

SUPERNUMERARY TEETH IN PERMANENT DENTITION IN PATIENTS WITH CLEFT LIP AND PALATE

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ABSTRACT:

Supernumerary teeth (hyperdontia) is a term used to express for the teeth more than the normal series in either dentition. Supernumerary teeth are developmental anomalies and are not uncommonly observed in permanent dentition of either jaw.

Supernumerary teeth can present in various forms and in any region of the mandible and or maxilla but have predisposition in anterior maxilla. Supernumerary teeth have been reported with certain syndromes but multiple supernumeraries in non syndromic individuals have been frequently reported.

The mean prevalence of supernumerary teeth in clinical studies is about 1.2%. Supernumerary teeth have been reported in association with cleft lip and palate which result from fragmentation of the dental lamina during cleft formation. The frequency of 22.2% supernumerary permanent teeth in the cleft area in children with unilateral cleft lip or palate or both has been reported. This paper reviews the supernumerary in currently available and discusses for the children in cleft lip and palate.

Key words: Dental anomaly, hyperdontia, supernumerary teeth, cleft lip and palate.



INTRODUCTION:

Cleft lip and palate (CLP) has become a major public health problem affecting one in every 500 – 1000 births worldwide ⁽¹⁾. It is the fourth most common birth defect and the most common congenital defect of the face ⁽²⁾. These patients are likely to have significant dental problems that require attention of various specialties in dentistry. Embryologically, the formation of tooth germs and the occurrence of cleft lip (CL) and/or cleft palate (CP) defects have a close relationship both in terms of timing and anatomical position ^(1,2).

Supernumerary teeth, or hyperdontia, can be recognized by the presence of more than 20 deciduous, or 32 permanent teeth in one individual. Hyperdontia can develop either due to the retention of deciduous teeth or the development of extra deciduous and permanent teeth resulting from a derangement in the process of organogenesis ⁽³⁾.

The aetiology of these teeth is uncertain, but various causes for their presence such as atavism, dichotomy of the tooth germ, excessive growth of the dental lamina,

heredity factors and general diseases have been suggested^(1,3,4).

The development of extra permanent teeth can be classified as “heterotopic” – teeth developing outside the alveolar region or “normotopic”. The latter includes teeth that develop in the alveolar region and erupt in a relatively normal orientation. Much variation in the morphology of supernumerary teeth has also been described. These teeth may be normal in shape and size, normal in shape but reduced in size, of conical shape or, lastly, abnormal in shape as well as reduced in size^(2,4). Single or multiple supernumerary teeth can be unilateral or bilateral and it has been shown that the anterior maxilla and mandibular premolar regions are most commonly affected. Multiple supernumerary teeth most often affect the mandibular premolar region⁽⁵⁾.

In the primary dentition, the incidence is said to be 0.3%-0.8% and in the permanent dentition 1.5%-3.5%^[4]. The low prevalence of supernumerary teeth in primary dentition is lower because it is under reported^[5] and it is often overlooked, because the supernumerary teeth are often of normal shape (supplemental type), erupt normally using spaces in primary dentition, and appear to be in proper alignment; and can be mistaken for germination and fusion anomalies^[6]. There seems to be a racial variation in the prevalence of supernumeraries with a frequency higher than 3% in Mongoloid races^[7]. 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. Supernumerary teeth are estimated to occur in the maxilla 8.2 to 10 times more frequently than the mandible, and most commonly affect the premaxilla^[6,7,8].

Effects of supernumerary teeth on the developing dentition may vary. There may be no effect and supernumerary teeth may be discovered either following their eruption or as a chance during radiographic examination. Failure of eruption and/or ectopic eruption of adjacent permanent teeth is the most frequently reported occurrence in almost 30 to 60 per cent of cases. Crowding may occur when multiple supernumeraries are present. Supernumerary teeth may also cause root resorption, malformation of adjacent teeth such as dilaceration, diastema and loss of vitality of adjacent teeth.

DISCUSSION:

Millhon & Stafne studied 108 cases of hair lip and cleft palate to identify the incidence of supernumerary teeth of the lateral incisor teeth. They discovered that the incidence of supernumerary teeth in the cleft palate sample was high, and related the cause to the splitting of the lateral incisor tooth bud at the cleft area⁽¹⁰⁾.

Jordan et al. researched dental abnormalities with cleft lip and or palate. They examined 10 human cleft lip and palate fetuses. The other sample was made up of maxillary and mandibular dental casts of 192 individuals with CLP.

