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Distribution of Different Dental Developmental Anomalies in Indian Population

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Abstract: ***To determine the prevalance and distribution of dental developmental anomalies in Indian population.The objective of this study is to determine the prevalance of these anomalies and to determine the etiological factors and its effect in the study population and distribution of these anomalies in a population.Developmental anomalies means an abnormality where the pathology starts in the embryonic stage of human life , before the formation of the dentition.The factors leading to developmental abnormalities can be either genetic factors or environmental factors or both. Dental anomalies include taurodontism, microdontia, macrodontia, gemination, fusion, enamel pearl, dens evaginatus, dens invaginatus, talons cusp, supernumerary teeth, anomalies involving tongue, mucosa, salivary gland, gingiva, palate etc.The purpose of the study is to determine the etiological factor and the effect of these dental anomalies***

Keywords: dental developmental anomalies, population, dentition

1. Introduction

A **developmental anomaly** is a broad term for conditions which are present at conception or occur before the end of pregnancy. The factors that are responsible for developmental abnormalities can be either genetic factors such as inheritance, metabolic and mutations or environmental factors including physical, chemical, environmental and biological factors.[1] The developmental anomalies included in this study is in region of dentition, tongue, salivary gland, lip, palate and mucosa.

Disturbances and alteration in the different stage of tooth development lead to the development of dental anomalies which affect number, size, shape, eruption, exfoliation process.[2] Some dental anomalies include supernumerary teeth, taurodontism, talons cusp, dilaceration, gemination, fusion etc… Anomalies in tongue may include bifid tongue, tongue tie, fissured tongue, geographic tongue etc… Some anomalies which affect lip and palate may include cleft lip and cleft palate. Dental anomalies may be complicating factors in dental as well as orthodontic treatment.[3] Not only orthodontic treatment but it also affect aesthetics, mastication problems, phonetics, breathing etc…Their prevalence and degree of expression can provide important matter on phylogenic and genetic factors to study the difference in prevalence between different population.[4]The purpose of this study is to evaluate the prevalence and distribution of developmental anomalies in an Indian population based on statistical analysis.

2. Materials and Methods

A open ended questionnaire was prepared and was personally interviewed to the general population of the society. This study was done to evaluate the distribution of developmental anomalies in an Indian population. They were questioned on the awareness of the etiology behind the developmental anomalies and the effect of these anomalies on their daily life. Totally 250 individuals were questioned. The questionnaire was printed out and the hard copy was used to orally interview. Anomalies on dentition, tongue, salivary gland, oral mucosa, palate and lip and gingiva. Statistic and graphs were done using SPSS software and Microsoft excel simultaneously.

3. Results

The results of this present study is that out of 250 individuals 142 were normal and 108 of them suffered from some or the other developmental anomalies. Totally 25 anomalies were present in the population. Most commonly present anomaly was fissured tongue with 8% and lowest being talons cusp, taurodontism, dens evaginatus atrophied tongue, tongue tie etc.

4. Discussion

This study has many variations when compared with different study at many aspects of the survey. In the present study 56.8% of the population is normal whereas 43.2% of the population is affected by one or the other developmental anomalies. Whereas a study done in 2011 India shows that among 1123 individuals only 34.28% of population is presented with selected dental anomalies(Gupta, Saurabh K., et al,2011).[4] The developmental oral anomalies identified in a study done in Gizanwere: torus palatinus (1.4%), fissured tongue (0.8%), geographic tongue (0.2%), and tongue tie (0.1%)(Salem, G., et al.,1987).[5] whereas in this present study fissured tongue is seen in 8% of the population, geographic tongue in2% and tongue tie in 0.004%.A study done in 2010 shows that 96.7 per cent of patients were found to have at least one dental anomaly(M. OkanAkcam et al, 2010). [6]In a study It was found that 5.46% of the total group had at least 1 developmental dental anomaly (Altug-Atac et al,2007).[7] Whereas in the present study 43.2% of the population HadAtleast one developmental anomalies. When etiology was discussed with these individuals 16.8% of the population chose gestational/genetically induced anomalies and 26% of them chose idiopathic and remaining of the population chose other options.When they questioned on the effects of these

anomalies most of them where concerned about aesthetics with 14% and many other effects like phonetics, malocclusion. Loss of taste sensation etc..

5. Conclusion

The conclusion of the survey is more than 30% of the population has some developmental anomaly in which some are aware of it and some are not aware of it. When the individual is aware of his or her anomaly and their pros and cons. Then a person will go for the treatment and preventive options available for the anomalies. When the causes were asked population showed either it was idiopathic or genetical. So it is important to make people aware of the normal and abnormal difference in human body.

