World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-24, July 2023
ISSN: 2749-3644

ASSESSMENT OF MICROFLORA AND INITIAL ORAL HYGIENE IN UNILATERAL CLEFT NOSE AND PALATE

Kubaev Aziz Saidolimovich
Associate Professor of the Department of Maxillofacial
Department of Surgery of the Samarkand Surgery of the Samarkand State Medical University
Tuksonboev Nurmukhammad Hamza ugli
Intern Assistant of the Department of Maxillofacial Surgery of the Samarkand State Medical University

Article history:

Received: May 16th 2023
Accepted: June 16th 2023
Published: July 18th 2023

Abstract:

Literature data suggest that patients with cleft lip and/or palate have a higher prevalence of dental caries compared to the general population. There are several possible reasons for these clinical manifestations. Patients in this category often breathe through the mouth, which causes dry mouth and reduced physiological cleaning of the teeth with saliva. Incorrect bite increases the time it takes to clear the mouth of food and reduces the effectiveness of oral hygiene methods. A defective palate and palatopharyngeal insufficiency may cause regurgitation of saliva and food with irritation of the sinus mucosa. Ahluwalia et al. reported higher levels of caries-associated microorganisms, Streptococcus mutans and Lactobacillus, in the oral cavity of children with clefts. Compared with the normal population, the nose and oropharynx of children with uncorrected cleft lip and palate are at increased risk of colonization by bacterial pathogens, especially β-hemolytic streptococci and Staphylococcus aureus.

Keywords: Oral cavity, Streptococcus mutans and Lactobacillus

INTRODUCTION: The oral and nasal cavities, separated by the palate, are independent ecosystems that provide various favorable conditions for different types of microorganisms. Our hypothesis is that disruption of tissue continuity in patients with palatine cleft palates will lead to a change in the composition of normal microflora in both ecological zones. Several microbiological studies were conducted to compare the bacteriology of sites with and without a cleft, but all of them depended on the cultivation method focused on specific types of microorganisms, which has a limitation on studying the ecosystem profile. Accordingly, weconductedea culture-independent studye to determine the microbial profile of children with unilateral RGN.

RESULTS ANALYSIS OF THE ORAL MICROFLORA STATUS IN UNILATERAL RGN

For this analysis, 2 groups were formed: the 1st group included patients with unilateral RHN (n=20), while the 2nd control group included children without the presence of this pathology(n=20). The distributionse by average age, gender, and number of erupted teeth between the two groups are shown in the table. At the same time, there were no significant differences in this initial characteristic.

Comparative initial characteristic (n=40; 20/20)

Parameter	**Main group (n=20)**	**Control group (n=20)**	***p***
Age, months Sr±CO	16.8±5.7	18.5±3.2	0.285*
Gender, n	11/9	10/10	0.984+
Eruption of teeth, n Cp±CO	12.8±3.7	13.7±2.8	0.387*

Note: Cp is the average value, CO is the average deviation,
* - nonparametric Man-Witney Y-test, +Fischer test

10 microbe species were identified and the frequency of their distribution in different types of samples between the two groups was analyzed. According to the results of a bacteriological study of microflora seeding from the oral and nasal cavity, the microflora profile in patients withacute secondary nasal deformity in patients with this congenital anomaly statistically significantly changed compared to the control group. In particular, in the control group, Gemella, Lautropia , and Neisseria species predominated in saliva Neisseria (for both, p=0.02727), while Lautropia and Bacillus species were significantly less represented in the saliva samples c of the RGN group (p=0.03535). Dolosigranulum was the most

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-24, July 2023
ISSN: 2749-3644

predominant genus in the nasal cavity in the control group (p=0.02424). Bacillus species also appeared less frequently in the saliva and nasal cavities of patients in the main group (p=0.03232). Streptococcus, Staphylococcus , and Moraxela species became much more predominant in the nasal cavity in the main group than in the control group (p=0.019, p=0.037, and p=0.014, respectively).

