PREVALENCE OF MAXILLARY LABIAL FRENUM POSITION AND RELATED TO DAISTEMA AT MIXED DENTITION IN ZLITEN PRIMARY SCHOOLS STUDENTS

Ahmed Aref Abuhajar [1*], Salah Adeen M. Alrshah [2],

Mohamed Farg Alshwerf [3]

[1]Orthodontic Dep., Dental College, Alasmarya Islamic University, Zliten, Libya
[2]Pediatric Dentistry Dep., Dental College, Al-asmarya Islamic University, Zliten, Libya
Corresponding author:aaask1980@gmail.com

ABSTRACT

Labial frenum is "fibrous band of tissue attached to the bone of the maxillae" one of the most variable structures in the oral cavity, and it changes in shape, size, and position during growth.(756) patient were chosen randomly (328 male and 428 female) between age 6 - 9, in zliten at primary school distribution geographic area north east west south from the city .the patient were examined using direct visual method under torch light by reflecting The upper lip with index finger and thumb of both hands, and classified according to "Mirko et al" the data obtained were analyzed statistically using Chi-square test & ANOVA test. There were increase type (A) by age type (B&C) decrease but type (d) extend to make daistema deferent between age. But by gender type (A &d) females more than males and type (B&C) males more than females ($p<0.05$).

Keywords: Labial frenum,Mirko et al classification,chi-square test&Anova test,daistema.

1. INTRODUCTION

The maxillary labial frenum known also as (frenulum labii superioris) it is a mucous membrane fold that connects the upper lip to the alveolar mucosa, gingiva, and the underlying periosteum [1].One of the most variable structures in the oral cavity, and it will be changed in shape, size, and position during growth.

Histologically, it is made up of loose fibrous connective tissue, running in an anteroposterior direction and merges subcmucsal fiber of the upper

lip.[2] ; however, the controversy regarding the histology of frenum still remains [3] “the primary function is to provide stability to the upper lip, lower lip, and tongue [4].

Abnormal frenum attachment has also been association with various syndrome pyloric stenosis, holoprosencephly, ellis-van creveled syndrome….etc. [4]The maxillary labial frenume is considering one of the major etiological factor for diastema if other associated dental condition persist.[5]

Hence, the present study was undertaken to evaluate the prevalence of different type of frenum according to age until 9 years old.

2. MATERIAL AND METHOD

The sample were (756) individuals aged 6 to 9 years randomly selected from primary school distribution geographic area north east west south from the Zliten city. Clinical examination was using diagnostic instrument, visual method under torch light by reflecting the upper lip with index finger and thumb of both hands the figure (1), classification was according to “Mirko et al” figure (2). And the data analysis was by Chi square test / ANOVA test. By intern zaliten college.

Figure (1)

Figure (2)

A) Mucosal frenal attachment :(b) Gingival frenal attachment: (c) Papillary frenal attachment: (d) Papillary penetrating frenal attachment.

The following tables (1, 2, 3) explain how we distribution the studied cases.

TABLE (1) DISTRIBUTION OF THE STUDIED CASES ACCORDING TO AGE (N = 756)

Age (years)	No.	%
6	64	8.5
7	240	31.7
8	272	36.0
9	180	23.8
Min. – Max.	6.0 – 9.0	
Mean ± SD.	7.75 ± 0.91	
Median	8.0	

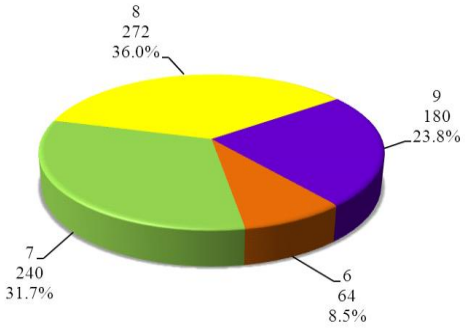

Figure (3): Distribution of the studied cases according to age (n = 7

TABLE (2):-DISTRIBUTION OF THE STUDIED CASES ACCORDING TO SEX (N = 756)

