

Prevalance and Distribution of Oral Developmental Anomalies amongst Population of Ghaziabad

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Abstract

Background- Oral developmental anomalies are marked deviations from the normal color, contour, size, number, and degree of development of teeth. Local and systemic factors may be responsible for these developmental disturbances. Such influences may begin before or after birth, hence deciduous or permanent teeth may be affected. **Objective :** To evaluate the Oral anomalies in the population in and around Ghaziabad. **Method :** A sample of 500 patients were screened for the presence of Oral anomalies reporting at ITS-CDSR OPD and dental camps. A comprehensive clinical examination, radiological examination along with dental casts and photographs were taken to detect the developmental anomalies. **Results :** Out of total 500 patients screened, 62 patients, that is 12.4% had developmental anomalies in oral cavity. **Conclusion :** The present study was done to evaluate the prevalence and distribution of developmental anomalies in population in and around Ghaziabad so that appropriate treatment modalities can be followed if required.

Key words: Dental Anomalies, Prevalence, Dental Casts.

Introduction

Malformation or defects resulting from disturbance of growth & development are known as Developmental Anomalies. Any discrepancies in tooth color, contour, size, number, and its degree of development can lead to developmental dental anomalies.¹ Many factors, both local as well as systemic may be responsible for these developmental disturbances. Such influences may begin before or after birth, hence manifestations of defects are evident either at birth or some times after birth.¹

Developmental anomalies may also occur as a result of genetic and environmental factors.²

Developmental anomalies of teeth and oral cavity are very common. Although asymptomatic, these anomalies not only lead to compromised esthetics but can also cause many clinical problems which include delayed or incomplete eruption of the normal dentition of teeth, attrition, breast feeding problems, 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.

Because Oral anomalies may be complicating

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factors in dental as well as orthodontic treatment, a detailed examination to determine the existence of anomalies is required before the initiation of any treatment. Studies quantifying the prevalence of Oral developmental anomalies in different regions of India have been done. The present study was conducted to determine the frequency of occurrence of developmental anomalies of oral cavity in the adult population of Ghaziabad (UP), the distribution of developmental anomalies of oral cavity in this population and their implication in treatment of these conditions.

Materials And Method

A prospective study was conducted on 500 patients during the period from September 2013 to November 2013. Patients reporting to the outpatient department in ITS CDSR, Muradnagar, Ghaziabad were screened for the presence of anomalies. The screening comprised of comprehensive clinical examination, radiological examination along with dental casts and photographs of the patients with developmental anomalies.

Exclusion Criteria

The following groups were excluded from the study:

- Patients with syndromes such as Down's syndrome, ectodermal dysplasia, etc.
- Dental anomalies secondary to structure, i.e. hypoplasia secondary to amelogenesis imperfecta, dentinogenesis imperfecta or dental fluorosis.
- Anomalies secondary to infection or trauma.

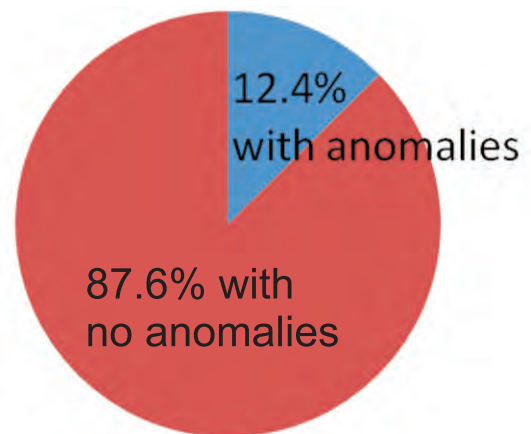
Results

A total of 500 patients, 230 females and 270 males (Table1) were screened, out of which 62 (12.4%) patients (35 males and 27 females)

had developmental anomalies in oral cavity (Graph1). The most common developmental anomalies seen were ectopic eruption (Fig.1), followed by supernumerary teeth [hyperdontia] (Fig. 2) and fissured tongue (Fig3).

GENDER	NO. OF CASES
Males	270
Females	230
Total no. of cases	500

Table 1- Genderwise distribution of study population.



