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An Observational Study on the Prevalence of Supernumerary Teeth and associated complications in Children Aged 6–15 Years

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ABSTRACT

Introduction

Those teeth that are more than the average amount are referred to as supernumerary teeth. Between the two central incisors in the middle of the premaxilla are mesiodens, or unerupted supernumerary teeth. The occurrences are reported to be 0.3%–0.8% in the primary dentition and 1.5%–35% in the permanent dentition.The mesiodens, which is located in between the maxillary central incisors, is the most typical extra tooth. Although the primary cause of Supernumerary Teeth is unknown, various theories have been put out, and the most popular one is that the dental lamina's horizontal proliferation or hyperactivity is the primary cause of Supernumerary Teeth.

Materials and method

This retrospective observational study was conducted using archived patient records from Saveetha Dental College and Hospitals. Dental records of children aged 6–15 years who reported between January 2023 and December 2025 were reviewed. Data regarding age, gender, location of supernumerary teeth, morphology, eruption status, and associated complications were collected and analyzed using SPSS Version 23.0. Descriptive statistics and Chi-square tests were used for statistical analysis, with $p < 0.05$ considered statistically significant.

Result and discussion

The prevalence of Supernumerary Teeth was found to be 1.87% (17 out of 900 children), with 1.13% cases detected in group I and 2.6% cases detected in group II children. Out of 17 children with ST, two children had double supernumerary teeth, while 15 (group I = 4; group II = 10) had single Supernumerary Teeth. In contrast to permanent teeth, which most frequently exhibit Supernumerary Teeth in the central incisor region, primary teeth more frequently exhibit Supernumerary Teeth in the lateral incisor region.

Conclusion:

Supernumerary teeth are more frequent among males than females, more frequent in the upper premaxillary region, and more prevalent in permanent dentition. Complications associated with Supernumerary Teeth include impaction, delayed eruption, ectopic eruption, dental overcrowding, teeth spatial disorders, and formation of follicular cysts

Keywords: Supernumerary teeth, complications of supernumerary teeth, prevalance of supernumerary teeth

INTRODUCTION

Those teeth that are more than the average amount are referred to as supernumerary teeth. Between the two central incisors in the middle of the premaxilla are mesiodens, or unerupted supernumerary teeth(1). The most frequently documented and important dental anomaly in patients, affecting the primary, mixed, and permanent dentition, are supernumerary teeth. Under the terms Supernumerary Teeth or hyperdontia, developmental anomalies are defined as deviations from a normal number of teeth.(2) (3)According to reports, the prevalence of hyperdontia ranges from 0.15 to 3.9%. (4)According to various research, mesiodens is more common in men than women, with prevalence rates ranging from 0.09 to 2.05%. Both the permanent and primary dentitions can have extra teeth, however the primary dentition experiences them five times less frequently. According to the literature, the maxilla is home to 80–90% of all extra teeth, with the front portion housing 50% of them(5)

A tooth that is extra to the regular series and can be found practically anywhere along the dental arch is known as a supernumerary tooth.The occurrences are reported to be 0.3%–0.8% in the primary dentition and 1.5%–35% in the permanent dentition.The mesiodens, which is located in between the maxillary central incisors, is the most typical extra tooth. Supernumerary teeth can lead to malocclusion, aesthetic issues, and the displacement or rotation of the permanent tooth. (6)The frequency of occurrence is more in boys in permanent dentition, while no significant gender distribution is noted in primary dentition. Mesiodens are divided into four subtypes on the basis of morphology: conical, supplemental, odontome, and tuberculate. They may be unilateral or bilateral, single or multiple, and erupted or unerupted.(7)

Although the primary cause of Supernumerary Teeth is unknown, various theories have been put out, and the most popular one is that the dental lamina's horizontal proliferation or hyperactivity is the primary cause of Supernumerary Teeth.(8) Supernumerary teeth may erupt naturally or may be impacted. They may result in issues such as failure to erupt, displacement, crowding, diastemas, the development of odontogenic cysts, and the resorption of nearby teeth.

MATERIALS AND METHOD

The study consisted of an examination of randomly selected 900 school-going children, female (group I) and male (group II), between the age-group of 6 and 15 years from both private and government-aided schools of Chennai. The inclusion criteria consisted of (1) school-going children of 6–15 years in Chennai and (2) children who have no previous extraction or tooth loss due to trauma. The school-going children below this age-group, children diagnosed with any syndrome, and a history of medical and physical disability were excluded.

All clinical examinations were carried out by a single investigator in a systematic manner using a mouth mirror and straight probe only. Chemical methods of disinfection were followed, using Savlon solution by mixing one part of Savlon with three parts of water. The 10% of the children were reexamined to minimise the intra-examiner variability.The written and informed consents were obtained from the children's guardians. The information regarding the patient's demographic profile (including age and sex) and the number of teeth were ascertained, noting any Supernumerary Teeth. The site, region, eruption status, morphology, and whether it was present unilaterally or bilaterally were noted. Malocclusion or any complication associated with Supernumerary Teeth, such as displacement and rotations of adjacent teeth, ectopic eruption, caries, or any cyst associated with the Supernumerary Teeth, were also recorded.

