

# Supplemental Primary Tooth: A Review & Report Of A Rare Occurrence

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## Abstract

**Introduction:** Supernumerary teeth, is defined as teeth that exceed the normal dental formula, regardless of their location and morphology and can be found in almost any region of the dental arch both in the primary and permanent dentition. A Supplemental Tooth is a type of supernumerary tooth that is so well formed that it mimics a fully formed tooth. It usually appears distal to a lateral incisor. Its detection requires the careful counting and identification of each tooth in the dental arch. The causes of supplemental teeth are poorly understood, although many theories have been proposed, such as the phylogenetic process of atavism and the dichotomy of the tooth bud.

**Data Sources:** World-wide, few studies have measured the prevalence of *supplemental teeth in the primary dentition*, and statistics quoted in the dental literature are inconsistent. While this discrepancy may be the result of a difference in detection, with primary teeth being more likely to be missing because of exfoliation or early extraction, it has also been postulated that disturbances in interactions between epithelium and mesenchyme, which affect tooth development, are less likely to occur in primary teeth because of the more stable environment prior to birth.

**Conclusion:** This Paper Attempts to review the occurrence of Supplemental Tooth in the Primary Dentition & report a rare case of a Supplemental Maxillary Canine.

**KEYWORDS:** Supplemental Teeth, primary Dentition, Supernumerary teeth, Primary Canine, genetics.

## Introduction

Supernumerary teeth, is defined as teeth that exceed the normal dental formula, regardless of their location and morphology and can be found in almost any region of the dental arch both in the primary and permanent dentition<sup>1,2</sup>

The causes of supernumerary teeth are poorly understood, although many theories have been proposed, such as the phylogenetic process of atavism and the dichotomy of the tooth bud. The most accepted theory suggests that these teeth result from localized and independent hyperactivity of the dental lamina, which presumably leads to the formation of additional tooth germs. Genetics is also thought to play a role in the development of supernumerary teeth, as recurrence within the same family is commonly reported<sup>3</sup>. World-wide, few studies have measured the prevalence of supernumerary teeth in the primary dentition, and statistics quoted in the dental literature are inconsistent.

### Review of Literature:

Anomalies of the dentition may involve either number and/or morphology, and may incur either the primary and/or permanent teeth. Difficulties in distinguishing number and morphology occur in the gemination and/or fusion of teeth, and in

determining whether extra teeth are supplemental or supernumerary.<sup>4</sup> (Killian and Croll,1990).

Hyperdontia occurs more commonly in the permanent dentition and more frequently in incisors than it does in canine or post-canine teeth<sup>5</sup> (Stewart and Prescott, 1976).

There are two morphologic types of supernumerary teeth, supplemental and rudimentary. The supernumerary tooth which bears resemblance to the tooth with which it is associated is called supplementary teeth. Rudimentary supernumerary teeth bear little resemblance to normal teeth in size or shape.<sup>6</sup>

Primosch in 1981 reported that the majority of primary extra teeth are supplemental, mostly lateral incisors. Moreover, supernumerary teeth in both primary and permanent dentitions in the same individual occur in approximately one third of cases, again involving lateral, rather than central incisors.<sup>7</sup>

It has been reported that supernumerary teeth with numerical variation in the primary dentition are located more frequently in the maxilla than in the mandible (Grahnen and Granath, 1961)<sup>8</sup>.

Luten in 1967 reported that the prevalence of supernumerary teeth involved in mesiodens was 2% in both the primary and mixed dentition<sup>9</sup>.

Curzon and Curzon in 1967 studied the prevalence of supernumerary primary teeth in Caucasians and it was found to range from 0.23 to 0.64%.<sup>10</sup>

Morioka *et al* in 1991 showed a prevalence of 0.44% of supernumerary primary teeth in Chinese which was similar to that of Caucasians.<sup>10</sup>

The prevalence of supernumerary primary teeth in Swedish children was found to be 0.3 percent and 0.4 percent in Finnish children. (Jarvinen S, Lehtinen L, 1981.)<sup>11</sup>

In 1974, Brook reported that 2.1% of British children had supernumerary teeth in the permanent dentition, whereas only 0.8% had supernumerary teeth in the primary dentition.<sup>12</sup>

In 2000, the prevalence of supernumerary primary teeth in Japanese children was evaluated in 8122 children aged 3–6 years. There were only four cases of supernumerary primary teeth among the children examined, and thus the prevalence was found to be 0.05%.<sup>10</sup>

While this discrepancy may be the result of a difference in detection, with primary teeth being more likely to be missing because of exfoliation or early extraction, it has also been postulated that disturbances in interactions between epithelium and mesenchyme, which affect tooth development, are less likely to occur in primary teeth because of the more stable environment prior to birth.<sup>13</sup>

### Case report

A 13 year old girl visited the Department of Pediatric and Preventive Dentistry with the chief complaint of an extra tooth in the upper right back tooth region. The patient also reported spacing between her teeth & some teeth were rotated. The medical history

was not significant. The mother gave a history of an extra tooth in upper left back tooth region which was extracted at the age of 7 years.

Thorough clinical examination was carried out which revealed a mixed dentition, with Angle's class I molar relation with mesio-buccal rotation of the maxillary right first premolar and a supernumerary tooth palatal to it (**Figure-1**). This tooth resembled a deciduous canine. The permanent canine was seen clinically erupted in its normal position. The parents confirmed that the primary canine had shed uneventfully a year back.

