

Frequency Of Hypodontia In Mandibular Teeth

Research Article

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Abstract

Hypodontia is the term used to describe the absence of one or more teeth excluding the third molars. Commonly occurs in mandibular second premolar and maxillary lateral incisors. Prevalence of hypodontia may detrimentally affect the aesthetics and function. Hypodontia most of the time may be an indication of the existence of a need for orthodontic treatment. The aim of this study was to assess the frequency of hypodontia. The study was conducted as a retrospective, university based study. 41,000 case sheets of patients who reported from June 2019 to December 2019 were evaluated. Details of patients diagnosed with hypodontia were categorised. Among patients with hypodontia, based on the etiology of missing teeth, further sorting was done to segregate only congenitally missing teeth in the mandibular arch. The parameters tabulated include age, gender and missing teeth. Data was entered in Microsoft Excel sheet, results were obtained by statistical analysis using SPSS software v20. In our study, the frequency rate of hypodontia was higher in females (57 %) than in males (42.8 %). The mandibular anteriors are the most common congenitally missing teeth with 46.9% frequency rate.

Keywords: Hypodontia; Congenitally Missing; Mandibular Hypodontia.

Introduction

Hypodontia is the most prevalent dentofacial malformation in humans [13]. This condition refers to the developmental failure of 6 or fewer teeth [16]. It may occur as a part of a recognised genetic syndrome or as non syndromic isolated trait [2]. Its phenotypical presentation is varied in terms of severity and as a result, various terms have been used to describe it. The terms used are congenitally missing teeth, tooth agenesis, hypodontia, oligodontia and anodontia [14]. Tooth agenesis refers to the developmental failure of a tooth, whereas other terms such as hypodontia are used for classifying the type of tooth agenesis. Oligodontia and Anodontia are used to describe more severe forms of tooth agenesis, typically absence of more than 6 teeth, anodontia means absence of the entire dentition [3, 15, 18].

The prevalence of hypodontia, which may be increasing in time

ranges from 1.6% to 36.5 %. Mandibular second premolars and the maxillary lateral incisors are the most commonly missing teeth [13].

Tooth agenesis is often nonsyndromic, but it can be often associated with clefts and other syndromes. Hypodontia is one of the characteristic features of certain syndromes like down's syndrome and ectodermal dysplasia. In these syndromes, there is a characteristic pattern of agenesis that is usually different from the overall population [19].

Prevalence of hypodontia may detrimentally affect the aesthetics and function. Hypodontia, most of the time maybe an indication for the existence of a need for an orthodontic treatment. Therefore, investigating the frequency of hypodontia is of significant clinical value in terms of diagnosis and treatment planning. This would be essential in preventing complications including maloc-

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clusion, periodontal damage and lack of alveolar growth [13].

Previously our team has conducted numerous studies which include in vitro studies [11], review, case report [6], survey and clinical trial [4, 5, 7, 10, 12, 17, 21, 23-27]. Now we are focusing on retrospective study, hence the present study was conducted to assess the frequency of hypodontia.

Materials and Methods

Study setting

This was a retrospective, University based Study. The patients who were diagnosed with hypodontia were included in the study. The study duration was from June 2019 to December 2019.

Sampling

41,000 case sheets of patients who reported from June 2019 to December 2019 were evaluated. Details of patients diagnosed with hypodontia were categorised. Among patients with hypodontia, based on the etiology of missing teeth, further sorting was done to segregate only congenitally missing teeth in the mandibular arch. The parameters tabulated include age, gender and missing teeth. The data were cross verified by another reviewer to minimise bias.

Data collection and Tabulation:

Data collected was tabulated in Microsoft Excel sheet.

Statistical analysis

The Excel sheet was transferred to the host computer and processed in SPSS. Chi square test was done to analyse the gender distribution of hypodontia in mandibular teeth.

Results and Discussion

Overall, of the 41,000 samples examined only 49 (0.1%) patients had congenital missing of teeth. Figure 1 represents the frequency of hypodontia. Among those with congenital hypodontia, the frequency of hypodontia was higher in mandibular anterior teeth [23] followed by maxillary anteriors (maxillary lateral incisors -19) and mandibular posteriors (mandibular premolars - 3) Figure 2 represents the gender distribution of hypodontia, the frequency of hypodontia was higher in females (57.1 %) than in males (42.8 %).

