



# Supernumerary impacted teeth - A case report

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## Abstract

Supernumerary teeth are the teeth that appear in addition to the regular number of teeth. Occurrence of supernumerary teeth is most common dental anomaly. The common site for supernumerary teeth is maxillary anterior region. They can be single or multiple, unilateral or bilateral and may appear in any arch at any location. These teeth can be present in primary dentition or permanent dentition. Their presence may result in variety of clinical problems. Therefore they need appropriate diagnosis and management. Supernumerary teeth are diagnosed by thorough clinical examination and radiographic examination. This article presents a case report of a patient having bilateral impacted supernumerary teeth and brief discussion on etiology and management of such teeth.

**Keywords:** Supernumerary teeth, primary dentition, tooth bud, premolar

## Introduction

Supernumerary tooth is defined as the one that is additional to normal set of teeth.<sup>1</sup> These teeth are more commonly reported in Mongoloid racial group with frequency of more than 3%.<sup>2,3</sup> Prevalence of supernumerary teeth is higher in permanent dentition than primary dentition. Koch et al<sup>4</sup> reported prevalence of supernumerary teeth in permanent dentition is 1-3% and in primary dentition prevalence is 0.3-0.6%. Rajab and Hamden<sup>5</sup> reported that prevalence of these teeth in permanent dentition is 0.1-3.8% and in primary dentition prevalence is 0.3-0.8%. Supernumerary teeth may remain un-noticed in primary dentition because spaces present in primary dentition allow eruption of these teeth in reasonable alignment.<sup>6</sup> Classification of supernumerary teeth is based on their morphology and location. Morphology of supernumerary tooth in primary dentition is mostly normal or conical. In permanent dentition these teeth show variable morphology. These variations include: conical tooth

(tooth having triangular or conical shaped crown with complete root formation), tuberculate supernumerary tooth (Barrel shaped tooth with multiple tubercles in crown and incomplete root or absent root), supplemental tooth (supernumerary tooth with shape that resembles to normal tooth) and Odontome (multiple small tooth like structures or a single irregular mass). On basis of location supernumerary teeth are: Mesiodens (supernumerary tooth present in between maxillary central incisors), paramolar (tooth beside a molar), distomolar (supernumerary tooth distal to last molar) and parapremolar (tooth in premolar area). One or two supernumerary teeth found commonly in anterior maxilla followed by mandibular premolar area. Multiple supernumerary teeth seen commonly in premolar area.<sup>7,8</sup>

Many theories have been proposed to explain etiology of supernumerary teeth. These include atavism, dichotomy of tooth bud, and localized hyperactivity of dental lamina resulting in formation of additional tooth germ, genetic factors and syndromes.

**Atavism:** Atavism is a type of long-distance heredity or phylogenetic reversion and it is the reappearance of an ancestral condition. It is an evolutionary throwback which has been suggested. Phylogenetic evolution has resulted in a reduction in both the number and the size of man's teeth and supernumerary premolars may be an atavistic appearance of the premolar region. This hypothesis proposes a reversion to an ancestral human dentition that contained a larger number of teeth.<sup>9,10</sup>

**Dichotomy:** Dichotomy is division of tooth bud into two teeth of equal size or one normal and one dysmorphic tooth with two equal or different sized parts. Division in the developing tooth bud can give rise to supernumerary tooth and a normal tooth.<sup>11</sup>

**Hyperactivity of dental lamina:** The epithelial remnants are large enough that they are capable of exciting and controlling the development of the dental papilla. If the epithelial remnants are subjected to initiation by induction factors, an extra tooth bud is formed leading to the development of extra odontogenic structure.<sup>10</sup> The localized and independent hyperactivity of dental lamina results in development of supernumerary tooth is the most accepted cause for the development of the supernumerary tooth.<sup>12</sup> The lingual extension of an additional tooth bud give rise to a eumorphic tooth, while the rudimentary form of tooth is formed from proliferation of epithelial remnants of the dental lamina.<sup>13</sup>

**Genetics:** Genetic and environmental factors also play role in development of supernumerary teeth. The recurrence of supernumerary teeth within the same family and in monozygotic twins also suggested role of genetic factors.<sup>14</sup> Several case reports have reported on the occurrence of supernumerary teeth in siblings, twins, and family members.<sup>15</sup>

**Associated syndromes:** Various hereditary syndromes found to be associated with hyperdontia. These syndromes are Crouzon syndrome, Cleidocranial dysplasia, Ehlers-Danlos syndrome, Gardner's syndrome,<sup>16</sup> Goldenhar syndrome<sup>17</sup>, Hallermann-Streiff syndrome,<sup>18</sup> Orofaciodigital syndrome type I<sup>19</sup>, Incontinentia pigmenti,<sup>20</sup> Marfan syndrome, Nance-Horan syndrome, and cleft lip and palate.<sup>21</sup>

## Case report

A patient aged 21 years has come to department of Orthodontics and Dentofacial Orthopaedics with chief complaint of forwardly placed upper front teeth. Intraoral examination showed permanent teeth till second molar present in each quadrant of mandibular arch and in maxillary arch all permanent teeth erupted including third molars. Patient has class II molar relation with increased overjet and crowding in maxillary and Mandibular anterior region. It was observed that maxillary right molar is grossly carious. Lateral cephalogram and orthopantomogram were taken for orthodontic analysis and treatment planning.