Intraoral periapical radiograph (**Figure-2**) was suggested which revealed a supernumerary tooth which resembled deciduous canine with normal crown and root formation present palatal to the maxillary right first premolar. Occlusal (**Figure-3**) and Panoramic radiographs (**Figure-4**) were taken to confirm and rule out the presence of supernumerary teeth elsewhere in the oral cavity.

The supernumerary canine was extracted (**Figure -5**) after obtaining parent's consent and the tooth was sent for histopathological examination (**Figure-6**) which showed the composition of the tooth similar to that of a deciduous tooth.

### Discussion

Supernumerary teeth can be found in almost any region of the dental arch. In the 1997 review of the literature, a prevalence of 0.3–1.7% was found<sup>8</sup>. Based on a study conducted in New Zealand, it was suggested that the supplemental maxillary lateral incisor is the most commonly occurring supernumerary tooth in the primary dentition. In an epidemiological survey conducted in Denmark, it was reported that only two out of 30 supernumerary primary teeth were canines, the remainder being mesiodens or lateral incisors.<sup>12</sup>

Also an association between supernumerary teeth in the primary and the permanent dentitions has been reported.<sup>14</sup>

The most frequent location is in the maxilla, the anterior medial region (mesiodens), where 80% of all supernumerary teeth are found. More rarely, they can be located in the maxillary distomolar zone, mandibular premolar, maxillary premolar, mandibular distomolar, maxillary canine zone, and mandibular incisor.<sup>15</sup>

Occurrence may be single or multiple, unilateral or bilateral, erupted or impacted and in one or both jaws.<sup>16</sup>

The conditions commonly associated with an increased prevalence of supernumerary teeth include cleft lip and palate, cleidocranial displasia, and Gardner syndrome.<sup>16</sup>

Supernumerary teeth may closely resemble the teeth of the group to which it belongs i.e. Molars, premolars or anterior teeth, or it may bear little resemblance in size or shape of the teeth with which it is associated. There is a greater variety of Supernumerary teeth that erupt ectopically either buccally or lingually to the normal arch are sometimes referred to as peridens.<sup>17</sup>

Heredity may also play a role in the occurrence of this anomaly, as supernumeraries are more common



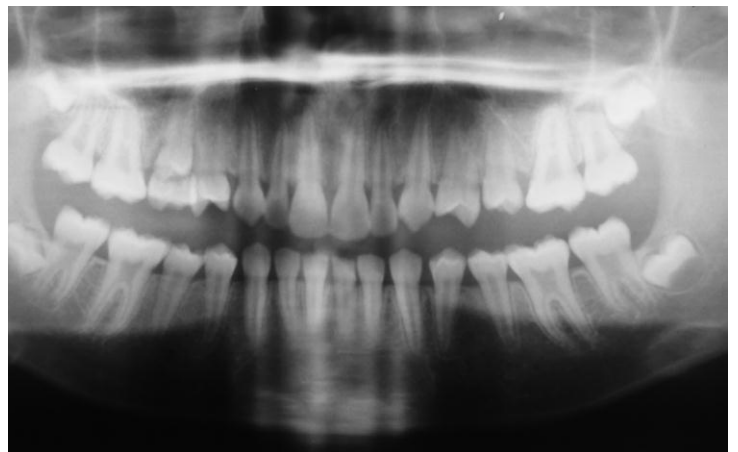
**Figure 1** – Supplemental Primary Canine with Rotated Premolar



**Figure 2** – Periapical Radiograph of area of concern



**Figure 3** – Maxillary Occlusal Radiograph



**Figure 4** – Orthopantomograph



**Figure 5** – Extracted Primary Supplemental Canine



**Figure 6** – Histological Section



in the relatives of affected children than in the general population. However, the anomaly does not follow a simple mendelian pattern.<sup>18</sup>

Sexual dimorphism with males more commonly affected has been reported<sup>19</sup>

Clinical and radiographic identification of all the teeth is very important for a good treatment planning. It may be difficult to formulate an ideal treatment plan for all cases with supernumerary teeth.<sup>18</sup>

Treatment depends on the type and position of the supernumerary teeth and on its effect or potential effects on adjacent teeth. The management of a supernumerary tooth should form part of a comprehensive treatment plan and should not be considered in isolation.<sup>16</sup>

Different approaches to deal with such conditions have been reported in the literature. The authors agree that an early diagnosis is of paramount importance to minimize the risks of complications resulting from supernumerary teeth. However, the best time for removal depends on the careful evaluation of each situation.

Some authors recommend immediate removal of the tooth so as to prevent costly future orthodontic intervention, the others claim that extraction of asymptomatic supernumerary teeth 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>20</sup>

In the present case it was decided to extract the supernumerary canine to allow for proper alignment of the teeth. The extracted tooth was confirmed by histopathological examination to be a deciduous supernumerary canine. The patient is under regular follow up.

Based on the literature, it is possible to conclude that a supernumerary primary tooth in the canine region is a very rare condition and causes severe aesthetic and functional disturbances. So, early diagnosis and treatment will enable the child and the family to solve the problem without traumatic surgical procedures or corrective orthodontic intervention.

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