STATISTICAL ANALYSIS

The data, thus collected, were tabulated and statistically analysed using SPSS version 23.0, using the Chi-square test for the prevalence of Supernumerary Teeth test for the association between genders for the study parameters. The p-value < 0.05 was considered statistically significant.

RESULTS

Gender	ST Present	ST Absent	Total
Male	12	438	450
Female	5	445	450

Table1.1. Table shows distribution in presence or absence of supernumerary teeth (ST) in male & female patients.

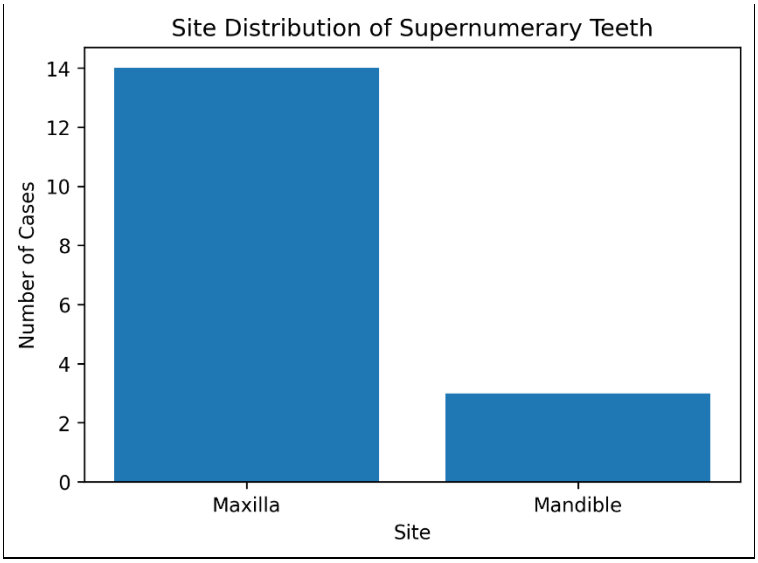
The prevalence of Supernumerary Teeth was found to be 1.87% (17 out of 900 children), with 1.13% cases detected in group I and 2.6% cases detected in group II children. The male-to-female ratio was 2.29:1, with a statistically significant association ($p < 0.03$) between gender and the prevalence of Supernumerary Teeth.

Variable	Chi-square Value	p-value	Statistical Significance
Gender vs Prevalence	4.72	0.03	Significant

Table 1.2. Table showing the chi-square contingency test.

Out of 17 children with ST, two children had double supernumerary teeth, while 15 (group I = 4; group II = 10) had single Supernumerary Teeth. There was no significant correlation (p= 1.00) found between group I and group II regarding the number of Supernumerary Teeth.

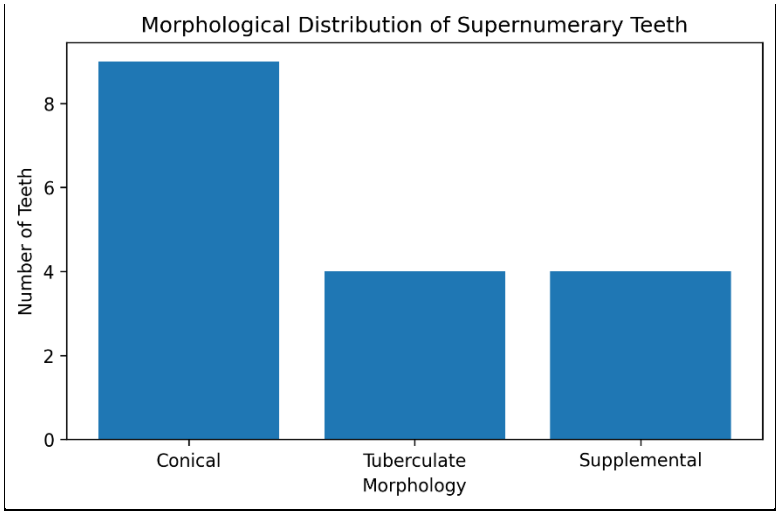
Based on the site, it was found that 14 Supernumerary Teeth (group I = 5; group II = 12) were present in the maxilla and only three (group I = 0; group II = 3) in the mandible. There was no statistical correlation (p = 0.55) found between group I and group II, with respect to the site of Supernumerary teeth.



Graph 1.1. Graphical representation of site of distribution of ST in the X-axis and the number of associated cases in the Y-axis.