6. Tables and Charts

Table 1

Criteria	Total
Normal	142
With anomaly	108

Table 2

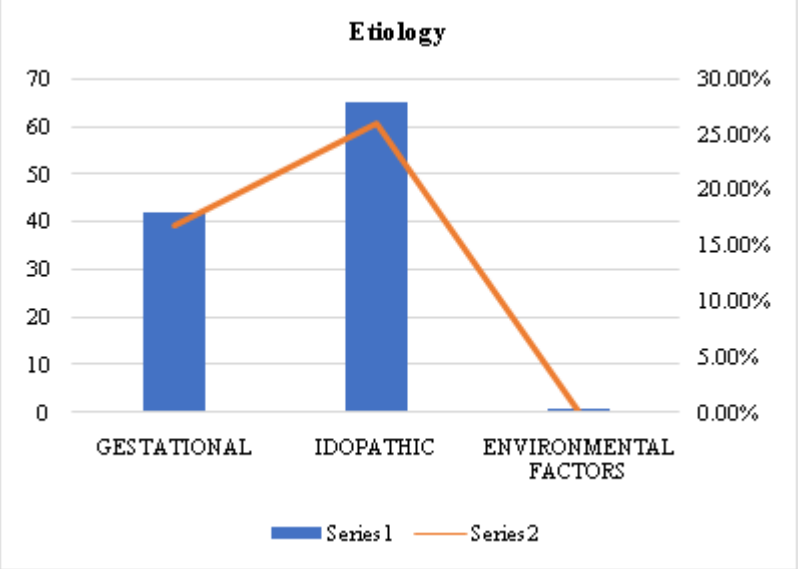
ANOMALY	Percentage
Supernumerary Teeth	4%
Missing Tooth Germ	3.60%
Macrodontia	7.60%
Microdontia	4%
Fluorosis	1.60%
Abnormal Tooth Shape	0.80%
Dens Invaginatus	0.80%
Dens Evaginatus	0.00%
Talons Cusp	0.00%
Retained Deciduous Teeth	2.40%
Taurodontism	0.00%
Peg Laterals	2.40%
Macroglossia	2%
Microglossia	0.80%
Tori	0.80%
Cleft Lip	0.00%
Cleft Lip And Palate	0.00%
Bifid Tongue	2.40%
High Arch Palate	2.80%
Tongue Tie	0.00%
Enamel Hypoplasia	2%
Fissured Tongue	8%
Geographic Tongue	2%
Atrophied Papillae	0.00%
Malpositioned Teeth	0.00%

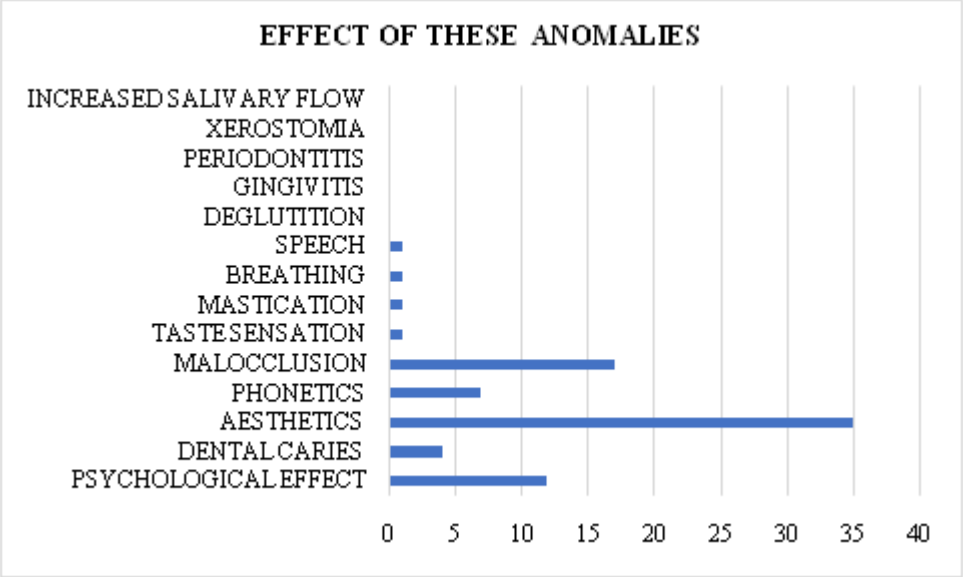
Table 3

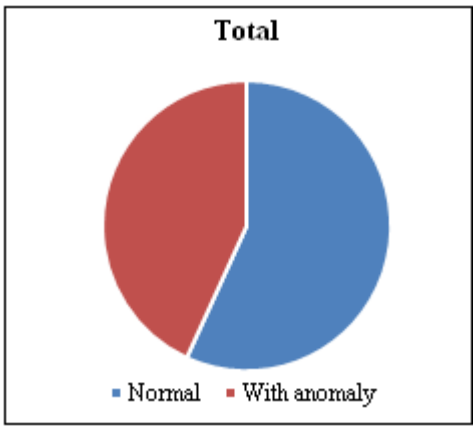
Etiology			
1	Gestational	42	16.80%
2	Idopathic	65	26%
3	Environmental Factors	1	0.00%

