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Research Article

RESULTS OF COMPLEX TREATMENT OF CHRONIC POLYPOUS RHINOSINUSITIS

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ABSTRACT

Despite the many proposed treatment methods, chronic polypous rhinosinusitis (CPRS) remains the most difficult problem of modern otorhinolaryngology. The range of methods for surgical treatment of polypous rhinosinusitis is very wide - from repeated polypotomies performed 2-3 times a year in case of relapses, to various methods of opening the paranasal sinuses using endo-, trans- and extranasal approaches. Not in all cases, after nasal polypotomy , there is a long-term improvement in nasal breathing, since the operation is reduced only to mechanical removal of polypous tissue. The relapse rate (from 20 to 40%) even after a carefully performed operation makes it necessary to find new treatment methods.

KEYWORDS

Polypous rhinosinusitis , nasal breathing, polypotomy , paranasal sinuses, hypoxia, endoscopic sinus surgery.

INTRODUCTION

In recent decades, diseases of the nose and paranasal sinuses have firmly taken first place in the overall structure of ENT morbidity in terms of visits to clinics and treatment in hospitals [3]. Worldwide, chronic rhinosinusitis (CRS) affects 5-15% of the adult population [9] and over the past decade the incidence has doubled [5]. One of the most common forms of CRS and requiring the attention of specialists is chronic polypous rhinosinusitis [1-4].

CPRS is considered a serious problem of modern medicine, reducing the quality of life of patients due to deterioration or complete blockade of nasal breathing, impaired sense of smell, and headaches due to a state of chronic hypoxia [6-8]. The use of universal (independent of the nature of the disease) questionnaires (SF-36) showed that the quality of life in people with nasal polyposis is worse than in patients with arterial hypertension, migraine, angina pectoris, and malignant tumors of the head and neck [10]. The deterioration in the quality of life of patients with nasal

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polyposis is comparable to that in patients suffering from chronic obstructive pulmonary diseases [11-14].

CPRS has a fairly significant medical and social significance, confirmed by the prevalence of the disease, the tendency to relapse, and the need for therapeutic, rehabilitation, and social measures over a significant period of patients' lives [16]. Taking into account the above, this justifies the emergence of the term "difficult rhinosinusitis " [15].

Despite many years of studying the etiology, pathogenesis of the disease and the treatment used, the number of patients is steadily increasing, reaching 5% of the entire population, 15.4% of all patients in ENT hospitals and 15-20% - among patients with sinusitis [17]. Relapses occur in almost 60%, especially in patients with the aspirin triad].

In general, in 80% of cases, CPRS in Western countries is characterized by a predominant T-helper 2 (Th2) response with eosinophilic infiltration [18], decreased T-regulatory function [19-22] and with a large amount of the cytokine IL-5 [23]. . This finding differs from the prevalence of nasal polyps in China, where the majority of nasal polyps were Th1 and Th17 (Th1/Th17) inflammatory in nature [21]. Similar results were obtained in other Asian countries [5]. Eosinophilic polyps (EPPS) were found in only 33.3% of patients with CPRS in Korea [8] and in 11.7% of patients with CPRS in Thailand [11]. This circumstance is of great importance in the prevalence of various forms of CPRS, since they directly depend on the population and environmental influences.

This pathology mainly affects people of working age, and this in turn leads to an increase in rates of temporary disability and high economic costs [24]. In foreign countries, the average cost of medical services is $921 per patient per year [25]. The total annual economic cost of CRS reaches $1539 per patient [26–29]. In the United States, national health care costs for CRS were estimated at $8.6 billion annually in 2007 due to increased office and prescription costs [30]. It has been estimated that the cost of antibiotics for the treatment of CRS exceeds $150 million per year [31], with more than 257 thousand patients undergoing surgical procedures in the ED per year [2]. In the Netherlands, 1861 euros are spent per year on the treatment of one patient with CPRS, in the USA - 2609 dollars [9].

Thus, the literature we have studied indicates that the frequency of spread and recurrence of CPRS remains high, which represents a pressing problem in practical medicine, requiring a careful study of the clinical course and the correct choice of treatment tactics.

The purpose of our study was to study the effectiveness of complex treatment of various forms of polypous rhinosinusitis .

Materials and methods:

In accordance with the purpose of the study and to fulfill the assigned tasks, clinical studies were conducted in 150 patients with CPRS who were examined and treated in the ENT department of the 3rd clinic of the Tashkent Medical Academy in 2013-2019. All patients underwent examination of ENT organs, endoscopic examinations of the nasal cavity, CT and MRI examinations of the paranasal sinuses, laboratory and instrumental studies, and immunohistochemical studies.

Results and their discussions.

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After endoscopic sinus surgery, 142 patients with CPRS complained of difficulty in nasal breathing, watery nasal discharge, and headaches for three days, which ¬decreased in the next day. By the 10th day of treatment, all symptoms disappeared.

Changes in laboratory parameters were noted from the 5th day. The ¬results of laboratory tests are presented in Table 1 .

As can be seen from Table 1, in patients with EPRS, eosinophilia in the peripheral blood decreased, which ¬proves the effectiveness of mometasone . furoate in the complex treatment ¬of CPRS.

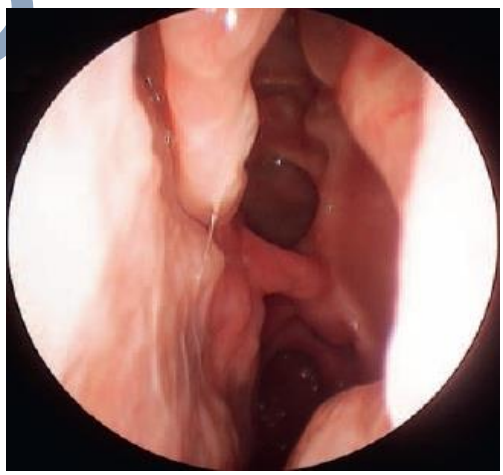
Table 1

Changes in eosinophilia in peripheral blood in patients with CPRS

Frequency of - detection of eosinophils in the blood, %	Patients with EPRS (n=90)			Patients with NPRS (n= 6 0)		
	Mild degree , (n=5)	Moderate-severe degree , (n= 74)	Severe degree , (n= 11)	Mild degree , (n= 3)	Moderate-severe degree , (n= 51)	Severe degree , (n= 6)
Up to 5	1	4	-	3	51	6
	5	68	5	3	51	6
More than 5	4	70	eleven	-	-	-
	-	6	6	-	-	-

Note: before treatment in the numerator, after 6 months in the denominator

During an endoscopic examination three days after surgery, restoration of the nasal mucosa was observed in patients of group 1; in group 2, restoration of nasal patency occurred somewhat later ¬, on the fifth day (Fig. 1).



