PREVALENCE OF MAXILLARY PEG-SHAPED LATERAL INCISORS AND ITS ASSOCIATION WITH DENTAL ANOMALIES IN MEDICAL AND DENTAL STUDENTS OF MARDAN, PAKISTAN

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Abstract

Objective: *To find the prevalence of peg-shaped lateral incisor in a public medical college in Mardan.*

Materials & Methods: *The descriptive cross-sectional study was done in Mardan where 150 students underwent an assessment for the prevalence of peg-shaped lateral incisor and its association with other development anomalies after informed consent was taken. Data were analysed using SPSS version 17. Descriptive and inferential statistics were performed.*

Results: *The prevalence of peg-shaped lateral incisor found was 5.3% and was found only in males. Statistically significant association was seen with supernumerary teeth (25%, p value=0.034) and congenitally missing teeth (37.5%, p value=0.034). Similarly, significant association (pvalue=0.004) was seen with the geographical area (Northern part of Khyber Pakhtunkhwa 75%, Central Khyber Pakhtunkhwa 12.5%, and Federally Administered Tribal Areas 12.5%).*

Conclusion: *Peg-shaped lateral incisor is prevalent in males mainly from residents of Northern part of Khyber Pakhtunkhwa. The peg-shaped lateral incisors have a strong association with palatally displaced canines and supernumerary teeth.*

Key Words: *Peg-shaped; lateral incisor; congenitally missing teeth; palatally displaced canine; Mardan*

Introduction

The dental appearance of a person plays a key role in his social interactions and determining the attractiveness of his face[1]. Among the features affecting dental appearance are tooth, colour, shape, position and arrangement of teeth especially anterior teeth[1, 2]. Alteration in size, shape and position has a negative impact on people's health and appearance. These variations are usually the result of disturbance during the morpho-differentiation stage of tooth development and could be developmental, congenital or acquired which may lead to localised or systemic changes in normal dentition [3, 4]. The prevalence of children with developmental disturbances in an industrialised country is 10% when compared with developing countries like India where it ranges from 15% -20%[5]. Another study shows that 7% of children born have dental anomalies and most common are supernumerary teeth, fused teeth, congenitally missing teeth and peg-shaped lateral incisors[3, 6]. A peg

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lateral incisor is defined as "an undersized, tapered, maxillary lateral incisor" that may be associated with other dental anomalies such as supernumerary teeth, canine transposition, dens invaginatus and congenitally missing teeth [7, 8]. Patients with peg-lateral incisors usually have a midline diastema caused by distal movement of the central incisors[7]. The trait is more pronounced in maxillary teeth where lateral incisors appear to be small, pointed and looks like a cone.

In some cases, the permanent tooth does not develop leaving behind deciduous tooth in place. Studies show that peg-shaped lateral incisors is inherited in an autosomal dominant manner[9, 10]. The prevalence of the trait is from 0.8% to 8.4% more common in the maxillary arch, Mongoloid people, women and patients undergoing orthodontic treatment[9, 11]. Another study conducted on children age 7-15 years found that the trait is more pronounced in girls as compared to boys with an overall prevalence of 1.72%[8]. The same study also found that children with peg lateral incisors have a higher incidence of dental anomalies[8]. Another study found that peg-lateral incisor is associated with palatal displacement of canine predominantly on the side of the diminutive lateralincisor[12]. This study was conducted with an objective to analyse the morphology of maxillary lateral incisors and examine the prevalence of peg-shaped lateral incisors in medical and dental students of Mardan. The study also explored the association of peg-shaped lateral incisors with other developmental anomalies in the same population.

Materials and Methods

This descriptive cross-sectional study was conducted in a public sector medical college in Mardan, Pakistan from February to March 2018. The study was approved by the ethical committee of the college. All the students of medical college (dental and medical) underwent an assessment for the prevalence of peg-shaped lateral incisor and its association with other development anomalies after informed consent was taken. The objective of the study was explained, and confidentiality was maintained. The response rate was 52.10%. Sample size was 150 (Seventy-six per cent (n= 114) of our study population was males while 24% (n=36) were male. Students' medical and dental history was taken, and an assessment was carried out by trained enumerators to determine the frequency of peg-shaped incisor and its association with other dental anomalies. Panoramic view and periapical were used wherever applicable to analyse other associated dental anomalies like peg-lateral incisors, congenitally missing teeth, dens invaginatus, impacted or transposition of teeth. Data was cross-checked, double coded to make sure it was free of error. The analysis was done using SPSS version 17. Descriptive and inferential statistics were performed with the chi-square test, and Fisher exact was applied.

