International Journal of Health Systems and Medical Sciences

ISSN 2833-7433
Volume 2 | No 8 | Aug -2023

Evaluation of Microflora and Initial Oral Hygiene In Unilateral Cleft of the Nose and Palate

Kubaev Aziz Saidolimovich [1], Tuksonboev Nurmuxammad Xamza ugli[2]

[1]*Associate Professor of Maxillofacial Surgery Department of Samarkand State Medical University*
[2]*Trainee Assistant of the Department of Maxillofacial Surgery of the Samarkand State Medical University*
tuksonboyev1996@icloud.com

Abstract:
Literature data indicate that patients with cleft lip and/or palate have a higher prevalence of dental caries compared to the general population. There are several possible causes of such clinical manifestations. Patients of this category often breathe through the mouth, which causes dry mouth and a decrease in physiological brushing of teeth with saliva. Malocclusion increases the time of cleansing the oral cavity from food and reduces the effectiveness of oral hygiene methods. The palate with a defect and the failure of the palatopharynx can cause regurgitation of saliva and food with irritation of the mucous membranes of the sinuses. Ahluwalia et al. higher levels of caries-associated microorganisms, Streptococcus mutans and Lactobacillus, have been reported in the oral cavity of children with cleft. Compared with the normal population, the nose and oropharynx of children with untreated cleft lip and palate have an increased risk of colonization by bacterial pathogens, especially b-hemolytic streptococci and Staphylococcus aureus.

Introduction

The oral and nasal cavities separated by the palate are independent ecosystems that provide various favorable conditions for various types of microorganisms. Our hypothesis is that the disruption of tissue continuity in patients with palatine cleft 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 they all depended on the cultivation method focused on specific types of microorganisms, which has a limitation on the study of the ecosystem profile. Accordingly, we conducted a culture-independent study to determine the microbial profile of children with unilateral RGN.

Results of the analysis of the status of the oral microflora in unilateral RGN

To carry out this analysis, 2 groups were formed: group 1 consisted of patients with unilateral RGN (n=20), while the 2nd control group included children without the presence of this pathology (n=20). The distribution by average age, gender and number of erupted teeth between the two groups

is 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+
Erupted 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-Vitney U-test, +Fischer test*

10 types of microbe were identified and the frequencies of their distribution in different types of samples between the two groups were analyzed. According to the results of a bacteriological study of inoculation for microflora from the oral cavity and nasal cavity, the microflora profile in patients with secondary nasal deformity in patients with this congenital anomaly changed statistically significantly compared to the control group. In particular, in the control group, the saliva was dominated by Gemella, Lautropia and Neisseria species (for both, p=0.027), while Lautropia species and Bacillus species were significantly less represented in the saliva samples of the RGN group c (p=0.035). The species Dolosigranulum was the most predominant genus in the nasal cavity in the control group (p=0.024). Bacillus species also appeared less in saliva and in the nasal cavity of patients of the main group (p=0.032). 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).

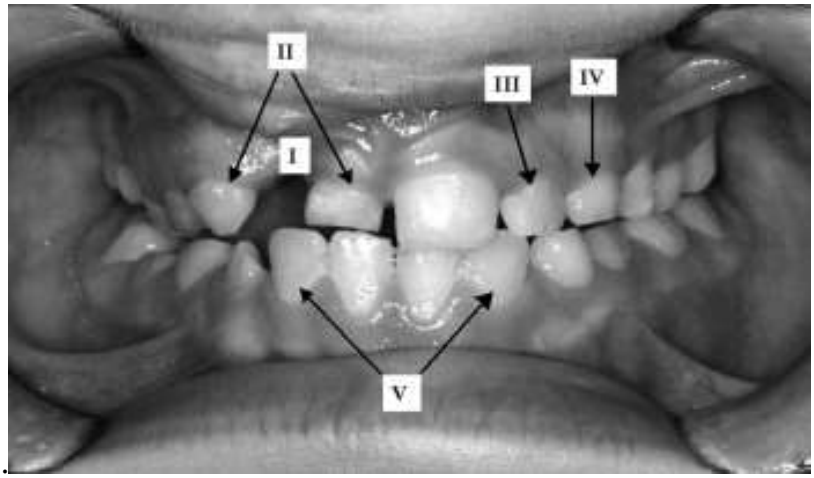
Distribution of bacterial species of the detected microbial species in the oral cavity and in nasal samples depending on the presence of unilateral RGN (n=40; 20/20)