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Rice. 1. Endoscopic examination of the nasal cavity of patients with CPRS in the postoperative period (o o)

of diagnostic endoscopy data of the nasal cavity and operated sinuses, as well as analysis of outpatient records and subjective assessment of their condition by the patients themselves. Some patients underwent computed tomography of the paranasal sinuses. The final result of treatment was assessed according to the following scheme: good result: no complaints from the patient, no exacerbations of the inflammatory process, polyps are not detected during anterior rhinoscopy (but it is possible to identify areas of polyposis during endoscopy of the nose and paranasal sinuses), positive dynamics according to computed tomography, treatment not required; satisfactory result: no complaints from the patient, exacerbation of the inflammatory process in the operated sinuses against the background of acute respiratory viral infection, small polyps in the nasal cavity, determined by anterior rhinoscopy, but not significantly complicating nasal breathing, conservative treatment is periodically required; unsatisfactory result: relapse of polyposis or exacerbation of the inflammatory process in the sinuses, requiring reoperation (Table 2).

Table 2

Results of treatment of patients with CPRS according to treatment evaluation criteria

Treatment result	Patients with EPRS (n=90)			Patients with NPRS (n= 6 0)		
	Mild degree , (n=5)	Moderate-severe degree , (n= 74)	Severe degree , (n= 11)	Mild degree , (n= 3)	Moderate-severe degree , (n= 51)	Severe degree , (n= 6)
Good result	3	39	4	2	36	5
Satisfactory result	1	35	5	1	13	1
Unsatisfactory result	1	3	2	-	2	-

From the data obtained, we can conclude that the use of intranasal corticosteroid, macrolide and immunomodulator in the complex treatment of CPRS helps to normalize the ¬nasal mucosa and restore patency of the nasal cavity.

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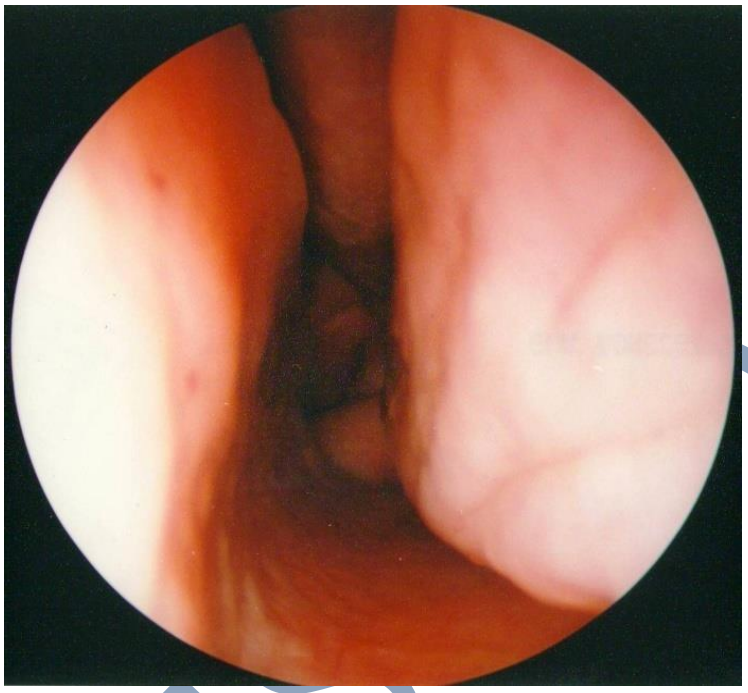
After the course of treatment, relapses were observed in patients of both groups. An endoscopic examination, which ¬was performed to study changes in the structure of the nasal mucosa, did not reveal polypous growths in the nasal cavity of patients in the first 3 months (Fig. 2).



Rice. 2. Endoscopic examination of the nasal cavity of patients with CPRS in the postoperative period (0 0)

According to the results of a repeat endoscopic examination at the 3rd month of treatment, no polypous tissue was found in the nasal cavity. Starting from the 18th month, a polyp was discovered in the nasal cavity in 1 patient with severe chronic " eosinophilic " polypous rhinosinusitis (Fig. 3) . At 24 months of observation, 1 (0.6%) patient with moderate and 2 (1.3%) patients with severe forms of chronic " eosinophilic " polypous rhinosinusitis and a polyp was found in the nasal cavity. At the 36th month of observation, 5 (3.3%) patients with moderate and 3 (2.0%) patients with severe forms of chronic " eosinophilic " polypous rhinosinusitis , in 2 (1.3%) patients with moderate and in 1 (0.6 %) patient with severe form of chronic "neutrophilic " polypous rhinosinusitis (NPRS) a polyp was found in the nasal cavity (Fig. 4).