Gender	No.	%
Male	328	43.4
Female	428	56.6

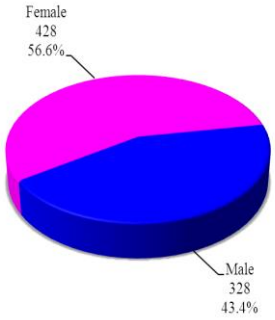

Figure (4):- Distribution of the studied cases according to sex (n = 756)

TABLE (3): DISTRIBUTION OF THE STUDIED CASES ACCORDING TO TYPE OF FRENUM ATTACHMENT (N = 756)

Type of frenum attachment	No.	%
Type A	31	4.1
Type B	451	59.7
Type C	198	26.2
Type D	76	10.1

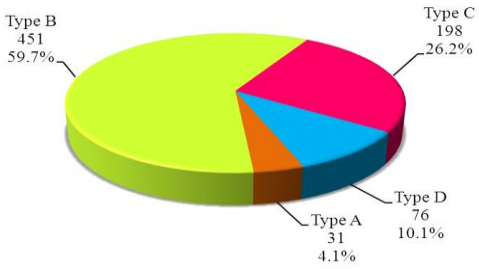

Figure (5):-Distribution of the studied cases according to type of frenum attachment (n = 756)

3. RESULTS

The result shows variation in size frenum type (d) that means the maxillary frenume type (D) increase in size according to growth that make daistema but type (c) decrease type (B) is not change type (a) less increase than type (d).

In the figure (6) the relation between sex & age are equal (0.8%), Chart 5 show type (A, 8, 13%) increase by age but type (B, 7, 88%/ C, 7, 63%/ &D, 7, 17%) decrees and type (d) incident to make a daistema by age. So by age frenume decreases except type (A) increase

TABLE (4): RELATION BETWEEN SEX AND AGE

	Gender				Test of Sig.	P
	Male (n = 328)		Female (n = 428)			
	No.	%	No.	%		
Age (years)						
6	25	7.6	39	9.1	1.057	0.787
7	101	30.8	139	32.5		
8	120	36.6	152	35.5		
9	82	25.0	98	22.9		
Min. – Max.	6.0 – 9.0		6.0 – 9.0		t= 1.010	0.313
Mean ± SD.	7.79 ± 0.91		7.72 ± 0.92			
Median	8.0		8.0			

^{2}: **Chi square test** **t: Student t-test**
p: p value for comparing between the two categories

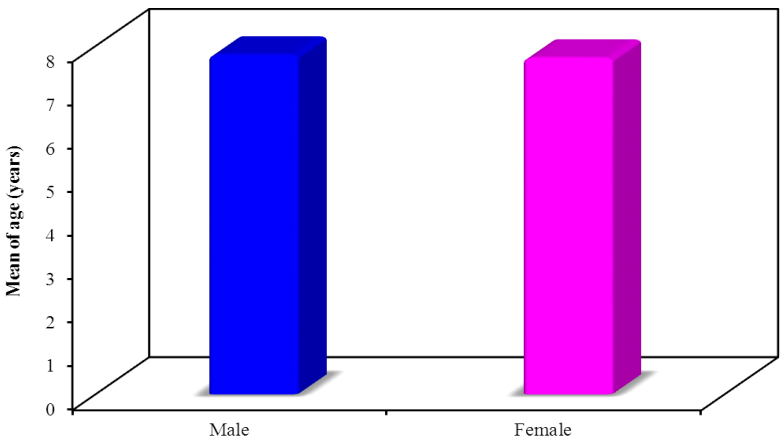

Figure (6): Relation between sex and ag

TABLE (5): RELATION BETWEEN TYPE OF FRENUM ATTACHMENT AND AGE

	Type of frenum attachment								**Test of Sig.**	**P**
	Type A (n = 31)		**Type B (n = 451)**		**Type C (n = 198)**		**Type D (n = 76)**			
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**		
Age (years)										
6	4	12.9	28	6.2	17	8.6	15	19.7	χ^2 = 72.595*	<0.001*
7	3	9.7	134	29.7	65	32.8	38	50.0		
8	9	29.0	154	34.1	91	46.0	18	23.7		
9	15	48.4	135	29.9	25	12.6	5	6.6		
Min. – Max.	6.0 – 9.0		6.0 – 9.0		6.0 – 9.0		6.0 – 9.0		F= 17.176*	<0.001*
Mean ± SD.	8.13 ± 1.06		7.88 ± 0.91		7.63 ± 0.81		7.17 ± 0.82			
Median	8.0		8.0		8.0		7.0			
Sig. bet. Grps	p_1= 0.421, p_2= 0.018*, p_3 <0.001* p_4= 0.005*, p_5 <0.001*, p_6= 0.001*									

