



The Study of Teeth eruption in Female Children of Malwa Region – A Correlation with age

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Abstract

Background: Tooth eruption is a physiological process in which the tooth migrates from the maxillary bone towards the oral cavity, at the end of which teeth find their place on the arch creating vicinity relations according to a genetic code characteristic to each individual. Dental eruption begins with the eruption of the first primary teeth around 6 months and finishes at 2 years and a half for primary teeth, and around 18 – 25 years for permanent teeth, when the third molar erupts.

Aim: The teeth's eruption and development is, usually, related to the child's chronological age, but there can also be some variations. The aim of this study was to analyze the pattern of eruption of teeth, to define any variation in eruption of deciduous and permanent teeth.

Material and methods: 500 female children from pre primary and primary Government schools, and Dental outpatient department within the age group of 0-12 years were randomly examined and range of time of eruption of teeth was calculated for central and lateral incisors, canines, premolars, 1st and 2nd molars, in both maxilla and mandible.

Results: It was found that in case of deciduous teeth, in the study population, lateral incisors, canines and first molars erupted earlier in the upper jaw and the central incisors, and second molars erupted earlier in the lower jaw. In the case of permanent teeth all the teeth i.e. central incisors, lateral incisors, canines, first pre molars and second pre molars erupted earlier in lower jaw. Only the first and second molars erupted earlier in the upper jaw.

Conclusion: Tooth eruption time and sequence are important factors in dental treatment planning, particularly in orthodontics, but also in forensic dentistry to estimate age of a child. It was concluded

that the eruption of teeth was earlier in mandible (lower jaw) than in maxilla (upper jaw) in the case of permanent teeth.

Key words

Deciduous, Permanent, Eruption, Females, Malwa region.

Introduction

The chronology of human dentition appears generally for deciduous teeth as per **Table – 1** and for permanent teeth as per **Table – 2** [1].

Table – 1: Age of eruption of deciduous teeth (in months).

	Maxilla	Mandible
Central incisor	8-12	6-10
Lateral incisor	9-13	10-16
Canine	16-22	17-23
1 st Molar	13-19	14-18
2 nd Molar	25-33	23-31

Table – 2: Age of eruption of permanent teeth (in years).

	Maxilla	Mandible
Central incisor	7-8	6-7
Lateral incisor	8-9	7-8
Canine	11-12	9-10
1 st premolar	10-11	10-12
2 nd Premolar	10-12	11-12
1 st Molar	6-7	6-7
2 nd Molar	12-13	11-13
3 rd Molar	17-21	17-21

Dental eruption begins with the eruption of the first primary teeth around 6 months and finishes at 2 years and a half for primary teeth, and around 18 – 25 years for permanent teeth, when the third molar erupts. The teeth's eruption and development is, usually, related to the child's chronological age, but there can also be some discordances as we refer to a precocious eruption or, on the contrary, to a delayed one.

The chronology of dental eruption is submitted to a genetic model that is valid for the entire human population. Nevertheless, the values for the initial and ending moments of each stage present important variations that require the study of the average values and mostly of the variability limits for different characteristic human samples thus to create reliable norms for comparing individual values.

Material and methods

Present study was done in Malwa region during the period of 24 months. The data was collected from 4 different Pre-primary, Primary schools and Dental outpatient department representing subjects within age group of 0-12 years.

The areas were selected randomly and subjects were also selected randomly. Permission for examination was taken from authority of each institute through proper channel and from parents whenever concerned.

Total 500 girls in the age group of 0-12 years were selected for dental examination. The criteria selected for selection of girls was as below.

- The age should be between 0-12 years which was confirmed by school records and birth dates.
- The subject was not suffering from any disease or malnutrition.
- The subject was of proper oral hygiene and healthy.
- The crown of teeth was fully erupted i.e. completely seen in oral cavity after penetrating the gingiva.



Erupted teeth was named as “E” and non-erupted as “N”. The examination was done in proper illumination in day light or using torch light.

Results

Mean age and range of time of eruption of deciduous teeth and permanent teeth were as per **Table – 3** and **Table – 4** respectively.

There was no significant difference of mean age of eruption of temporary teeth in right and left halves of same jaw.

Discussion

Teething is viewed by parents and health care professionals as a significant event in the growth and development of the child. Teething is the biological expression of tooth movement, in a predominantly axial direction, from the tooth's developmental position within the jaws to its emergence in the oral cavity [2]. Primary teeth have shown wide variations in their eruption pattern and time as well between different population, ethnic and racial groups [3, 4, 5, 6]. Other suggested factors which affect the eruption time may include gestational period [7], diseases [8], nutritional status and growth [9].

In the present study, it was observed that earliest primary tooth to erupt was mandibular central incisor, followed by maxillary central incisor, then maxillary lateral incisor, mandibular lateral incisor, maxillary first molar, mandibular first molar, maxillary canine, mandibular canine, mandibular second molar and lastly maxillary molar. M. GunaShekhar [10] reported the sequence of eruption of primary teeth as mandibular central incisors (10.72 ± 0.56), maxillary central incisors (12.03 ± 0.79), mandibular lateral incisors (12.61 ± 0.88), maxillary lateral incisors (13.46 ± 0.92), and

maxillary first molars (17.26 ± 1.03), mandibular first molars (19.02 ± 0.83), maxillary canines (21.18 ± 1.35), mandibular canines (22.10 ± 1.28), mandibular second molars (27.18 ± 1.11) and finally maxillary second molars (28.68 ± 1.12).