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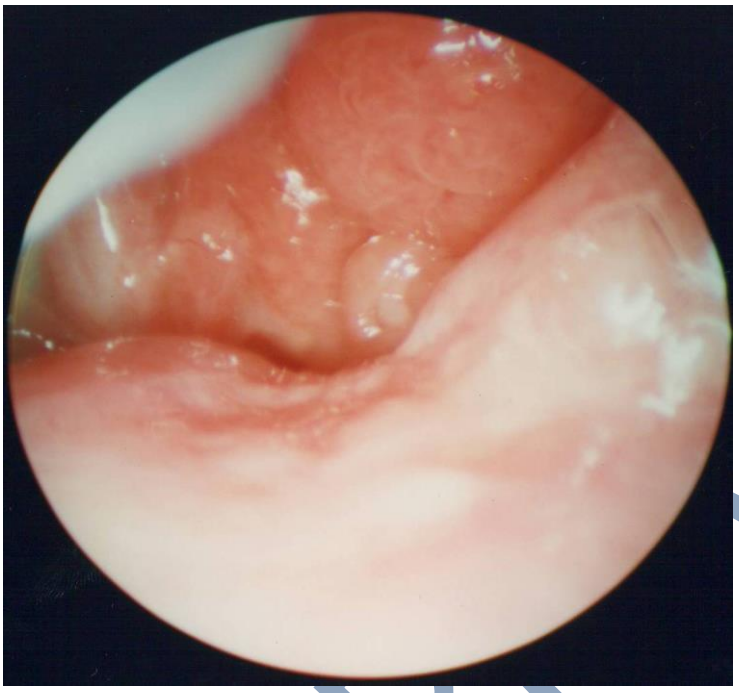
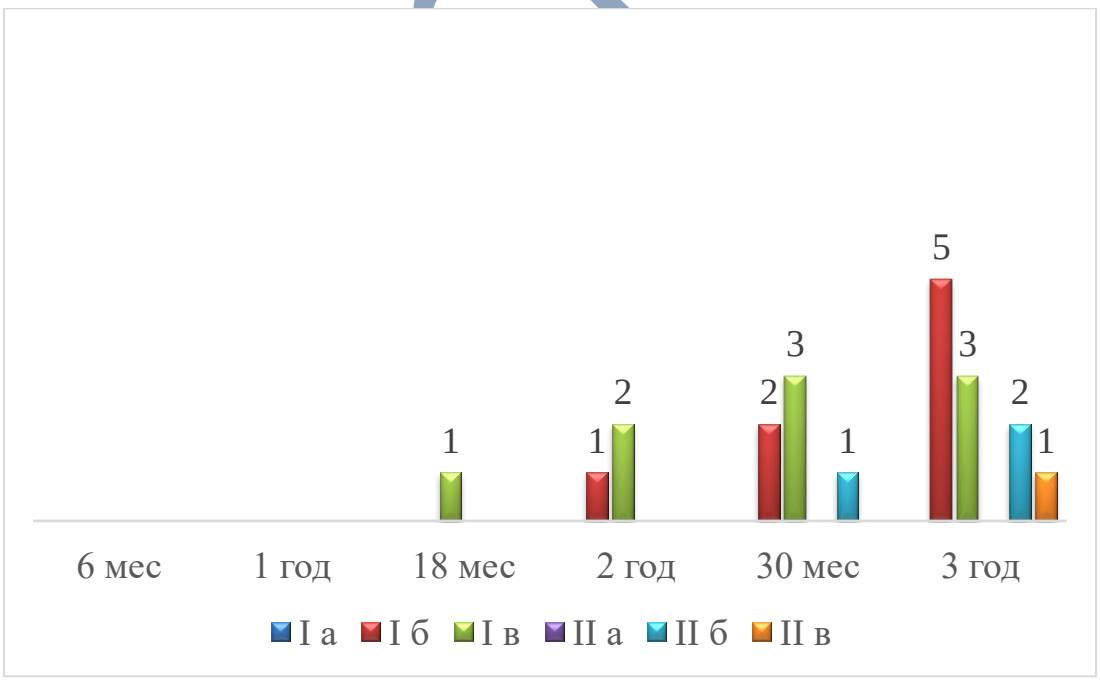


Rice. 3. Endoscopic examination of the nasal cavity of patients with CPRS in the postoperative period (o o)



Rice. 4. Number of relapses in the dynamics of treatment of patients with CPRS

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According to the results of a repeated computed tomography study , in these patients, in the nasal cavity and paranasal sinuses , the presence of small polyps . After the end of the observation period, the results of endoscopic examination revealed a decrease and disappearance of swelling of the nasal mucosa and positive dynamics in the form of restoration of the nasal mucosa.

The results of a repeated immunological study of cellular and humoral immunity in 78 patients with CPRS who were inpatient ¬treatment in the ENT department of the 3rd TMA clinic from 2013 to 2019. Repeated studies indicated an improvement in immunological ¬parameters in patients with "eosinophilic" and "neutrophilic" polyposis rhinosinusitis (Table 3).

As shown in Table 3, there was a positive shift in ¬cellular immunity in patients with "eosinophilic" and "neutrophilic" polyposis rhinosinusitis due to -changes in the number of lymphocytes in the blood, CD 3+, IRI, CD 16+, CD 23+, CD 38+ and CD 95+. After treatment, an immunological study revealed normalization of humoral immunity due to a decrease in the amount of IgA , large and small CECs (Table 3). Taking into account the data in Tables 3 and 4, in patients with chronic "eosinophilic ¬" polyposis rhinosinusitis , the indicators of humoral and cellular ¬immunity approached normal. Patients in three groups showed a moderate improvement in immunity parameters, which indicates the most effective effect of using an immunomodulator in complex treatment.

Based on the data in Table 4, it can be assumed that the indicators of cellular immunity in patients of the three groups shifted towards the norm due to an improvement in the indicators of IRI, CD16+, CD23+ and CD95+.

Table 3

Indicators of cellular immunity in patients with EPRS

Index	Patients with EPRS (n=48)			Control, n=20
	Lightweight degree , n= 3	Medium-heavy degree , n =40	Heavy degree , n= 5	
Leukocytes, µl	6766.67± 688.8	6336.11 ± 142.71	5400 ± 288.19	6295±164.9
	5533.33 ± 600.9 _	5419.44 ± 172.32 _	6266.7 ± 520.15 _	
Lymphocytes, %	28 ±4.62	29.36 ±1.39	36.78 ±3.89	29.2±0.94
	32 ±2.31	31.94 ±0.74	31.56 ±1.51	
Lymphocytes, µl	1800 ±288.68	1700 ±69.58	1811.1 ±182.91	1945±50.5
	2133.3 ±120.19	2125 ±44.79	2177.8 ±102.44	
CD3+, %	43 ±0.58 **	47.42 ±1.06 **	47.67 ±1.89 **	58.0±0.95
	63.67 ±2.4	61.25 ±0.7	60.89 ±1.46	
CD3+, µl	879.67 ±167.92	783.53 ±45.69	915.33 ±104.11	1009±47.9
	1331.33 ±50.86	1289.64 ±44.17	1366.89 ±92.63	
CD4+, %	27.33 ±1.45 ***	26.81 ±0.42 ***	27.33 ±0.76 ***	36.4±0.42

