

# Nonsyndromic Multiple Supplemental Teeth in Mandibular Premolar Regions: A Rare Case Report

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## ABSTRACT

Supernumerary teeth are extra teeth above the normal number. Erupted supernumerary teeth in premolar region are rarer than in incisor and molar region.

This paper reports a rare case of bilaterally erupted supernumerary (supplemental, where the supernumerary resembles the tooth of the normal series) teeth in mandibular arch of permanent dentition and discusses the etiology and clinical significance of this condition.

**Keywords:** Supplemental, Erupted, Bilateral, Premolar.

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## INTRODUCTION

Supernumerary teeth or hyperdontia is a mammalian developmental abnormality characterized by the presence of extra teeth in addition to teeth of the normal eruption series.<sup>1</sup>

They may be single, multiple, unilateral or bilateral; erupted or impacted and in one or both jaws.<sup>2</sup> Their shape and size may resemble the group of teeth at the site where they are found in the jaws (supplemental, where the supernumerary resembles the tooth of the normal series) or there may be little or no resemblance at all. They may erupt normally, stay impacted, appear inverted or assume an ectopic position.<sup>3</sup>

## Prevalence

The prevalence in premolar region is 0.14% as compared to 1.3% for anterior region.<sup>4</sup>

Studies of caucasian populations have indicated that approximately 90% of all supernumerary teeth occur in the premaxillary region, 4 and 1.5% are located in the mandibular premolar and maxillary canine regions respectively. Prevalence ranging from 0.2 to 0.8% in the primary dentition and from 1.5 to 3.5% in the permanent dentition, with a male to female ratio of approximately 2:1 has been indicated.<sup>5</sup>

The prevalence of supernumerary premolars have been found to be low in Asiatic populations.<sup>1,6-9</sup> Supernumerary premolars have been reported in one out of 10,000 cases which is approximately 10 times less than generalized

hyperdontia in which case it has been reported to be one out of 100 cases.<sup>1</sup> Multiple supernumerary teeth are more common when a syndrome is involved. A high occurrence rate of 21.2% has been reported in Gardner syndrome, whereas in the cleidocranial dysplasia is 22% in the maxillary incisor region and 5% in the molar region.<sup>3</sup> Yosof suggests that, it may be rare to find multiple supernumerary teeth without an associated syndrome.<sup>2,10</sup> Supernumerary erupted teeth in premolar region are rarer than in the incisor region.

This paper reports a rare case of bilaterally erupted supplemental premolars teeth in mandibular arch of permanent dentition and discusses the etiology and clinical significance of this condition.

## CASE REPORT

A 40-year-old female patient visited Department of Conservative Dentistry and Endodontics, JSS Dental College and Hospital, for routine dental checkup; examination revealed a bilateral lingually erupted supernumerary teeth with two supplemental premolar on right and one on left quadrant in the mandibular premolar region. The patient was unaware of the presence of the supernumerary teeth. The supplemental premolars as well as the adjacent premolars presented with normal anatomy and were asymptomatic. Patient did not complain of any difficulty in speech or mastication (Figs 1 and 2). On radiographic examination one of the supernumerary on the left arch was impacted lingually, the root apex of all the supernumerary and normal premolars was mature (Figs 3 and 4).



**Fig. 1:** Bilateral supplemental teeth



Fig. 2: Model showing bilateral supplemental teeth



Fig. 3: Periapical radiograph of mandibular right quadrant, erupted supplemental teeth with matured apex



Fig. 4: Periapical radiograph of mandibular left quadrant with matured apex, one erupted, another impacted supplemental teeth

The patient's medical and dental history was noncontributory toward associating with any kind of syndrome. She was informed of the developmental anomaly and periodic evaluation was advised. Radiographic and

clinical findings in the absence of patient symptoms did not warrant any treatment.

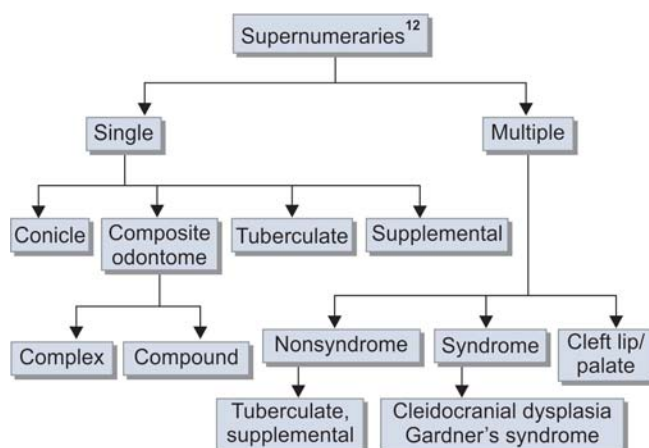
## DISCUSSION

### Classification

Supernumerary teeth may be classified in one of the following ways.

1. *Chronologically*: As predeciduous, similar to permanent teeth, post permanent or complementary.
2. *Morphologically*: As supplemental, where the supernumerary resembles the tooth of the normal series or rudimentary, where the supernumerary may be described as conical, tuberculate, molariform or odontome.
3. *Topographically*: As mesiodens, supernumerary premolars or supernumerary molars. Supernumerary teeth in the molar region are either paramolar (buccally or lingually) or distomolar (distal to the third molar).<sup>11</sup>
4. It can also be classified as Flow Chart 1.

