



THE STUDY OF AGE OF ERUPTION OF FIRST PERMANENT MOLAR TEETH FROM POPULATION IN & AROUND VIJAYAPUR” KARNATAKA INDIA

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ABSTRACT

Age estimation by the subject that too, of the school going children's is essentially a clinical method, in the practice of Clinical Forensic Medicine. "Age determination based on eruption of first permanent molar teeth from population in & around Vijayapur" was preferred as there are no existing literature is available for reference to assess the age around 5 to 8 years. The study was conducted in the city of Vijayapur. 128 School going children's of first & second standard were examined for the space for the eruption of First molar teeth behind temporary second molar or eruption of First permanent molar teeth by General physical examination. The age range of children's examined were from completed 5 years to 8 years irrespective of sex of the child. Mandibular (lower jaw) teeth were examined during the year 2014-15. In this study first permanent molar teeth was found erupted between 7year 6 months to 8 years. In contrast to observation by various text book references which mention eruption of Mandibular first permanent molar teeth is around 6 to 7 years 1,2,3,4,6,7,8. Thus the results obtained were compared with existing western, Indian literature & conclusions were drawn.

INTRODUCTION

The existing eruption schedules of permanent and deciduous dentition mentioned in Forensic Medicine text books^{1,23,6} are based on studies in the Western population. Since Indians differ from Westerners racially, genetically, and environmentally, these studies fail to provide relevant guidance on the eruption schedule in the

Indian population⁵. However Illiteracy, poverty, ignorance are the handicap for the registration of Birth & death events in India to have exact Birth data of a given individual under question. Certificate as to age of child is necessary document for civil purposes like schooling. Most of the references available in text books of Forensic Medicine & Toxicology, are inherited from western literature, very few of them are Indian research works, but regional references are not available for the given population under question. At the same time, eruption of teeth is influenced by inherited diseases, Dietary habits, nutritional disorders, infectious diseases & congenital malformations etc. Common tool for assessment of age are General physical, Dental & radiological examination. Hence it is necessary to update & add to the existing literature, as to the reference criteria for age assessment from the population under question. This study aims at determining the eruption pattern of permanent Mandibular first molar for the population in & around Vijayapur (Karnataka south Indian population

MATERIALS & METHODS

BLDE University Sri B M Patil Medical College Institutional Ethical Committee approval was obtained. Official Permission / consent was obtained from Block Education Officer of Vijayapur(Bijapur) urban area, to carry out the research work on children's under Bijapur city Jurisdictional area. The primary schools around BLDE University were preferred & approached informed expressed consent was obtained from head master and concerned class teacher. The date of Birth was

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collected from master register of the school record. All the children's in the given class room were examined for Height, weight & built.

Inclusion criteria : All the children's above 5 years & below 8 years were included in the study.

Exclusion criteria : The children's showing too abnormal height & weight for the said age were excluded from the study, and children's below 5 years & above 8 years excluded.

Thus selected children were examined for Space behind the temporary second molar teeth, eruption of First permanent molar teeth and replacement of temporary incisors by respective permanent teeth of the lower jaw. Findings were recorded in the register, after complete examination of all the selected children's in the class, the remaining children's were examined for any disease or infirmity as a part of school health program. Thus obtained information is transferred to master chart arranged in total 6 groups of 6 months age range, starting from completed five years to five year 6 months till 8 years.

12 children were examined whose age range was between 5 year 6 months to 6 years, among which in three (20%) children's permanent first molar teeth was 3 found erupted before 6 years of age. While in remaining 9 (80%) children there was space behind temporary second molar teeth for the eruption of permanent first molar teeth.

Between the age range of completed 6 years to 6 years 6 months 26 children's were examined among which in 18 (69.23 %) children Permanent first molar teeth was found erupted who are below 6 ½ years of age. However in remaining 8 children there was sufficient space behind temporary second molar teeth for the eruption of permanent first molar teeth. Among the 18 children where in permanent first molar teeth was erupted in 8 children's temporary Medial incisor was replaced by its succeeding permanent one. Among these 8 (30.77%) cases where in temporary medial incisor was replaced by its succeeding permanent one, in two children's temporary lateral incisor was replaced by its succeeding permanent lateral incisor.

In the age range of 6 year 7 months to 7 years 23

Table 1 : Age wise eruption of permanent first molar teeth with replacement of temporary

No of subject	Age		First Permanent Molar		Incisor		PM	
	Year	month			1	2	1	2
9	5 Y	- 5.6m	Space	1-3mm	-	-	-	-
12	5.7	- 6	3E	9 space	-	-	-	-
			20%	80%				
26	6	- 6.6	18	8	8	2	-	-
			69.23	30.77	44.44	25.00		
23	6.7	- 7	14	9 E S	9	6	-	-
			60.86	39.14	64.28	66.66		
22	7	- 7.6	18	4	14	6	-	-
			81.81	18.18	77.77	42.85		
36	7.7	- 8	34	2S	33	22	2	1
			94.44	5.66	97.05	66.66	9.09	50

RESULTS

Total 128 children's were examined in the present study from completed 5 years to 8 years, irrespective of gender.