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	37 ±2	36.53 ±0.46	36.33 ±0.78	
CD4+, µl	484.67 ±85.54	449.61 ±21.94	527.56 ±56.11	857±15.9
	792.37 ±90.27	873.94 ±25.29	872.22 ±50.59	
CD8+, %	18 ±1.15	19.61 ±0.82	19.89 ±1.35	22.6±0.43
	24.67 ±1.33	23.31 ±0.48	21.78 ±0.95	
CD8+, µl	357.67 ±33.6	323.17 ±21.98	350.11 ±39.89	498±13.6
	513 ±38.22	544.86 ±18	555.44 ±29.71	
Iran	1.5 ±0.12 ***	1.44 ±0.04 ***	1.43 ±0.07 ***	1.76±0.02
	1.83 ±0.12	1.79 ±0.03	1.73 ±0.06	
CD16+, %	20.67 ±2.4 ***	19.39 ±0.62 ***	20.33 ±1.03 ***	14.2±0.41
	12 ±0.58	14.17 ±0.43	14.11 ±0.9	
CD20+, %	23.33 ±0.88	22.58 ±0.3	21.11 ±0.84	21.9±0.45
	21.67 ±2.33	21 ±0.46	22.44 ±0.93	
CD20+, µl	419.33 ±84.17	375.11 ±20.69	406 ±37.45	412±21.5
	562 ±52	517.67 ±23.47	524.89 ±36.8	
CD23+, %	24 ±0.58 ***	29.94 ±0.37 ***	25 ±0.88 ***	20.0±0.30
	18 ±1	18.69 ±0.37	19.44 ±0.85	
CD38+, %	34.33 ±1.2 ***	31.42 ±1.23 ***	31.56 ±2.26 ***	21.0±1.20
	21 ±1.15	18.19 ±1.07	19.67 ±2.24	
CD95+, %	23.33 ±1.86 **	24.22 ±0.5 **	23.56 ±1.3 **	19.8±0.34
	19 ±2	19.56 ±0.4	19.44 ±0.91	

Note: before treatment in the numerator, after 6 months in the denominator
* - differences relative to the control group data are significant (* - P <0.05, ** - P <0.01, *** - P <0.001)

Table 4

Indicators of humoral immunity in patients with EPRS

Index	Patients with EPRS (n=48)			Control, n=20
	Lightweight degree , n= 3	Medium-heavy degree , n= 40	Severe degree _ n= 5	
Ig G, mg%	113 2 ±88.82	1 124.39 ± 2 7.0 1 _ _	12 27.78 ±64.26	1176±22.2
	1,181 ± 99.36 _	1207.86±22.04	1261.22±43.56	
Ig A, mg%	132.67 ± 2.67 **	141.67±2.56 **	145.89±3.14 **	128.4±3.79

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	116.3 3 ±3.38 *	118.81 ± 1.78*	117.33 ± 3.73*	
Ig M, mg%	105.67± 8.01	119.03 ± 3.24	11 9.5 6 ± 4.51	121.8±3.39
	148.33 ± 20.7	134.83 ± 5.0 5	121.11 ± 12.77	
CECs are large , c.u.	23.67± 2.73***	1 8 , 7 2 ± 0.93**	1 2.44 ± 1.56	11.8±0.70
	14.3 3 ± 3.28 _	11.75 ± 0.61	10.33 ± 1.38	
CEC small , c.u.	37± 1.15***	29.17± 1.39	2 0.89 ± 3.29	21.8±1.55
	16.67±2.4	2 1.72 ± 1.35 _ _	25.89 ± 3.72 _ _ _	

Note: before treatment in the numerator, after 6 months in the denominator

*** - differences relative to the control group data are ¬significant (* - P <0.05, ** - P <0.01, *** - P <0.001)**

In patients with chronic "neutrophilic" polypous rhinosinusitis, after treatment, indicators of humoral and cellular immunity also decreased almost to normal (Tables 5, 6). At the same time, the main significantly reduced indicators in all three subgroups were CD3+, CD4+ CD8+, IRI and CD38+.

In addition, in patients with chronic "eosinophilic" and "neutrophilic" polypous rhinosinusitis , there was a significant decrease in the content of IL-2, IL-4, IL-8 and IgE , which indicated the choice of the correct treatment tactics for patients (Tables 7, 8).

Table 5

Indicators of cellular immunity in patients with NPRS

Index	Patients with NPRS (n= 31)			Control, n=20
	Lightweight degree , n= 2	Medium-heavy degree , n= 26	Heavy degree , n= 3	
Leukocytes, µl	5550± 2 5 0	6108.33±379.07	5880±798.37	6295±164.9
	4550± 450	5904.17± 179.32	6100± 370.14	
Lymphocytes, %	29±5	30.17± 0.83	2 8 ±2	29.2±0.94
	27.5 ± 1.5	30.83 ± 1.04*	33.2 ± 1.74*	
Lymphocytes, µl	1850 ± 1 50	1795.83 ± 6 0.9 3	1740±237.91	1945±50.5
	2200 ± 100	2287.5 ± 60.88	2060 ± 140	
CD3+, %	4 7.5 ± 2.5***	4 6.88 ± 0.94***	4 8.6 ± 3.91***	58.0±0.95
	62 ± 0.01	5 7.88 ± 0.69	60.6 ± 2.36	
CD3+, µl	834.5 ± 65.5***	7 37.96 ± 26.06 *** _	82 9 ± 78.7***	1009±47.9
	1355 ± 345	1196.83 ± 55.7	1365.4 ± 119.2	
CD4+, %	25.5 ± 0.5***	2 6.25 ± 0.44***	2 7.8 ± 1.36***	36.4±0.42

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	3 4 ± 1	3 5.5 ± 0.59 _ _	3 6 ± 1.38	
CD4+, µl	475.5 ± 24.5***	4 31.08 ± 17.01***	4 87 ± 63.18***	857±15.9
	919 ± 10	8 33.79 ± 37.75	921.4 ± 88.16	
CD8+, %	19 ± 1	20.33 ± 0.57**	21 ± 2.65**	22.6±0.43
	2 4.5 ± 1.5 _ _	2 2.96 ± 0.6	2 4.6 ± 1.33	
CD8+, µl	3 80 ± 20***	335.29 ± 9.26 ***	3 43 ± 22.49***	498±13.6
	455 ± 39	540.58 ± 19.96	553.6 ± 22.96	
Iran	1.4 ± 0.1 ***	1.28 ± 0.02 ***	1.3 6 ±0.1 ***	1.76±0.02
	1.8 ± 0.2 _	1.78 ± 0.03 _	1.86 ± 0.05 _	
CD16+, %	16.5 ± 4.5 _	1 5.46 ± 0.88 _ _	1 8.8 ± 3.18 _ _	14.2±0.41
	1 3 ± 3	14.29 ± 0.62 _	1 3.4 ± 1.03 _ _	
CD20+, %	19.5 ± 1.5	21.46 ± 0.54 _	2 3.2 ± 1.32 _ _	21.9±0.45
	2 0.5 ± 0.5 _ _	22.67 ± 0.53 _	2 0 ± 0.55	
CD20+, µl	403 ± 17	3 57.71 ± 17.83*	3 90.8 ± 58.51*	412±21.5
	497 ± 81	523.46 ± 23.68	538.4 ± 49.41	
CD23+, %	20±1	19.83±0.29	19.6±0.87	20.0±0.30
	19 ± 3	20.88 ± 0.64 _	2 2 ± 0.95	
CD38+, %	21 ± 3**	3 2.13 ± 1.28***	28 ± 4.42***	21.0±1.20
	26 ± 5	18.5 ± 1.43	17.8 ± 2.27	
CD95+, %	21 ±1	19.54 ± 0.32 _	20 ± 0.71	19.8±0.34
	17.5 ± 1.5	20± 0.68	19.4 ± 1.54	

