

Prevalence and distribution of selected developmental dental anomalies in an Indian population

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Abstract: The purpose of this study was to determine the prevalence of developmental dental anomalies in an Indian population and to statistically analyze the distribution of these anomalies. The study was based on clinical examination, evaluation of dental casts, and panoramic radiographs of 1123 Indian subjects (572 males, 551 females), who visited the outpatient clinic at Government Dental College, Indore between November 2009 and September 2010, after obtaining their informed consent. These patients were examined for the following developmental dental anomalies: shape anomalies (microdontia, talon cusp, dens evaginatus, fusion, taurodontism), number anomalies (hypodontia, oligodontia, anodontia), structural anomalies (amelogenesis imperfecta, dentinogenesis imperfecta) and positional anomalies (ectopic eruption, rotation, impaction). The percentages of these anomalies were assessed for the whole group and compared using statistical analysis. Among the 1123 subjects, a total of 385 individuals (34.28%) presented with the selected developmental dental anomalies. The distribution by sex was 197 males (34.44%), and 188 females (34.06%). Out of the total 1123 individuals, 351 (31.26%) exhibited at least one anomaly, 28 (2.49%) showed two anomalies and 6 (0.53%) displayed more than two anomalies. *P* values indicated that the dental anomalies were statistically independent of sex. On intergroup

comparison, positional anomalies were significantly most prevalent ($P < 0.05$) in the Indian population. The most common developmental dental anomaly was rotation (10.24%), followed by ectopic eruption (7.93%). The next common group was number anomalies. The most common number anomaly was hypodontia (4.19%), which had a higher frequency than hyperdontia (2.40%). Analyzing the next prevalent group of shape anomalies, microdontia (2.58%) was found to be the most common, followed by taurodontism (2.49%), dens evaginatus (2.40%) and talon cusp (0.97%). Dentinogenesis imperfecta (0.09%) was the rarest, followed by amelogenesis imperfecta (0.27%) and fusion (0.27%). (J Oral Sci 53, 231-238, 2011)

Keywords: dental anomalies; Indian population; prevalence; statistical analysis.

Introduction

Developmental dental anomalies are an important category of dental morphologic variations. Abnormalities in tooth size, shape, and structure result from disturbances during the morpho-differentiation stage of development, while ectopic eruption, rotation and impaction of teeth result from developmental disturbances in the eruption pattern of the permanent dentition (1). Their incidence and degree of expression can provide important information for phylogenetic and genetic studies and help in the understanding of differences within and between populations (2).

Several studies reported the frequencies of various dental anomalies in different populations, but the results are conflicting. The discrepancies in their results were

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attributed to racial differences, variable sampling techniques, and different diagnostic criteria (3-6).

The purpose of this study was to determine the prevalence and distribution of selected developmental dental abnormalities in shape, structure, number and position of teeth in an Indian population based on statistical analysis; these data are expected to contribute to the dental literature.

Subjects and Methods

The study was based on clinical examination and evaluation of dental casts and panoramic radiographs of 1123 Indian subjects (572 males, 551 females), who visited the outpatient clinic at Government College of Dentistry, Indore between November 2009 and September 2010, after obtaining their informed consent. Exclusion criteria of the subjects included any significant medical history, history of extraction or orthodontic treatment, patients belonging to the pediatric age group (under the age of 14 years) and patients having cleft lip and palate. Only subjects of Indian origin were selected. A comprehensive clinical examination was carried out to identify the presence of selected anomalies. Dental impressions were taken using alginate (DeTrey Zelgan®2002, Dentsply, Konstanz, Germany). Casts were immediately processed with dental stone (QuickStone®, Whip Mix Corporation, Louisville, KY, USA) to prevent distortion. Panoramic radiographs were then taken.

The following developmental dental anomalies were assessed:

Shape anomalies: microdontia, talon cusp, dens evaginatus, fusion, taurodontism

Number anomalies: hypodontia, oligodontia, anodontia

Structural anomalies: amelogenesis imperfecta (AI), dentinogenesis imperfecta (DI)

Positional anomalies: ectopic eruption, rotation, impaction

The criteria followed for assessment of each group of anomalies are mentioned below.

