

ORIGINAL ARTICLE

Incidence of various dental anomalies in population of Taxilla, PakistanSAMAN MALIK¹, FAIQA HASSAN², MUHAMMAD FAROOQ³, USMAN UL HAQ⁴, AMNA FAISAL⁵, SAQIB GHAFOOR KAYANI⁶¹Assistant Professor, Oral Biology, HITEC-IMS Dental College, Taxila Cantt.²Assistant Professor, Oral Medicine, HITEC-IMS Dental College, Taxila Cantt.³HOD, Oral Medicine, HITEC-IMS Dental College, Taxila Cantt.⁴Assistant Professor, OMFS, Wah Medical College, Taxila Cantt.Correspondence to Dr. Saman Malik, Email id: Somey_hassan@hotmail.com, Tel. 0312-3456303**ABSTRACT****Background:** There are different types of teeth anomalies that effects the people of different regional populations.**Aim:** To determine the occurrence of dental anomalies in patients of Taxila that visit our college for routine dental procedures.**Methods:** The study was retrospective and was conducted on periapical intraoral radiographs of patients between the ages of 15 to 35 years, with no gender discrimination at Dental College HITEC-IMS.**Results:** We collected data from 450 periapical intraoral radiographs that were taken in last six months (i.e. 15th January 2021 till 15th July 2021) in dental radiology department.**Conclusion:** The dental anomalies that were found in the population of taxila were impacted teeth, missing teeth, rotated tooth, supernumerary teeth (mesiodens), root dilacerations, peg lateral, taurodontism and hypercementosis.**Keywords:** Root anomalies, dental anomalies, periapical radiograph**INTRODUCTION**

Tooth development is a complex process which begins in intrauterine life at around 37th week. It is regulated by certain inducing factors released by the oral epithelial and mesenchyme tissue which results in progression of different stages of tooth development. Any disturbance in any stage of tooth development can result in abnormal tooth development¹. There are various types of dental anomalies that occurs due to disturbance in different stages of tooth development, ranging from abnormalities in number, size, shape and structure as well as their location^{2,3}. On the basis of abnormality in the number of teeth there could be tooth agenesis which is basically the absence of one or more tooth congenitally^{3,4} or there could be increase in the tooth number i.e. it can be more than 8 per quadrant (hyperdontia) or less than 8 per quadrant (hypodontia)^{5,6}. Supernumerary tooth is mainly hyperdontia that is increased number of teeth in an arch which can result in failure of eruption of permanent tooth and results in rotation of tooth. Anomalies on the basis of size can be microdontia and macrodontia. Macrodontia is increase in size of tooth and microdontia is small tooth size³. Anomalies that can be related to root of teeth are bending of root (dilaceration), fusion or dwarfism of roots, taurodontism and increased deposition of cementum (hypercementosis)^{3,4}.

There are a number of causes and etiological factors which results in these anomalies². They can be genetic, traumatic, nutritional deficiencies and other local and systemic factors^{3,4,7}. These anomalies not only affect the esthetic of patients but also interferes in the functioning of teeth^{7,8}. Certain anomalies can also results in delayed eruption, malocclusion, impaction and disturbance in alveolar arch development⁹. Anomalies can also lead to caries, periodontitis and early tooth loss if certain preventive measures are not taken at right time⁴. The early detection of these anomalies is very important as if they left undiagnosed at the time of treatment planning, it can result in failure of treatment⁴.

Some of these anomalies can be seen on intraoral examination and others can be detected on routine radiographs like periapical radiographs, panoramic radiograph and cone beam computed tomography⁷.

The aim of our study was to find the prevalence of dental anomalies in Pakistan's general population. We examined 450 periapical radiographs of patients that were taken in Radiology department of Dental College HITEC-IMS, Taxilla. The anomalies we included in this study were easily visible on periapical radiographs like Impactions, Missing tooth, Dilaceration, Tooth rotation, Peg lateral, Mesiodense, Taurodontism and.

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Hypercementosis, as these were diagnosed in study which was conducted by Sella Tunis T and Hejlesen J^{10,11}**MATERIAL AND METHOD**

A total number of 450 periapical radiographs of patients were examined, between the age of 15 to 35 who visited the dental hospital OPD and were suggested radiographs from our radiology department in the past 6 months from 15th January 2021 to 15th July 2021. There was no gender predilection. We performed a retrospective cross sectional study as we did not want to expose patients unnecessarily to radiation. Periapical radiograph was an inexpensive technique which is normally used to detect lesions and anomalies related to tooth number, shape and size. So we planned to address only those anomalies that were easily visible on periapical radiographs.

