

Prevalence of Dental Anomalies in School Children of Muzaffarpur District (Age 5 to 12 Years)

Jay Kishore¹, Avanindra Kumar²

ABSTRACT

Introduction: The development of the tooth is highly complex phenomena controlled by various complex mechanisms which are dependent on the hereditary and environmental factors. Any alteration in these mechanisms leads to developmental disturbances or the dental anomalies. Study aimed to know the prevalence of developmental anomalies in school children between age group of 5 to 12 years located in Muzaffarpur city.

Material and methods: The study was based on a clinical examinations review of 6182 school children (Male-3364 & Female- 2818) of Muzaffarpur city, aged between 5 years to 12 years. Routine instruments like mouth mirror, probe and natural and/or artificial light was used for the examination.

Results: The prevalence of dental anomalies observed in this study is 0.12%. The prevalence of supernumerary teeth in this study is 0.04 %, In our study we found ankyloglossia is found in male only in this population and the prevalence value is 0.01%. In our study we found Microdontia is equal prevalence value in both male and female sexes and was 0.03 % of those examined.

Conclusion: Epidemiological studies have provided useful information regarding the prevalence, location, and distribution of primary tooth anomalies, contributing to the formulation of public health policies adequately informed by the specificities of each population.

Keywords: Developmental Disturbances, School Children, Supernumerary Tooth, Ankyloglossia, Microdontia

INTRODUCTION

The development of the tooth is highly complex phenomena controlled by various complex mechanisms which are dependent on the hereditary and environmental factors. Any alteration in these mechanisms leads to developmental disturbances or the dental anomalies.¹

Dental anomalies generally reflect either a change in tooth size, shape, number, structure or in eruption.² The form, size and colour of teeth as well as their eruption times in humans show wide, normal and biological variations within and among different populations of the world. Abnormal variations, however, do occur and in many cases, these are due to genetic, environmental and pathological factors.³ Tooth development is a continuous phenomenon in which various physiological processes like initiation, proliferation; histo-differentiation, morphodifferentiation, apposition and calcification take place.⁴ Interference in the stage of initiation which represents the beginning of the formation of the dental lamina and the tooth bud, may result in either single or multiple missing teeth (anodontia, oligodontia or

hypodontia) or supernumerary teeth (hyperdontia).⁵ Clinical management of dental anomalies usually complicated as they present with malocclusion, esthetic problem, and possible disposition to other oral diseases.⁶

Study aimed to know the prevalence of developmental anomalies in school children between age group of 5 to 12 years located in Muzaffarpur city with the objectives to record, determine the prevalence and compare the developmental dental anomalies in children between age group of 5 to 12 years located in Muzaffarpur city, prevalence of supernumerary teeth, distribution of cases according to the age and sex and distribution of the cases according to the jaw.

MATERIAL AND METHODS

The study was based on a clinical examinations review of 6182 school children (Male-3364 & Female- 2818) of Muzaffarpur city, aged between 5 years to 12 years. Routine instruments like mouth mirror, probe and natural and/or artificial light was used for the examination.

Clinical dental examination:

The examinations were carried out with the children lying on ordinary desks. First, the teeth were cleaned and dried with gauze. The clinical examination was exclusively visual, aided by a tongue depressor. Children with permanent teeth were included from the analysis. Developmental anomalies were recorded according to the following criteria,

Supernumerary: Presence of an extra tooth.

Fusion: Union in dentine and /or enamel between two or more separately developed normal teeth.

Peg lateral incisor: Lateral incisors conical in shape and lacking the normal parallel or flared mesial and distal surfaces.

Ankyloglossia: After opening the mouth as wide as possible, the child was asked to touch his or her maxillary central incisors with the tip of the tongue. If the tip of the tongue

¹Senior Resident, Department of Dentistry, Shri Krishna Medical College and Hospital, Muzaffarpur, ²Reader, Department of Oral Pathology, Patna Dental College and Hospital, Patna- 800004, India

Corresponding author: Dr. Avanindra Kumar, RCA-89, South of T.V Tower, M.G Nagar, Patna, India

How to cite this article: Jay Kishore, Avanindra Kumar. Prevalence of dental anomalies in school children of Muzaffarpur district (age 5 to 12 years). International Journal of Contemporary Medical Research 2019;6(11):K1-K3.