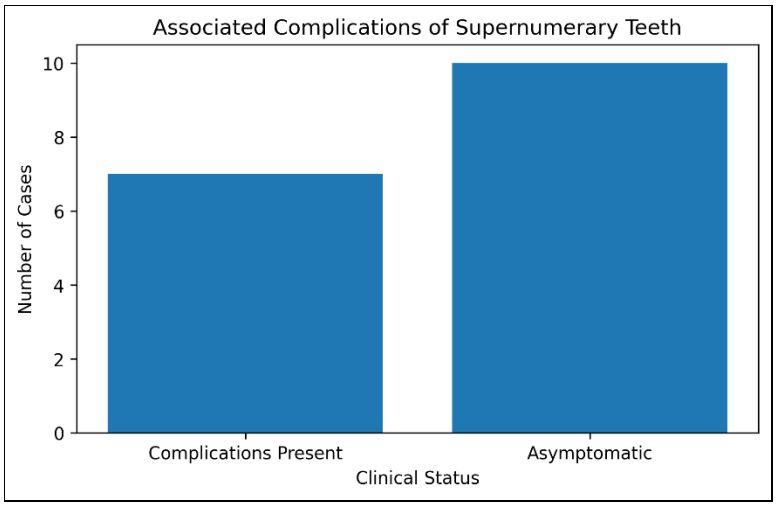
According to the region, it was found that 12 Supernumerary Teeth (group I = 4; group II = 8) were present in the midline, four Supernumerary teeth (group I = 0; group II = 4) were present in the central incisor region, and one (group I = 0; group II = 1) was present in the molar region. There was no statistical correlation (p = 0.51) found between group I and group II, with respect to the region of location of Supernumerary Teeth.

Based upon morphology, it was noted that 9 Supernumerary Teeth (group I = 2; group II =7) were conical in form, 4 Supernumerary Teeth (group I = 1; group II = 3) were tuberculate, and four Supernumerary Teeth (group I = 1; group II = 3) were supplementary in morphology. There was no statistical correlation (p = 0.25) found between group I and group II, with respect to the morphology of Supernumerary Teeth.



Graph 1.2. Graphical representation of morphological distribution of ST in the X-axis and the number of associated cases in the Y-axis.

Regarding the clinical complications, it was found that 7 Supernumerary Teeth (group I = 2; group II = 5) had associated complications, while 10 Supernumerary Teeth (group I = 3; group II = 7) were asymptomatic. There was no statistical correlation ($p = 0.65$) found between group I and group II, with respect to associated clinical complications of Supernumerary teeth.



Graph 1.3. Graphical representation of associated complication of ST in the X-axis and the number of associated cases in the Y-axis.

DISCUSSION

It is crucial to identify and diagnose dental irregularities in young patients as soon as possible so that any further issues can be avoided. Anodontia, Supernumerary Teeth, and teeth fusion are the three anomalies that show in children the most frequently. In a study by Miyoshi et al(9), the prevalence of supernumerary teeth was reported to be lower (1.5%). Another study by Segura and Jiménez-Rubio (10), the prevalence was lower (0.4%). These variances could result from variation in societal aspect, ages of the subjects, and the methods of examination utilized in the studies.(11) Furthermore, the current survey was carried out without the use of radiography for every child; as a result, the prevalence may have been underestimated because unerupted Supernumerary Teeth escaping detection.

Sexual dimorphism has been reported in the current study for the occurrence of Supernumerary Teeth favouring males, 2.29:1. Similar results were obtained by Miyoshi et al. and Sharma A et al(10,12). In a study by Humerfelt et al.(13) this occurrence of sexual dimorphism was explained by the fact that sex preponderance of males over females can be explained by the sex-linked inheritance of the hyperdontia characteristic and the association of Supernumerary Teeth with an autosomal recessive gene with lower penetrance in females.(14) Supernumerary teeth have been reported in both primary and permanent dentition; however, a higher number of incidence of the anomaly is seen in permanent dentition(15). In contrast to permanent teeth, which most frequently exhibit Supernumerary Teeth in the central incisor region, primary teeth more frequently exhibit Supernumerary Teeth in the lateral incisor region. This may be because of the fact that primary dentition hyperdontia is frequently disregarded since Supernumerary Teeth are of regular form, erupt in appropriate alignment, and sometimes misinterpreted for germination or fusion abnormalities (15,16).

Numerous studies have reported incidences of supernumerary teeth in maxilla more than its incidence in mandible. The premaxilla develops differently from the entire maxilla in the embryo(17). The interaction of the migrating neural crest cells with the local ectoderm results in the formation of the premaxilla and the teeth in the anterior area.(18) According to some theories, abnormalities in the neural crest cells that migrate, proliferate, and differentiate normally in the premigratory population of the premaxilla may be the root of supernumerary teeth. In a study by Batra P et al(15), it's reported that tuberculate types of Supernumerary Teeth are more commonly responsible for late eruption of permanent teeth, next followed by conical-shaped Supernumerary Teeth. They have recommended surgical intervention to remove these supernumeraries around the age of 8–10 years after adequate apical maturation has happened in order to prevent any damage to developing roots.

CONCLUSION

Supernumerary teeth are more frequent among males than females, more frequent in the upper premaxillary region, and more prevalent in permanent dentition. Complications associated with Supernumerary Teeth include impaction, delayed eruption, ectopic eruption, dental overcrowding, teeth spatial disorders, and formation of follicular cysts. The course of treatment for Supernumerary Teeth is determined by the type, location, and any potential problems found during a clinical evaluation. This study also highlighted the dentist's responsibility to conduct a comprehensive clinical diagnosis of children since, although Supernumerary Teeth are exceptional, they cannot be regarded as uncommon and benign things..

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