On analyzing orthopantomogram, it was observed that two teeth are impacted in canine region in maxillary arch and impacted mandibular third molars.(fig.1) Crown shape of these teeth was similar to canine and roots are shorter than normal. Intra oral periapical radiographs (IOPA) were taken with SLOB technique to see exact position of these teeth whether they are located buccally or palatally. It was reported from these radiographs that both teeth located on palatal side.

Extraoral examination presented convex facial profile with incompetent lips. Patient has no medical history regarding any type of diseases or medication.



**Figure No.1:** Orthopantomogram showing impacted supernumerary teeth.

## Discussion

Supernumerary teeth are most common in permanent dentition. Supernumerary teeth may erupt in oral cavity or sometimes remain impacted. Impacted tooth is one that remains unerupted and retained. Eruption failure is common dental anomaly in permanent dentition. Impaction of teeth can cause various problems such as esthetics, functional consequences and affect tooth movement. Eruption of permanent teeth is a complex, genetically based event in which eruptive movement of tooth germ occurs at a predetermined time and route to reach at occlusal level. Because of complexity of eruption process, it may result in some complications such as failure of tooth eruption and retardation of eruption.<sup>22</sup> Tooth impaction etiology includes both local and systemic factors. Local factors include crowding of teeth, ectopically positioned tooth germ, supernumerary teeth, dense overlying bone or mucosa, premature loss or prolonged retention of deciduous teeth. Systemic factors causing impaction are heredity, endocrine disorders, rickets, congenital syphilis, and progeria and achondroplasia etc.<sup>23</sup>

Brook reported prevalence of supernumerary teeth 0.8% in primary dentitions and 2.1% in permanent dentitions.<sup>24</sup> They may be present as single or multiple, unilateral or bilateral, erupted or impacted, and in one or both jaws. Occurrence of multiple supernumerary teeth is rare in subjects with no other associated diseases or syndromes.<sup>25</sup> The increased prevalence of supernumerary teeth is associated with some diseases such as cleft lip and palate, cleidocranial dysplasia, and Gardner syndrome. The occurrence frequency of supernumerary permanent teeth in the cleft area in patients with unilateral cleft lip or palate or both was found to be 22.2%.<sup>26</sup> The frequency of supernumerary teeth in subjects with cleidocranial dysplasia ranged from 22% in the maxillary incisor area to 5% in the molar region.<sup>27</sup> While there is no significant difference among males and females for primary supernumerary teeth, but males are affected approximately two times more than females in the permanent dentition.<sup>28</sup>

Sometimes supernumerary teeth remain impacted as in present case report. Proper radiographic examination of such teeth is necessary for good orthodontic treatment planning. The exact position of impacted supernumerary tooth and its relationship with other hard and soft tissue structures can be determined with diagnostic aids such as tube shift radiograph, Cone Beam Computed Tomography. Treatment may vary from extraction of supernumerary teeth along with orthodontic alignment to achieve appropriate esthetics and occlusion.<sup>29</sup>

### **Extraction of supernumerary teeth is advised in conditions such as:**

- Delayed eruption of adjacent tooth.
- Altered eruption and displacement of adjacent tooth.
- Any pathology associated to supernumerary tooth.
- For orthodontic treatment.
- When such tooth is present in bony area designated for implant insertion.

- When bone grafting in cleft patients is compromised due to presence of supernumerary tooth.<sup>30</sup>

#### **Indications for monitoring of supernumerary teeth without extraction:**

- Satisfactory eruption of adjacent tooth.
- No orthodontic treatment is needed for patient.
- No pathology linked to supernumerary tooth.<sup>30</sup>

The presence of impacted, unnoticed supernumerary tooth may interfere with orthodontic alignment and space closure. Extraction of such teeth is advised for orthodontic treatment. In present case report the impacted supernumerary teeth present close to roots of permanent canine and premolars in maxillary arch. Extraction of these was planned for orthodontic treatment progress.

#### **Conclusion**

Supernumerary teeth are extra teeth present in addition to normal complement in both dentitions. Males are predominantly affected by these teeth, and are common in permanent dentition. Supernumerary teeth may be unilateral or bilateral, single or multiple, erupted or impacted and at any area of either of the dental arch. Mesiodens are common supernumerary tooth followed by supplemental premolars. As some complications such as crowding, displacement, dilacerations and cyst formation etc are related to supernumerary teeth and they may interfere with orthodontic tooth movement, so proper diagnosis and appropriate management of these teeth is needed to reduce potential complications which can occur in presence of supernumerary teeth. If supernumerary tooth is asymptomatic, it can be left as such without any management but regular clinical and radiographic monitoring should be done to prevent any adverse complications induced by it.

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