DOI: <http://dx.doi.org/10.21276/ijcmr.2019.6.11.4>

could not be raised beyond a horizontal line extending through the commissures of the lip, and a thick lingual frenum was noted, a positive finding for ankyloglossia was recorded.

Microdontia: A single tooth smaller than normal; Children with a history of loss of teeth due to trauma or extraction, cases of ectodermal dysplasia, Down's syndrome, cleft lip and palate, and radiation of the face will be excluded.

RESULTS

The study was based on a clinical examinations review of 6182 school children. Out of 6182 children 3364 were male & 2818 were females of aged between 5 years to 12 years. Table 1 shows distribution of study group according to sex (table-1).

Out of 6182 children 8 (0.12 %) had anomalies. Out of 8 children 5 (62.5%) were male and 3 (37.5 %) were females. Table 2 shows 8 (0.12) % children have anomaly in which 5 (62.5 %) are male and 3 (37.5%) are female

Out of different anomalies most common anomalies found in our study was mesiodens. Mesiodens were more prevalent in male than female. Table 3 shows no of different anomalies and gender wise distribution of different anomalies.

Results shows mesiodens was most prevalent anomalies and

Total no. of patients	Male (%)	Female (%)
6182	3364 (54.41 %)	2818 (45.58 %)

Table-1: Gender wise distribution in total sample size.

Total no. of anomalies	Male (%)	Female (%)
8 (0.12 %)	5 (62.5 %)	3 (37.5 %)

Table-2: Gender wise distribution in total anomalies.

Anomalies	Gender		Total
	Male (%)	Female (%)	
Mesiodens	2 (66.66 %)	1 (33.33 %)	3
Talon's Cusp	1 (100 %)	0 (0 %)	1
Peg shaped lateral	0 (0 %)	1 (100 %)	1
Tongue Tie	1 (100 %)	0 (0 %)	1
Microdontia	1 (50 %)	1 (50 %)	2
Total	5	3	8

Table-3: Gender wise distribution of different anomalies

Location	Gender		Total
	Male	Female	
Maxilla	2 (66.66 %)	1 (33.33 %)	3
Mandible	--	--	0
Total	2	1	3

Table-4: Gender and jaw wise distribution of Mesiodens.

Location	Gender		Total
	Male	Female	
Maxilla	1 (100 %)	0 (0 %)	1
Mandible	--	--	0
Total	1	0	1

Table-5: Gender and jaw wise distribution of Talon's Cusp.

Location	Gender		Total
	Male	Female	
Maxilla	0 (0 %)	1 (100 %)	1
Mandible	-	-	0
Total	0	1	1

Table-6: Gender and jaw wise distribution of Peg Shaped Lateral Incisor

Location	Gender		Total
	Male	Female	
Maxilla	--	1 (100 %)	1
Mandible	1 (100%)	--	1
Total	1	1	2

Table-7: Gender and jaw wise distribution of Microdontia



Figure-1: Showing mesiodens; **Figure-2:** Showing Talon's cusp

it was present in maxilla only and not in mandible. Table 4 shows gender wise and jaw wise distribution of mesiodens. Talon's cusp was present in maxilla only and not in mandible. It was present in only male children. Table 5 shows gender and jaw wise distribution of talon's cusp. Peg shaped laterals were present in only in maxilla of female children. Table 6 shows gender and jaw wise distribution of peg shaped lateral incisor.

Microdontia was present in only female children. It was present in maxilla only and absent in mandible. Table 7 shows gender and jaw wise distribution of microdontia.

DISCUSSION

The prevalence of dental anomalies observed in this study (0.12%) is lower than that reported by Menczer, Grahnen and Granath, Ravn, Magnusson, Jones et al., Whittington and Durward, and Carvalho et al., which varied between 0.4% and 2.1%. The frequencies reported by Clayton (7.4%), Yonezu et al. (7.2%), and Brook (3.2%), however, were greater than the total observed in the present study.⁷

The present study demonstrates that frequency of overall and individual anomalies is more in male as compare to female. The majority of previous published works demonstrates that gender does not constitute a risk factor for anomaly occurrence in primary teeth. Yonezu et al reported a higher

prevalence of supernumerary teeth in male as compared to female. In the permanent dentition, Brook found that males more often presented supernumerary teeth and females more frequently presented hypodontia in permanent dentition.¹⁰ The prevalence of supernumerary teeth in this study was 0.04 %, which is much lesser than that found by Mekibben DR and Louise JB who reported a high prevalence of 1.53%. Clayton JM found a high prevalence of 1.9%, whereas Baccetti T found a very high prevalence of 3.9%.

