

Permanent Dentition in Delhi Boys of Age 5-14 Years

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Eruption pattern of permanent teeth in Delhi boys was studied in 1800 well nourished children age 5-14 years. Relationship of height, weight and sexual maturity with eruption of teeth was calculated. Earliest teeth to appear were lower first molar (5.64 years) followed by lower central incisors (6.02 years), The sequence of eruption in maxilla was first molar, incisors-central then lateral, first premolar, canine, second premolar and second molar. In mandible eruption pattern canine preceded first premolar. Eruption of teeth was significantly positively related to height, weight and sexual maturity.

Key words: *Eruption, Mandible, Maxilla, Permanent teeth.*

Permanent teeth generally erupt between age 5 to 13 years except the third molars (erupt between 17 and 21 years). In India it could be of medico-legal importance to assess child's age. Earlier studies during 1950-1960 on permanent dentition in children were limited in scope and sampling(1-2). In 1946, Shourie(1) found small differences in eruption pattern of permanent dentition in 1412 boys and 470 girls from Madras City (rice eating) and 1713 boys from Lahore (wheat eating). Limited studies from Chandigarh(3) in boys and girls and Delhi girls(4), do suggest that early dental eruption is associated with onset of adolescent growth spurt. The correlation with sexual development has also been demonstrated by other workers(5).

In the present study 1800 boys of Delhi 5-14 years of age from two public schools, were selected to examine eruption of permanent teeth, and correlate with their physical and sexual growth.

Subjects and Methods

Eleven public schools having well-nourished upper socioeconomic group children were identified. Of these two schools—Nutan Vidya Mandir, Dilsad Garden, Delhi (Northeast district) and J.D. Tytler School, New Rajinder Nagar, New Delhi (West district) were randomly selected. Written parental consent was obtained through the school management.

Sample size

Two hundred boys in each age group 5-6 to 13-14 years, total 1800 boys were selected. Boys between 5 to 5.99 years of age were taken as 6 years. All other categorization of age was done in similar manner. These children were well nourished and had no illness or disability.

Dental examination

(a) the oral examination was conducted in bright light with the help of a dental probe and mirror.

(b) number of erupted teeth was recorded. A tooth will be considered emerged, if any part of tooth had pierced the gingiva.

Anthropometric measurements

Height and weight were measured on a Detecto Scale, USA as per standard techniques. Body mass index (BMI) was calculated (wt (kg)/ ht (m)²).

Sexual maturity rating (SMR) was assessed according to Tanner(7).

Using SSPS version 9.0 carried out statistical analysis. The median age for eruption of teeth and their correlations with height, weight and BMI were calculated.

Results

The means and percentiles for height, weight and calculated values of body mass index (BMI) were similar to those reported for affluent Delhi children in 1992(8) and 2001(9). BMI was over 95th centile in >5% at 9, 10, 11, 13 and 14 years of age, however in 12% at 12 years of age; indicating obesity. Boys under 9 years of age were having BMI >95th centile in less than 4%.

The median ages for eruption of maxillary and mandible teeth are given in *Table I*. The earliest tooth to erupt was lower first molar median age being 5.64 years followed by lower central incisor at 6.02 years. The sequence of eruption was first molar, incisors-central then lateral, first premolar, canine, second premolar and second molar in the maxilla. In mandibular eruption canine preceded first premolar.

There was gap (interval of rest) of around two years between eruption of first molar + both incisors and other teeth canine, premolars and second molar (Maxilla-right and left 1.85 and 2.05 yrs and corresponding for mandible 2.39 and 2.53 yrs).

TABLE I—Median Age (yr) for Eruption of Permanent Teeth in Wellnourished Delhi Boys.

Teeth	Maxilla		Mandible	
	R	L	R	L
I ¹	6.77	7.13	6.02	6.17
I ²	8.04	7.84	7.31	7.17
C	9.89	9.89	9.70	9.70
PM ¹	9.70	9.68	10.08	9.84
PM ²	10.60	10.60	10.85	10.83
M ¹	5.65	5.68	5.64	5.68
M ²	11.64	11.59	11.34	11.34

R: Right, L: Left.

Partial correlation for eruption of teeth with age constant are positive and highly significant (P < 0.001) in relation to height and weight. However, BMI did not show any correlation.

Eruption of teeth was advanced in boys attaining higher sexual development as evident for canine and premolars at 11 and 12 yr of age and second premolar and second molar at 13 and 14 yr of age (*Table II*).

Discussion

The present study height and weight and BMI data were closer to affluent Indian children 1992(8,9). Eruption of teeth in the present study boys was calculated for median age, this practice of presentation has been followed by all the authors except Shourie(1). The median age is likely to be lower by 3 months as compared to the mean age. Indian studies from Madras (Chennai) and Lahore(1), Chandigarh(3), Delhi girls(4), Jats from Haryana(6) and the data from the present study show similar dentition pattern. Maxillary first premolar erupts before canine and in mandible canine erupts before first premolar this was comparable to other Indian

TABLE II—Percentage of Boys Sexual Maturity Rating in Relation to Number of Permanent Teeth Erupted Age (11-14yr).