Graph 1-Pie chart presentation of Distribution of Oral anomalies



Fig. 1: Case showing ectopic eruption



Fig. 2: Case showing Hyperdontia(Mesiodens)

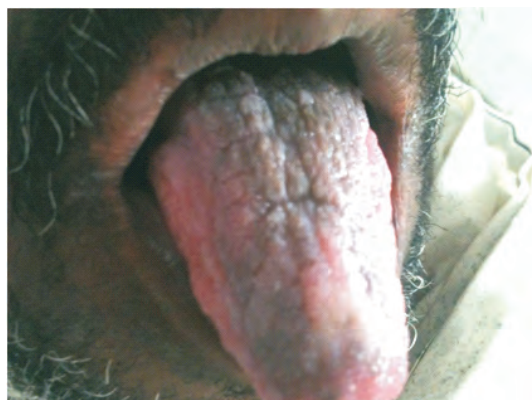


Fig. 3: Case showing fissured tongue

Discussion

Widespread occurrence of Oral Developmental anomalies is a challenge to a dental practitioner. The most prevalent anomaly according to our study was ectopic eruption (3.6%). Whereas most studies,^{1,3,4} hyperdontia has been found to be most common anomaly. But in the present study, it was the second most common (3%) (Table 2). These conflicting results can be explained primarily because of local environment and nutrition. According to study by Kruthika S Gutta et al done on Indian population of 20,182 people, 350 had dental anomalies and among them hyperdontia was the most common developmental anomaly.¹ Another study by Nayak P et al on a sample of 500

school children, hyperdontia again was the most common dental anomaly.³ In the present study, there was not much difference in distribution of developmental anomalies among males and females. Other anomalies which were observed were peg laterals, microdontia, macrodontia, anodontia, oligodontia, geographic tongue, Talon's cusp, cleft lip and cleft palate.

ECTOPIC ERUPTION-The eruption of a tooth in an abnormal position is known as ectopic eruption. This was found to be the most common dental anomaly among the population of Ghaziabad with a prevalence of 3.6%. The disturbances during the development of dental tissues can lead to ectopic eruption. Obstructions can also result in ectopic eruptions, like supernumerary teeth, mucosal barrier, scar tissue, and tumors which can also be cause of ectopic eruption. Delayed calcification, retained deciduous teeth, decreased length of maxilla or mandible etc. are few etiological factors responsible for ectopic eruption.¹⁰

HYPERDONTIA- When the number of teeth exceeds the normal number, it is known as hyperdontia. Among the supernumerary teeth found, most common was mesiodens. It is seen in cleidocranial dysplasia.⁷ The prevalence of hyperdontia according to our study was 3%. The hyperactivity of dental lamina can be thought to be one of the causes of hyperdontia. Heredity can also be thought to be one of the etiological factor.¹

HYPODONTIA- Congenital absence of one or more teeth is known as hypodontia.⁷ The etiology is believed to be hereditary or developmental. It is a common finding in Down's syndrome.⁸ **OLIGODONTIA** (0.2%) - When 6 or more teeth are absent in the oral cavity, it is oligodontia.⁷

Table 2-Distribution of developmental anomalies among the population of ghaziabad

S.NO	DEVELOPMENTAL ANOMALY	MALE	FEMALE	TOTAL	%AGE
1.	PEG LATERALS	2	1	3	0.6%
2.	ECTOPIC ERRUPTION	8	10	18	3.6%
3.	TALON'S CUSP	1	0	1	0.2%
4.	FISSURED TONGUE	7	4	11	2.2%
5.	GEOGRAPHIC TONGUE	1	0	1	0.2%
6.	SUPERNUMERARY TEETH	9	6	15	3%
7.	CLEFT LIP	2	0	2	0.4%
8.	CLEFT PALATE	1	0	1	0.2%
9.	ANODONTIA	1	0	1	0.2%
10.	OLIGODONTIA	1	0	1	0.2%
11.	MACRODONTIA	0	0	0	0%
12.	MICRODONTIA	1	0	1	0.2%
	TOTAL	35	27	62	12.4%

FISSURED TONGUE-It is a benign condition characterized by deep grooves or fissures in dorsum of tongue.⁷ Cracks, grooves or clefts appear on the top and sides of the tongue. Its prevalence was found to be 2.2%. It was the third most common anomaly seen in this population after ectopic eruption and hyperdontia. It can be seen in Melkersson –Rosenthal syndrome and Downs syndrome. It is mostly seen in males.⁷ The exact cause of fissured tongue is not well known but genetic factor is thought to play an important role. Aging and other environmental factors may

also be responsible for this.