Inclusion criteria: Tooth and root anomalies associated with incisors and molars**Exclusion criteria:**

- Patients more than 35 years old
- Syndrome associated dental anomalies
- History of recent trauma to teeth

Data was collected from standardized periapical dental radiograph that were studied on X-ray illuminator. Anomalies addressed were: missing tooth (agenesis), supernumerary teeth (mesiodens), impaction, taurodontism, tooth rotation, peg lateral, dilacerations and hypercementosis.

RESULTS

After reviewing 450 periapical radiographs of patient, we have found that anomalies were seen in 71.5% of patients among which 52(11.5 %) patients had impacted teeth, 200 (44.4%) patients had missing teeth, dilacerations was present in 26(5.7%) patients, rotated teeth were 13(2.8%), 2(0.4%) patients had peg lateral, hypercementosis was present in 29(6.4%) patients. And none of the patient showed mesiodens and taurodontism.

Table 1

Results	Yes	%age	No	%age
Number of patients affected	322	71.5%	128	28.5%

Table 2

Types of Anomalies	Patients affected	% age
Impaction	52	11.5
Missing tooth	200	44.4
Dilaceration	26	5.7
Tooth rotation	13	2.8
Peg lateral	2	0.4
Mesiodense	0	0
Taurodontism	0	0
Hypercementosis	29	6.4

DISCUSSION

The study was conducted to visualize the incidence of dental anomalies in general population of Taxila, Pakistan and we found that 71.5% patient's had dental anomalies who came on their routine visits. Impaction was noted in 11.5%, missing teeth were 44.4%, dilacerations was present in 5.7% patients, rotated teeth were 2.8%, 0.4% patients had peg lateral, hypercementosis was present in 6.4% patients and none of the patient had mesiodens and taurodontism. These results were compared to the study conducted in Ajman University, UAE and according to their results 80.7% patients had anomalies. Dilacerations was present in (61.4%), missing teeth were (22.8%), hypercementosis in (10.2%) and taurodontism accounted for (4.1%)¹². In their study 80% patients had anomalies, which was quite close to our 71.5%¹². Our most frequent finding was missing tooth 44% which differs from the results of Ajman university study¹².

A study conducted by Afify AR in Saudi Arabia also reported the occurrence of dental anomalies in their patients. It stated 396(45.1%) patients with dental anomalies, this was less than our 450(71.2%). He stated that missing teeth were 226 (25.7%), impacted teeth 186 (21.1%), dilacerated teeth 10(1.1%), supernumerary teeth 3(0.3%) and taurodontism was 1(0.1%), which was comparable to our results. Our study had less cases of impactions which were 11.5%, missing teeth were 44.4% which were more than their 25%, dilacerations was present in 5.7% patients and taurodontism was (0%) which is quite closer to their findings⁸.

Another study was conducted by Alassiry A. in Najran city of Saudi Arabia on 572 patients in which impactions was most commonly seen anomaly i.e. (23.4%). They had (8.4%) peg shaped lateral incisors and (3.1%) hypercementosis, compared to our study we had 11.5% impaction less than their finding as well as (0.4%) peg lateral but hypercementosis was present more in our study i.e., (6.4%)¹⁴.

In a study conducted on 252 patients in French hospital, taurodontism was the most common anomaly (15.06%) which was absent in the population we have studied¹⁵.

A study conducted by Nayak P in India showed that prevalence of Peg lateral is (0.3%) which is comparable to our study (0.4%) but supernumerary teeth (mesiodens) were (0.6%) which we did not found in our population¹⁶.

One of the study which was conducted in Pakistan by Rasool G showed that 24(28%) patients had missing teeth but our study showed higher prevalence of missing teeth 200 (44.4%)¹⁷.

In another similar study on dental anomalies conducted in Pakistan which reported that 55.3% patients had at-least one dental anomaly that is less than our study in which 71.5% had dental anomalies. Missing tooth was the most common (24.9%) finding in their study which was similar to our result that was (44.4%), followed by impaction (7.8%) which is also similar to our study (11.5%)¹⁸.

A study conducted in Pakistan at Liaquat College of medicine and dentistry showed that 600(61.2%) of patients presented with at least one dental anomaly which is less than the findings in our study (71.2%). Missing tooth were (9%) which was less than our study results (44.4%) and impactions were (4.0%) which was also less than our study outcomes (11.5%)¹⁹.

Gupta SP in Nepal, revealed in his study that frequency of dental anomalies was 92(15.3%) among 601 patients. In these

dental abnormalities, missing teeth were the predominant (7.48%) followed by taurodontism (0.49%) which was less than our results (44.4%) and (0%) missing teeth and taurodontism respectively²⁰.

CONCLUSION

It can be concluded that dental anomalies are quite prevalent in Taxila community but due to lack of knowledge of general population they remain undiagnosed. Most of the anomalies results in esthetic, structural and functional compromises but as population is unaware of their consequences so they do not show up to dentist until there is some serious problem. So, as clinician we should educate our general population regarding commonly occurring anomalies as well as should emphasize on routine dental examination.

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