Note: before treatment in the numerator, after 6 months in the denominator

*** - differences relative to the control group data are significant (* - P <0.05, ** - P <0.01, *** - P <0.001)**

Table 6

Indicators of humoral immunity in patients with NPRS

Index	Patients with NPRS (n= 31)			Control, n=20
	Lightweight degree , n= 2	Medium-heavy degree , n= 26	Heavy degree , n= 3	
Ig G, mg%	1,211.5 ± 89.5 _	11 87.67 ± 19.82	11 86 ± 56.5	1176.1±99.16
	11 84.5 ± 178.5	1208.83 ± 31.11	1232.6 ± 85.55	

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Ig A, mg%	16 8.5 ± 14.5	1 68.83 ± 3.52*	1 62.8 ± 10.44*	128.3±16.94
	1 22 ± 18	12 5.92 ± 2.11	12 3.8 ± 4.8	
Ig M, mg%	1 18 ± 18	12 2.79 ± 2.84 _ _	1 09.4 ± 7.39 _ _	121.8±15.16
	1 39.5 ± 27.5	12 5.58 ± 7.31	1 21 ± 10.96	
Central Election Commissions are large, c.u.	25.5 ± 3.5*	20.13 ± 0.94*	15.8 ± 2.48*	11.8±3.14
	1 4 ± 0.01	12.92 ± 0.79 _	12.6 ± 1.72 _	
CEC small, c.u.	2 6.5 ± 11.5 _ _	22.54 ± 1.72 _	19.2 ± 4.14 _ _	21.8±6.92
	33 ± 3	2 6.17 ± 2.16	2 4.2 ± 2.08	

Note: before treatment in the numerator, after 6 months in the denominator

*** - differences relative to the control group data are significant (* - P <0.05)**

Table 7

Content of cytokines and IgE in blood serum in patients with EPRS

Index	Patients with EPRS (n=48)			Control, n=20
	Lightweight degree , n= 3	Medium-heavy degree , n= 40	Heavy degree , n= 5	
IL-2 , pg /ml	9.37 ± 0.53***	10.79 ± 0.58 ***	10.39 ± 1.45 ***	5.5 ± 0.10 _
	6.51 ± 0.19 ***	6.29 ± 0.11**	5.54 ± 0.24**	
IL-4 , pg /ml	7.5 ± 0.1*	6.64 ± 0.39 ***	4.9 ± 0.7***	4.7± 0.26
	4.8 ± 0.4	4.7 6 ± 0.11	4.3 ± 0.2 _	
IL-8 , pg /ml	8.5 ± 0.23*	8.49 ± 0.59**	7.58 ± 2.75**	5.7 ± 0.1 9 _
	6.63 ± 0.15	5.73 ± 0.15 _	3.58 ± 0.64	
IgE , IU/ml	169.13 ± 16.4 *** _	188.28 ± 9.62***	466.33 ± 42.5***	14.7 ± 1.92 _ _ _ _
	87.5 ± 4.57***	87.98 ± 3.23***	102.57 ± 3.5***	

Note: before treatment in the numerator, after 6 months in the denominator
* - differences relative to the control group data are significant (* - P <0.05, ** - P <0.01, *** - P <0.001)

Table 8

Content of cytokines and IgE in blood serum in patients with NPRS

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Index	Patients with NPRS (n= 31)			Control, (n=20)
	Lightweight degree , n= 2	Medium-heavy degree , n= 26	Heavy degree , n= 3	
IL-2 , pg /ml	15.5 5 ± 5.7 ***	12.3 ± 0.91 ***	12.02 ± 2.8 ***	5.5 ± 0.10 _
	6.35 ±0.65 ***	6.2 ± 0.09 ***	6.34 ± 0.11 ***	
IL-4 , pg /ml	6.75 ± 1.45***	7.39 ± 0.22***	7.32 ± 0.6 ***	4.7± 0.26
	4.75 ± 0.45	4.97 ± 0.07	4.84 ± 0.17	
IL-8 , pg /ml	6 ± 1.7***	10.41 ± 0.78***	9.12 ± 1.31***	5.5± 0.1 9
	4.85 ± 0.55	5.8 ± 0.17	6.14 ± 0.5	
IgE , IU/ml	33.2 ± 25.8***	44.35 ± 6.21***	40.3 ± 15.1***	14.7 ± 1.92 _ _
	26.95 ± 19.6**	34.18 ± 4.03***	31.6 ± 9.82***	

Note: before treatment in the numerator, after 6 months in the denominator
* - differences relative to the control group data are significant (** - P <0.01, *** - P <0.001)

An immunological study of the content of cytokines and IgE in the blood serum of patients with chronic "eosinophilic" polypous rhinosinusitis after complex treatment revealed that a decrease in IL-2, IL-4, IL-8 and IgE was observed in three groups of patients, which indicates the effectiveness of the treatment treatments.

Taking into account the above, it follows that the use of an intranasal corticosteroid and macrolide, as well as ¬their combination with an immunomodulator in patients with various forms of CPRS, helps restore the normal structure of the mucous membrane, normalize immunity parameters, and reduce relapses of the disease ¬.

A repeated study of the functions of the nasal mucosa was also carried out in 150 patients with various forms of CPRS (Tables 9, 10). At the same time, in patients with "eosinophilic" polypous rhinosinusitis , there was an improvement in the results of studies of nasal functions, which indicates the normalization of the transport, absorption and excretory functions of the nose. The same positive results were observed in patients with "neutrophilic" polyposis rhinosinusitis .

In patients with relapse of the polypous process, a second course of conservative treatment was carried out, after which complete resorption was observed in the ¬lipid-modified hyperplastic areas of the mucous membrane of ¬the nasal passages.