In the age group of 5 years to 5 years 6 months 9 children were examined First permanent molar teeth was not erupted in any examined child, However in three (33.33%) children there was 1 to 3 mm space behind temporary second molar for the eruption of permanent second molar teeth.

children's were examined, among which in 14 (60.86 %) children's Permanent first molar was found erupted. While in remaining 9 (39.14%) children's there was sufficient space behind temporary second molar teeth for eruption of Permanent first molar teeth. Among these 14 children's in whom permanent first molar teeth erupted, 9 (64.28 %) children's medial incisor was found erupted, further among these 9 children's in 6 of them found that the lateral incisor was erupted.

Between age range of 7 years to 7 year 6 months 22 children's were examined, among these 18 (

81.81 %) children's permanent first molar teeth was found erupted. In remaining 4 (18.18 %) children's there was sufficient behind temporary second molar teeth, for the eruption of permanent first molar teeth. Among 18 children's in whom the permanent first molar teeth was erupted, in 14 (77.77 %) children's medial incisor was found erupted. Further among these 14 children's in 6 (42.85%) children's lateral incisor was found erupted, by the age of Seven years to 7 & half years.

Between the age group of seven & half years to Eight years 36 children's were examined, among this number permanent first molar teeth was erupted in 34 (94.44 %) children's. while in remaining two children's there was sufficient space behind temporary second molar teeth, for eruption of permanent first molar teeth. Out of 34 children's where in permanent first molar teeth was found erupted, medial incisor was erupted in 33 (97.05%) children's. Among these 33 children's lateral incisor was found erupted in 22(66.66 %) children's. out of 22 cases where in lateral incisor was erupted, permanent first pre-molar teeth & out of these two children's, in one case permanent second pre-molar teeth was erupted.

Table 2

Reference / No	First molar	Medial incisor	Lateral incisor
PV Guharaj ¹	6-7	7-8	8-9
A Nandy ²	6-7	7-8	8-9
VV Pillay ³	6-7	6-8	7-9
Krogman ⁴	6.21 / 5.94	6.54/6.26	7.70/7.34
Modi's ⁶	6.48	7.10	7.88
Parikh ⁷	6-7	6-8	8-9
Bernard Knight ⁸	6	8/7	8/7

DISCUSSION

In this study it is observed that the permanent first molar teeth was found erupted between the age group of 6 years to 8 years, further permanent first molar teeth started erupting in majority of cases at the age of 6 ½ years (69.23 %), near 100% children's examined, at the age of completed 8 years. These results of permanent first molar teeth (eruption between 6 years to 8 years) does not match with references cited^{1,2,3,5,6,7}. Krogman et al While in the Bernard Knight⁸ cites that the mandibular permanent first molar teeth erupt at 6 years. These

observations match with Guptha R et al⁵ study conducted on permanent mandibular first molar & incisors erupted, one to two years later than the western references.

Eruption of mandibular permanent medial incisor teeth in this was found to be between 6 to 9 years when compared to reference cited^{1,2,3,5,6,7,8}. This appears to be more erratic & un reliable tool to assess the age. Our observations match with Guptha R et al⁵ study conducted on permanent mandibular first molar & incisors were erupted, one to two later than the western references.

As per the references cited VV Pillay³ mention that lateral incisor erupt between 7 to 9 years which is very close to the observations(Lateral incisor erupt between 6-9 years) made in this in this study. While rest all references^{1,2,6,7,8}. mention that lateral incisor erupts (Refer Table no 2) between 8 years to 9 years. While Krogman et al⁴ mention that the lateral incisor erupts on an average between 7.70(M) / 7.34 (F) years, indicating in westerns lateral incisor erupts 1-2 years earlier than this study which correlates with reference of Indian study cited⁴.

CONCLUSION

In the population studied,

1. Mandibular permanent first molar teeth erupts between 6 years to 8 years
2. Medial incisor erupts between 6 years to 9 years, Lateral incisor erupts between 6 ½ years to 8 years.
3. Mandibular permanent first molar teeth, medial & lateral incisors erupt in more wider age range than in the western & Indian studies under reference.
4. It is highly essential to develop reference criteria to assess the age of eruption of various teeth in countries like Ethiopia where in there are no reference criteria available.

REFERENCES

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2. Apurba Nandy's Hand book of Forensic Medicine & Toxicology; September 2013 New Central book Agency (P) Ltd Kolkata PP 62-63. Table 3.9, Permanent first molar 6/7th year, permanent central incisor 7/8th year, lateral incisor 8/9th year, First pre-molar 9/10th year, Second premolar 10/11th year. Canine 11/12th year.
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5. <http://www.ncbi.nlm.nih.gov/pubmed/1793849> 6; Gupta R, Sivapathasundharam B, Einstein A Eruption age of permanent mandibular first molars and central incisors in the south Indian population. As per our study, the permanent mandibular first molars and central incisors erupted one to two years later compared to the values reported in Westerners. The earlier eruption of the permanent mandibular first molars compared to the permanent mandibular central incisors, as well as the earlier eruption of both the teeth in girls compared to boys, were in accordance with the existing literature.
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8. Bernard Knight, Forensic Pathology ; First published in 1991, Edward Arnold; Pp. 480 fig. 26.5 average age of eruption of teeth lower jaw; First molar -6- years; Medial incisor 8/7; Lateral incisor 8/7 ; First premolar 11/10; Second premolar 11/11; Canine 11/10.