Shape abnormalities

For evaluating microdontia, only gross deviations in sizes easily discernible by clinical judgment were accepted. Talon cusp is a prominent accessory cusp-like structure projecting from the cingulum area or cemento-enamel junction (CEJ) of the maxillary or mandibular teeth in both primary and permanent dentition. Clinically, to consider a projection as a talon cusp, it must extend at least 1 mm beyond the CEJ (7) or half the distance from the CEJ to the incisal edge. The presence of this extra cusp, tubercle, elevation, protuberance, excrescence, extrusion or bulge from the occlusal surface of posterior teeth is called dens evaginatus (8). Fusion results in teeth with separate pulp

chambers that join at the dentin level, which are determined by radiological evaluation. To assess taurodontism, we followed the criteria of Shiffman and Chanannel (9). According to these criteria, a tooth is considered a taurodont if the distance from the lowest point of the roof of the pulp chamber (A) to the highest point of the floor (B) divided by the distance from A to the root apex is equal to or greater than 0.2, and when the distance from B to the CEJ is greater than 2.5 mm.

Number anomalies

These anomalies were established by counting the teeth present clinically and confirming the number by radiographs. Hypodontia describes a situation where the patient is missing 6 teeth or fewer, excluding the third molars. The condition of missing over 6 teeth, excluding third molars, is termed oligodontia. We classed both oligodontia and anodontia under "oligodontia".

Structural anomalies

An enamel defect can manifest itself as a deficiency in either the amount of enamel formed (hypoplasia) or the degree of calcification of the formed organic matrix (hypocalcification or hypomaturation). In this study, amelogenesis imperfecta (AI) was evaluated without dividing the cases into subgroups. Dentinogenesis imperfecta (DI) represents a group of hereditary conditions that are characterized by abnormal dentin formation.

Positional anomalies

Tooth rotation was considered subjectively as any evident (at least 20°) mesiolingual or distolingual intra-alveolar displacement of tooth around its longitudinal axis. In our study, we classified rotation into three groups (<45°, 45° to 90° and >90°). A tooth was categorized as impacted when the tooth was obstructed in its path of eruption by an adjacent tooth, bone, or soft tissue. Panoramic radiographs were used to confirm the impaction. Eruption of any tooth in an abnormal position was considered to represent ectopic eruption.

Data collected were entered into a spreadsheet (Excel 2000; Microsoft Office, Microsoft Corporation, USA) and analyzed subsequently using the Statistical Package for Social Sciences (Windows version 9.0; SPSS Inc., Chicago, IL, USA).

Results

Among the 1123 subjects (572 males and 552 females), a total of 385 individuals (34.28%) had developmental dental anomalies. The distribution by sex was 197 males (34.44%) and 188 females (34.06%). The distribution and

prevalence of the developmental dental anomalies are shown in Table 1. Out of the total 1123 individuals, 351 (31.26%) exhibited at least one anomaly, 28 (2.49 %) showed two anomalies and 6 (0.53%) subjects displayed more than two anomalies (Table 2). On intergroup comparison of the four study groups of dental anomalies selected, the prevalence of positional anomalies was significantly higher ($P < 0.05$) than the prevalence rates of shape, number and structural anomalies (Table 3). Rotations were the most common (10.24%) anomaly among the whole study group, followed by ectopic eruptions (7.93%) and hypodontia (4.19%), while dentinogenesis imperfecta (0.09%) was the rarest anomaly, followed by amelogenesis imperfecta (0.27%) and fusion (0.27%) in the Indian population (Table 1). P values indicated that the dental anomalies were statistically independent of sex (Table 1).

Shape abnormalities

Fusion was observed in 2 males and 1 female, with a total prevalence of 0.27%, making it the rarest anomaly in this study group and overall second rarest in occurrence (Table 1). The most common shape anomaly was microdontia; it was the fifth most frequent of all the

Table 2 Frequencies of dental anomalies exhibited in the total subjects

Variables	Total (1123) n (%)
At least one anomaly	351 (31.26)
Two anomalies	28 (2.49)
>two anomalies	6 (0.53)
Total subjects with dental anomalies	385 (34.28)

Table 1 Distribution and prevalence of developmental dental anomalies in a study group of 1123 patients (571 males, 552 females) with p values from Chi square test and Fischer’s exact test

