

PREVALENCE OF PEG LATERALS AND SMALL SIZE LATERAL INCISORS IN ORTHODONTIC PATIENTS — A STUDY

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ABSTRACT

The purpose of this study was to determine the prevalence of peg laterals and small lateral incisors in orthodontic patients, visiting the orthodontic department, faculty of dentistry, the university of Lahore. The data (history sheets, dental casts and panoramic radiographs) of 230 patients (36.5% males, 63.5% females; mean age: 16.4 years) were randomly selected from orthodontic patient's record. Patients with cleft lip and palate, ectodermal dysplasia or having any syndrome were excluded from the study.

The prevalence of small size lateral incisors was 5.6% and the prevalence of peg laterals was 1.3%

Key words: Prevalence, small size lateral incisors, peg lateral

INTRODUCTION

By missing teeth is meant those teeth whose germ did not develop sufficiently to allow the differentiation of the dental tissues.¹ Aberrations in tooth morphology resulting from late disturbances during the differentiation process most commonly result in size variations.²⁻⁶

According to Moyers there are five principal known causes of congenital absence of teeth. Heredity, ectodermal dysplasia conditions such as rickets, syphilis and expression of evolutionary changes in the dentition.¹ Some authorities believe that, in future, man will have neither third molars nor maxillary lateral incisors just as we already have lost forth molars.

One should not forget the relationship between congenital absence of teeth and generalized tooth size diminution. When one tooth is not developing it is important to measure all of the other teeth to ascertain any genetic field effects on general tooth size. The most distal tooth within each group displays the greatest variability in size is the most apt to be congenitally missing and is most frequently abnormal in shape.

The average mesio-distal width of maxillary lateral incisor is 6.5mm. Maxillary lateral incisor is usually about 2mm narrower mesio-distally and 2mm shorter cervico-incisally than that of the central incisor, although the root is usually as long, if not somewhat longer than that of the central incisor.

Maxillary lateral incisors vary in form more than any other tooth in the mouth except the third molars.⁷ If the variation is too great, it is considered a developmental anomaly. A common situation is to find maxillary lateral incisors with nondescript, pointed form; such teeth are called peg-shaped laterals.

When the mesio-distal width of lateral is much smaller as compared to average width and it is not of typical pointed peg form, then it is called a small lateral incisor. They pose an esthetic problem just like peg laterals.

METHODOLOGY

Pretreatment panoramic radiographs, history sheets and dental casts of 230 orthodontic patients between the chronological ages of 10 and 32 years

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(mean age: 16.6 years) were examined. Sample included 84 males with a mean age of 15.9 years and 146 females with a mean age of 16.9 years (Fig. 1).

Subjects were drawn from the department of orthodontics, faculty of dentistry, the university of Lahore, Pakistan. Panoramic radiographs were used to confirm the presence and size of maxillary lateral incisors. The size of maxillary lateral incisors was later on confirmed by dental casts. Dental casts were especially used to differentiate between small size lateral incisors and the peg laterals which was difficult to assess on panoramic radiograph. Dental history sheets were reliable for documenting extractions and avulsions and to rule out the presence of any systemic or metabolic disease.

The prevalence of small and peg laterals were calculated by tooth size, side and sex. The statistical analysis was performed with SPSS version 16.0 software.

RESULTS

The total sample (230) was evaluated. Small size lateral incisors were observed in thirteen patients and peg laterals were noted in three patients. The prevalence of small size lateral incisors was 5.6% in this study. Genderwise prevalence was 3.04% and 2.06% in females and males respectively. Small size lateral incisors were observed bilaterally in 11 patients (6 were males (54%) and 5 were females (45%) and small laterals were noted in two female patients on left side only. (Fig. 2).

