



ISSN NO. 2320-5407

Journal homepage: <http://www.journalijar.com>

INTERNATIONAL JOURNAL  
OF ADVANCED RESEARCH

## RESEARCH ARTICLE

MANAGEMENT OF SUPERNUMERARY TOOTH IN A NON- SYNDROMIC PATIENT- A CASE REPORT.

Dr.A.Vasanthakumari<sup>1</sup>, Dr.G.Shanmugavadivel<sup>2</sup>, Dr.V.Saranya<sup>3</sup>, Dr.T.Priyanka<sup>4</sup>.

1. Prof & Head, Department of Pedodontics & Preventive Dentistry, APDCH, Melmaruvathur – 603319, TamilNadu, INDIA.
2. Senior Lecturer, Department of Pedodontics & Preventive Dentistry, APDCH, Melmaruvathur – 603319, TamilNadu, INDIA.
3. Lecturer, Department of Pedodontics & Preventive Dentistry, APDCH, Melmaruvathur – 603319, TamilNadu, INDIA.
4. Intern, Department of Pedodontics & Preventive Dentistry, APDCH, Melmaruvathur – 603319, TamilNadu, INDIA.

**Manuscript Info**

**Manuscript History:**

Received: 14 January 2016  
Final Accepted: 11 February 2016  
Published Online: March 2016

**Key words:**

Supernumerary tooth, Maxillary central incisor, Dental anomaly

**\*Corresponding Author**

**Dr.A.Vasanthakumari.**

**Abstract**

Patterning alterations in human dentition often occur and are characterized by alterations in the number, size and shape of teeth. Supernumerary teeth is a number and morphology developmental alteration and results in the formation of teeth in excess of the usual manner. It's variability of morphology, location and developmental timing can shed light on its etiology. The present case report describes the management of supernumerary tooth in a non- syndromic male patient

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**Introduction:-**

Development of a tooth is a continuous process with a number of physiologic growth process and various morphologic stages inter-play to achieve the tooth's final form and structure. Interference with the stage of initiation, a momentary event, may result in single or multiple missing teeth (hypodontia or oligodontia respectively) or supernumerary teeth<sup>1</sup>. A supernumerary tooth is one that is additional to the normal series and can be found in almost any region of the dental arch. Supernumerary teeth have a reported incidence in the permanent dentition of 1.5-3.5% and a male to female ratio of approximately 2:1 with 98% presenting in the maxilla and, of these, 75% within the maxillary midline. In the primary dentition, the incidence is said to be 0.3% to 0.8% and in the permanent transverse, assume anectopic position or follow an abnormal path of eruption. The most common location of super-numerary teeth is at the premaxillary region and it may cause pathological condition such as failure of eruption of the maxillary incisors, displacement or rotation of the permanent tooth<sup>2</sup>.

Supernumerary tooth can present in various forms and in any region of mandible or maxilla, and it is a developmental anomaly and has been argued to arise from multiple etiologies like Phylogenic theory, Dental lamina hyperactivity theory, Dental follicle dichotomy theory, and genetic factors. A hyperactive dental lamina where the localized and independent hyperactivity of dental lamina is the most accepted cause for the development of the supernumerary teeth. It is suggested that supernumerary teeth are formed as a result of local independent conditioned hyperactivity of the dental lamina. These teeth may remain embedded in the alveolar bone or can erupt into the oral cavity. When it remains embedded, it may cause disturbance to the developing teeth. Supernumerary

teeth when present can cause both esthetic and pathologic problems<sup>3</sup>. This article will present the management of supernumerary tooth in a non- syndromic patient.

### Case report:

A 10 year old male patient reported with the complaint of extra tooth present in the upper anterior region. He did not present any syndrome, systemic disease or medication history. He was a co-operating patient and responded favourably to behaviour management techniques. Intraoral examination revealed normal mixed dentition with soft tissues, labial displacement of upper left central incisor, clinically missing upper right and left laterals and an erupted tuberculate shaped super-numerary tooth present palatal to upper left central incisor.



**fig1:** Presence of supernumerary tooth palatal to 21 (Mirror view)

Intraoral periapical and occlusal radiograph confirmed the presence of tuberculate super-numerary tooth in the palatal region.

Orthopantomograph was taken to rule out the presence of supernumerary tooth elsewhere in the arch. Since the patient had difficulty in swallowing extraction of supernumerary tooth was planned, using a local anesthetic solution (2% Lignocaine hydro-chloride with Adrenaline 1:80,000).



**fig:2:** Maxillary model shows palatally placed supernumerary tooth.



**fig:3:** Occlusal view confirmed the supernumerary tooth.

The tooth was extracted without any complication and the patient was called for regular follow up. The periodic review showed the wound healing was satisfactory and the prognosis was favourable.



**fig:4:** Extracted supernumerary tooth.

### **Discussion:-**

Hyperdontia or Supernumerary tooth is defined as an increased number of teeth in a given individual (i.e) more than 20 teeth in deciduous dentition or 32 teeth in permanent dentition. It has been suggested that supernumerary teeth originate from the dental lamina, due to embryonic aberrations during facial development, and by excessive proliferation of epithelial remnants of dental lamina induced by pressure from the permanent dentition. Other factors like DNA mutation, including maxillofacial anomalies such as Cleft lip and palate, Cleidocranial dysplasia and Gardner's syndrome may give rise to supernumerary teeth<sup>4</sup>. A supernumerary tooth can be overlooked as it is often of normal shape (supplemental type), erupt normally and appear to be in proper alignment and can be mistaken for gemination or fusion anomalies. There is no significant sex distribution in primary supernumerary teeth, however in permanent dentition, males have been shown to be affected more than females<sup>5</sup>.

