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Assessment of Developemental Orofacial Anomalies in Western Maharastra Children

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Abstract

Context: Developmental dental anomalies are relatively common. These anomalies are related to genetic and environmental factors. The simultaneous occurrence of these anomalies may be genetically determined and can be associated with specific syndromes. Dental anomalies can increase the risk of caries and periodontitis and can lead to endodontic, aesthetic or orthodontic problems. If undiscovered, they can complicate orthodontic treatment and affect the treatment outcome. Most of these kind of studies have been based on birth certificates, reports of malformation centers or public hospital records. Very few studies are carried out in children and adolescence. Here study is conducted to determine the prevalence of orofacial anomalies in children. *Settings and Design:* After approval from the institutional ethical committee, 200 School children were examined in their schools, on the ordinary chair, using dental mirror, tongue depressor and natural light. A simple random sampling technique procedure was used to select the students. The diagnosis of orofacial anomalies was made according to the clinical criteria. Soft tissue anomalies included were: developemental disturbances of lip, palate, buccal mucosa and tongue. In hard tissue, developemental disturbances in tooth size, shape, structure and number. *Results:* Of 200 patients, 58 % showed no dental anomaly, whereas the rest 42% (13% of hard tissue and 29% of soft tissue) exhibited at least one dental anomaly either of hard or soft tissue anomalies. To conclude when compared hard tissue anomalies prevalence of soft tissue anomalies are more. No significant correlation between the gender and dental anomalies was found.

Keywords: Anomalies; Genetic; Prevalence.

Introduction

Factors leading to developmental abnormalities can be either genetic, such as inheritance, metabolic, and mutations, or environmental, including physical, chemical, environmental, and biological factors. It is also possible that some of these anomalies are caused by a combination of both genetic and environmental factors.[1] 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, factors leading to developmental abnormalities can be either genetic, such as inheritance, metabolic, and mutations, or environmental, including physical, chemical, environmental, and biological factors. It is also possible that some of these anomalies are caused by a combination of both genetic and environmental factors [1].

Developmental dental anomalies are an important category of dental symptomatology. Their incidence and degree of expression can provide important information for phylogenic and genetic studies and help understand variations within and between populations [2]. Abnormalities in tooth size, shape, and structure result from disturbances during the morph differentiation stage of development [3]. These anomalies may also occur as part of a syndrome or disease, where they have diagnostic and medical significance. For this reason, early recognition of dental anomalies is important from a therapeutic point of view.

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Dental anomalies can increase the risk of caries and periodontitis, and can lead to endodontic, aesthetic or orthodontic problems [4]. If undiscovered, they can complicate orthodontic treatment and affect the treatment outcome.

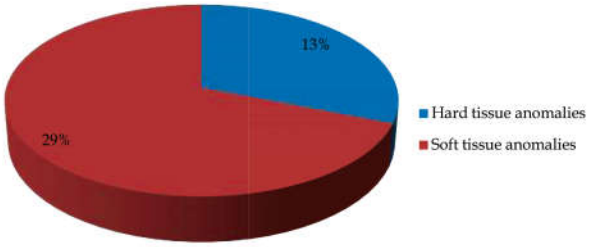
Most of these studies have been based on birth certificates, reports of malformation centers or public hospital records. Very few studies are carried out in children and adolescence, so aim of our study is to determine the prevalence of orofacial anomalies in children.

