Original Article

Prevalence of Mandibular Incisor Agenesis in Kanpur Orthodontic Population

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Abstract

Background: Dental agenesis is the most common developmental anomaly in human. The purpose of the present study was to determine the prevalence of mandibular incisor agenesis in Kanpur Orthodontic population. **Materials and Methods:** A retrospective cross-sectional study was designed, in which records (dental casts, OPG, IOPA) of consecutive 1262 patients were evaluated. **Results:** The prevalence of lower incisor agenesis was found to be1.18%. No statistical significant difference between males and females was found. Among the lower incisors, lower left incisor (31) was found most commonly missing (four females and three males) followed by lower right central incisor 41 (two females and two males). Two cases of missing 32 (one male and one female) and two cases of missing 42 were found (one male and one female). **Conclusion:** (1) The prevalence of missing lower incisor was 1.18%. (2) The prevalence was found to be higher in females than males, but the difference was not statistically significant. (3) All unilateral cases were found in our study and left side was more involved than the right side. (4) Central incisor was more involved than the lateral incisor.

Keywords: Agenesis, Hypodontia, Mandibular incisors, Prevalence.

Introduction

Dental agenesis is defined as congenital absence of one or more teeth.[1] It is the most common developmental anomaly in human.[2] Hypodontia is a term used to describe congenital absence of one to six teeth, oligodontia is absence of more than six teeth and anodontia is absence of teeth.[3-5]

Hypodontia may adversely affect the esthetics and function.[4,6,7] The prevalence of hypodontia in different studies is different and ranges from 2.7% to 11.3%.[8,9] The prevalence of hypodontia varies according to sex, race, geographic and demographic distribution, as well as ethnic affiliation.[5,10,11]

Etiology of hypodontia may be due to multiple factors such as genetic and environmental factors. It may occur as an isolated condition or it may occur with an associated systemic condition or syndrome.

The purpose of the present study was to determine the prevalence of mandibular incisor agenesis in Kanpur Orthodontic population.

Materials and Methods

Ethical approval was obtained from the Institutional Ethical Committee (Ref. RDCHRC/ETHICS COMMITTEE/2021-22/048).

Access this article online

Website: www.jrad.co.in

DOI: https://doi.org/10.53064/jrad.2022.13.6.284

A retrospective cross-sectional study was designed, in which records (dental casts, OPG, IOPA) of consecutive 1262 patients who visited department of Orthodontics, Rama Dental College, Hospital and Research Centre, were evaluated. Patients with history of loss of tooth due to trauma and periodontal diseases were excluded from the study. Patients with developmental anomalies such as ectodermal dysplasia were also excluded from the study.

Statistical analysis

Data were collected and entered into the SPSS 17 program for statistical analysis (Statistical package for the Social Sciences, SPSS Inc. Chicago, Illinois, USA). The data were analyzed by Chi-square test. A significance level of 0.05 was considered.

Results

A total of 1262 files of orthodontic patients who visited the department of Orthodontics were examined, out of which

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Received: Oct. 10, 2022; **Accepted:** Nov. 13, 2022; Published: Dec. 16, 2022

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How to cite this article: Panda S, Sharma K, Agarwal N, Sawhny KS. Prevalence of Mandibular Incisor Agenesis in Kanpur Orthodontic Population. J Res Adv Dent 2022;13(6):1-3.

732 (58%) patients were female and 530 (42%) patients were male. Out of 1262, 15 (seven males and eight females) patients had missing lower incisors, leading to a prevalence of 1.18%. No statistical significant difference between males and females was found (Table 1).

Among the lower incisors, lower left incisor (31) was found most commonly missing (four females and three males) followed by 41 (two females and two males). Two cases of missing 32 (one male and one female) and two cases of missing 42 were found (one male and one female) (Table 2).

Discussion

Early detection of congenitally missing teeth is important for proper treatment planning and achieving a satisfactory occlusion.

Tooth agenesis is frequently associated with other oral pathologies such as late eruption, microdontia, taurodontism, transposition, and crowding.[12-15]

The present study was carried out on Kanpur Orthodontic population to determine the prevalence of hypodontia of mandibular incisors. Out of 1262, 15 (seven males and eight females) patients had missing lower incisors, leading to a prevalence of 1.18%. In a similar study, Amin[16] found the prevalence of mandibular incisors to be 1.28% in a sample of Kurdish patients seeking Orthodontic treatment. Afshar *et al*.,[17] in their study of 1883 orthodontic patients, found the prevalence of missing mandibular central incisors to be 1.98%. Vahid-Dastgerdi *et al*.[18] found that the prevalence of missing teeth was higher in anterior segment than in posterior segment in an Iranian Orthodontic population. Furthermore, in the same study, it was shown that among the patient with missing teeth, 9.6% patients had missing mandibular incisors.

Hypodontia in females was found to be higher than in males, but no statistical significant difference between males and females was found in our study which matched with the studies of Amin,[16] Afshar *et al*.,[17] and Vahid-Dastgerdi *et al*.[18]

In our study, all the cases were unilateral and no bilateral cases were found. Amin[16] also found in their study that unilateral hypodontia was more frequent than bilateral. However, Kazanci *et al*.[19] found that bilateral missing mandibular incisor was more frequently found than unilateral.

In our study, left side was more involved than the right. This finding was in contrast with the finding of Kazanci *et al*.[19] who showed that right side was more involved than the left. Their study was based on Turkish Orthodontic population. Amin[16] also showed that right side was more involved than the left.

In our study, central incisor was more involved than the lateral incisor. This finding was similar to the finding of Kazanci *et al*.,[19] Amin[16] However, Gupta and Rauniyar,[20] in their study based on Orthodontic patients of Nepal, found that lateral incisor was more involved.

Table 1: Distribution of missing mandibular incisor according to gender

Total Sample	Male	Female	Total
Number of patients	530	732	1262
Patients with missing lower incisors	7	8	15

Table 2: Prevalence of missing right and left mandibular central and lateral incisor according to gender

Gender	31	32	41	42
Male	3	1	2	1
Female	4	1	2	1

Conclusion

The following conclusions were drawn from the present study:

1. Prevalence of missing lower incisor was 1.18%
2. Prevalence was found to be higher in females than males, but the difference was not statistically significant
3. All unilateral cases were found in our study and left side was more involved than the right side
4. Central incisor was more involved than the lateral incisor.

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