



Case Report

Familial occurrence of non syndromic supernumerary premolar tooth: A case report

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ABSTRACT

A familial non-syndromal supernumerary teeth is a rare condition encountered in dental practice. Supernumerary teeth occur in excess of the usual number of teeth. Multiple supernumerary teeth are associated with some syndromes like cleidocranial dysplasia and Gardner syndrome. This report describes the occurrence of supernumerary premolar teeth at the same location in two sisters as a non-syndromal trait. General dental practitioners (GDP) and dental specialists should have the knowledge and skills to diagnose, manage and treat patients with this condition safely and effectively. It will also discuss the prevalence, unique distribution, associated conditions, aetiology and treatment options of this condition. This paper describes the considerations a dental practitioners should take when they encounter a case of supernumerary teeth.

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1. Introduction

The development of an increased number of teeth is known as hyperdontia and the additional teeth are thus called as supernumerary teeth.¹ They may develop as single or multiple, may occur unilateral or bilateral, in isolation or associated with other conditions or syndromes. Supernumerary teeth may occur in isolation or as part of a syndrome or developmental abnormality, such as cleidocranial dysplasia, Gardner's syndrome or cleft lip and palate. Many authors have also reported familial occurrence of supernumerary teeth.^{2,3} The incidence of extra tooth in the general population ranges from 0.5-3% with males to females ratio of 2:1. The most common supernumerary teeth is mesiodens and accounts for overall 50% cases, followed by the upper fourth molars or distomolars, the upper paramolars and the lower premolars. The prevalence of supernumerary premolars ranges from 0.09-0.64%. Unlike other supernumerary teeth, supernumerary premolars are

highly likely to develop in the mandible than in the upper maxilla.⁴

2. Case Report

A healthy non-syndromic 22 year old female patient comes to our dental clinic with a chief complaint of an extra tooth with food lodgment in the upper left region of mouth. Clinical examination showed a class I molar relation and a rotated lingually displaced second premolar with a supernumerary premolar on the buccal side in upper left region of mouth [Figure 1]. OPG revealed increased radiopacity in relation to coronal portion of 24, 25 due to superimposition of image of supernumerary premolar [Figure 2]. Therefore, on the basis of clinical and radiographic examination extraction of the supernumerary tooth was planned.

Her 20 year old sister who also came for routine clinical examination revealed clinically absent left canine and the presence of a buccally tilted supernumerary premolar in the same region (upper left dental arch) as her sister [Fig.3].

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Fig. 1: Supernumerary premolar on buccal side rotating and displacing second premolar palatally on upper left side of dental arch



Fig. 2: OPG revealing increased radiopacity in coronal portion of 24, 25 due to superimposition of image of supernumerary tooth.

IOPA done for the 23, 24, 25 region showed fully erupted supernumerary premolar with impacted transmigrating 23 [Fig.4]. There was no evidence of any pathology or root resorption. Patient was advised for routine follow up for radiographic examination of the impacted transmigrating 23.

Their mother also gave a similar history of a palatally erupted extra tooth in the same location which she got extracted few years back due to food lodgment and caries.

3. Discussion

Supernumerary teeth are defined as the teeth which are present in excess of the usual twenty deciduous and thirty-two permanent teeth.⁵ The exact etiology of development of ST is not known. Various theories have been postulated to comprehend their process of development and existence with the normal dentition. Atavism theory suggested that occurrence of these teeth is due to the



Fig. 3: Her sister showing supernumerary premolar in the same region (upper left dental arch)



Fig. 4: IOPA showing fully erupted supernumerary premolar with transmigrating upper left canine

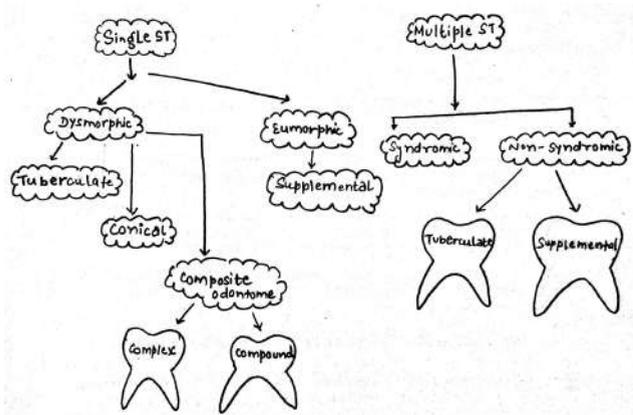


Fig. 5: Showing classification of supernumerary teeth

phylogenetic reversion to the extinct ancestral human dentition. Dichotomy theory says that sometimes developing tooth bud can divide into two teeth, giving rise to one ST and a normal tooth.⁶

The aetiology of ST is complex; familial cases of supernumerary teeth have been described in literature. Although a genetic component may exist, environmental factors cannot be neglected in their development.⁷ In the case presented here, there is positive familial history of supernumerary teeth at similar location in three family members.