^{2}: **Chi square test**
F: **ANOVA test**, Pairwise comparison bet. Each 2 groups was done using Post Hoc Test (Turkey)
P: p value for comparing between the different categories
p_1: p value for comparing between Type A and Type B
p_2: p value for comparing between Type A and Type C
p_1: p value for comparing between Type A and Type D
p_1: p value for comparing between Type B and Type C
p_1: p value for comparing between Type B and Type D
p_1: p value for comparing between Type C and Type D
*: Statistically significant at $p \leq 0.05$

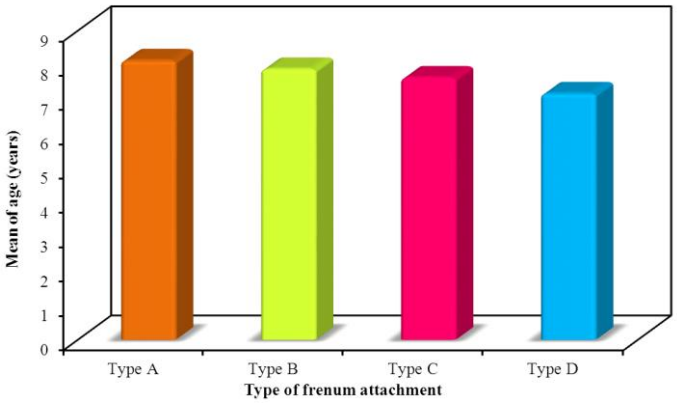

Figure (7): Relation between type of frenum attachment and age

Chart 6 shows type (A) and (C) in females more than males , type (B) and (D) males more than girls .chart 7 the relation between type of frenum attachment and age in males and feamales shows p<0,05.

TABLE (6): RELATION BETWEEN TYPE OF FRENUM ATTACHMENT AND SEX

	Gender				□□	P
	Male (n = 328)		Female (n = 428)			
	No.	%	No.	%		
Type of frenum attachment						
Type A	2	0.6	29	6.8	18.982*	<0.001*
Type B	208	63.4	243	56.8		
Type C	83	25.3	115	26.9		
Type D	35	10.7	41	9.6		

□: **Chi square test**
p: p value for comparing between the two categories
*: Statistically significant at p ≤ 0.05