Parameter	Main group		Control group % (n=20)	
	% (n=20)	A sample from the nose	Spittle	A sample from the nose
Streptococcus+*	100	80	20	20
Staphylococcus*	0	80	0	10
Moraxella*	0	70	0	10
Gemella is sanguine	100	40	80	30
Neisseria subflava	70	40	90	50
Dolosigranulum+	0	40	0	90
Company	40	10	50	20
Lactobacilli+*	20	20	70	70
Corynebacteria	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*

The 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 (main group) consisted of patients with unilateral RGN (n=20) who strictly followed the rules of personal oral hygiene (brushing teeth 2 times a day), who underwent dental examination and fluoridation of teeth - 1 time in 3 months. The 2nd group (control group) 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 by 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 cleft side; IV - tooth corresponding to the distal tooth itself in the cleft side; and V - teeth on the lower jaw, corresponding to teeth in the cleft side.

The following periodontal parameters were studied:

1) Determination of the approximate plaque index (API) by Lange et al. using a probe, saline solution and lighting (scores: "+" = present, "-" = absent). At the same time, a higher index of one of the two possible teeth was recorded in areas I and V.

2) Determination of the public periodontal Index (CPI) according to the oral health assessment questionnaire developed in Geneva in 1997 [195; p. 66]. Scores ranged from 0 to 4, where: 0 - healthy; 1 - bleeding is observed either directly or after probing; 2 - concretion is detected during probing, but the entire black stripe on the probe is visible; 3 — 4-5 mm pocket (gingival margin within the black stripe on the probe); 4 - 6 mm pocket and more (the black stripe 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 recession or gum overgrowth (the distance from the free edge of the gum to the enamel joint) using an orthodontic ruler.

4) The mobility of the teeth was evaluated from 1 to 3. The physiological mobility of the teeth was not recorded.

Plaque index. The data obtained on the indices of plaque 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%) or poor (API >70%) oral hygiene was significantly more common in patients of 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 noted in area II (teeth bordering the cleft). This was most likely caused by the crooked growth of teeth near the cleft, which complicated tooth brushing. The lowest frequency of poor oral hygiene was observed in patients of the main group (20%) in relation to the opposite tooth corresponding to the tooth in the cleft (region III), compared with 65% of the occurrence of poor dental hygiene of the lower jaw (region 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 carried out.

Periodontal condition. Unsatisfactory oral hygiene was observed in both groups (API >40%), while CPI 1 was registered in both groups. Given 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 of the periodontal and 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 the patients of 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.

Pathological mobility of teeth was not found in both groups. Gum recession was detected in 14% and 42% of cases of the main and control groups, respectively. To determine the relationship between the frequency of recession and the depth of the periodontal pocket, a correlation analysis was performed, in which all five areas of the teeth were examined separately in each patient. In the main group, as in the control group, the correlation was insignificant, despite the high 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 sections with gum recession. Gum recession in region II (teeth adjacent to the cleft) was rarely observed in both populations.

In both groups, periodontal pockets with a depth of more than 3.5 mm were found in the majority of patients in the active phase of treatment. 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 of 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 relation to the periodontal condition in five areas of the teeth, established using CPI, was significant. The CPI scale 1 was more common in the main group, while the CPI scale 4 was found only in the control group (p <0.05; x2 =12.43).

Thus, it can be concluded that the presence of gum recession and the depth of the periodontal pocket depends on strict compliance with the rules of oral hygiene. Accordingly, patients with this pathology should be engaged in daily compliance with the rules of oral hygiene, as well as receive a planned dental consultation every 3 months in order to carry out therapeutic and preventive measures (fluoridation of teeth) for the initial diseases of the oral cavity, which can improve the overall clinical

background of patients during both active and inactive phases of this disease. It can also help to reduce the cases of secondary deformities of the nose after the primary surgical removal of this congenital anomaly by minimizing the size of the gum recession and the depth of the periodontal pocket, thereby eliminating a favorable background for the development of various infections.

Future studies aimed at studying the relationship of compliance with the above measures, the state of oral hygiene with the degree and frequency of secondary nasal deformity after surgical correction of unilateral RGN are an important subject of analysis in the short term.

Conclusions:

According to the results of a bacteriological study of inoculation on microflora from the mouth and nose, the relative number 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 the nasal cavity in patients with RGN compared to the group without this pathology, which may indicate the migration of these infections from the oral cavity through the cleft into the nasal cavity.

Literatures:

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.