Maxilla	Age (yrs)	SMR	N	Right								Left							
				I ¹	I ²	C	PM ¹	PM ²	M ¹	M ²	I ¹	I ²	C	PM ¹	PM ²	M ¹	M ²		
Maxilla	11	1	149	95.3	95.3	49	59.7	28.3	99.3	10.7	99.3	100	48.3	63.8	28.2	94.6	10.1		
		2	50	94	94	72	90	32.0	100	6	100	100	74	88	30	94	2		
	12	1	140	100	100	64	80	65.3	96	26.7	99.3	100	64	82	80.7	100	20.7		
		2	47	100	100	70.2	95.7	40.4	91.5	23.4	100	100	70.2	95.7	55.3	100	29.8		
		3	12	100	100	66.7	100.0	67.7	91.7	25	100	100	83.3	97	75	91.7	41.7		
	13	1	68	100	100	87.2	97.4	83.3	98.7	47.4	100	100	65.9	96.2	88.5	94.9	53.8		
		2	81	100	100	80.2	98.9	86.8	100	51.8	100	100	84.6	98.9	85.7	100	54.9		
		3	42	100	100	95.2	95.2	95.2	100	83.3	100	100	95.2	95.2	95.2	100	85.7		
		4	9	100	100	100	100	100	100	66.7	9.0	100	100	100	100	100	66.7		
	14	1	16	100	100	100	100	100	100	68.8	100	100	100	100	100	100	68.8		
		2	79	100	100	98.8	98.6	95.7	100	82.6	100	100	98.6	98.6	94.2	100	82.6		
		3	78	100	100	98.3	98.3	96.8	100	86.2	100	100	100	98.3	98.3	100	82.8		
		4	27	100	100	100	96.3	100	100	92.6	100	100	100	96.3	100	100	88.9		
	Mandible	11	1	149	100	100	60.4	47.7	21.5	100	16.1	99.3	100	48.3	63.8	28.2	94.6	10.1	
		2	50	100	100	82	84	26	100	6	100	100	90	64	18	98	14		
12		1	140	99.3	99.3	98.7	81.3	52	97.3	34	100	100	78	47.3	52.7	98	34.7		
		2	47	97.9	97.9	85.1	80.9	51.1	91.5	31.9	97.9	97.9	95.1	80.9	48.9	95.7	31.9		
		3	12	100	100	83.3	75	66.7	100	58.3	100	100	83.3	66.7	100	58.3	-		
13		1	68	100	100	98.7	93.6	83.3	98.7	55.1	100	100	98.8	89.7	89.7	98.7	56.4		
		2	81	100	100	97.8	98.9	83.5	97.8	68.1	100	100	97.8	97.8	87.9	96.7	68.1		
		3	42	100	100	100	95.2	92.9	100	90.5	100	100	100	95.2	95.2	100	81		
		4	9	100	100	100	100	100	100	99.7	100	100	100	100	100	100	77.8		
14		1	16	100	100	93.8	93.8	93.8	100	81.3	100	100	93.8	93.8	93.8	100	75		
		2	79	100	100	98.6	97.1	91.3	100	85.5	100	100	98.6	97.1	92.8	100	87		
		3	78	100	100	96.6	100	96.6	100	87.9	100	100	100	100	98.3	100	86.2		
		4	27	100	100	100	96.3	100	100	96.3	100	100	100	96.3	100	100	100		

Key Messages

- The study demonstrated similar pattern of dental eruption in Indian and Asian children.
- The eruption was positively related to somatic growth as well as sexual development.

studies. This pattern was also observed in Kenyans of Asian origin(10), Gambian(11), Chinese(12) and Japanese(13) children. The median age for eruption of teeth as well as the interval of rest were also similar in these studies(10-13). In US boys(14) and Northern Ireland children(15) dentition was delayed and the pattern varied, as the central lower incisor (mandible) erupted before the first molar. In Asian children dentition was advanced by 1 yr and 9 months as compared to the US(14) and Ireland(15) children respectively. The similarities in Asian children and differences with U S and Ireland children suggest ethnic variations in dentition.

The eruption of teeth was positively related to somatic growth (height and weight). For the same age boys in the present study with more sexual maturity had enhanced dental eruption, supporting the earlier findings (4,5).

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Uveitis and Anti Nuclear Antibody Positivity in Children with Juvenile Idiopathic Arthritis

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This study was conducted to determine the frequency of antinuclear antibodies (ANA) positivity and uveitis in our newly diagnosed juvenile idiopathic arthritis (JIA) patients classified according to International League Against Rheumatology (ILAR) classification criteria. Ninety-two girls and 106 boys, totally 198 children were enrolled in the study. of them 36 (18.2%) were found to be ANA positive. Chronic anterior uveitis was detected in 20 (10.1%) patients. ANA positivity was determined in 4 of the systemic JIA patients, in whom no uveitis had been detected. Twenty-five of 37 patients with oligoarticular JIA were ANA positive, in 10 of them uveitis was also diagnosed. ANA were positive in 3 of 34 patients with RF positive polyarticular JIA, only one patient had positive ANA, and another one had uveitis. Nine patients were extended JIA and in none of them, ANA positivity or uveitis were present. Of 43 patients classified as enthesitis related arthritis (ERA), uveitis was diagnosed in 6 and there was no evidence of ANA positivity, but one had uveitis. We conclude that the incidence of ANA positivity and uveitis is low in Turkish children with JIA.

Key words: Antinuclear antibody, Juvenile idiopathic arthritis, Uveitis.

Juvenile idiopathic arthritis (JIA) is a chronic inflammatory disease of joints with onset less than 16 years. The most commonly used descriptive markers for differentiation and classification of JIA are antinuclear antibodies (ANA), rheumatoid factor (RF), HLA B-27 marker and presence of anterior uveitis(1,2). The rates of ANA and uveitis positivity in patients with low socioeconomic

level and in developing countries are significantly lower than those in developed countries(3-5). For Turkey, the only reference study is our data that was collected ten years ago(3). Male preponderance, low rate of ANA positivity and uveitis presence with high amyloidosis incidence were the main differences between our cases and JIA patients in other countries The aim of this study was to