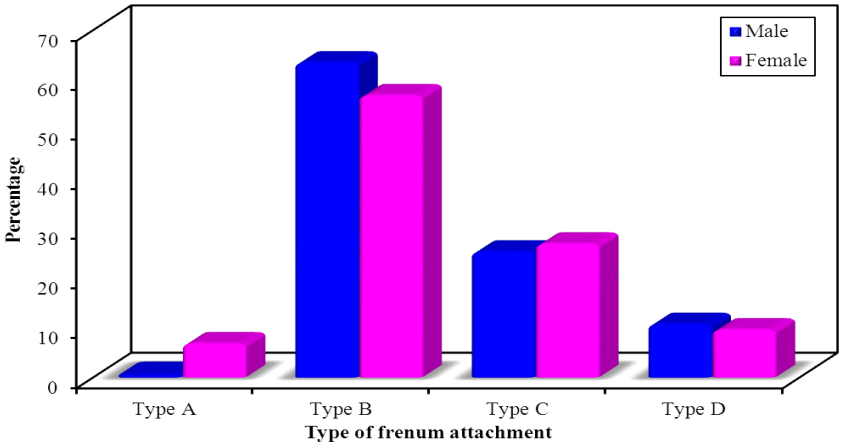

Figure (8): Relation between type of frenum attachment and sex

TABLE (7): RELATION BETWEEN TYPE OF FRENUM ATTACHMENT AND AGE IN MALES AND FEMALES

Age (years)	Type of frenum attachment								□□	P
	Type A		Type B		Type C		Type D			
	No.	%	No.	%	No.	%	No.	%		
Male	**(n = 2)**		**(n = 208)**		**(n = 83)**		**(n = 35)**			
6	2	100.0	7	3.4	8	9.6	8	22.9	43.516*	MCp <0.001*
7	0	0.0	59	28.4	25	30.1	17	48.6		
8	0	0.0	75	36.1	38	45.8	7	20.0		
9	0	0.0	67	32.2	12	14.5	3	8.6		
Female	**(n = 29)**		**(n = 243)**		**(n = 115)**		**(n = 41)**			
6	2	6.9	21	8.6	9	7.8	7	17.1	43.573*	<0.001*
7	3	10.3	75	30.9	40	34.8	21	51.2		
8	9	31.0	79	32.5	53	46.1	11	26.8		
9	15	51.7	68	28.0	13	11.3	2	4.9		

^{2}: **Chi square test** MC**: Monte Carlo**
p: p value for comparing between the different categories
*: Statistically significant at $p \leq 0.05$

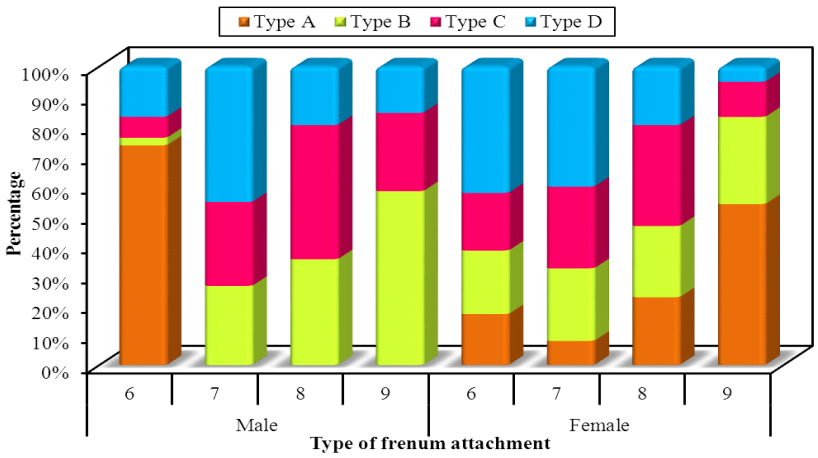

Figure (9):Relation between type of frenum attachment and age in males and females

4. DISCUSSION AND CONCLUSION

Prevalence of deferent types of maxillary frenum attachment in relation to age is similar to that of gender. The different that is clear in the type C & D clearer 9years and up and by age increase all types.

The primary role of the frenum is to provide stability to the upper lip and to maintain a balance between the growing bones of the maxilla [6].

During the oral examination the dentist ignore or does not care about the frenum, for assessing its morphology and attachment. Hence it has been seen that an abnormal frenum can lead to diastema. This paper highlighted the different gender and age labial frenum attachment seen.

According to Mirko et, in the maxillary arch 70% of the patients presented with mucosal type of labial frenul attached while in 30% of the patients, gingival type was seen.

Placke (Placek et al, 1974) and Janczuk and Banach, (1980) study there were found the mucosal type of frenum attachment was the most common in teens respectively. That because the sample ages were more than 11 years but in our research up to 9 years that was we recommended to be older than our sample ages. In similar research done.

Linda Christabl et al. It was found that the gingival type of maxillary frenum attachment to be the most common, compering to this research there research more accurate that might be due to sample size. In a study done by Lindy(1970) and Popvich, the papillary penetrating type decrease with age which supporting our study .bot in Boutsi (2011),study shows papillary penetrating type was decrease as the age increase. May be due to the growth of alveolar process in coronal direction, the apical margin of frenum, which

led to server consequences if the papillary type still presents even after mixed dentition. The limitation of this study is the age is up to 9 years old must be older and sample not equal by gender.

That why the dentist should be care about examine the type labial frenum attachment and morphology variation during their clinical examination to avoid unnecessary treatment.

5. RECOMENDATION

- The sample selection must be equal by gender males and females to have accurate result.
- The age of sample selection also must be includes older than 9 years old.
- Have a more surprises for children to make them happy and motivate them.

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