic concern and difficulty in speech. On clinical examination, there was missing teeth in relation to 11 and 12. An OPG and CBCT which revealed presence of supernumerary tooth in between 11 and 21 and pulpectomy treated 52(Fig. 1A). The treatment planned was to surgically remove the supernumerary tooth and to expose the crowns of 11 and 12 to allow for the tooth to erupt uneventfully. On the day of surgery, parent consent was obtained. Under local anaesthesia, mesiodens was extracted and the flaps were sutured back (Fig. 1B). After 7 days, sutures were removed and uneventful healing was seen. Patient was recalled for further follow up at regular intervals to monitor the spontaneous eruption permanent tooth and for orthodontic treatment.



**Figs 1 - A) Pre-op OPG revealing impacted mesiodens**



**B) Post-op Extracted mesiodens**

### **CASEREPORT 2-**

An 11 year old female patient reported to the Department of Paediatric and Preventive Dentistry of Rajarajeswari Dental College and Hospital with a chief complaint of irregular shaped tooth with spacing in upper front teeth region with discomfort while smiling. On clinical examination, presence of supernumerary tooth was seen between 11 and 22 associated with missing 21(Fig 2A). An IOPA revealed impacted 21 (Fig. 2B). The treatment planned was to remove the supernumerary tooth and to allow the left permanent central incisor to erupt passively. On the day of extraction, parent consent was obtained. Under local anaesthesia, extraction of supernumerary tooth was done (Fig 2C). Haemostasis was achieved. Patient was recalled for regular follow up and orthodontic treatment.



**Figs 2 - A) Pre-op IOPA**

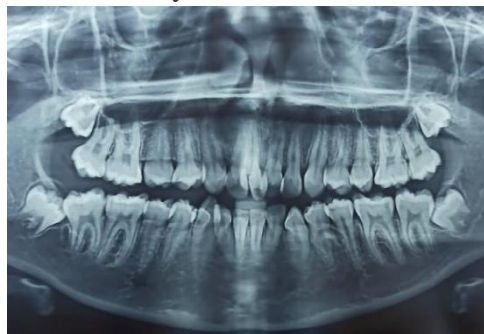


**B) Post-op Extracted supernumerary tooth**

### **CASEREPORT 3 –**

A 14 year old female patient reported to the Department of Paediatric and Preventive Dentistry of Rajarajeswari Dental College and Hospital with a chief complaint presence of poor aesthetics and

difficulty in talking due to extra tooth in the front tooth region of the jaw and wants to get it removed. On clinical examination, presence of palatally placed supernumerary tooth was seen between 11 and 21. An OPG in relation to supernumerary tooth was advised which revealed conical shaped supernumerary tooth present in between 11 and 21 (Fig 3A). The treatment planned was to remove the supernumerary tooth. On the day of extraction, parent consent was obtained. Under local anaesthesia, extraction of supernumerary tooth was done (Fig 3B). Haemostasis was achieved. Post-operative instructions were given and medications were prescribed. Patient was recalled after 8 days for regular follow up and midline diastema was corrected orthodontically.



**Figs 3 - A) Pre-op OPG**



**B) Post-op Extracted supernumerary tooth**

#### **CASE REPORT 4-**

A 14 year old female patient reported to the Department of Paediatric and Preventive Dentistry of Rajarajeswari Dental College and Hospital with a chief complaint of difficulty in smiling and inability to interact due to presence of irregular teeth in upper front tooth region of the jaw. On clinical examination, presence of palatally placed supernumerary tooth was seen between 11 and 21 (Fig 5A). The treatment planned was to remove the supernumerary tooth. On the day of extraction, parent consent was obtained. Under local anaesthesia, extraction of supernumerary tooth was done (Fig 5B). Haemostasis was achieved. Post-operative instructions were given and medications were prescribed. Patient was recalled for regular follow up following the ongoing orthodontic treatment to observe the closure of space.



**Figs 5 – A) Pre-op Intra Oral photograph**



**B) Post-op Extracted supernumerary tooth**

## **DISCUSSION**

The physical appearance of an individual is considered important for human life as one intends to be acknowledged and valued by others. Oral and dental health appearances are an important aspect of one's general and mental health. Study done by Sicho and Broder stated that "The subjective evaluation of OHRQoL "reflects people's comfort when eating, sleeping and engaging in social interaction; their self-esteem; and their satisfaction with respect to their oral health".<sup>6</sup> Patients with untreated malocclusion may suffer from temporomandibular joint problems, and it can also cause problems in talking, chewing, smiling, and limited food choices which can affect the individual's quality of life (QoL) associated with oral health. The systematic review by Nora et al. and Zaror et al. stated that "Impact of dental caries due to pain and malocclusion which affect individual's social interactions. Moreover, severe dental caries can result in missing school days and having more significant financial expenditures, negatively impacting the children's families".<sup>4</sup> In our case reports facial and dental aesthetics plays a substantial role in self-perceived appearance. Lack of it contributes to imbalance of psychological and social well-being leading to lower self-esteem, sensitive personality, emotional instability, poor self-confidence and social anxiety due to increased peer importance.<sup>7</sup>

Supernumerary tooth like mesiodens appear as a rudimentary tooth or may be found to mimic a natural tooth.<sup>4</sup> Sometimes, the diagnosis is accidental when it is impacted and the management is also difficult. The positional and structural relationship of the supernumerary tooth with the adjacent tooth is one of the factors that affect the management. The aetiology of mesiodens remains unclear; however, a few

theories have been suggested it being an isolated finding or as part of a syndrome, specially cleft lip and palate, cleidocranial dysostosis and Gardner's syndrome. <sup>2</sup>

Various complications might occur due to mesiodens that can lead to inter-arch malocclusion causing masticatory problems, TMJ disorders, poor aesthetics, etc. Thus, clinician's knowledge of common anomalies and their location in the primary and mixed dentition will result in early diagnosis and may consequently prevent further complications.<sup>3</sup> In our cases, we also planned immediate extractions in order to avoid complications related to anamoly.

Munn's study stated that "earlier the mesiodens is removed, the better the prognosis".<sup>15</sup> In our cases, surgical and non- surgical extraction of impacted or erupted supernumerary tooth was made as soon as it was diagnosed, without any damage to adjacent teeth structure and the patient was monitored at regular intervals. In order to promote eruption and to restore aesthetics, this may reduce the need for orthodontic treatment.<sup>3</sup>

Malocclusion does have a psychological and social impact as a dental dissatisfaction.<sup>3</sup> To overcome these problems we delivered psychology talk to our patients making them understand the undergoing transient stage of their dentition and its correlation with the treatment in order to improve their aesthetic concern and self-perceived appearance to boost up their self-esteem and self-confidence. Thus, advanced diagnostics like CBCT and OPG has played an vital role in accurate diagnosis and positioning of unusual pathology and multidisciplinary approach to get good treatment results with fewer complications especially among paediatric patients.

## CONCLUSION

"Oral Health-Related Quality of Life is integral to general health and well-being". Malocclusion like mesiodens is the most prevalent form of supernumerary teeth in permanent dentition. Early diagnosis of a mesiodens reduces the oral health related problems improving the quality of life in children. Therefore, evaluation or treatment of malocclusions is necessary primarily from socio-cultural and psychological aspects to signify the actual impact of malocclusion on quality of life.

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