Dental Anomalies	Male (n = 571) n (%)	Female (n = 552) n (%)	Total (n = 1123) n (%)	Level of significance (P value)
Shape anomalies				
Microdontia	11 (1.93)	18 (3.26)	29 (2.58)	0.150
Talon cusp	7 (1.23)	4 (0.72)	11 (0.97)	0.547
Dens evaginatus	11 (1.93)	16 (2.90)	27 (2.40)	0.287
Fusion	2 (0.35)	1 (0.18)	3 (0.27)	1.000
Taurodontism	12 (2.10)	16 (2.90)	28 (2.49)	0.391
Number anomalies				
Hypodontia	24 (4.20)	23 (4.17)	47 (4.19)	0.975
Oligodontia	2 (0.35)	2 (0.36)	4 (0.36)	1.00
Hyperdontia	15 (2.63)	12 (2.17)	27 (2.40)	0.620
Structural anomalies				
Amelogenesis Imperfecta	2 (0.35)	1 (0.18)	3 (0.27)	1
Dentinogenesis imperfecta	1 (0.18)	-	1 (0.09)	
Positional anomalies				
Ectopic eruption	42 (7.35)	47 (8.51)	89 (7.93)	0.472
Rotation	61 (10.68)	54 (9.78)	115 (10.24)	0.618
Impaction	23 (4.03)	19 (3.44)	42 (3.74)	0.604

Table 3 Comparative analysis between different study groups of anomalies using p values from Z test

Dental Anomalies n (%)	Number anomalies 78 (6.94)	Structural anomalies 4 (0.36)	Positional anomalies 246 (21.90)
Shape anomalies 98 (8.72)	0.11(NS)	0.00**	0.00**
Number anomalies 78 (6.94)	-	0.00**	0.00**
Structural anomalies 4 (0.36)	-	-	0.00**

** denotes $P < 0.01$, $P < 0.05$ is considered to be significant

Table 4 Distribution and prevalence of peg laterals in maxillary lateral incisors and result of Fisher's exact test

	Unilateral <i>n</i> (%)	Bilateral <i>n</i> (%)	Total <i>n</i> (%)	<i>P</i> value
Male (571)	5 (0.87)	6 (1.05)	11 (1.93)	0.197
Female (552)	3 (0.54)	15 (2.72)	18 (3.26)	(NS)
Total (1123)	8 (0.71)	21 (1.87)	29 (2.58)	

Table 5 Distribution and prevalence of talon cusp

	Unilateral <i>n</i> (%)	Bilateral <i>n</i> (%)	Total <i>n</i> (%)
Male (571)	2 (0.35)	5 (0.87)	7 (1.23)
Female (552)	1 (0.18)	3 (0.54)	4 (0.72)
Total (1123)	3 (0.29)	8 (0.78)	11 (0.97)

Table 6 Distribution and prevalence of Dens evaginatus

	Unilateral <i>n</i> (%)	Bilateral <i>n</i> (%)	Total <i>n</i> (%)
Male (571)	4 (0.7)	7 (1.23)	11 (1.93)
Female (552)	6 (1.08)	10 (1.81)	16 (2.90)
Total (1123)	10 (0.98)	17 (1.66)	27 (2.40)

Table 7 Location, distribution and prevalence of hypodontia (congenitally missing teeth) excluding third molars

Missing teeth	Male (<i>n</i> = 571)	Female (<i>n</i> = 552)	Total (1123) <i>n</i> (%)
Maxillary central incisors	4 (0.70)	2 (0.36)	6 (0.53)
Maxillary lateral incisors	9 (1.58)	10 (1.81)	19 (1.69)
Mandibular central incisors	5 (0.88)	2 (0.36)	7 (0.62)
Maxillary premolars	3 (0.53)	3 (0.54)	6 (0.53)
Mandibular premolars	2 (0.35)	3 (0.54)	5 (0.45)
Maxillary molars	1 (0.18)	2 (0.36)	3 (0.27)
Mandibular molars	-	1 (0.18)	1 (0.09)
Total	24 (4.20)	23 (4.17)	47 (4.19)

selected dental anomalies, with a prevalence of 2.58%. Of the 1123 individuals, 11 male and 18 female subjects (total 2.58%) had unilateral or bilateral peg-shaped teeth (Table 3). Its bilateral occurrence (1.87%) was higher. Peg-shaped maxillary lateral incisors also showed female predominance, but this was statistically insignificant (Table 4). After microdontia, other common shape abnormalities were taurodontism (2.49%), dens evaginatus (2.40%) and talon cusp (0.97%). Talon cusps were present most commonly in the maxillary central incisor, which showed bilateral occurrence in 8 out of total 11 subjects (Table 5). Dens evaginatus was more commonly present in females (2.90%, Table 6).