They found that supernumerary teeth occur frequently in the lateral incisor region adjacent to the alveolar cleft ⁽¹¹⁾ .

Hellquist et al. studied the frequency of dental abnormalities in the permanent dentition on 172, eight year old children, with unilateral clefts involving the maxillary alveolar process. They obtained photographs, orthopantomographs and dental casts. They found that the frequency of supernumerary teeth in the cleft region was 20%.Where as the supernumerary teeth found outside the cleft region was 5.2% for the UCLA group and 8.2% for the UCLP group ⁽¹²⁾ .

Dahloff et al. in Sweden researched dental abnormalities in 49 preschool children with cleft lip and /or palate. The subjects were called upon for clinical and radiographic evaluation. The subject's average age was 5.5 years. He found that supernumerary teeth were found in 18% of the cases ⁽¹³⁾ .

Lopes et al. evaluated the panoramic radiographs of 86 patients with cleft lip and or palate CL/CP for anomalies in number. Their age ranged from 9 to 32 years old .They found that supernumerary teeth were found in 16%. And numerical dental anomalies are related to type of cleft, with supernumerary teeth being inversely correlated to cleft complexity ⁽¹⁴⁾ .

Suzuki et al. examined the maxillary lateral incisors of subjects with cleft lip and/or palate of 30 patients with unilateral cleft lip and palate in Kyushu, Japan. They concluded that almost always

the tooth on the cleft side is certain to be a supernumerary lateral incisor, not a supernumerary canine. The supernumerary tooth was often malformed in the permanent dentition ⁽¹⁵⁾ .

Vichi & Franchi studied abnormalities of the maxillary incisors in children with cleft lip and palate. They examined orthopantomographs of 77 patients that ranged from 3 to 16 years. The prevalence of supernumerary lateral incisors was 22.1 % with 15.6% in unilateral clefts and 6.5% in bilateral clefts. The prevalence of supernumerary permanent central incisors on the cleft side was found to be 3.9% (2.6% in unilateral clefts and 1.3% in bilateral clefts) ⁽¹⁶⁾ .

da Silva et al. in Sao Paulo, Brazil researched dental anomalies of number in the permanent dentition of patients with bilateral cleft lip. They selected 150 panoramic radiographs of individuals with complete or incomplete bilateral cleft lip that aged from 12 to 15 years. He found that the prevalence of supernumerary teeth was 28.2% for male patients with complete cleft lip and 29.2 % for incomplete cleft lip males .While supernumeraries were reported to be 17.5% for females with complete cleft lip and 46.6% for incomplete cleft lip ⁽¹⁷⁾ .

Tortora et al. studied the abnormalities in dental structure, position, and eruption pattern in a population of unilateral and bilateral cleft lip and/or palate patients. They evaluated 87 panoramic radiographs of patients with UCLP and BCLP in an attempt to identify supernumerary teeth.

They found that 7.3% of the UCLP presented with supernumerary lateral incisors and 1.2% presented with supernumerary central incisors. The BCLP showed 6.7% of supernumerary lateral incisors and 1.7% of supernumerary central incisors⁽¹⁸⁾.

Galie et al. evaluated the dental and maxillary development and the presence of anomalies in unilateral cleft lip and alveolus patients. Clinical and radiographic examinations were carried out on 20 cases (aged between 13 to 20 years) to identify supernumerary teeth. No supernumerary teeth were observed in their study⁽¹⁹⁾.

Tereza et al. studied the prevalence of tooth abnormalities of number and position in the permanent dentition of individuals aged 7 to 18 years old with complete bilateral cleft lip and palate. They studied 205 patients' records and

panoramic radiographs. They found supernumerary teeth were observed in 11.7% of the individuals⁽²⁰⁾.

CONCLUSION:

Detailed family history, thorough clinical examination and routine radiographic examination may reveal the presence of multiple impacted supernumerary teeth and their association with the other conditions or syndromes. These conditions must not be overlooked and the impacted tooth must be extracted or surgically made to erupt to allow the restoration of normal architecture of

the bone mass, which will prevent the fracture of bone in response to force. Observation and periodic follow-up of radiographs may be necessary if the impacted teeth are asymptomatic. Early diagnosis and removal of supernumerary teeth allow to avoid or reduce possible complications

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FIGURES:



Figure 1: A conical shaped supernumerary tooth in relation to permanent maxillary right canine