Distribution of bacterial species of the detected microbial species in the oral cavity and in nasal samples depending on the presence of unilateral RGN (n=40; 20/20/2))

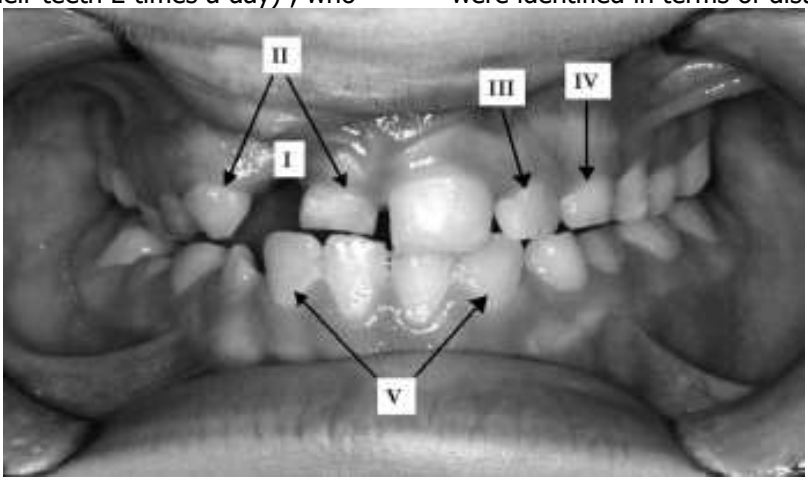
Parameter	Main group % (n=20)		Control group % (n=20)	
	Spittle	Saliva	Nasal	sample Saliva Nasal
sample Streptococcus+*	100	80	20	20
Staphylococcus*	0	80	0	10
Moraxela*	0	70	0	10
Gemella sanguinis	100	40	80	30
Neisseria subflava	70	40	90	50
Dolosigranulum+	0	40	0	90
Rothia	40	10	50	20
Lactobacillus+*	20	20	70	70
Corynobacterium	0	40	0	70
Lautropia*	30	20	80	20

Note: RGN-cleft lip and palate, + - statistically significant difference between saliva samples, * - statistically significant difference between nasal samples

RESULTS OF THE ANALYSIS OF THE INITIAL STATE OF ORAL HYGIENE IN UNILATERAL RGN

For the purpose of comparative study of the state of oral hygiene, 2 groups were formed: group 1 (the main group) consisted of patients with unilateral RGN (n=20), who strictly observed the rules of personal oral hygiene (brushing their teeth 2 times a day) , who underwent dental examination and fluoridation of their teeth – 1 time in 3 months. Group 2 (controlgroup) included children with this pathology, but who did not follow or routinely did not follow the above measures.

Visual examination was used in each group of patients. For comparison, five areas of the oral cavity were identified in terms of distance from the cleft area.



5 areas of the oral cavity. I - teeth in the cleft area; II-teeth adjacent to the cleft; III-teeth of the upper jaw on the opposite side corresponding to teeth in the side of the cleft; IV-tooth corresponding to the distal tooth itself in the side of the cleft; and V - teeth on the lower jaw corresponding to teeth in the side of the cleft.

The following periodontal parameters were studied:

1) Determination of the approximate plaque index (API) according to Lange et al. using a probe,

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-24, July 2023
ISSN: 2749-3644

saline and lighting (scores: "+" = present, "-" = absent). At the same time, in areas I and V, a higher index of one of the two possible teeth was recorded.

2) Determination of the public periodontal index (CPI) according to the questionnaire for assessing oral health, developed in Geneva in 1997 [195; c. 66]. The scores ranged from 0 to 4, where: 0 - healthy; 1 - bleeding is observed either directly or after probing; 2 - the calculus was found during probing, but the entire black strip on the probe is visible; 3 - pocket 4–5 mm (gingival margin within the black band on the probe); 4 - pocket 6 mm or more (black strip on the probe is not visible). At the same time, a higher index of one of the two possible teeth was recorded in areas I and V of the oral cavity.

