

Original article

**Prevalence and distribution of dental anomalies
in 500 Indian school children**

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Abstract

Objective: Developmental disturbances of teeth contribute to dental problems encountered in general practice. These are a group of disorders where prevention is not possible, with the exception of environmental enamel hypoplasia. Surveys done on various populations have found prevalence of dental anomalies to be 5.46%. Knowledge of common dental anomalies when available can be a useful tool for forensic dentistry. Since such epidemiological data is not available for the Jodhpur population in Rajasthan, this study was conducted to determine the prevalence of developmental dental anomalies in 500 school going children. **Methodology & Result:** A total of 500 school children (290 male & 210 female) of age ranging between 6 - 15 years were examined clinically for developmental anomalies of teeth. Prevalence of Peg lateral, supernumerary teeth & Talon's cusp was 0.4%, 0.6% & 0.2% respectively while 18.8% showed fluorosis induced enamel hypoplasia.

Key Words: Dental anomalies, Peg lateral, supernumerary teeth, Talon's cusp, Enamel hypoplasia.

Introduction

Dental anomalies of crowns or roots of teeth are not uncommon. Anomalies of teeth shape, number & structure occur due to abnormal events in the embryological development of teeth caused by genetic & environmental factors during the morphodifferentiation or histodifferentiation stages of development [1].

Although asymptomatic these anomalies can lead to clinical problems which include delayed or incomplete eruption of the normal series of teeth, attrition, breast feeding problems, compromised esthetics, occlusal interference, accidental cusp fracture, interference with tongue space causing difficulty in speech and mastication, temporomandibular joint pain and dysfunction, malocclusion, periodontal problems because of excessive occlusal

force and increased susceptibility to caries [2,3].

Studies quantifying the prevalence of dental anomalies in different countries representing persons of various ethnic origin have been done [4], however a study representing the dental anomalies in this region has not been done so far. Therefore this study was conducted to determine the prevalence of developmental dental anomalies in 500 school going children.

Methodology

This study was conducted on a total of 500 school children in Jodhpur. Males (290) & females (210) aged between 6-15 years were examined clinically for developmental anomalies of teeth. For the purpose of this study the following diagnostic criteria were used for the most common dental anomalies:

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Peg shaped lateral: Any upper lateral incisor demonstrating a reduction in its mesiodistal size in a gingivo-incisal direction [5].

Mesiodens: A supernumerary tooth present in the premaxilla between the two central incisors. Morphologically it may be cone shaped or tuberculated [6].

Talon cusp: A prominent accessory cusp like structure projecting incisally from the cingulum area of an incisor [7].

Microdontia: Teeth which are physically smaller than usual [8].

Macrodontia: Teeth which are physically larger than usual [8].

Gemination: Anomalies which arise from an attempt at division of a single tooth germ by an invagination, with resultant incomplete formation of two teeth and corresponding increase in the number of teeth in the dental arch [6].

Fusion: Union between two separately developed normal teeth leading to a reduction in the number of teeth in the dental arch [6].

Enamel hypoplasia: Incomplete or defective formation or maturation of the inorganic enamel matrix of teeth. Depending upon the level of fluoride in the water supply, there is wide range of severity in the appearance of mottled teeth [9].

Results

We found that out of the 500 school children examined 6 (1.2%) of total group had at least one developmental dental anomaly. The distribution by sex was 4 (1.8%) in males and 2 (1.3%) in females [Table 1, 2].

Only one male patient had a Talon's cusp, peg shaped incisor was seen in one male and one female while mesiodens was seen in two males & one female. Prevalence of Peg shaped incisor, mesiodens & Talon's cusp was 2 (0.4%), 3 (0.6%) and 1 (0.2%) respectively in the present study. Fluorosis induced enamel hypoplasia showed a prevalence of 94 (18.8%).

Discussion

Slight differences in the occurrence of dental anomalies were observed between our study and previous epidemiological studies. These conflicting results can be explained primarily by racial difference & sampling technique. These could also be explained by local environmental factors & nutrition.

Our study showed peg lateral to have a prevalence of 0.4%. Two previous studies have found the prevalence to be 0.33% and 1.51% [2,10]. These variations are mostly the result of racial and ethnic differences between populations.

The occurrence of supernumerary teeth is a less common finding than other developmental anomalies. Zhu et al reported the prevalence of supernumerary teeth with respect to race [11]. The prevalence of hyperdontia in various populations is reported to be between 0.1-3.8% with a male to female ratio of 2:1 [12]. These results are similar to findings of the present study where a prevalence of 0.6% and a male to female ratio of 2:1 was seen. All the supernumerary teeth in our study were Mesiodens. Talon's cusp is an uncommon developmental dental anomaly with prevalence of 0.04%-10% [3]. We found only one male subject showing a talon's cusp on palatal aspect of upper central incisor (0.2%).

In the present study most of the cases of fluoride induced enamel hypoplasia were seen in the permanent dentition. The difference in severity of dental fluorosis between the two dentitions has been attributed to placental barrier preventing the passage of fluoride [13, 14]. Mother's milk and formula milk constitute the infants diet, up to 11 months of age. We believe that the minimal consumption of water and the rapidly developing skeleton absorbing the fluoride consumed protects the deciduous teeth whose crown is completed post nataly during this time.

Conclusion

The present study revealed that 1.2% of the patients in the group of 500 had at least 1 developmental dental anomaly. Most common developmental dental anomalies in present study were the mesiodens & peg shaped incisor. The difference in prevalence compared with previous studies might arise from racial difference. Present study has showed subjects with 23.6% showing various levels of fluorosis.

Various surveys conducted on different populations have provided variable results in regards to prevalence of these dental anomalies. This variation highlights the need for establishing data from various areas to examine the effects of genetics, development and environment on the dental development.

Table-1: Male 290

Age group	No. of patients	Peg lateral	Mesiodens	Talons cusp	Hypoplasia	No abnormality
6-8	78	1	0	0	0	59
9-11	82	0	1	0	18	64
12-15	130	0	1	1	33	96

Table-2: Female 210

Age group	No. of patients	Peg lateral	Mesiodens	Talons cusp	Hypoplasia	No abnormality
6-8	58	0	1	0	0	41
9-11	42	0	0	0	15	30
12-15	110	1	0	0	28	87

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