

Prevalence of Peg-Shaped Laterals in South Western Nigeria: A Comparison of Field and Clinic Findings

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Citation

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Abstract

Background and Aim: Peg-shaped laterals are dental anomalies that are likely to be connected to defects in certain genes. Presence of peg-shaped laterals in the mouth often occurs concurrently with other forms of dental and occlusal anomalies. The aim of this study was to determine the prevalence of peg-shaped laterals in the south western region of Nigeria. **Materials and Methods:** One thousand and seventy individuals (405 field-, and 665 clinic-based) were assessed by intra-oral examination and case files respectively for the presence of peg-shaped laterals and other dental anomalies. **Results:** Prevalence of peg-shaped laterals was found to be 1% and 2.3% in field and clinic samples respectively. Field sample showed a higher right-sided presentation than clinic sample which showed an equal distribution of right, left, and bilateral presentation. Associated dental anomalies in the clinic sample included missing contralateral tooth (40%), buccally displaced canines (30%), and rotated teeth (20%). While in the field sample missing contralateral tooth (50%) was the only recorded dental anomaly. Presence of peg-shaped laterals were significantly higher in patients presenting with class 1 malocclusion ($p < .05$). Prevalence and side of presentation was not significantly affected by gender ($P > 0.05$). **Conclusion:** The prevalence of peg-shaped laterals is significant to be of concern to dental specialists and orthodontists, more importantly appropriate treatment of associated malocclusion should be done along with the management of the peg-shaped laterals.

INTRODUCTION

The lateral incisor is the second tooth from the midline of the human dentition and plays a role in the guidance of the eruptive path of the canines (1, 2). Peg-shaped lateral on the other hand is a tooth with a conical crown size reduction, reducing from the cervical region to the incisal edge (3). Aetiology of peg-shaped laterals is linked to certain defect in the human gene expression (3). The presence of peg-shaped laterals in the dentition may lead to aesthetic, orthodontic, and periodontal problems for such individuals. More importantly, peg-shaped laterals may be associated with some form of dental malocclusion. Research has shown a significant association between peg-shaped laterals and palatally displaced canines with a prevalence of 1-2% in a given population (4, 5). Occurrence of peg-shaped laterals has also been shown to be higher among people with transpositions than those with normal dentition (6). A survey of 11-12-year-old individuals in a given community in Nigeria revealed a 1.4% prevalence of peg-shaped laterals (7). However it did not report the associated dental and occlusal anomalies occurring concurrently with such peg-shaped laterals. In addition, the selected age group was

limited and had not allowed for generalisation of the results.

In this study, both population and clinic prevalence of peg-shaped laterals as well as concurrent associated dental and occlusal anomalies have been reported.

MATERIALS AND METHODS

The study was done in Ibadan, South western region of Nigeria. Intra-oral examination under clear natural light was carried out on subjects seen at a primary health care centre (the field) to determine the presence or absence of peg-shaped laterals, and other dental and occlusal anomalies. A Peg-shaped lateral was defined as a tooth with a conical crown size reduction, reducing from the cervical region to the incisal edge. The data for the clinic was retrieved from patients' case file in the orthodontic clinic, of the University College Hospital a tertiary health institution.

A total of 1070 subjects were assessed; 405 were field-based, and 665 were from the clinic. Angles classification of malocclusion was determined using the first maxillary and first mandibular molar relationship. The presence and side of peg-shaped laterals as well as other dental and occlusal

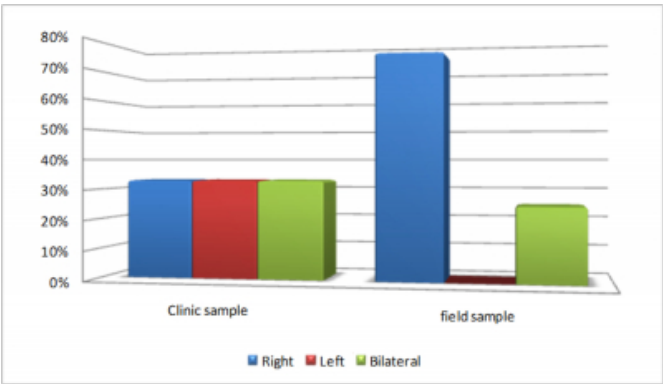
anomalies were also recorded. Data were analysed using the SPSS software, version 17 statistical package. Frequency tables were generated and statistical relationships between variables were assessed using the chi-square test.

RESULTS

The prevalence of peg-shaped laterals was 1% in field sample and 2.3% in clinic sample. The field findings showed a higher right-sided presentation (75%) as against equal unilateral and bilateral presentations (33.3% each) seen in the clinic sample (Fig. 1).