Flow Chart 1: Classification of supernumerary teeth



## ETIOLOGY

Theories related to the origin of supernumerary teeth have proposed that they may form due to reversion to an atavistic trait, aberrant hyperactivity of the dental lamina, reactivation of the residues of the dental lamina and its derivatives (cell rests of Serres or Malassez) or a dichotomy (schizodontia) of an initiated enamel organ which provides extra tooth buds.

Supernumerary teeth were previously thought to be associated with the post permanent dentition series, which formed in addition to the usual diphyodont in mammals. It has also been postulated that they form due to continuation of growth in the progress zones of a specific proliferating tooth class attributed to the morphogenetic field theory; or occur due to a decrease in the size of the enamel organ below a certain threshold limit which signals the dental lamina to generate additional enamel organs. Hyperdontia

has been reported to occur concomitantly among family members due to the interaction of polygenetic and environmental factors. A mode of genetic transmission has not been described with certainty.

Sedano and Gorlin indicated that hyperdontia may be autosomal dominant in nature with variable expressibility. A sex-linked chromosomal mode of inheritance has been postulated to explain the formation of extra teeth. Hyperdontia is reported to occur in certain single gene mutation syndromes such as Halleman-Streiff syndrome, cleidocranial dysplasia and Gardner's syndrome. A 28% of incidence of hyperdotia is reported among cleft palate patients. Multiple supernumerary teeth may also occur in nonsyndrome cases.<sup>1</sup>

Supernumerary premolars in this case had lingually erupted into occlusal confines of the normal permanent arch. The time of tooth development and eruption unfortunately could not be estimated as the patient was unaware of its presence and presented inconclusive medical and family history. On dental examination, the patient was normal in her facial appearance, showed no signs of mental retardation and did not exhibit any physical or skeletal abnormality, hence most of the syndromic conditions were ruled out.

Varied radiographic angulations separate a super imposed image of a supplemental tooth from adjacent

permanent root (Figs 5 and 6). The root apices of the supernumerary teeth and the adjacent normal teeth were mature, when radiographically evaluated by identifying the intact outline of the lamina dura, periodontal ligament space and root surface. A dichotomy of the tooth bud has also been suggested as a possible etiological factor in the development of supernumerary teeth and one study speculated that the tooth bud splits into two equal or differently sized parts during development, which result in two teeth of equal size or one normal and one dysmorphic tooth. The findings suggest that the supernumerary teeth in this case may have formed as a result of focal hyperactivity in the dental lamina. The lingual extension of additional tooth buds from present mandibular premolars may lead to the development of supernumerary teeth with a normal shape.

The majority of the mandibular supernumerary premolars are eumorphic (supplemental) and rarely heteromorphic (conical). Studies indicate that the delayed development of supernumerary premolars can follow the normal dentition by 4 to 10 years. Root development is often delayed and has been reported to continue past the age of 23 years, while most are impacted.<sup>1</sup>

However, multiple supernumerary erupted teeth are a rare occurrence in individuals with no other associated disease or syndromes. Approximately 75% of supernumerary premolars are unerupted and majority appear to be asymptomatic.<sup>13</sup>

### Clinical Significance

Most clinical complications associated with supernumerary teeth are related to interference with normal eruption and positions of the adjacent teeth. Such interference can result in retarded eruption and impaction, as well as, displacement of the adjacent teeth when they are impacted.<sup>5</sup> In addition supernumerary teeth may cause malalignment of the dentition with crowding.

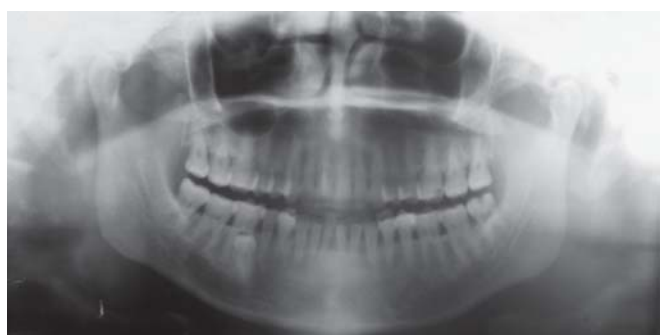
Supernumerary teeth may also cause diastema, malformation of adjacent teeth such as teeth dilaceration, loss of vitality of adjacent teeth, root resorption of adjacent teeth or resorption of their own root if they erupt before the permanent teeth. Cystic lesions may develop around the crowns of the unerupted teeth, whether this is the supernumerary or the permanent tooth.<sup>11</sup> When they erupt, they may interfere with occlusion, difficulty in speech, formation of dental caries or periodontal disease.

### CONCLUSION

We emphasize that the complete medical and family history is critical when we come across a patient with multiple



**Fig. 5:** Occlusal radiograph showing bilateral erupted supplemental teeth



**Fig. 6:** Orthopantomogram showing bilateral supplemental teeth

supernumerary teeth. One has to rule out all those medical syndromes associated with them before labeling it as a case of nonsyndromic multiple supernumerary teeth.

The case report highlighted the importance of thorough clinical and radiographic examination.

Asymptomatic supernumerary teeth with no effects on adjacent teeth can be followed-up regularly without any interventional therapy and be extracted in the event of complications.

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