Number abnormalities

The most frequent tooth number anomaly was hypodontia. The total prevalence of hypodontia was 4.19%, making it the third most frequent of all developmental anomalies (Table 1). When the distribution of hypodontia

in both dental arches was evaluated (Table 7), we found that the maxillary lateral incisor was the most frequent missing tooth (excluding third molars) (prevalence 1.69%), followed by mandibular central incisors (0.62%), maxillary central incisors and maxillary premolars (0.53% each) and mandibular premolars (0.45%). Hyperdontia (supernumerary teeth and mesiodens) was seen in 15 male and 12 female patients; its total prevalence was 2.40% (Table 1). Fourteen of these patients had supernumerary incisors, but only 8 had supernumerary premolars. In the patients with supernumerary incisors, 10 supernumeraries were in the maxilla. Oligodontia was found in 4 individuals, with a prevalence of 0.36% (Table 1).

Structural abnormalities

Structural anomalies were rare in comparison to other anomalies, and there was a significant difference ($P < 0.05$) (Table 3). The total prevalence of AI was 0.27%, and it was observed in 2 males and 1 female (Table 1). Only

1 case of DI was reported (prevalence 0.09%), making it the rarest anomaly in the whole study group.

Positional anomalies

This group of anomalies was significantly more prevalent than shape, structural and number anomalies ($P < 0.05$). Rotation was the most prevalent dental anomaly in the present study. It accounted for 10.24% of the subjects (Table 1). Common rotations were between 45° to 90° (67/115), followed by $<45^\circ$ of rotation (36/115) and $>90^\circ$ (12/115) categories. Mandibular second premolars were most frequently rotated (2.14%), followed by mandibular first premolars (1.69%) and maxillary central incisors (1.60%), though the difference was statistically insignificant (Table 8). It was further found that females were more likely to show rotations in mandibular second premolars and maxillary central incisors than males, although the difference was statistically insignificant. Ectopic eruptions accounted for 7.93% of the patients and were observed in 47 females and 42 males. Maxillary canines (3.38%) most commonly displayed this anomaly ($P < 0.05$), followed by mandibular canines and mandibular lateral incisors (1.16% each, Table 9). The frequency of impaction (excluding third molars) was 3.74% (23 males and 19 females, Table 1). Teeth most commonly impacted were maxillary right canines.

Discussion

Although several researchers have determined the prevalence of dental anomalies, none have statistically

analyzed the prevalence and distribution of various developmental dental anomalies in the Indian population. There was a significant difference between the prevalence of dental anomalies observed in the present study and those reported in previous epidemiological studies (2-6,10-12). These conflicting results can be explained primarily by racial differences, local environmental influences and nutrition. A significant difference was also observed in the prevalence of similar anomalies between the present study and the study by Guttal et al. (13) in the Indian population. This dissimilarity can be attributed to differences in sampling techniques, inclusion criteria and study design. The prevalence rates reported by several authors in different populations are given in Table 10.

Positional anomalies constituted the most dominant group in occurrence. Out of the 385 subjects with dental anomalies, 246 exhibited positional anomalies. Rotations were most prevalent in the whole study group. Teeth were mostly rotated 45° to 90° mesiolingually along the long axis of the tooth. Two cases also showed complete 180° rotation placing the buccal side palatally and vice versa.

Ectopic eruption, reported to be 7.93%, was the second most common anomaly in this study. Maxillary canine was the most common ectopic tooth, confirming the results of previous investigators (6,14,15).

Impaction (excluding third molars), overall ranked fourth in occurrence, was found in 3.74% of the total study sample, and the most frequently impacted tooth was the maxillary right canine (2.90%). According to the literature, impacted permanent maxillary canines occur in