Ankyloglossia, or tongue tie as it is more commonly known, is said to exist when the inferior frenulum attaches to the bottom of the tongue. And subsequently restricts free movement of the tongue. In our study we found ankyloglossia is found in male only in this population and the prevalence value is 0.01% which is lower than the figure of S.R. Danny et al 1984 who found 0.2%, Wrrkop & Barros and Sedano et al, they also found between 0.2% and 0.1% respectively.^{7,8}

In our study we found Microdontia is equal prevalence value in both male and female sexes and was 0.03 % of those examined. This figure is lower than the 0.2% prevalence given by Clayton and those of 0.5% and 0.6% reported by Brook and Yonezu et al, respectively, for this anomaly.⁷

Most of the anomalies of the oral and dental structures as well as minor physical anomalies can be detected by inspection on dental examination; some can be detected by anthropometric measurements, whereas others require confirmation by diagnostic methods such as x-ray analysis or by some specific methods, e.g., Graber's test for true superior lip frenulum.^{9,10,11}

CONCLUSION

Epidemiological studies have provided useful information regarding the prevalence, location, and distribution of primary tooth anomalies, contributing to the formulation of public health policies adequately informed by the specificities of each population. The current data support findings concerning the prevalence of dental anomalies in primary dentition, and emphasize the importance of encouraging parents to visit the dentist with their child at an early age. It also illustrates the need for a detailed and careful clinical examination by the dentist. This will permit effective, long-term treatment planning, according to the child's individual requirements.

REFERENCES

1. Hattab FN, Yassin OM and Rawashdeh MA. Supernumerary teeth: Report of three cases and review of the literature. *J Dent Child* 1994; 21: 382-93.
2. Rajab LD and Hamdan MAM. Supernumerary teeth: Review of literature and a survey of 152 cases. *Int. J. Pediatr. Dent* 2002; 12: 244-254.
3. Hassan I. Ghaznawi, Hani Daas and Nathanael O. Salako. A Clinical and Radiographic Survey of Selected Dental Anomalies and Conditions in a Saudi Arabian Population. *The Saudi Dental Journal*, Volume 11, Number 1, January - April 1999
4. Sawyer D R, O emmanuel et al . oral anomalies in Nigerian children. *Community Dent Oral Epidemiol*

1984; 12: 269-73

5. Salem G. Prevalence of selected dental anomalies in Saudi children from gizan region. *Community Dent Oral Epidemiol* 1989; 17:162-3
6. Oliver O Osuji and Hardie J. Dental anomalies in a population of Saudi Arabian children in Tabuk. *Saudi Dental Journal*, 2002;14; 11-14.
7. Kramer P F, Feldens C A , Ferreira S H et al . dental anomalies and associated factors in 2 to 5 years old Brazilian children. *International Journal of paediatric dentistry* 2008; 18: 434-440.
8. Rajendran R. Benign and malignant tumors of oral cavity. In: Rajendra R, Shivapathasundaram B editors. *Shafer's text book of Oral pathology*. 5th Ed. New Delhi (India): Reed Elsevier India Private Limited; 2006.
9. Jukic J, Ckrinjaric I, Glavina D and Ulovec Z. The Prevalence of Oral and Dental Anomalies in Children with Developmental Disturbances. *Acta Stomat Croat* 2002; 79-83.
10. Dash J.K. et al. Prevalence of supernumerary teeth in deciduous and mixed dentition. *J.Indian Soc Pedo Prev Dent* 2003; 21: 37-41.
11. Miziara RC, Mendes-Junior CT, Wiesel CEV, Simões AL, Scuoteguazza JAC and Azoubel R. A statistical study of the association of seven dental anomalies in the Brazilian population. *Int. J. Morphol.*, 2008; 26:403-406.

Source of Support: Nil; **Conflict of Interest:** None

Submitted: 23-09-2019; **Accepted:** 12-10-2019; **Published:** 07-11-2019