TALON'S CUSP- Additional cusp that projects from the palatal surface of a primary or permanent anterior tooth and extends at least half the distance from the CEJ to the incisal edge.⁵ It resembles an eagle's talon, projects lingually from the cingulum areas of a maxillary or mandibular permanent incisor.⁷ According to our study, prevalence of talon's cusp was found to be 0.2%. The etiology of talon's cusp is controversial. Aberrant hyperactivity of the dental lamina may be responsible for talon's cusp. Another

theory suggests that the talon's cusp may result from outward folding of inner enamel epithelial cells and a transient focal hyperplasia of the mesenchymal dental papilla.¹¹

MICRODONTIA- Teeth smaller in size as compared to the normal is microdontia. 0.2% people were seen with this anomaly. Most commonly involved tooth was lateral incisors.

PEG LATERALS- There is a reduced mesiodistal diameter of the lateral incisor and convergence towards the incisal edge and this is referred to as peg shaped incisors.¹ This condition is mostly genetic in origin.

MACRODONTIA- Size of teeth when exceeds the normal tooth size is known as macrodontia. Diffuse true macrodontia is observed in pituitary gigantism and pineal hyperplasia.

ANODONTIA- Complete absence of teeth is anodontia. It also had prevalence of 0.2% according to our study.

CLEFT LIP AND CLEFT PALATE- Clefts occur as a result of non-fusion of processes like maxillary, nasal or frontonasal processes². In this study, cleft palate had a prevalence of 0.2% and cleft lip had a prevalence of 0.4%. Cleft palate and lip can occur as an independent entity as well as in collaboration with each other.

Conclusion

The present study has been done to evaluate the prevalence and frequency of Oral developmental anomalies in the population of Ghaziabad as they are cause of various dental problems. Thus, one should have a proper knowledge of these anomalies and their diagnosis. These anomalies should be diagnosed at an early stage so that an appropriate treatment can be instituted.

References

1. Guttal KS, Naikmasur VG, Bhargava P, Bathi RJ. Frequency of Developmental Dental Anomalies in the Indian Population. *Eur J Dent.* 2010; 263-9.
2. Akcam MO, Evirgen S, Uslu O and Memikoğlu UT. Dental anomalies in individuals with cleft lip and/or palate. *Eur J Orth* : 2010; 32: 207–13.
3. Nayak P, Nayak . Prevalence and distribution of dental anomalies in 500 Indian school children Bangladesh Journal of Medical Science 2011;10:41-4.
4. Downs WG. Studies in the causes of dental anomalies. *Genetics* 1927; 12:570-80.
5. Mohan RPS, Verma S, Singh U, Agarwal N, Ghanta S, Tyagi K. Talon cusp in primary dentition: A case report. *International Journal of Case Reports and Images* 2013;4:1-8.
6. Gupta SK, Saxena P, Jain S, Jain D. Prevalence and distribution of selected developmental anomalies in an Indian population. *Journal of oral science* 2011; 53: 231-8.
7. Shafer's WG, Hine MK, Levy BM. A text book of Oral Pathology, 4th edition. WB Saunders Publication. 2002; 146-52.
8. Mellara TS, Pardini LC, Filho PN, Silva RAB, Queiroz AM. *Journal of Disability and Oral Health*; 2011; (12)1; 31-4.
9. Altug-Atac AT, Erdem D. Prevalence and distribution of dental anomalies in orthodontic patients. *Am J Orthod Dentofacial Orthop* 2007;131:510-4.
10. Suri L, Gagari E, Vastardis H. Delayed tooth eruption: Pathogenesis, diagnosis and treatment: A literature review. *Am J Orthod Dentofacial Orthop*: 2004;126: 432-45.
11. Borges A, Juliana SV, Arat VJ, Maria S, Sousa G, Veronezi MC. Bilateral talon cusp: Case report. *Quintessence Int* 2001;32:283-6.