In the case of permanent teeth, in the present study, it was found that among the study group the first tooth to erupt was mandibular central incisor, followed by mandibular lateral incisor, maxillary first molar, mandibular first Molar, maxillary central incisor, maxillary lateral incisor, mandibular second premolar, mandibular canine, maxillary first Molar, maxillary second molar, mandibular first molar, maxillary canine, mandibular second molar, maxillary second Molar. Inderjeet Kaur [11] in 2010 reported among girls also from both public and government schools mandibular teeth erupt earlier than maxillary teeth except right second premolar in public school girls and first premolar (for both right and left side) and right second molar in government school girls. Sidhu and Gupta (1973) [12], Bhatnagar and Kumar (1986) [13], Gaur and Singhal (2005) [14] and Friedrich, et al. (2006) [15] also reported early emergence of mandibular teeth than maxillary teeth.

Conclusion

Tooth eruption time and sequence are important factors in dental treatment planning, particularly in orthodontics, but also in forensic dentistry to estimate age of a child. It was concluded that the eruption of teeth was earlier in mandible (lower jaw) than in maxilla (upper jaw) in the case of permanent teeth.

References

1. Grays Anatomy, The anatomical basis of clinical practice, 39th edition. Patricia Collins E.L.B.S. Churchill Livingstone. Oral cavity, 33, p. 593-594
2. Berkovitz BKB. How teeth erupt. Dental Update, 1990; 17(5): 206-10.



3. Lavelle CL. A note on the variation in the timing of deciduous tooth eruption. *J Dent.*, 1975; 3: 267-70.
4. Magnusson TE. Emergence of primary teeth and onset of dental stages in Icelandic children. *Community Dent Oral Epidemiol.*, 1982; 10: 91-7.
5. Hitchcock NE, Gilmour AI, Gracey M, Kailis DG. Australian longitudinal study of time and order of eruption of primary teeth. *Community Dent Oral Epidemiol.*, 1984; 12: 260-3.
6. Ramirez O, Planells P, Barberia E. Age and order of eruption of primary teeth in Spanish children. *Community Dent Oral Epidemiol.*, 1994; 22: 56-9.
7. Seow WK. Effects of preterm birth on oral growth and development. *Aust Dent J.*, 1997; 42: 85-91.
8. Galili G, Rosenzweig KA, Klein H. Eruption of primary teeth and general pathologic conditions. *ASDC J Dent Child.*, 1969; 36: 51-4.
9. Infante PF, Owen GM. Relation of chronology of deciduous tooth emergence to height, weight and head circumference in children. *Arch Oral Biol.*, 1973; 18: 1411-7.
10. GunaShekhar M, Tenny J. Longitudinal study of age and order of eruption of primary teeth in Indian children. *J Clin Exp Dent.*, 2010; 3(2): e113-6.
11. Inderjeet Kaur, P. Singal, D.P. Bhatnagar. Timing of Permanent Teeth Emergence and Dental Caries among Jatsikh Children of Public and Government Schools of Patiala District. *Anthropologist*, 2010; 12(2): 141-148.
12. Sidhu LS, Gupta P. Sequence and age of eruption of Permanent teeth in the Punjabi population of Patiala. *Eastern Anthropologist*, 1973; 26: 261.
13. Bhatnagar DP, Kumar A. The differences in eruption of permanent dentition among the individuals of two social group of Punjabi origin. *Acta Med Auxol*, 1986; 18: 129-134.
14. Gaur R, Singhal T. Stature, Weight and BMI in relation to permanent tooth emergence among Rajput boys of Theog area, Himachal Pardesh. *Ind J Phys Anthropol and Hum Genet*, 2005; 24: 199-211.
15. Friedrich RE, Katerji H, Wedl JS, Scheuer HA. Eruption times of permanent teeth in children and adolescents of Paderborn, Westphalia, Germany. *Arch Kriminol*, 2006; 217: 20-35.

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Table – 3: Mean age and range of time of eruption of deciduous teeth (in months).

	Jaw	Range	Mean±SD	Total (Females)
Central incisor	Maxillary	(6.17-10.49)	8.33±2.16	25
	Mandibular	(5.82-10.76)	8.29±2.47	
Lateral incisor	Maxillary	(7.89-10.99)	9.44±1.55	25
	Mandibular	(7.66-12.82)	10.24±2.58	
Canines	Maxillary	(15.25-20.67)	17.96±2.71	25
	Mandibular	(16.82-21.98)	19.4±2.58	
1 st Molar	Maxillary	(12.77-18.027)	15.52±2.75	25
	Mandibular	(14.26-18.06)	16.16±1.9	
2 nd Molar	Maxillary	(24.36-31.50)	28.43±3.07	45
	Mandibular	(23.65-27.69)	25.67±2.02	

Table - 4: Mean age and range of eruption of permanent teeth (in years).

	Jaw	Range	Mean±SD	Total (Females)
Central incisor	Maxillary	(6.54-8.15)	7.35±9.61	80
	Mandibular	(6.02-6.9)	6.49±5.57	
Lateral incisor	Maxillary	(6.56-8.12)	7.55±9.3	80
	Mandibular	(6.03-6.91)	6.59±5.66	
Canines	Maxillary	(10.67-11.9)	11.31±8.3	60
	Mandibular	(9.1-10.07)	9.50±6.83	
1 st Premolar	Maxillary	(9.8-10.04)	10.04±1.4	35
	Mandibular	(9.94-10.4)	10.09±1.38	
2 nd Premolar	Maxillary	(9.96-10.45)	10.08±1.24	30
	Mandibular	(9.2-10.03)	9.06±2.74	
1 st Molar	Maxillary	(4.04-9.76)	6.9±2.86	40
	Mandibular	(6.3-8.72)	7.01±1.71	
2 nd Molar	Maxillary	(11.28-12.23)	11.86±5.77	40
	Mandibular	(11.16-12.5)	11.82±7.94	