Subjects and Methods

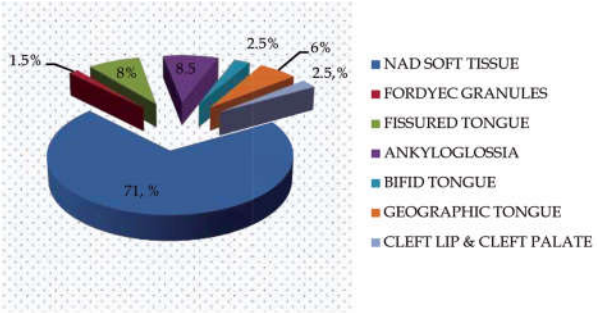
Screening of 200 western Maharastra School Children were examined in their schools, on the ordinary chair, using dental mirror, tongue depressor and natural light. A simple random sampling technique procedure was used to select the students. The diagnosis of orofacial anomalies was made according to the clinical criteria. Soft tissue anomalies included will be: developmental disturbances of lip, palate, buccal mucosa and tongue. Developmental disturbances affecting lip and palate: lip pits fistula, cleft lip and palate were considered. Anomalies of tongue, microglossia, macroglossia, ankyloglossia, geographic tongue, median rhomboid glossitis were considered. Tooth shape abnormalities, including fusion, germination, peg-shaped teeth tooth size anomalies like macrodontia and microdontia. Tooth number abnormalities, including hypodontia (one or more missing teeth) oligodontia, and hyperdontia (supernumerary teeth) were considered .Collected data was analyzed by using chi square test.

Results

Of 200 patients, 58 % showed no dental anomaly, whereas the rest 42% exhibited at least one dental anomaly either of hard or soft tissue anomalies. Frequencies of hard and soft tissue anomalies shown in pie chart 1 [13% of hard tissue and 29% of soft tissue]. Prevalence of hard tissue anomalies including disturbances in tooth number, size, shape and structure shown in table 1. Prevalence of soft tissue anomalies including developmental disturbances of lip and palate, buccal mucosa and tongue [fissured, geographic, ankyloglossia and bifid tongue] shown in table 2. Statistical differences between sexes of hard and soft tissue anomalies shown in table 3 and 4, found to statistically non significant.



Piechart 1: Showing prvelence of hard tissue and soft tissue anomalies



Piechart 2: Showing prevalence of soft tissue anomalies

Discussion

Developmental dental anomalies are relatively common. These anomalies are related to genetic and environmental factors. The simultaneous occurrence of these anomalies may be genetically determined and can be associated with specific syndromes [5]. 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 [6-8].

There are numerous studies reporting the prevalence of dental anomalies, however, a similar study has not been conducted in western Maharastra population especially in school going children. The results obtained from the selected group provide an estimation of the prevalence of dental anomalies & their association with gender in the general.

Uslu et al. evaluated the prevalence of dental anomalies in different orthodontic malocclusions. They found that 40.3% of patients had at least one dental anomaly [9]. In our study, 58 % showed no dental anomaly, whereas the rest 42% exhibited at least one dental anomaly either of hard or soft tissue anomalies. These variations are mostly the result of racial and ethnic differences between populations.

Jelka et al. concluded that the prevalence of anomalies according to sex showed no significant sex difference [2], our study concluded the same

results. There are conflicting reports on gender differences and dental anomalies as some studies show no significant differences, while other study by Guttal K.S gave opposite results showed significant correlation between gender and anomalies.

In hard tissue anomalies prevalence of shape of the abnormalities are most common followed by structure abnormalities, size abnormalities and number abnormalities. This study of its own kind, no study is there to compare the hard tissue anomalies.

In soft tissue anomalies tongue anomalies are more common followed by lip, palate and buccal mucosa. In tongue anomalies ankyloglossia (17%) is most common followed by fissured tongue (16%), geographic tongue (12%) and bifid tongue (5%). F. Khozeimeh et al concluded that prevalence of tongue anomalies in more prevalent among boys (24.7%) than girls (23.9%), Fissured tongue was most common followed by partial ankyloglossia, geographic tongue and median rhomboid glossitis [10]. Variation because of differences in the samples selected, methods, place of study, and racial and genetic differences.

Conclusion

The present study investigated the prevalence of various dental anomalies in school going children's. It was found that 58% showed no dental anomaly, whereas the rest 42% exhibited at least one dental anomaly either of hard or soft tissue anomalies. When compared hard tissue anomalies prevalence of soft tissue anomalies are more. No significant correlation between the gender and dental anomalies was found. Dental anomalies can increase the risk of caries and periodontitis, and can lead to endodontic, aesthetic or orthodontic problems. If undiscovered, they can complicate orthodontic treatment and affect the treatment outcome.

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