

Frequency of Apertognathia in Preadolescent Orthodontic Patients

Apertognathia in Preadolescent Orthodontic Patients

Muhammad Azeem¹, Muhammad Ammar Riaz², Adeela Riaz³, Shumaila Haq¹ and Muhammad Imran Khan¹

ABSTRACT

Objective: The purpose of this study was to calculate the frequency of an apertognathia in preadolescents.

Study Design: Descriptive / Cross Sectional study

Place and Duration of Study: This study was conducted at the Department of Orthodontics, de'Montmorency College of dentistry, Lahore from 1.1.2014 to 31.12.2016.

Materials and Methods: Preadolescents with apertognathia were selected by purposive sampling technique. Plaster models of 100 patients were taken and assessed for the presence of apertognathia. The frequency of apertognathia and its percentage with respect to gender and severity grade was calculated.

Results: The frequency of apertognathia was found to be 10%. Male to female ratio was 1:2.

Conclusion: It was concluded that females are more affected by apertognathia than the males in preadolescents. The high frequency of apertognathia i.e. 10% in preadolescents suggests that there is need to focus on preventive and interceptive orthodontics.

Key Words: Apertognathia, Open bite, Preadolescent

Citation of article: Azeem M, Riaz MA, Riaz A, Haq S, Khan MI. Frequency of Apertognathia in Preadolescent Orthodontic Patients. Med Forum 2017;28(5):74-76

INTRODUCTION

Apertognathia is a absence of vertical overlapping between upper and lower incisors when the jaws are brought together. It is multifactorial in nature; different etiological factors reported in literature include sucking habits, tongue thrust, TMJ involvement, anamelogenesis imperfecta. Association of cervical vertebral column morphology and head posture issues in preorthodontic patients with apertognathia is already proven. Combining traditional techniques to correct apertognathia have been proposed. Additional techniques of apertognathia management reported in literature are occlusal bite blocks, modified protraction headgear, anterior vertical elastics, multiloop edgewise archwire therapy, and at present the use of skeletal anchorage devices. Another term used in describing apertognathia is anterior open bite (AOB). Apertognathia is classified as dental or skeletal, anterior or posterior and unilateral or bilateral.

It may classify as simple or complex. The implication of an apertognathia irrespective of its cause include aesthetic issues, speech and phonetic issues, lingual interposition during deglutition and difficulty in biting front teeth. Severity grades of apertognathia are: Moderate (0-2 mm), Severe (3-4 mm) and Extreme (more than 4 mm).

The frequency of Apertognathia ranges from 2% to 12% and varies between ethnic groups and by age and sex. In view of the fact that the frequency in different populations is different; this study was design to find out the frequency of apertognathia in preadolescents and its gender distribution.

MATERIALS AND METHODS

This study was conducted at the Department of Orthodontics, de'Montmorency College of Dentistry, Lahore in which orthodontic plaster models of 100 untreated patients, between the chronological ages of 6 and 12 years and irrespective of gender, were included to determine the frequency of apertognathia. Duration of this study was January 2014 to December 2016. The inclusion criteria were, patients having no previous orthodontic treatment and presence of AOB, whereas patients with history of tooth extraction and having craniofacial syndromes were excluded. The amount of AOB was confirmed by measuring interincisal distance with digital vernier callipers on plaster models. The data was analyzed in Statistical Package for the Social Sciences software package (SPSS) 20. The mean age and gender distribution among the selected sample was calculated

¹. Department of Orthodontics, de'Montmorency College of Dentistry, Lahore

². Department of Orthodontics, RHC Machiwal, District Vehari.

³. Department of Orthodontics, BHU, District Vehari

Correspondence: Muhammad Azeem, Assistant Professor, Department of Orthodontics, de'Montmorency College of Dentistry, Lahore.

Contact No: 0345-8409007

Email: dental.concepts@hotmail.com

Received: March 27, 2017;

Accepted: April 29, 2017

RESULTS

The mean age of the patients was 9 years. Out of total sample of 100, 10 (10%) patients had open bite malocclusion. Out of 10, 4 (40%) were males while 6 (60%) were females. 80 % had moderate open bite of <1mm and 20% had >1mm anterior open bite. The male to female ratio was found out to be 1:2. (Table No.1)

Table No. 1: Frequency of Apertognathia among patients (N=100)

Parameter	Frequency
Apertognathia patients	10 (10 %)
Males having Apertognathia	4 (40 %)
Females having Apertognathia	6 (60 %)
<1mm Apertognathia	80%
>1mm Apertognathia	20%

DISCUSSION

The incidence of apertognathia in our study was found to be 10%. The results of this study revealed that moderate type was more prevalent than severe type of Apertognathia. The male to female ratio in our study was 1:2. This is close to the Belgian ratio of 2:3 but in contrast to the findings of certain studies, where no gender differences were found.^{17,18}

Although several reported studies concluded the frequency of apertognathia in 6-12 year old patients, the findings are difficult to compare and contrast; in part because of different methodologies, age differences of sample, interexaminer variations, and the different sample sizes. Frequency of apertognathia in the present study was found out to be lower than that reported in Argentinean, Uganda, Hawaii and Kuwait, where the studies revealed the percentage range of 2-4%.¹⁹⁻²² However, results are similar to certain studies where frequency of apertognathia was found out to be in range of 8-10%.²³⁻²⁶

No study has been reported specifically in our Punjab population regarding frequency of apertognathia in preadolescent subjects. Results are similar to those of Ahmed et al. where they found frequency of apertognathia in preadolescent subjects of Hyderabad population at 8% with male to female ratio of 1:3.²⁷

The limitation of this study is small sample size; further large scale studies are suggested. We did not investigate etiological causes of apertognathia, nor did we observe whether the apertognathia was skeletal or dental in origin. We will focus on these aspects in the future studies.

CONCLUSION

It was concluded that Apertognathia is more common among females than males in preadolescents. The high frequency of Apertognathia i.e. 10% in preadolescents

suggests that there is need to focus on preventive and interceptive orthodontics.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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