Both environmental and genetic factors attributed to the occurrence of hypodontia. These include infection, trauma and medicines as well as genes that are associated with certain syndrome.

Figure 1. Shows the frequency of hypodontia of each tooth. X axis represents the tooth and Y axis represents the number of patients with congenitally missing teeth;both maxillary and mandibular anteriors (purple), both maxillary and mandibular posteriors (grey), mandibular anteriors (green), mandibular posteriors (blue), maxillary anteriors (yellow). The frequency of hypodontia is more common in the mandibular anteriors, followed by maxillary anteriors.

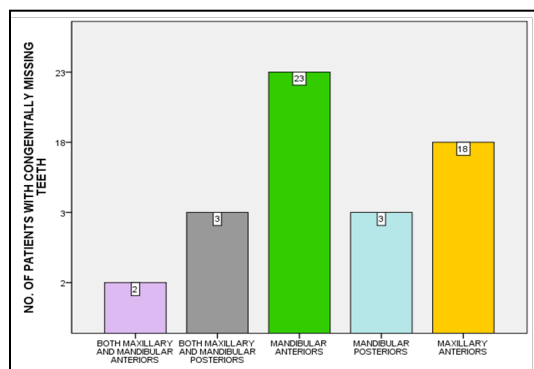
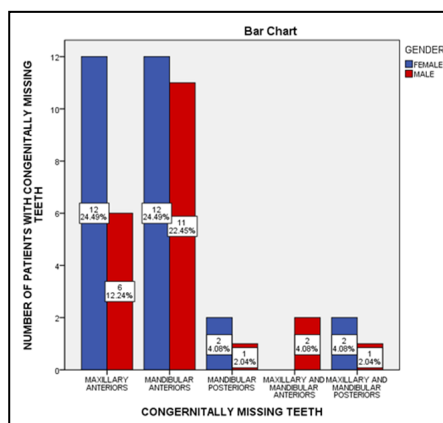


Figure 2. Shows the association of gender distribution with the frequency of hypodontia. X axis represents the missing tooth and Y axis represents the number of patients with congenitally missing teeth;female patients(blue) and male patients(red). Association tested by Chi square test p value = 0.168 (>0.05) Statistically not significant; though females have higher frequency of hypodontia than males.



Considering the high frequencies of hypodontia and its serious esthetical, physiological, functional and even emotional complication, it's early diagnosis is necessary for enabling dentist to plan alternative preventive, multidisciplinary treatment modalities [28]. Several studies conducted earlier show that the maxillary lateral incisors and second premolars are the most common congenitally missing teeth. Previous study conducted by Vahid Rakshhan et al states that the maxillary lateral incisors are the most frequent congenitally missing teeth [20]. Another study conducted by Renato et al states that the mandibular premolars have the highest frequency [22]. A study conducted by BernaGokkaya et al states that the observation should be done from 10 to 15 years of age or during the regular dental visit. This is missed out in certain cases, where the diagnosis is done in later age due to improper scheduling of dental visits [9].

The association of hypodontia with gender is shown in figure 2. The frequency of hypodontia is more common in females with 57.1 % frequency rate than in males with 42.8 % frequency rate. A study conducted by AzzaHussam et al [1] states that the prevalence of hypodontia is 1.4 times greater in males than in females which is a contradiction to our present study. However, another study conducted by Berna et al states, there is no significant difference in hypodontia between males and females.

Limitations of the study include Small sample size that cannot be generalized to a larger population. Possible manual errors that can occur during data collection. Further studies can be done in various places and etiology and treatment options can be analysed. The overall consensus of the present study adds up to the previous similar studies.

Conclusion

Our study claimed hypodontia or oligodontia to be more common among females than males and mandibular anteriors to be the teeth found missing most followed by Maxillary anteriors. Further analysis of a larger population is needed to make a decision regarding the prevalence of hypodontia.

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