Figure 1

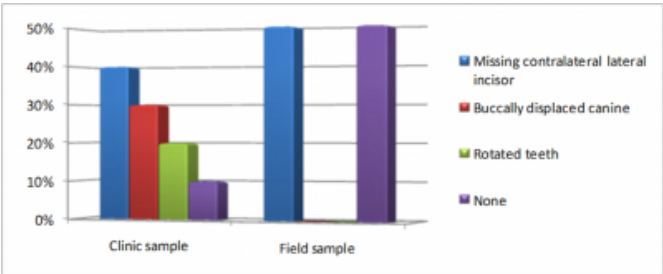
Figure 1: Presentation of peg-shaped laterals in both field and clinic sample



Associated dental anomalies included missing contralateral lateral incisors (40% of clinic sample and 50% field sample). Buccally displaced canines (30%) and rotated teeth (20%) were seen only in the clinic sample. Isolated peg-shaped laterals were seen in 10% of the clinic sample and 50% of field sample (Fig. 2).

Figure 2

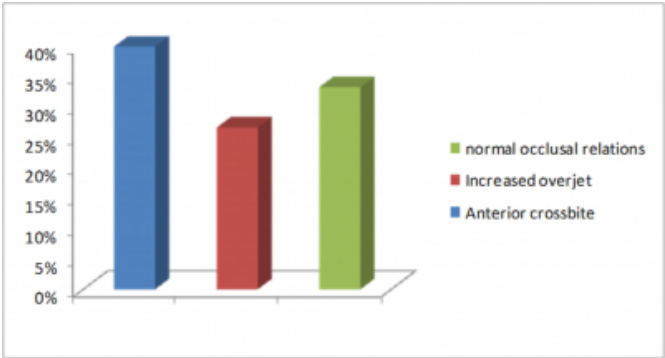
Figure (2): Associated dental anomalies in clinic and field samples



Occlusal relationships in the clinic sample included anterior crossbite (40%), increased overjet (27%) and normal occlusal relationships excluding local dental irregularities (33%). Details are presented in Figure (3).

Figure 3

Figure (3): Associated occlusal anomalies (Clinic sample only)



There was no abnormal occlusal relationship seen in the field sample.

There was a significant association between peg-shaped laterals and angles classification of malocclusion ($p<0.05$) (Table 1).

Figure 4

Table (1): Relationship between peg-shaped laterals and Angles classification of malocclusion

Peg shaped lateral	Angle's classification of malocclusion			Total n (%)
	Class I n (%)	Class II n (%)	Class III n (%)	
Present	8 (53.0)	3 (20.0)	4 (27.0)	15 (100.0)
Absent	388 (77.0)	55 (11.0)	115 (12.0)	503 (100.0)
Total n (%)	396 (76.4)	58 (11.2)	64 (12.4)	518 (100.0)

Degree of freedom =1; $\chi^2=4.584$; $p=0.032$; $n=518$

Note: Molar relationship was not recorded in some individuals

There was a significant relationship between class of malocclusion and presence of peg-shaped lateral ($p<0.05$).

The presence and site of presentation of peg-shaped laterals was however not significantly associated with gender in the clinic subjects ($p>0.05$) (Tables 2 and 3).

Figure 5

Table (2): Relationship between gender and presence of peg-shaped laterals (clinic sample)

Sex	Peg shaped lateral		Total n (%)
	Present n (%)	Absent n (%)	
Male	7 (2.3)	295 (97.7)	302 (100.0)
Female	8 (2.2)	97.8 (97.8)	363 (100.0)
Total n (%)	15 (2.3)	650 (97.7)	665 (100.0)

Degree of freedom=1; $X^2 = .010$, $p=0.921$

There was no significant relationship between gender and presence of peg-shaped laterals ($p>0.05$)

Figure 6

Table 3: Relationship between gender and side of presentation of peg shaped laterals

Sex	Side of peg shaped lateral		Total n (%)
	Unilateral n (%)	Bilateral n (%)	
Male	5 (71.4)	2 (28.6)	7 (100.0)
Female	5 (62.5)	3 (37.5)	8 (100.0)
Total n (%)	10 (66.7)	5 (33.3)	15 (100.0)

Degree of freedom =1; $X^2 = .134$; $p=0.714$

There was no significant relationship between gender and side of presentation of peg-shaped laterals ($p>0.05$)

DISCUSSION

The prevalence of peg-shaped laterals in this study was 1% field sample and 2.3% clinic sample which is similar to that reported in a previous study (8). In this study the clinic prevalence is higher than field prevalence and is associated with the presence of other dental anomalies. The higher prevalence in the clinic sample may also be associated with the higher sample size and presence of other dental anomalies which was the primary complaint. While it may be important to treat presenting dental occlusal anomalies, it is equally important that the appropriate management for peg-shaped laterals is done to avoid further complication of the malocclusion.