3) The amount of gum recession or overgrowth (the distance from the free edge of the gum to the enamel joint) using an orthodontic ruler.

4) Tooth mobility was assessed from 1 to 3. Physiological tooth mobility was not recorded

PLAQUE INDEX. The obtained data on plaque indices calculated for the I-V areas of the teeth are presented in the table. Satisfactory oral hygiene (in all areas of the oral cavity - I-V) (API ≤40%) was detected in 70% of patients in the main group and in 20% of patients in the control group (p=0.025). Unsatisfactory (API 40-70-70%) or poor (API >70%) oral hygiene was significantly more common in patients in the control group (80% vs. 30%, respectively; p<0.05). The highest level of plaque formation (main group 41.2%; control group 89.5%) was observed in area II (teeth bordering the cleft). This was most likely caused by crooked tooth growth near the crevice, which made brushing your teeth more difficult. The lowest incidence of poor oral hygiene was observed in patients of the main group (20%) in relation to the opposite tooth a, corresponding to its tooth in the cleft (area III), compared with 65% of poor dental hygiene of the lower jaw (area V), noted in the control group. There were statistically significant differences in the frequency of plaque formation between the groups when comparing all areas of the upper jaw teeth (p<0.05). A slight difference in the teeth of the lower jaw can be explained by the fact that surgical interventions on the lower jaw are not performed.

Comparison of the approximate plaque index (API) between two groups of patients in 5 areas of the oral cavity

Groups	**API Groups %**	**Main group**		**Control group**		***p***
		n=20	**%**	**n=20**	**%**	
Area I	<40% >40% total	7 2 9	77,7 22,3 100,0	3 7 10	30,0 70,0 100,0	**0,039**
Area II	<40% >40% General	information 10 7 17	58,8 41,2 100,0	2 17 19	10,5 89,5 100,0	**0,024**
Area III	<40% >40% General	information 8 2 10	80,0 20,0 100,0	3 7 11	30,0 70,0 100,0	**0,019**
Area IV	<40% >40% General	information 13 7 20	70,0 30,0 100,0	4 16 20	20,0 80,0 100,0	**0,025**
Area V	<40% >40% General	information 8 12 20	40,0 60,0 100,0	7 13 20	35,0 65,0 100,0	0,284
Regions I, II, III, IV, V	<40% >40% General	information 14 6 20	70 30 100	4 16 20	20 80 100	**0,025**

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-24, July 2023
ISSN: 2749-3644

PERIODONTAL CONDITION. Both groups had poor oral hygiene (API >40%), with a CPI score of 1 recorded in both groups. Considering that 2 points on the CPI scale were relatively rare, we focused on the depth of the periodontal pocket when studying the correlation between the depth periodontium with oral hygiene. Among the patients of the main group with poor oral hygiene (API> 40%), CPI 3 and/or 4 points were found in 66.7% of cases. Among patients with satisfactory oral hygiene (API<40%), periodontal pockets with a depth of more than 3.5 mm were registered in 57.2%. However, among patients in the control group, a satisfactory state of oral hygiene with a CPI of 3 and / or 4 points was noted in 75% of cases, among which periodontal pockets with a depth of more than 3.5 mm were found in 62.5% of cases.

Correlation between oral hygiene and pocket depth

Groups	**Depth pocket size**	**API Pocke Depth<40%**		**API>40%**		***P***
		n	**%**	**n**	**%**	
Main group	<3.5 mm ≥3.5 mm	6 8	42.8 57.2	2 4	33.3 66.7	
	Total	14	100.0	6	100.0	
Control group	<3.5 mm	1 3	25,0 75,0	6 10	37,5 62,5	
	≥3,5 mm					
	Total	4	100.0	16	100.0	
Main group and Control group	<3.5 mm ≥3.5 mm	7 11	38.9 61.1	8 14	36.4 63.6	
	Total	18	100.0	22	100.0	