Table of faces 9

Results of a study of the functions of the nasal mucosa in patients with EPRS

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Index	Patients with EPRS (n=48)			Control, n=20
	Lightweight degree , n=5	Medium-heavy degree , n=74	Heavy degree , n=11	
Mucociliary clearance (min)	3 3.4 ± 0.24 *** _ _	3 4.42 ± 0.11 *** _ _	3 4.64 ± 0.3 6 *** _ _	11.5±1.4
	18.4 ± 0.14	18.1 ± 0.12	22.7 ± 0.19	
Indicators of hydrogen ion concentration (pH)	7.38 ± 0.01 *** _	7.38 ± 0.01 *** _	7.38 ± 0.01 *** _	7.0 ±0.01
	7.2 ± 0.01	7.1 ± 0.01	7.3 ± 0.01 **	
Suction function (pupil reaction time (min))	84.4 ± 0.87 *** _	89.54 ± 0.77 ***	89.27 ± 2.54 ***	6 8.2 ± 0.6 _ _
	74.7 ± 0.53	74.5 ± 0.58	79.9 ± 0.67 **	
Excretory function (weight of cotton wool (mlgr))	58.2 ± 0.49 *** _	58.22 ± 0.13 *** _	58.75 ± 0.21 *** _	4 1.2 5 ± 0.08
	46.7 ± 0.05	46.6 ± 0.04	50.5 ± 0.06 **	

Note: before treatment in the numerator, after 6 months in the denominator
* - differences relative to the control group data are significant (* - P <0.05, ** - P <0.01, *** - P <0.001)

Table 10

Results of a study of the functions of the nasal mucosa in patients with NPRS

Index	Patients with NPRS (n= 31)			Control, (n=20)
	Lightweight degree , n=3	Medium-heavy degree , n=51	Heavy degree , n=6	
Mucociliary clearance (min)	3 3.7 ± 0.67 *** _ _	3 3.3 ± 0.18 *** _ _	3 3.83 ± 0.4 *** _ _	11.5±1.4
	18.5 ± 0.72 *	18.4 ± 0.64 *	19.4 ± 0.82 **	
Indicators of hydrogen ion concentration (pH)	7.3 6 ± 0.01 ***	7.3 6 ± 0.01 ***	7.3 7 ± 0.01 ***	7.0 ±0.01
	7.3 ± 0.01	7.2 ± 0.01	7.2 ± 0.01	
Suction function (pupil reaction time (min))	8 1 ± 2.65 *** _ _	80.3 1 ± 0.63 *** _ _	8 2.3 ± 1.41 ***	6 8.2 ± 0.6 _ _
	74.5 ± 0.42 **	74.3 ± 0.66 **	73.8 ± 0.72 **	
Excretory function (weight of cotton wool (mlgr))	5 7 , 3 ±0.4 8 ***	55.7 7 ± 0.12 ***	5 6.5 ± 0.52 *** _ _	4 1.2 5 ± 0.08
	46.1 ± 0.16	46 ± 0.18	47.3 ± 0.26 *	

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Note: **before treatment in the numerator, after 6 months in the denominator**
*** - differences relative to the control group data are significant (* - P <0.05, ** - P <0.01, *** - P <0.001)**

A repeated study of the quality of life of patients with SNOT20 using a survey showed good effectiveness of complex treatment over 6 months (Table 11) . The assessment of the quality of life in 90 (60.0%) patients with chronic "eosinophilic" polypous rhinosinusitis after complex treatment measures averaged 18.4±4.5 points (p<0.05), in 60 (40.0 %) of patients with chronic "neutrophilic " polypous rhinosinusitis after treatment averaged 17.7±4.2 points (p<0.05).

Table 11

Assessment of the quality of life of patients with various forms of chronic polypous rhinosinusitis in the dynamics of treatment

Index	Patients with EPRS, (n=90)		Patients with NPRS, (n=60)	
OKZH, point	before treatment	after 6 months	before treatment	after 6 months
	68.4±18.7	18.4±4.5*	53.7±15.4	17.7±4.2*

Note: * - differences regarding the data of both groups are significant

(* - P <0.05)

Thus, with approximately the same follow-up periods, relapse occurred in 5 (3.3%) patients with moderate and 3 (2.0%) patients with severe forms of chronic " eosinophilic " polypous rhinosinusitis , in 2 (1.3%) patients with moderate and in 1 (0.6%) patient with a severe form of chronic " neutrophilic " polypous rhinosinusitis . At the end of the observation period during anterior rhinoscopy, Most patients in the main group showed positive dynamics in in the form of reduction or disappearance of edema and restoration ¬of the nasal mucosa. We believe that this should be attributed specifically to the effects of corticosteroid drugs, since all operations were performed in accordance with the rules of functional surgery ¬, and only large polyps were removed from the affected sinuses, and the rest the mucous membrane was preserved even in cases where it was significantly ¬thickened or edematous.

Long-term results showed that treatment of patients with chronic polypous rhinosinusitis using the indicated method contributed to the restoration of the normal structure of the nasal mucosa, increasing the effectiveness of treatment , reduced the percentage of relapses, extended the period of remission and improved the quality of life of patients.

Clinical example: Patient K., 51 years old, clinical case No. 3635/155. He was hospitalized in the ENT Department of the 3rd Clinic of the Tashkent Medical Academy from 03/05/2019 to 03/12/2019 with a diagnosis of Chronic polypous rhinosinusitis .

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Complaints upon admission: difficulty in nasal breathing, lack of sense of smell, mucous discharge from the nose, sneezing, itching in the nose, headaches, general weakness.

From the anamnesis: he considers himself sick for 10 years. He associates his illness with frequent colds and allergies. In the last 5 years, the patient was operated on 4 times by ENT doctors at his place of residence, and polypotomy was performed . In connection with the above complaints, the patient went to the ENT clinic of the multidisciplinary clinic of the Tashkent Medical Academy, where he was examined and hospitalized in the ENT diseases department on 03/05/2019.

The general condition of the patient is relatively satisfactory. Consciousness is clear. The skin and visible mucous membranes are of normal color. Peripheral nodes are not palpable. On auscultation of the lungs there is vesicular breathing. Heart sounds are rhythmic, blood pressure is 120/80 mm Hg. Art. Pulse – 82 beats. in a minute. The abdomen is soft and painless. The liver and spleen are not palpable. Stool and urination are normal.

Status localis : facial deformity none. Anterior rhinoscopy reveals hyperemia of the nasal mucosa and mucous discharge in both nasal cavities. Transparent polypous formations are identified, completely obstructing both nasal cavities. Nasal septum in the midline.

Results of the examination of the patient: CT scan of the paranasal sinuses - CT signs of polypous darkening of both sides of the maxillary, ethmoid , frontal, main sinuses and nasal cavity (Fig. 5).