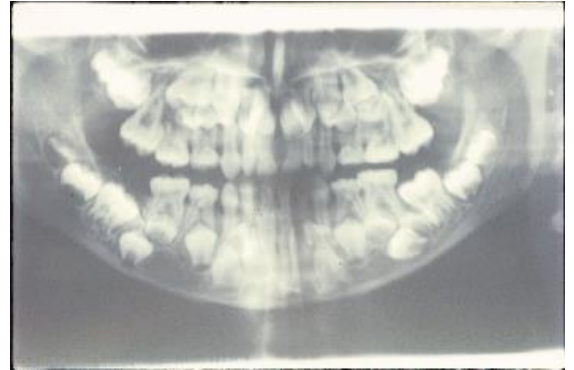


Figure 2:Orthopantomogram of patient with cleidocranial dysplasia showing multiple supernumerary teeth



Figure 3:Supernumerary premolars occur 3 times more in males than in females, indicating a possible sex-linked inheritance, with the highest frequency

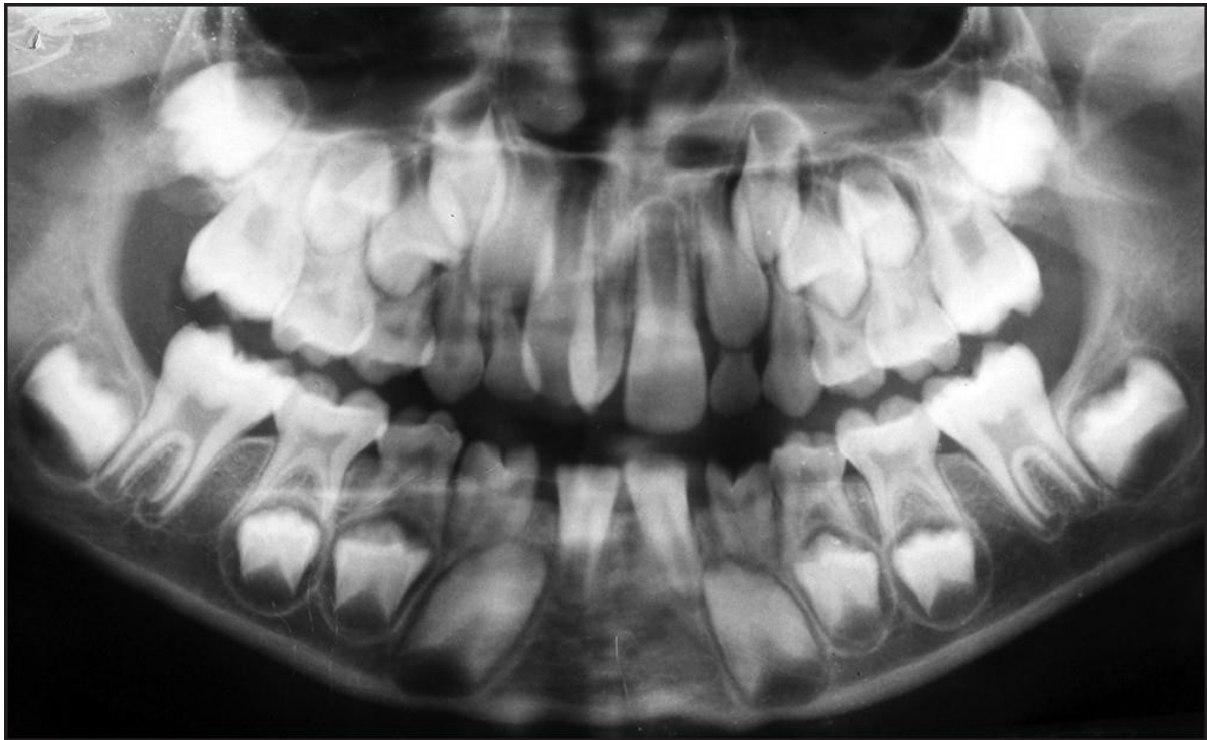


Figure 4: Orthopantomogram) showing an erupted maxillary supplemental incisor in relation to tooth 12 and missing 35 and 45 tooth germs



Figure 5: supernumerary teeth refer to the same medical condition called hyperdontia



Figure 6: Impacted maxillary and mandibular anterior teeth with multiple impacted supernumerary teeth in lower anterior and premolar regions.



Figure 7: Orthopantomogram showing multiple impacted and supernumerary teeth



Figure 8: Supernumerary Tooth & Ectopic Tooth