Abnormal tooth mobility was not observed in both groups. Рецессия Gingival recession was detected in 14% and 42% of cases in the main and control groups, respectively. To determine the relationship between the incidence of recession and the depth of the periodontal pocket, a correlation analysis was performed, in which all five areas of the teeth were considered separately for each patient. In the main group, as in the control group, the correlation was insignificant, despite the greater frequency of gum recession in teeth with periodontal pockets up to 3.5 mm deep compared to teeth with pockets more than 3.5 mm deep. There was also no statistical relationship between the number of tooth sites with gum recession. In both populations, gingival recession in regions I II (teeth adjacent to the cleft) was rarely observed. In both groups, the majority of patients in the active phase of treatment were found to have periodontal pockets with a depth of more than 3.5 mm. In both groups, there was a statistically significant difference in the number of patients with periodontal pockets up to 3.5 mm deep in the active phase of treatment compared with the number before and after the active phase. In contrast to patients in the control group, pocket depth up to 3.5 mm was more often recorded in patients of the main group ($p < 0.05$; $x2 = 15.18$). The difference between the patients of both groups in terms of periodontal status in the five areas of the teeth, as determined by CPI, was significant. Scale 1 for CPI was more common in the main group, while scale 4 for CPI was found only in the control group ($p<0.05$; $x2=12.43$). Thus, it can be concluded that the presence of gingival recession and the depth of the periodontal pocket depend on strict adherence to the rules of oral hygiene. Accordingly, patients with this pathology should daily follow the rules of oral hygiene, as well as receive a scheduled consultation with a dentist every 3 months in order to carry out therapeutic and preventive measures (fluoridation of the teeth) for initial oral diseases, which can improve the overall clinical background of patients during both the active and inactive phases of the disease. It can also help reduce cases of secondary nasal deformities after the primary surgical removal of this congenital anomaly by minimizing the size of gum recession and the depth of the periodontal pocket, thereby eliminating a favorable background for the development of various infections. Future research aimed at studying the relationship of compliance with the above measures, the state of oral hygiene with the degree and frequency of occurrence of secondary nasal deformity after surgical correction of unilateral RHN, is an important subject of analysis in the short term.

CONCLUSIONS:

According to the results of a bacteriological study of

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-24, July 2023
ISSN: 2749-3644

seeding on microflora from the oral and nasal cavities, the relative abundance of bacterial species Streptococcus oralis (80% vs. 20%; p=0.019), Staphylococcus (80% vs. 10%; p=0.037), Moraxella (70% vs. 10%; p=0.014) was determined more in nasal cavities in patients with RHN compared to the group without this pathology, which may indicate the migration of these infections from the oral cavity through the cleft to the nasal cavity.

REFERENCES:

1. Besseling S., Dubois L. The prevalence of caries in children with a cleft lip and/or palate in southern Vietnam // Cleft Palate Craniofac J. – 2004. – Vol. 41. – P. 629–632.
2. Ahluwalia M., Brailsford S.R., Tarelli E., Gilbert S.C., Clark D.T., Barnard K., Beighton D. Dental caries, oral hygiene, and oral clearance in children with craniofacial disorders // J Dent Res. – 2004. – Vol. 83. – P. 175–179.
3. Jaffe B.F., DeBlanc C.B. Sinusitis in children with cleft lip and palate // Arch Otolaryngol. – 1971. – Vol. 93. – P. 479–482.
4. Chuo C.B., Timmons M.J. The bacteriology of children before primary cleft lip and palate surgery // Cleft Palate Craniofac J. – 2005. – Vol. 42. – P. 272– 276.
5. Lange D.E., Plagmann H.C., Eenboom A., Promesberger A. Klinische Bewertungsverahren zur Objektivierung der Mundhygiene [Clinical methods for the objective evaluation of oral hygiene] // Dtsch Zahnarztl Z. – 1977. – Vol. 32(1). – P. 44–47.