



PREVALENCE OF DENTAL ANOMALIES IN GARHWA POPULATION- A RADIOGRAPH BASED STUDY

Dental Science

Ajla Khan	Sr Lecturer, Dept. of Pedodontics and Preventive Dentistry, Minority Dental College & Hospital, Darbhanga, Bihar
Pranav	Reader, Dept. of Pedodontics and Preventive Dentistry, Mithila Minority Dental College & Hospital, Darbhanga, Bihar
Rahul Kumar Singh	Reader, Dept. of Pedodontics and Preventive Dentistry, Mithila Minority Dental College & Hospital, Darbhanga, Bihar
Md. Imran	Sr Lecturer, Dept. of Pedodontics and Preventive Dentistry, Mithila Minority Dental College & Hospital, Darbhanga, Bihar
Kongkana Kalita	Private Practice
Dr. Jyotish Kumar Jha*	Dept. of Oral Medicine & Radiology, Vananchal Dental College & Hospital, Garhwa, Jharkhand *Corresponding Author

ABSTRACT

Developmental disturbances of the tooth may range from agenesis to tooth impaction or presence of accessory tooth are not frequently observed by dental professionals. This presence may complicate the normal course of dental treatment. The present study was done to assess their presence in an Indian population.

Material and Method: A retrospective study of 2062 panoramic radiographs of patients during the period January 2018 to December 2019 in the age group 13 to 38 years (mean 21.7 years) and dental records were examined for the presence of developmental disturbances such as congenitally missing teeth, impactions, supernumerary teeth, diaceration, dens in dente, gemination and fusion.

Results: 809 (39.23%) patients had developmental anomalies with highest prevalence of impacted teeth (48.02%), followed by 139 (17.26%) of dilaceration, supernumerary tooth 33 (4.03%) microdontia 121 (15.03%).

KEYWORDS

Developmental anomaly, developmental disturbance, prevalence, panoramic radiograph

INTRODUCTION

Dental anomalies are commonly seen during routine dental check-up.¹ The factors leading to developmental abnormalities can be either genetic or environmental. It has been recognized that a growing number of genes have been linked with early tooth morphogenesis.²

Developmental dental anomalies are marked deviations from the normal color, contour, size, number, and degree of the development of teeth. These can be congenital (inherited genetically) or acquired (teeth alterations during normal formation).³

There are many types of developmental anomalies found in the teeth that occur during the morpho-differentiation stage of development. The most common of these is malformations in the structure of enamel and dentine. Apart from these, there can also be anomalies in the size, number, and shape of teeth (Deolia *et al.*, 2015).⁴

Some of the dental malformations can be detected on radiographic screening. Various radiographic protocols have been proposed to screen for asymptomatic pathologic and developmental conditions that are not apparent on a clinical examination. The logic in screening radiographs is that the radiation risk will be justified by the early identification of a reasonably significant number of treatable conditions. This plays a vital role in reducing the morbidity associated with anomalies in structure namely dens in invaginatus and impacted teeth.⁵

The objective of this study was to assess the prevalence of developmental disturbances such as congenitally missing teeth, impactions, supernumerary teeth, diaceration, dens in dente, gemination and fusion.

MATERIAL AND METHOD

A retrospective study of 2062 panoramic radiographs of patients visiting to the Outpatient Department of Vananchal Dental College and Hospital, Garhwa during the period January 2018 to December 2019 in the age group 13 to 38 years (mean 21.7 years) and dental records were examined for the presence of developmental disturbances such as congenitally missing teeth, impactions, supernumerary teeth, diaceration, dens in

dente, gemination, fusion, microdontia and talon cusp.

A specially designed proforma was used to record the demographic details of a patient along with the medical and dental history, clinical findings, and complications. It was filled by the same examiner to ensure the uniformity of data.

The OPGs showing any pathology, trauma, fracture which affected the normal growth of permanent dentition, poor quality panoramic radiographs, syndromic patients were excluded from the study population. Good quality OPGs were included in the study.