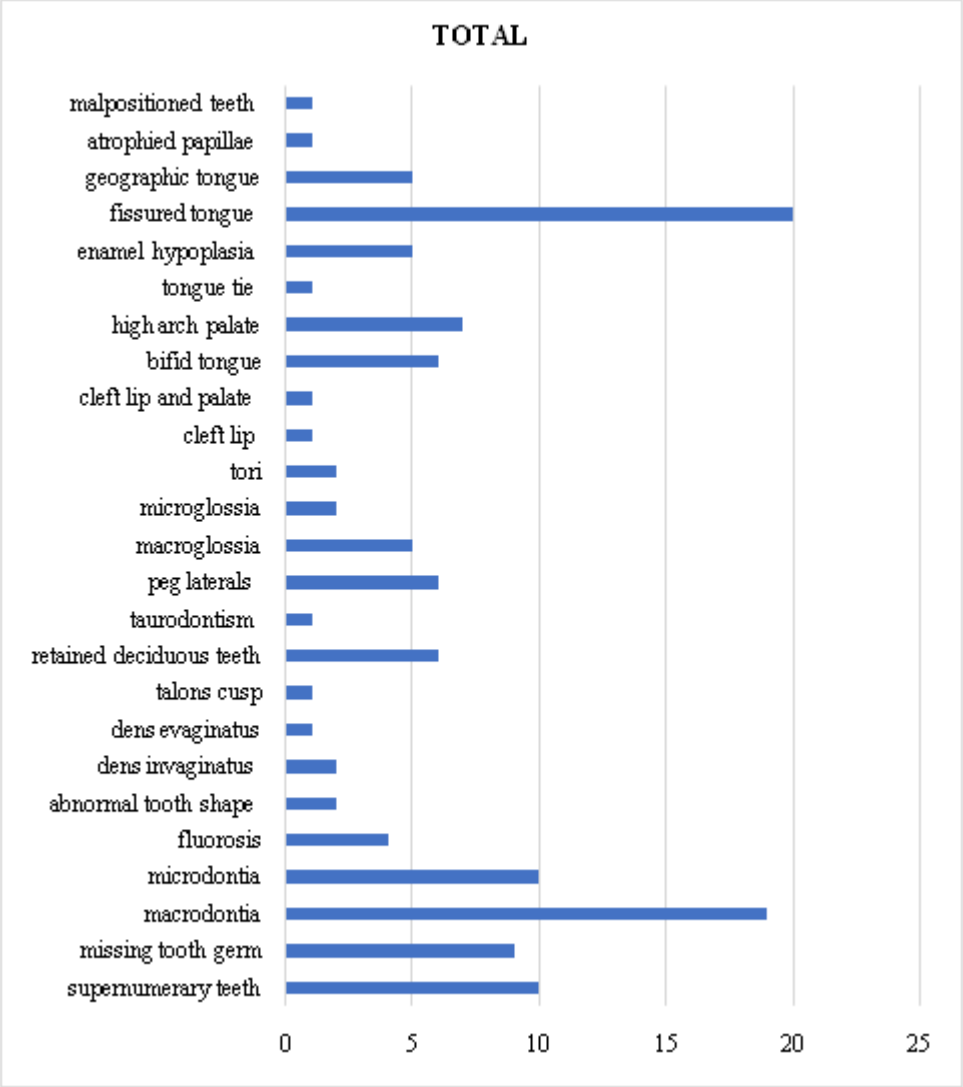
Table 4

EFFECT			
1	Psychological Effect	12	4.80%
2	Dental Caries	4	1.60%
3	Aesthetics	35	14%
4	Phonetics	7	2.80%
5	Malocclusion	17	6.80%
6	Taste Sensation	1	0.04%
7	Mastication	1	0.04%
8	Breathing	1	0.04%
9	Speech	1	0.04%
10	Deglutition	0	0
11	Gingivitis	0	0
12	Periodontitis	0	0
13	Xerostomia	0	0
14	Increased Salivary Flow	0	0









Supernumerary teeth

Retained deciduous tooth

Fissured tongue

Supernumerary teeth

Peg laterals

Dens invaginatus

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