Table 8 Location, distribution and prevalence of rotation

Rotated teeth	Male (n = 571)			Female (552)			Total (1123)
	Unilateral n (%)	Bilateral n (%)	Total n (%)	Unilateral n (%)	Bilateral n (%)	Total n (%)	
Mn second premolar	9 (1.58)	2 (0.35)	11 (1.93)	12 (2.17)	1 (0.18)	13 (2.36)	24 (2.14)
Mn first premolar	10 (1.75)	1 (0.18)	11(1.93)	6 (1.09)	2 (0.36)	8 (1.45)	19 (1.69)
Mx central incisor	2 (0.35)	6 (1.05)	8 (1.40)	4 (0.72)	6 (1.09)	10 (1.81)	18 (1.60)
Mx second premolar	9 (1.58)	-	9 (1.58)	4 (0.72)	1 (0.18)	5 (0.91)	14 (1.25)
Mx first premolar	3 (0.53)	3 (0.53)	6 (1.05)	5 (0.91)	2 (0.36)	7 (1.27)	13 (1.16)
Mn central incisor	1 (0.18)	7 (1.22)	8 (1.40)	-	5 (0.91)	5 (0.91)	13 (1.16)
Mx Lateral incisor	4 (0.70)	2 (0.35)	6 (1.05)	3 (0.54)	3 (0.54)	6 (1.09)	12 (1.07)
Mn canine	2 (0.35)	-	2 (0.35)	-	-	-	2 (0.18)
Total	40 (7.01)	21 (3.68)	61 (10.68)	34 (6.16)	20 (3.62)	54 (9.78)	115(10.24)

Mx = Maxillary; Mn = Mandibular

Table 9 Location, distribution and prevalence of ectopic eruption

Ectopically erupted teeth	Male (n = 571)			Female (552)			Total (1123) n (%)
	Unilateral n (%)	Bilateral n (%)	Total n (%)	Unilateral n (%)	Bilateral n (%)	Total n (%)	
Mx canine	8 (1.40)	8 (1.40)	16 (2.80)	10 (1.81)	12 (2.17)	22 (3.99)	38 (3.38)
Mn canine	5 (0.88)	2 (0.35)	7 (1.23)	4 (0.72)	2 (0.36)	6 (1.09)	13 (1.16)
Mn lateral incisor	4 (0.70)	3 (0.53)	7 (1.23)	6 (1.09)	-	6 (1.09)	13 (1.16)
Mx second premolar	3 (0.53)	3 (0.53)	6 (1.05)	4 (0.72)	-	4 (0.72)	10 (0.89)
Mx central incisor	1 (0.18)	-	1 (0.18)	6 (1.09)	1 (0.18)	7 (1.27)	8 (0.71)
Mn second premolar	3 (0.53)	-	3 (0.53)	2 (0.36)	-	2 (0.36)	5 (0.45)
Mn first premolar	2 (0.35)	-	2 (0.35)	-	-	0	2 (0.18)
Total	26 (4.55)	16 (2.80)	42 (7.35)	32 (5.80)	15 (2.72)	47 (8.51)	89 (7.93)

Mx = Maxillary; Mn = Mandibular

Table 10 Prevalence of various dental anomalies reported by previous studies in different populations

Dental Anomalies	Thongudomporn et al. (6)	Altug-Atac et al. (29)	Uslu et al. (19)	Ghaznavi et al. (32)	Ezoddini AF (33)	Backman (34)	Guttal et al. (13)	present study
Sample size	111 orthodontic patients	3043	900 orthodontic patients	1010	480	739	20182	1123
Population & year of study	Queensland (1998)	Turkey (2005)	Turkey (2009)	Saudi Arabia (1999)	Iran (2009)	Sweden (2001)	Indian (2010)	Indian (2011)
Shape anomalies								
Microdontia	9.9	1.58	0.7	53.3		0.8	0.16	2.58
Talon cusp							0.07	0.97
Dens evaginatus			6.2				0.05	2.40
Fusion		0.23			0.2	0.3	0.08	0.27
Taurodontism	9.9		1.0	8.61	7.5	0.3	0.31	2.49
Number anomalies								
Hypodontia		2.63	21.6	9.41		8.4	0.15	4.19
Oligodontia	8.1	0.13						0.36
Hyperdontia	1.8	0.36	0.3	1.19	3.5	1.9	0.43	2.40
Structural anomalies								
Amelogenesis imperfecta		0.43						0.27
Dentinogenesis imperfecta								0.09
Positional anomalies								
Ectopic eruption	14.4		0.6					0.47
Rotation								0.62
Impaction	9.9		2.9		8.3			0.60
Total	74.7	5.05	40.3		40.8		1.73	34.28

1% to 3% of the population (16,17). Impaction was observed more frequently in the maxilla than in the mandible.