Results

The geographical distribution of the study population is elaborated in table 1.1 and shows that most of the respondents were from Central Khyber Pakhtunkhwa followed by Northern Khyber Pakhtunkhwa. Peg-shaped lateral incisor was only found in male students with a prevalence of 5.3% (n=8) in our study population. P value of 0.105 shows that there is no significant association between peg-shaped lateral incisors and gender. Majority of the peg-shaped lateral incisor were seen in students from Northern part of Khyber Pakhtunkhwa (75%, n=6) followed by Central Khyber Pakhtunkhwa (12.5%, n=1) and Federally Administered Tribal Areas (FATA) (12.5%, n=1). P value was found to be 0.004 indicates a significant association between

Table 1.1: Geographical distribution of the study population

Geographical area	Frequency	Percentage
Central Khyber Pakhtunkhwa	73	48.7%
North Khyber Pakhtunkhwa	31	20.7%
South Khyber Pakhtunkhwa	17	11.3%
Federally Administered Tribal Areas (FATA)	25	16.7%
Others	4	2.7%

Table 1.2: Prevalence of dental anomalies in the study population

Dental anomalies	Frequency	Percentage
Peg-shaped lateral incisor	8	5.3%
Congenitally missing teeth	12	8%
Presence of supernumerary teeth	6	4%
Palatally displaced canine	15	10%
Others	4	2.7%

peg-shaped lateral incisors and area of residence.

The prevalence of peg lateral incur in our study was 5.3% was seen only in male students as elaborated in table 1.2. The column percentage was calculated and found 12.5% (n=1) were reported to have congenitally missing teeth, 25% (n=2) were having supernumerary teeth and 37.5% (n=3) having palatally displaced canine. Fischer exact was applied, and the p-value was calculated. Statistically, a significant association was seen the presence of peg-shaped lateral incisor and palatally displaced canine (p value=0.034), supernumerary teeth (p value=0.034) while no significant association was seen with congenitally missing teeth (p value=0.495).

Similarly, residents of North Khyber Pakhtunkhwa were having a high prevalence (n=6, 75%) followed by Central KP (n=1, 12.5%) and Federally Administered Tribal Areas (n=1, 12.5%). The results were statistically significant, and the p-value was 0.004.

Discussion

Maxillary lateral incisor is anomalous, small or found missing; their shape varies from peg shaped to barrel[13]. A study conducted in the US as reported by Shah SS found the prevalence of 0.3% peg-shaped lateral incisor in U.S subjects while the same anomaly was recorded at 0.6% in Swedish school children[13]. Our findings (5.3%) are contrary to study conducted in US and Sweden but somehow close to a finding of a study conducted by Salma and Abdel-Megid where the prevalence was found to be 9% of the sample. Interestingly the findings of our study differ from a similar study conducted in the same province but different district (Peshawar) where the prevalence was found to be 38% (n=19). Our study found that prevalence was highest in males which is contrary to study conducted in Mongoloid people where the highest prevalence was seen in women[11, 14]. One of the possible explanations for the highest prevalence in males could be that in our study population the majority of students were males (76%). However, our findings are supported by the conclusion of Suleman SS that "gender does not significantly contribute to variation in lateral incisor size and shape".

There is increasing evidence of an association of peg-shaped lateral incisor with dental anomalies[8, 15]. We found based on our study that highest prevalence of congenitally missing teeth (n=12, 8%), followed by palatally displaced canine (n=15, 10%), and peg-shaped lateral incisor (n=8, 5.3%). Our study found a strong association of peg-shaped lateral incisor with palatally displaced canine and supernumerary teeth which was statistically significant (p value=0.034). The findings were supported by a similar study conducted in the same province where a strong association of peg-shaped lateral incisor and impacted/ palatally displaced canine was seen[13].

Conclusion

We found based on our study that peg-shaped lateral incisor is more prevalent in males than females and have a strong association with palatally displaced canines and supernumerary teeth. The anomaly is more seen in Northern part of Khyber Pakhtunkhwa.

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