Rice. 5. Patient K., 51 years old, case history No. 3635/155. CT scan (before surgery): CT scan of the

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paranasal sinuses - CT signs of polypous darkening of both sides of the maxillary, ethmoid , frontal, main sinuses and nasal cavity.

By decision of the council, on March 06, 2019, the following operation was performed: Bilateral polypotomy , maxillary sinusotomy , frontotomy , ethmoidotomy and sphenoidotomy . During surgery, polyps were removed, but based on the principles of functional endoscopic sinus surgery, polyposis-altered mucous membrane of the nose and paranasal sinuses was left. The removed polyps were multiple with clear contours, soft consistency, smooth surface, and transparent.

Results of histological examination No. 1376-83: Chronic productive nonspecific inflammation with a predominance of eosinophilic infiltration.

Immunohistochemical study results : Gordon-Sweet staining - swelling, degradation and destruction of reticular fibers are noted , VEGF indicator - positive +++, high, Ki -67 - positive +++, high, Vimentin - positive +++, high, CD 45 - positive +++, high, CD 68 - positive +, low, CD 34 - positive +++, high, CD 138 - positive +++, high.

In the postoperative period, for the purpose of prevention, from March 6, 2013 to March 12, 2019, the patient received a course of antibiotic therapy. To treat the underlying disease, a short course of systemic corticosteroids was administered. From March 13, 2019 to September 13, 2019, the patient was prescribed long-term use of insufflation mometasone furoate 2 doses in each half of the nose 1 time per day (daily ¬exact dose 200 mcg).

During dynamic observation, a recurrence of the polypous process was noted at a period of 18 months. The patient was re-prescribed a short course of systemic corticosteroids and long-term use of insufflation mometasone furoate , 2 doses in each half of the nose, 1 time per day for 2 months. The patient is under our supervision; there has been no relapse of the polypous process for 3 years.

Clinical example: Patient R., 25 years old, case history No. 10046/431. He was hospitalized in the ENT Department of the 3rd Clinic of the Tashkent Medical Academy from 07/02/2019 to 07/06/2019 with a diagnosis of Chronic polypous rhinosinusitis .

Complaints upon admission: nasal congestion, difficulty in nasal breathing, nasal discharge, headaches.

From the anamnesis: he considers himself sick for several years. He associates his illness with frequent colds. In recent years, the patient consulted ENT doctors at his place of residence and received conservative treatment. In connection with the above complaints, the patient went to the ENT clinic of the 3rd clinic of the Tashkent Medical Academy on 07/02/2019 for examination and was hospitalized in the ENT diseases department for the purpose of surgical treatment.

The general condition of the patient is relatively satisfactory. Consciousness is clear. The skin and visible mucous membranes are of normal color. Peripheral nodes are not palpable. On auscultation of the lungs there is vesicular breathing. Heart rate 20 times a minute. Heart sounds are rhythmic, blood pressure is 120/80 mm Hg. Art. Pulse – 75 beats. in a minute. The abdomen is soft and painless. The liver and spleen are not palpable. Stool and urination are normal.

Status localis : facial deformity none. Anterior rhinoscopy: the nasal mucosa is pink, there is discharge in the left nasal cavity. The inferior turbinates are enlarged. Dense whitish polypous formations are

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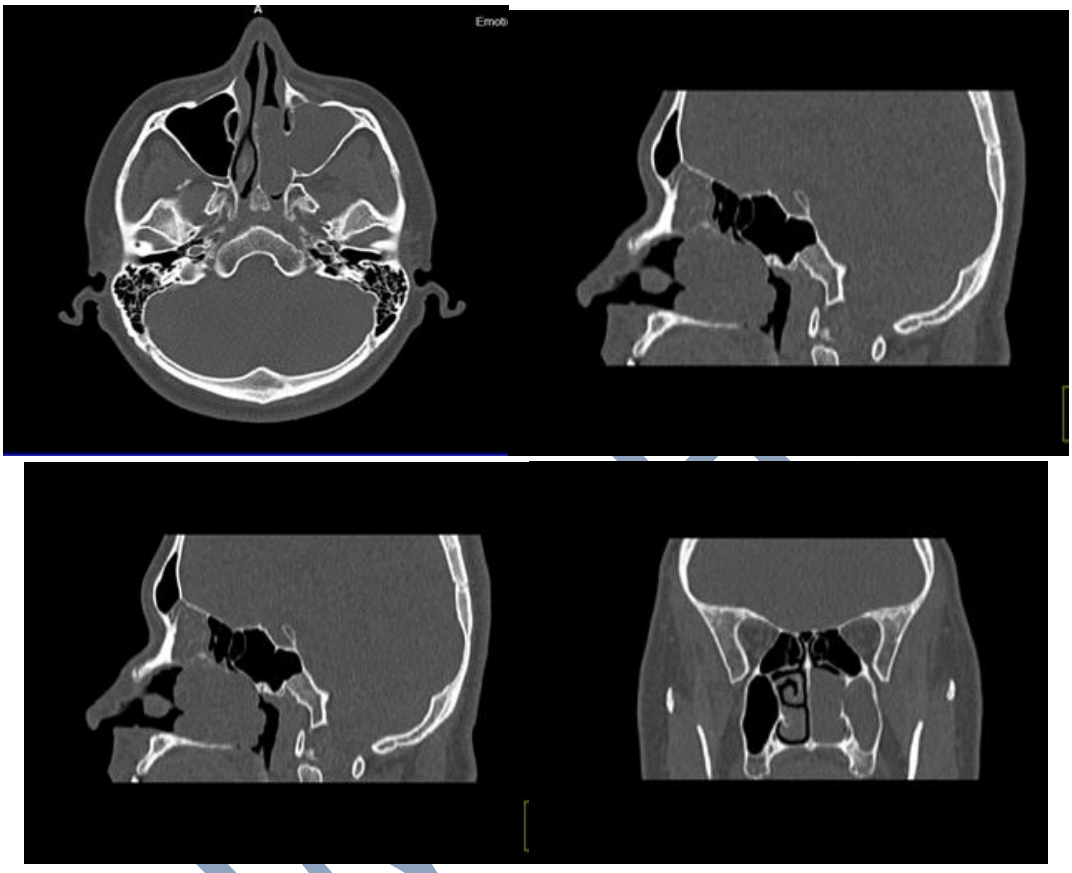
detected in the left half of the nasal cavity. Nasal septum in the midline.

Results of the patient's examination: CT scan of the paranasal sinuses - CT signs of polypous darkening of the maxillary sinus and nasal cavity on the left (Fig. 6).