Supernumerary teeth can differ according to their location in the dental arch as mesiodens, paramolar and distomolar, however, these types can vary in their morphological forms such as conical, tuberculate, supplemental or odontome. A conical super-numerary tooth is small, peg shaped tooth with normal root and a tuberculate supernumerary tooth is short barrel shaped with normal crown appearance or invaginated but with rudimentary root. A supplemental supernumerary tooth resembles one of the normal series of tooth and they appear at the end of a tooth series. Most of the supernumerary tooth in the primary dentition are supplemental type and seldom remains impacted. An odontome of supernumerary tooth type having irregular shape and are often referred to any tumour of odontogenic origin<sup>6</sup>.

Primosh classifies super-numerary tooth according to their shape into supplemental (or) eumorphic, Rudimentary or dysmorphic, conical teeth, tuber-cular teeth and molar shaped teeth<sup>7</sup>.

Supernumerary teeth are associated to different syndromes such as Apert syndrome, Craniofacial dysostosis, or Crouzon syndrome, Cleidocranial dysplasia, or Cleidocranial dysostosis, Cleft lip and palate, Down's syndrome, Gardner syndrome, Halleman- streiff syndrome, type I, & type III Orodigital-facial syndrome, Leo-pard or Multiple lentiginos syndrome, Tricho- rhino phal-angeal syndrome, Ellis van creveld syndrome, Nance Haran syndrome, Kippel- Trenaunary- Weber syndrome, Hypertrichosis syn-drome, Zimmermann- Laband syndrome, Fucosidosis syndrome, type III Ehler- Danlos syndrome, Sturge- Weber syndrome, Fabry-Anderson syndrome, Larsen syndrome, Hereditary fibromatosis associated to hearing loss and supernumerary teeth<sup>8</sup>.

Supernumerary teeth can appear at different stages of human dentition in primary, mixed and permanent dentition. They constitute one of the factors associated to malocclusion eti-ology, they elicit alteration of the midline diastema, as well as malformation of other teeth. They can be found in any region of the dental arch, and can only be observed in radiographs<sup>9</sup>.

Presence of supernumerary tooth which prevent eruption of permanent teeth or deviate them from their proper position require extraction. If these are included surgical treatment is warranted. In cases where extraction or surgical treatment is not accomplished, the following complications may result

- Retained teeth
- Ectopic eruption
- Dental malposition of occlusal problem

- Functional problem
- Interference with orthodontic treatment
- Diastema
- Displacement of permanent teeth
- Cysts derived from supernumerary teeth follicles
- Caries from neighbouring teeth due to increase of dental plaque retention caused by the supernumerary teeth
- Rhizolysis (premature dental resorption and periodontal lesions due to compression upon roots of adjacent teeth)
- Loss of vitality
- Differential diagnosis with odontome, adenomatoid tumour, cementoblastoma<sup>10</sup>.

The etiology of supernumerary teeth still remains unclear. Two popular theories have been proposed. The dichotomy theory of tooth germs suggests that a tooth bud splits into two parts, resulting in two teeth of equal or unequal size. Another theory suggests that supernumerary teeth are formed as a result of local, independent, or conditioned hyperactivity of dental lamina.

Hereditary is also believed to be an important factor. A small number of supernumerary teeth may be common developmental anomaly, while multiple supernumerary teeth usually have a genetic component and they are sometimes thought to represent a partial third dentition in humans. This trait of supernumerary teeth may be associated with autosomal recessive gene with lesser penetrance in females<sup>11</sup>.

According to one theory, mutant genes give rise to supernumerary teeth and this is supported by the finding of increased supernumerary teeth in patients with facial and dental anomalies such as cleft lip and palate. The development of bilateral supernumerary teeth also suggests that they may be controlled by a mutant gene. The importance of heredity is emphasized by the increased number of supernumerary teeth found in relatives of those affected. While an autosomal-dominant inheritance with incomplete penetrance has been suggested, the increased incidence in males suggests possibility of sex-linked heredity. Despite advances in the knowledge of tooth morphogenesis and differentiation, relatively little is known about the etiology and molecular mechanisms underlying supernumerary teeth formation<sup>12</sup>.

The occurrence of supernumerary teeth without any associated syndrome has been reported frequently in literature, which is in accordance with our present case<sup>13</sup>. Shethy and Sandler recommend the extraction of the supernumerary tooth palatal to tooth 21 and it was also decided in this case for early removal of palatally placed supernumerary tooth to avoid complication<sup>14</sup>. This approach was successful and a simple extraction without complex procedures was performed. As the majority of supernumerary teeth lead to clinical complications, the standard of care is early removal. However the best time of removal of a supernumerary tooth depends on careful evaluation of each situation. Some authors suggest immediate removal of the tooth so as to prevent costly future orthodontic intervention. Others claim that the extraction of asymptomatic supernumerary tooth that do not affect the dentition may not always be necessary, although they should be periodically monitored. Furthermore when supernumerary primary teeth are detected, parents should be warned of the possible consequences to the permanent dentition as these teeth may be replicated in the permanent series in 50% of the cases<sup>15</sup>.

### **Conclusion:-**

Supernumerary teeth are relatively common and cause a variety of complications. The clinician should recognize signs suggesting the presence of supernumerary teeth, particularly aberrations in the eruptive pattern and perform the relevant investigations. The early diagnosis and treatment enabled the child and his family to solve the problem without traumatic surgical procedures or corrective orthodontic treatment. Furthermore, multidisciplinary approach is necessary for the management of supernumerary teeth, if it is associated with complications.

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