

FREQUENCY OF ANTERIOR OPEN BITE IN PREADOLESCENT PATIENTS REPORTING FOR ORTHODONTIC TREATMENT

Khalil Ahmed ^a, Rafia Shah ^b, Qamar un nissa ^c

a,b. BDS, MSC Student in LUMS Jamshoro , Hyderabad

c MCPS, Associate professor , LUMS jamshoro , Hyderabad

ABSTRACT

Introduction: Failure to overlap the teeth can be seen in orthodontics OPD on routine basis. This is some time very alarming as it can lead to vertical excess which need to be treated by surgery. **Objective:** To determine the frequency of Anterior open bite in preadolescent subjects **Material & Methods:** It's a Descriptive Cross sectional study This study was conducted at orthodontic department Liaquat University Hospital, Jamshoro/Hyderabad from February 2008 to November 2009. Preadolescent patients with anterior open bite were selected for the study by purposive sampling technique. Dental cast and a brief history of 118 patients were taken after informed concern and fulfilling inclusion criteria. Dental casts were assessed for the presence of anterior open bite. The frequency of anterior open bite and its percentage with respect to gender and age was calculated. **Results:** The frequency of open bite was found to be 8%, from these 3% patients had anterior open bite of less than 1 mm, while 5% patients had anterior open bite of between 1.1 – 2 mm. Male to female ratio of patients having anterior open bite was 1:3. **Conclusion:** The value of high incidence of anterior open bite in preadolescents suggest that there is need to intensify oral health education in our environment, targeted at both parents and children to enable them benefit from interceptive orthodontic care which has numerous advantages.

Key words: Anterior open bite, preadolescent, frequency.

Correspondence: Khalil Ahmed email: vision_782yahoo.com

INTRODUCTION

Lack of vertical overlap of lower incisors by the uppers produces the existence of anterior open bite. Whereas incomplete overbite is a slight alternate of anterior open-bite, where incisal overlap still exist with lack of lower incisor contact with either upper incisor or palate ^{1,2}

The features like the partial eruption of the incisors, abnormal size of lymphoid tissue provoking alterations in the tongue's posture, persistence of infantile swallow, and the occurrence of oral habits produces the frequency of open-bite up to 17% in the mixed dentition. ^{4,5}

Several authors indicate decrease in incidence with the age, stabilizing around 2% in Caucasian and 16% in black African-American teenagers. ⁶ This decrease accounts for normal occlusal development, neural maturation of the child favoring the

cessation of oral habits, the decrease in size of adenoids, and the establishment of normal adult swallow. ^{7,8}

It is classified as dental or skeletal. It may occur as simple or complex.

In the etiology of the anterior open-bite there are factors related to oral habits, abnormal size or function of the tongue, oral breathing, vertical growth pattern

and congenital or acquired diseases¹¹. Among the most frequent habits are finger-sucking, pacifiers, altered labial postures and tongue habits.^{9, 10}

Based on severity, vertical separation of 0-2 mm is moderate, 3-4mm is severe and more than 4mm is considered extreme. The treatment of the open-bite in the late mixed dentition, with a severe tongue thrust or posture problem, may be unsuccessful, and depends on the severity of the malocclusion and the possibility of dentoalveolar compensation.^{11,12} In addition, a long retention phase is necessary before abnormal perioral muscle function can be reduced.¹³ keeping in view the significance of anterior openbite in orthodontic diagnosis and treatment planning, among Pakistani population sample ,it becomes essential to find the frequency of anterior open bite.

MATERIALS AND METHODS

Study was carried out in preadolescent patients visited O.P.D of orthodontic department LUMHS for treatment. A total of 127 preadolescent patients presenting between February 2008 to November 2009.

Patient selection of subjects was found to be irrespective of their gender. The inclusion criteria for subjects consisted Patients having no previous orthodontic treatment, craniofacial syndromes, whereas patients with history of tooth extraction were excluded. Nine patients were excluded from the study because they did not fulfill the inclusion criteria. Dental records of the remaining 118 patients were screened for the presence of anterior open bite. The mean age of the patients presenting with open bite was 8.5 -3 years Statistically the data was analyzed using SPSS (10.0).