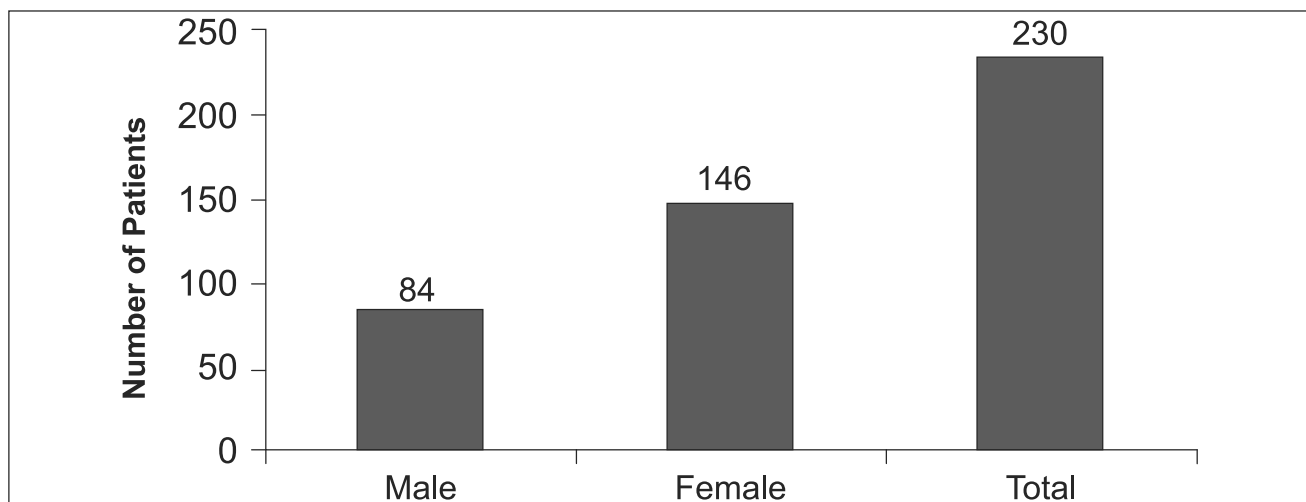


Fig 1: Gender distribution

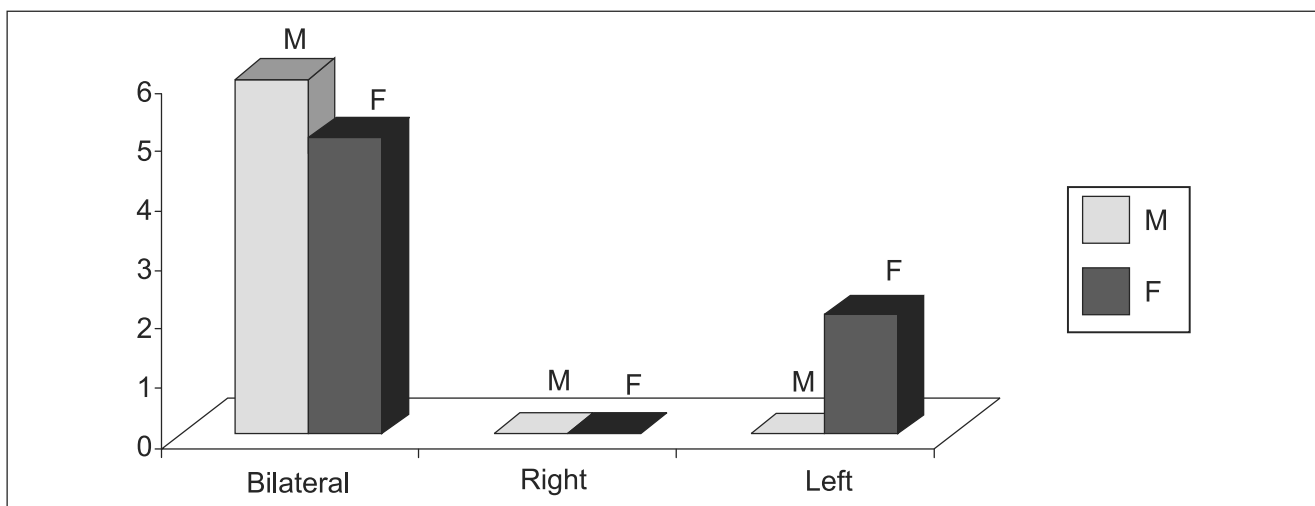


Fig 2: Prevalence of small lateral incisors (sides and gender combined)

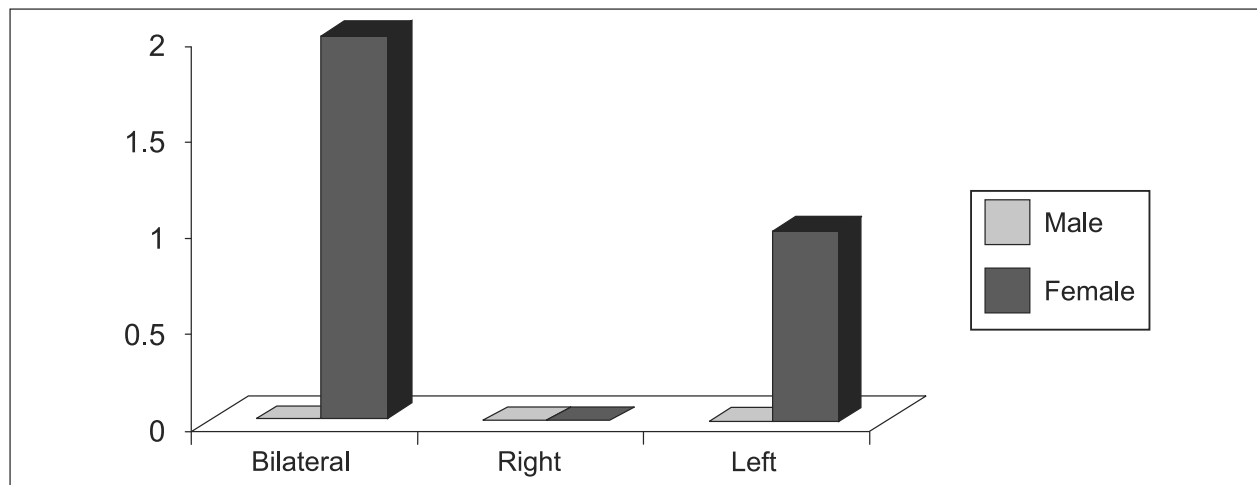


Fig 3: Prevalence of peg lateral incisors (sides and gender combined)