Clinic-based findings in this study showed a significantly higher occurrence of peg-shaped laterals in patients with

Angle's class I malocclusion compared to previous reports of higher prevalence in Angle's class II and III malocclusion (5,7). This may be because a higher percentage of patients presenting in the clinic within this environment present with Angles class I malocclusion.

In a previous study, the prevalence of peg-shaped laterals in patients with Angles class II division 1 malocclusion was reported to be 0.9%, similarly, females have also be known to present 3 times more than males (6). The findings in this study also showed a similar pattern both in prevalence and gender presentation when compared with previous studies (3-6). The higher presentation of peg-shaped laterals seen in females may be due a smaller jaw size. The prevalence of peg-shaped laterals in Angle's class III malocclusion has been reported to be about 3% with an equal sex predilection and no significant difference in either unilateral or bilateral presentations (7). In this study, however, the prevalence of peg-shaped laterals was lower in Angle's class III but higher in Angle's class I.

A higher left-sided jaw presentation of peg-shaped laterals has been reported (9). In this study, there was a higher right-sided jaw presentation in the field sample while the clinic sample showed an equal left- and right-sided jaw distribution.

Palatally displaced canines and transposition have been found to occur more in patients with peg-shaped laterals (3, 9). In this study, 30% of the clinic patients presented with buccally displaced canines, there were no palatally displaced canines and no transpositions recorded. Therefore, this study introduced another pattern of canine malpositioning associated with peg-shaped laterals compared to previous reports (3-10).

There was a significant relationship between presence of peg-shaped laterals and associated malocclusion ($p<0.05$). Though none of the clinic patients presented primarily due to peg-shaped laterals, the associated dental anomalies were significant enough to justify intervention. The presence of peg-shaped laterals in the dentition and associated dental and occlusal anomalies should be of primary aesthetic concern in this environment. However the uptake of orthodontic treatment in this environment is determined by the social class of the individual.

CONCLUSION

This study added further information to the available literature regarding the prevalence of peg-shaped laterals by

reporting a percentage of 1% field sample and 2.3% clinic sample Peg-shaped laterals were found to have a higher right-sided presentation. Buccally displaced canines were more associated with peg-shaped laterals than palatally displaced canines. A significant relationship could be found between types of malocclusion and peg-shaped laterals.

References

1. LeBot P, Salmon D. Congenital defects of the upper lateral incisors (ULI): condition and measurement of other teeth, measurement of the superior arch, head and face. *Am J Physical Anthropology* 1977;46: 231-244.
2. Broadbent BH. Ontogenic development of occlusion. *Angle Orthod.*1941;11: 223-241.
3. Becker A, Smith PR. Incidence of anomalous maxillary lateral incisors in relation to palatally displaced cuspids. *Angle Orthod.* 1981;51: 24-29.
4. Al-Nimri K, Gharaibeh T. Space conditions and dental and occlusal features in patients with palatally impacted maxillary canines: an aetiological study. *Eur J Orthod.* 2005;27: 461-465.
5. Plunkett DJ, Dysart PS, Kardos TB, Herbison GP. A study of transposed canines in a sample of orthodontic patients. *Br J Orthod.*1999;25:203-208.
6. Peck L, Peck S, Attia Y. Maxillary canine first premolar transpositions; associated dental anomalies and genetic basis *Angle Orthod.* 1993;63 :99-109.
7. Basdra EK, Kiokpasoglou MN, Komposch G. Congenital tooth anomalies and malocclusion: a genetic link? *Eur J Orthod.* 2001;23:145-151.
8. Onyeaso CO, Onyeaso AO. Occlusal/dental anomalies found in a random sample of Nigerian school children. *Oral health prev dent.* 2006; 4(3): 181-6.
9. Basdra EK, Kiokpasoglou M, Stellzig A. The class II division 2 cranio-facial type is associated with numerous congenital tooth anomalies. *Eur J Orthod.* 2000; 22:529-535.
10. Kook YA, Park S, Sameshima GT. Peg-shaped and small lateral incisors not at higher risk for root resorption. *Am J Orthod Dentofacial Orthop.* 2003;123(3):253-8.
11. Adeyemi AT, Aderinokun GA, Denloye OO. Socio-economic Status and utilization of Orthodontic services in a Nigerian Hospital. *Trop Dent J.* 2008;122:27-33.

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