There are plenty of reports to support the theory of familial tendency of ST with an increased number of ST evident in the relatives of those affected. Niswander and Sujaku⁸ hypothesized that an AR (autosomal recessive) gene with less penetrance in females may lead to the formation of a ST. It has been reported that X-linked autosomal dominant mode only in females occurred over three generations where the remaining three males were not affected. Several cases have reported in the literature on the occurrence of ST in siblings^{9,10} twins^{2,11} and family members.

Niswander and Sujaku⁸ also proposed the presence of an AR gene which depicts the familial tendency to ST.

The prevalence of supernumerary teeth varies between different racial and ethnic groups. Caucasian population shows, the prevalence of 0.1% - 3.8% in permanent and 0.3-0.8% in primary dentition. Asians shows slightly higher frequency, the estimated prevalence in the sub-Saharan Africa and Asian population has been reported between 2.7% and 3.4%.¹²

Multiple supernumerary teeth most commonly occur in the premolar region (62.1%), and the mandibular premolar region, in particular, is the characteristic location for non-syndrome multiple supernumerary teeth. In most of the cases 76-86% nonsyndromic cases have only one supernumerary tooth, and 12-23% cases have two supernumerary teeth. They may be similar to a normal tooth

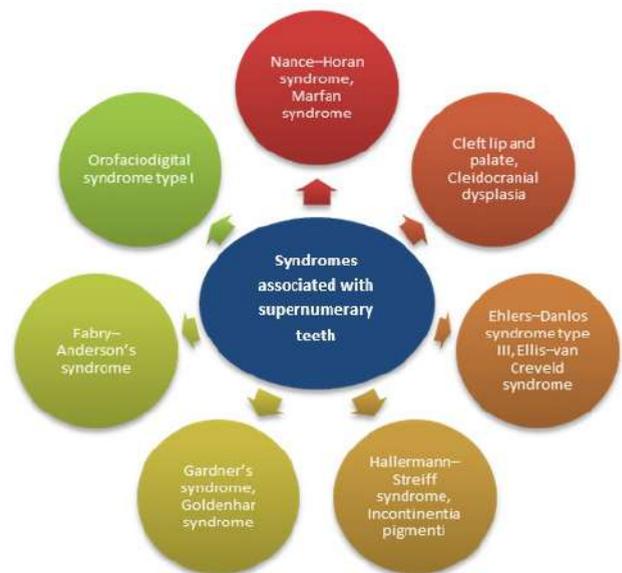


Fig. 6: Syndromes and conditions associated with supernumerary teeth

(eumorphic) or may not be (dysmorphic). They can hence be classified into subgroups on the basis of morphology and location.¹³ [Figure 5]

There are many clinical complications associated with ST. These are midline diastema; malocclusion due to insufficient space; crowding; delayed, or failure of eruption of permanent teeth; dilaceration, cyst formation; cheek bite; periodontal problems; dental caries, root resorption of adjacent teeth. These complications occur rarely, but earlier diagnosis can help preventing them.¹⁴

Radiographic imaging is the most reliable and effective procedure for the diagnosis of supernumerary teeth. The most commonly used techniques being periapical, occlusal radiographs with OPG. The bucco-lingual position of unerupted supernumeraries can be correctly determined by using the parallax technique.¹⁵ In some cases, two-dimensional assessment is not sufficient, and 3-D techniques are used to assess the orientation and positioning of the supernumeraries with respect to the adjacent structures. CBCT is the method of choice for this due to its lower radiation dose and cost as compared to CT.¹²

Early diagnosis of supernumerary teeth is important in their management. It should involve taking a thorough family, medical and dental history and carrying out a radiological examination after clinical assessment.¹⁶ Treatment is totally dependent upon the location, orientation and proximity of the ST to the adjacent vital structures. Therefore, an early diagnosis is very crucial in order to decide among extraction, extraction followed by orthodontic treatment, or simply follow up of the case in order to reduce the risk of complications secondary to the

presence of these teeth.¹⁷

4. Conclusion

Family history is highly crucial and should be taken in detail in patients with supernumerary teeth as their early detection is necessary to prevent dental complications. As in our case if the transmigrating canine in patient's sister is not followed up properly there are high chances of development of cyst or it may damage adjacent teeth. There are many clinical problems associated with presence of supernumerary teeth, such as, caries in adjacent teeth, resorption of roots of adjacent teeth, development of cyst, malocclusion and food impaction as observed in our case. Surgical intervention is the appropriate treatment modality for the supernumerary teeth. However, impacted supernumerary teeth that are asymptomatic and do not affect the dentition should be followed rather than removed.

5. Source of Funding

None.

6. Conflict of Interest

None.

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