RESULTS

The study comprised 2062 subjects of which 1031 were males and 1031 were females with an age range of 13 to 38 years. Of the 2062 cases evaluated impaction of the tooth was the most prevalent developmental anomaly (48.02%) encountered followed by dilaceration (17.26%) and microdontia (15.03%).

Table 1 shows the prevalence of different developmental anomalies according to gender. Gemination, fusion and microdontia were more prevalent in females, while the other anomalies were predominantly severe in males.

DISCUSSION

Dental anomalies can range from mild developmental delay to most severe tooth agenesis. The etiology of these may be genetic or hereditary or from association of certain anomalies.⁶ Dental anomalies should be diagnosed at the earliest as they might complicate the treatment plan as in the case of any orthodontic or endodontic procedures.

Baccetti found that 34% of the patients with conical shaped upper lateral incisors had palatally displaced canine, and dilacerations of root can cause difficulty in root canal therapy and extractions. Root canal filling becomes challenging in taurodontism because of the complexity of the root canal anatomy and the proximity of the buccal orifices.^{7,8}

Our study was conducted to determine the prevalence of dental

anomalies using panoramic radiographs of patients with known age group in Garhwa population.

The prevalence of developmental anomalies in our study was about 39.23%, which was almost near to the study conducted by Patil et al⁹, in Jodhpur which was 36.7%. Similar studies done by Afify and Zawawi¹⁰ and Goncalves-Filho et al¹¹ showed a prevalence of 45.1 and 56.9%, which was higher in comparison to our study.

The most prevalent DA in our study was tooth impaction which was present in 48.02% of cases. Failure of teeth to form is noted to be one of the most common DA encountered with a prevalence of 1.6 to 11.3%. Our study showed a prevalence of 5.04% congenitally missing teeth, which is in consistent with the previous studies.^{12,13}

The term microdontia should be applied only when the teeth are smaller than usual. In our study, the prevalence of microdontia is 15.03% and it was in the range of 0.8 to 9.14% according to Neville et al¹² and Guttal et al.¹⁴

Supernumerary roots refer to the development of increased number of roots compared to the normally described, which usually causes difficulty in endodontic procedures.¹⁵ Our study showed a prevalence of 4.03%.

Talon's cusp resembles an Eagle's talon, which is an alteration of the tooth shape, i.e., characterized by the presence of an accessory cusp on the lingual or buccal face of an anterior tooth that projects from the cingulum.¹⁵ Talon's cusp may fracture or be abraded as soon as the tooth comes into occlusion, exposing the pulp which cause endodontic complications. The prevalence ranges between 1 and 8%.¹⁶ Our results showed an occurrence of 2.047% which falls within this range.

Dens in dente, also called dens invaginatus, is an embryonic anomaly that occurs as a result of the invagination of cells of the internal enamel epithelium.¹⁷ As a result of invagination, the dental walls have locations that are thin and close to the pulp tissue,¹⁸ which may cause pulp necrosis.¹⁹ Dens in dente presents a variable prevalence from 0.25% to 7.74%,^{17,18} but its prevalence is generally low, as was observed in this study (3.01%).

CONCLUSION

Our study showed that there was an overall prevalence of 39.23% DAs in the population studied where the anomaly related to development was more when compared with those occurring in tooth size, position, and root number. These DAs are related to dental problems which should be known to dentists as they have greater clinical impact. Hence, their prevalence in different populations, early diagnosis, and treatment helps to avoid further complications.

Table 1 Prevalence Of Different Dental Anomalies According To The Sex In Different Patients

Type of dental anomaly	Males (n=1031)	Females (n=1031)	Total n=2062 (% prevalence)
Impaction	205	182	387(48.02)
Dilaceration	85	54	139(17.26)
Microdontia	51	70	121(15.03)
Congenitally missing tooth	24	17	41(5.04)
Supernumary tooth	20	13	33(4.03)
Gemination	10	19	29(3.54)
Dens in Dente	15	10	25(3.01)
Fusion	07	10	17(2.03)
Talon cusp	11	06	17(2.04)

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