Rice. 6. Patient R., 25 years old, case history No. 10046/431. CT scan (before surgery): CT scan of the paranasal sinuses - CT signs of polypous darkening of the maxillary sinus and nasal cavity on the left.

By decision of the council on July 3, 2019. An operation was performed: Left-sided polypotomy and maxillary sinusotomy . During surgery, polyps were removed, but based on the principles of functional endoscopic sinus surgery, polyposis-altered mucous membrane of the nose and paranasal sinuses was left. The removed polyps had clear contours, dense consistency, smooth surface, and whitish color.

Results of histological examination No. 4114-19: Fibrous polyp with elements of inflammation.

Morphometry results: polyp with a predominance of neutrophilic infiltration.

Immunohistochemical study results : Gordon-Sweet staining - tight junction of reticular fibers is noted , VEGF indicator - positive ++, moderate , Ki -67 - positive +, low, Vimentin - positive +++, high, CD 45 - positive +++ , high, CD 68 - positive +, low, CD 34 - positive +++, high, CD 138 - positive +++, high.

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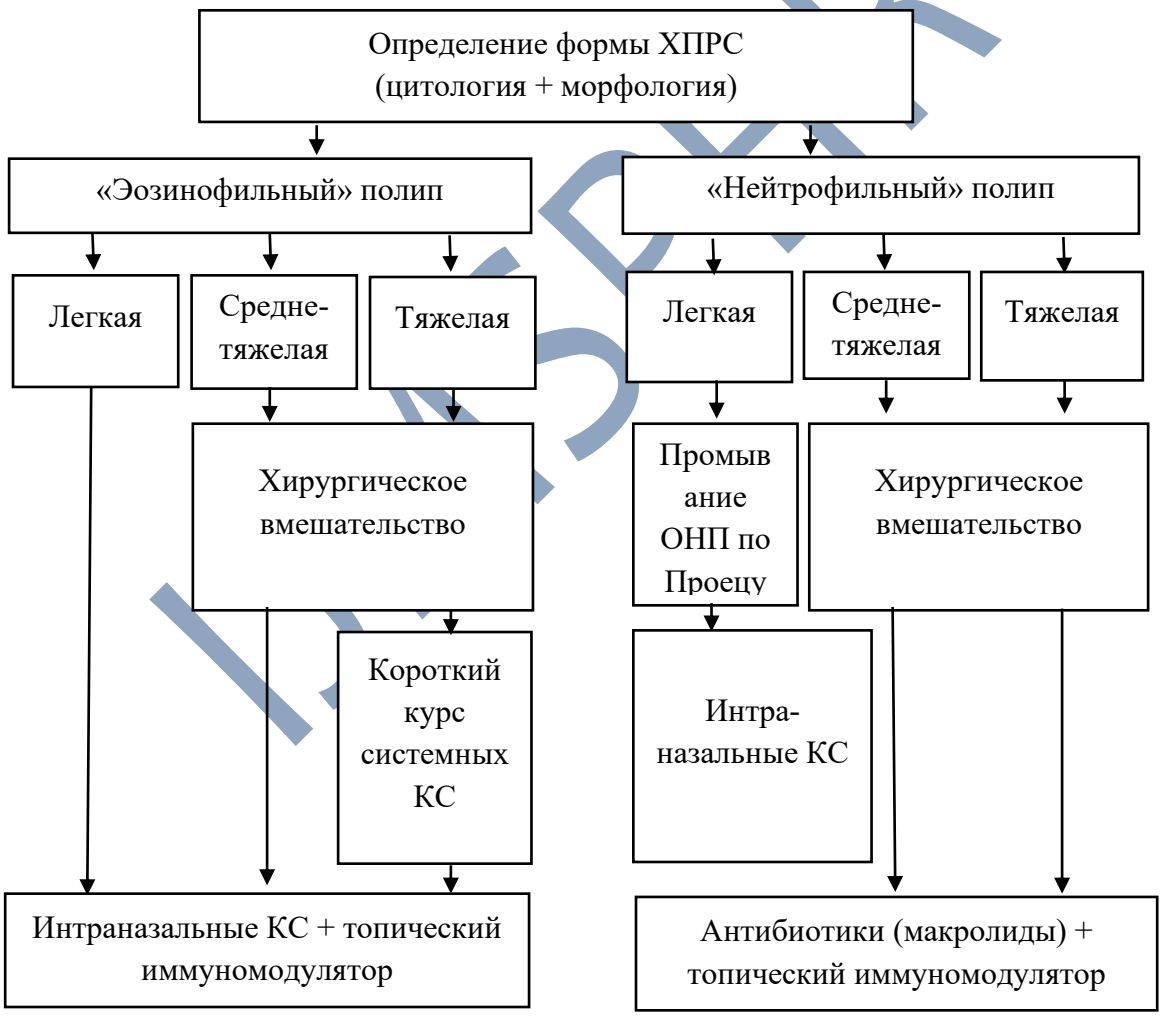
In the postoperative period for the purpose of prevention from July 3, 2019 to July 13, 2019. The patient received a course of antibiotic therapy and insufflation intranasal corticosteroid. From July 13, 2019 to November 13, 2019, the patient was prescribed long-term use of low doses of the macrolide roxithromycin 75 mg, 1 tablet 1 time per day orally after meals according to a regimen for 6 months. The patient is under our supervision; during dynamic observation, no relapse of the polyposis process was observed for 3 years.

Thus, to summarize this chapter, we can say that the isolated results of the complex treatment allowed us to restore the functions of the nasal mucosa, normalize immunological disorders in the body, which subsequently improved the quality of life of patients. Based on the results obtained, to increase the effectiveness of treatment of polypous rhinosinusitis , we have developed recommendations in the form of an "Algorithm for the treatment of chronic polypous rhinosinusitis " (Fig. 7).



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Rice. 7. Algorithm for the treatment of chronic polypous rhinosinusitis

CONCLUSIONS

Morphological and immunohistochemical studies of polypous tissue in patients with chronic polypous rhinosinusitis showed that in " eosinophilic " polyps the growth zone of the polypous process is relatively larger than in " neutrophilic " polyps, and also revealed the participation of cellular and humoral factors in the course of the disease , the formation in the nasal mucosa profound changes create conditions for the loss of its functional activity and the process of relapse.

The developed algorithm for the treatment of chronic polypous rhinosinusitis made it possible to develop new treatment approaches, including, together with the use of immunological, morphological and immunohistochemical methods, a comprehensive examination and measures to improve the quality of life of patients and predict the course of the disease.

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