RESULTS

Total 118 subjects were included in this study. The calendar age range of the sample was 6– 12 years with a mean age of 8.5 years. The distribution of sample into different age groups and their further subdivision into gender is shown in Table 1.

TABLE 1: AGE AND GENDER DISTRIBUTION OF THE SAMPLE

Age years	Gender					
	Male		Female		Total	
	n	%	n	%	n	%
6	5	35.7	9	64.2	14	11.9
7	8	38	13	61.9	21	17.7
8	10	34.5	19	65.5	29	24.6
9	6	31.5	13	68.4	19	16.1
10	5	35.7	9	64.2	14	11.9
11	6	42.8	8	57.2	14	11.9
12	4	57.14	3	42.9	07	5.9
TOTAL	44	37.2%	74	62.7%	118	100

TABLE 2: SUBJECTS HAVING VARIOUS DEGREE OF ANTERIOR OPEN BITE

Amount of open bite in mm	Frequency	Percentage%
< 1mm	3	3%
1.1 to 2mm	6	5%
Total	9	8%

TABLE 3: GENDER DISTRIBUTION OF ANTERIOR OPEN BITE PATIENTS

Gender	< 1mm	1.1 to 2mm	Total
Male	1	2	3
Female	2	4	6
Total	3	6	9

TABLE 4: AGE DISTRIBUTION OF ANTERIOR OPEN BITE PATIENTS

Age years	Anterior Openbite		
	< 1mm	1.1 to 2mm	Total
9	2	2	4
10	0	2	2
11	1	1	2
12	0	1	1
Total	3	6	9

DISCUSSION

The outcome of current research shows, varying degree of anterior open bite in around 7 % of the preadolescent patients (Table 3). Out of these seven patients, six patients were with (5%) anterior open bite associated with habit, whereas three of the patients were with (3%) anterior open bite due to skeletal nature.

Although several published studies illustrate the frequency of anterior open bite in preadolescent patients ,the findings of which are difficult to

compare and contrast ; in part, because of variable methodology, age variation of the studied populations, examiner subjectivity, specific objectives, and the dissimilar sample sizes.

Result of the current study is parallel to the outcome of the following studies.

Otuyemi as well as Abidoye¹⁵ carried out an study in rural and suburban Nigerian school childrens .they reported 7 and 7.3% anterior open bite in preadolescents ..In an other study carried out by Peter M Nganga,¹⁴ Florence Ohito, Bjorn Ogaard and Jakob Valderhaug in Kenyan preadolescent sample found 8

% of anterior open bite Eva Tausche and Winfried Harzer¹⁷ in his study found 17.7% of anterior open bite in preadolescent sample in Germany. Antanus Sidlauskas and Kristina Lopatiene among school children originated 3.46 % anterior open bite.¹⁸

Likewise in Pelotas, Southern Brazil the frequency of anterior open bite in a sample of 359 children was found 46.2%¹⁹. This is because of differences in sample size, population and the methodology being used. Proffit et al. reported a prevalence of 3.5% in patients from 1-17 years of age.

However no study has been reported specifically in our Pakistani population regarding prevalence of open bite in preadolescent subjects. Although few studies have been published in mixed population subjects. A study conducted by Hameedullah, Bushra and Amir⁹ in *Armed Forces Institute of Dentistry (AFID), Rawalpindi*, they originated an incidence of 4 % of anterior open bite. Similarly within a study carried out by waheed, Saad and Saqib¹² in Faculty of Dentistry

Lahore, found 5% prevalence. The results of the present study showing high value of prevalence, strengthens this theory that Open bite is mainly governed by racial factors more than the dental skeletal features. Hyderabad is a multiethnic city and this is the main reason where results of prevalent studies found to be with high variation as compare to the other cities of Pakistan. This study also emphasizes to ensure the awareness of parents regarding bad effects of habits on occlusion of their kids when planning orthodontic services in Pakistan.

CONCLUSIONS

The value of high incidence of anterior open bite (8%) in preadolescents suggest that there is need to intensify oral health education in our environment, targeted at both parents and children to enable them benefit from interceptive orthodontic care which has numerous advantages.

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