In the recent study by Guttal et al. (13) in the Indian population, none of these positional anomalies that were found to be significantly prevalent in our study were considered. Although the sample size of the above study was large, the overall number of subjects with anomalies was much lower (380/20382=1.88%). In our study, 34.28% of the total subjects (385/1123) had anomalies. Therefore, further investigations regarding positional anomalies are required in the Indian population.

In terms of frequency, shape anomalies followed positional anomalies. In 1997, Proffit (1) mentioned that the most common abnormality is variation in size, particularly in the maxillary lateral incisors. The prevalence of this condition ranges from 0.8% to 8.4% in various populations (18). In our study, the prevalence of peg-shaped maxillary lateral incisors was 2.58%.

In the present study, 2.49% of the patients showed taurodontism, observed only in the maxillary and mandibular molar regions. The prevalence of taurodontism was found to be 1.0% in a recent study of various malocclusions (19). Darwazeh et al. (20) found a higher

rate of 8.0% in Jordanian dental patients; Shifman and Chananel (9) reported a prevalence of 5.6% in Israeli patients, whereas MacDonald-Jankowski and Li (21) reported an even higher rate (46.4%) of taurodontism in an adult Chinese population. The difference might arise from racial differences or differences in diagnostic criteria. Maxillary second molar was the most commonly affected in our study.

Dens evaginatus primarily affects the premolars but can also occur in molars, canines, and incisors. In premolars and molars, the anomaly is usually seen on the occlusal surface (22). In the present study, dens evaginatus comprised 2.40% of the total dental anomalies.

Prevalence of talon cusp ranges from less than 1% to 8% of the population (23), with a higher frequency in males than females. The anomaly has a greater predilection for the maxilla, and maxillary lateral incisors are commonly affected in the permanent dentition, followed by central incisors and canines. In the present study, this anomaly accounted for 0.97% of individuals and the maxillary central incisor was the most commonly involved tooth with prominent bilateral occurrence (Table 5).

Fusion can range from 0.5% to 5% in prevalence based on geographic, racial or genetic factors (24). In the present study, fusion was the second rarest anomaly after DI, with a prevalence of 0.27%.

Throughout human evolution, reductions in the number of teeth and size of the jaws have occurred, along with a decrease in the surface area needed for mastication. It is believed that evolution with regard to reduction in tooth numbers will continue (25). The types of teeth reported missing vary in different ethnic groups. In American children, mandibular second premolars are commonly missing (10); in Saudi Arabian children, it is maxillary lateral incisors (4); in European children, it is maxillary second premolars (26). In the Turkish population, similar to the American population (27), the maxillary lateral incisors are most frequently missing, followed by premolars. We also observed a significant number of missing maxillary lateral incisors (1.69%) and mandibular central incisors (0.62%, Table 7). Four cases of oligodontia were recorded, 1 subject had only two teeth present in both arches and the others were also having multiple missing teeth.

Zhu et al. (28) reported the prevalence of supernumerary teeth by race; the prevalence among the white population ranged from 1% to 3% while in the Turkish population (29), the total percentage was 0.36%. In our study, we observed supernumerary teeth in 2.40% of the individuals. Other studies stated that 90% to 98% of all supernumerary teeth occur in the maxilla, most commonly in the premaxilla

region (29,30). Many studies reported that the most common type of hyperdontia is mesiodens; in the present study also, we found that the mesiodens was most common (0.89%), followed by maxillary premolars. Among the 1123 subjects, there were no individuals with supernumerary molars (paramolars), although they are reported as the second most common supernumeraries (28).

Structural anomalies were the rarest in occurrence. Many studies reported the prevalence rate of AI, but the results varied widely (31). In our study, the prevalence of AI was 0.27%. Only one case of DI was seen (prevalence 0.09%), making it the rarest anomaly among the whole study group.

Within the limitations of this study, it was found that:

1. A significant number of patients had at least one dental anomaly (31.26%).
2. Positional anomalies were significantly more prevalent ($P < 0.05$) than other anomalies in the Indian population
3. Rotation (10.24%) was the most common developmental dental anomaly in the Indian population, followed by ectopic eruption (7.93%).
4. Dentinogenesis imperfecta (0.09%) was the rarest anomaly, followed by amelogenesis imperfecta (0.27%) and fusion (0.27%).
5. Statistical analysis indicated that dental anomalies were independent of sex.
6. The disparity in prevalence compared with previous studies might arise from racial differences or differences in diagnostic criteria.

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