Prevalence of peg laterals was 1.3% in this study. Female to male ratio is 3:0. It was noted in these 3 patients, peg laterals were present bilaterally in two patients and one patient was noted with peg lateral on left side only (Fig. 3).

DISCUSSION

Maxillary lateral incisors are often missing, misshaped, or small. Particular shapes that recur have been identified (eg, peg and barrel), and systems have been established so that dental anthropologists can nominally categorize misshaped or anomalous teeth.^{8,9} Dental anomalies can result from many factors both genetic and environment. Although defects in certain genes are the most influential etiological events in the prenatal period. Post natal periods have also been blamed for anomalies in tooth dimensions, position, and number.¹⁰ Peg shaped laterals are dental anomalies that are likely to be connected to defects in certain genes. There is probably a strong component of heredity, and peg shaped lateral incisors have been linked genetically with tooth agencies.^{11,12}

The prevalence rate of peg shaped maxillary lateral incisors in the general population associated with palatally displaced canines ranges from slightly less than 1% to slightly more than 2% in one study.⁶

Peg shaped lateral incisors occur in approximately 2% to 5% of the general population, and women show a slightly higher frequency than men.¹³⁻¹⁵ Peg-shaped anomalies were found equally on the right and left, uni- or bilaterally and there were no sex differences.¹⁶

Peg-shaped malformations of the lateral incisors were found in 3% of class III patients and in 0.9% of the class III division 1 subjects in one study Basdra et al. examined the associated of congenital tooth anomalies to class II division 2 malocclusion, and concluded that this was closely related to hypodontia, impacted canines, malformed laterals, and transpositions.^{17,18} Presence of peg shaped laterals were significantly higher in patients presenting with class 1 malocclusion ($P > 0.05$) in another study.¹⁹

Peg lateral is usually associated with other dental anomalies like tooth agencies^{13,18,19} maxillary canine-first premolar transposition⁴, palatal displacement of one or both maxillary canine teeth⁶, buccally displace canine¹⁹, and mandibular lateral incisor-canine transposition.⁴ In cases with concomitant dental anomalies, the prevalence suffers significant increase from normal prevalence.^{4,6,15}

Prevalence of peg laterals was 1.3% in present study and this is in accordance with other studies.^{6,13,15,16} Female to male ratio is 3:0 in this study. In another study it was found that there were no significance sexual differences in the frequency, although the frequencies in women are, on an average slightly higher.¹⁵

In this study, 67% of patients were having peg laterals on both side and 33% were having peg lateral on left side only. It was also noted in other studies that unilateral pegs are mainly present on left side of maxilla.⁶ Ucheonye reported high right sided presentation (75%) of peg laterals in field finding as against

equal unilateral and bilateral presentation (33.3% each) in the clinic sample.¹⁹

T. Baccetti²⁰ conducted a study to reveal pattern of associations among seven types of dental anomalies (aplasia of second premolar, small size of maxillary lateral incisors, infraocclusion of primary molars, enamel hypoplasia ectopic eruption of first molars, supernumerary teeth, small maxillary lateral incisors and palatal displacement of maxillary canines) in an untreated orthodontic populations. It was observed that the group with small size of maxillary lateral incisors and the group with infra-occlusion of primary molars showed a significant association with all other examined types of dental anomalies except for supernumerary teeth.

Very little material is available on internet and in other related orthodontic journals about the prevalence of undersized or small size lateral incisors and very interestingly, it was noted in this study that the prevalence of small size lateral incisors is much more as compared to peg shaped lateral incisors.

The prevalence of small size lateral incisors was 5.6% in this present study. The ratio of bilateral to unilateral was 85%: 15%. The unilateral small size incisors were mostly present on left side only. The female to male ratio was 3:2.

CONCLUSION

- Prevalence of small size lateral incisors (5.6%) is much more as compared to peg laterals (1.3%).
- Bilateral small lateral incisors are more common as compared to unilateral one. Bilateral to unilateral ratio of small size lateral incisors is 85%: 15.3%.
- Bilateral peg is more common as compared to unilateral one. Bilateral to unilateral ratio is 15.3%: 7.6%.
- Small size lateral incisors and peg laterals are more common in females as compared to males but the difference is not statistically significant.
- In this study, unilateral peg and small laterals are present dominantly on left side and in females.

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