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METHODS OF BACTERIOLOGICAL EXAMINATION OF NASAL SMEARS IN CHRONIC POLYPOID RHINOSINUSITIS

Soatov Ilyosjon Olim ugli - PhD candidate
Tashkent State Medical University (Tashkent, Uzbekistan)

Abstract. This study examined 85 people (85 patients in the study group and 20 individuals in the control group). Bacteriological studies were performed on smears taken from the nasal mucosa.

Key words: polypoid rhinosinusitis, basal membrane, glands, cysts.

Relevance of the problem. When examining bacterial sinusitis discharge from the nasal mucosa of patients with bacterial sinusitis using a fluorescence microscope in "biofilm-positive" smears, the presence of microorganisms immersed in the polymer matrix formed by them and surrounded by a biofilm layer was noted.

Introduction. Chronic polypoid rhinosinusitis (CPRS) is characterized by chronic productive inflammation of the mucous membrane of the nasal cavity and paranasal sinuses, accompanied by the formation and growth of polyps, with their recurrence after surgical treatment [1]. CPRS is a simultaneous proliferation of parenchymal elements and stroma, usually originating from the middle turbinate, anterior and posterior ethmoid cells, and can also arise from the mucous membrane of the maxillary sinuses.

Materials and research methods. We examined 85 patients with chronic bacterial rhinosinusitis (Table 1).

Table 1.

Distribution of CBRS forms in the study group

Form of rhinosinusitis	Number of patients
Maxillary ethmoiditis	31 (36%)
Maxillary frontoethmoiditis	22 (26%)
Maxillary frontosphenoethmoiditis	20 (23%)
Frontoethmoiditis	12 (15%)

TOTAL	85 (100%)

As can be seen from Table 10, the most common form of rhinosinusitis in the study group was maxillary ethmoiditis at 31 (36%).

The majority of patients in the main group were between 15 and 30 years old (50%). Bacteriological examination of smears from the mucous membrane of the middle nasal passage (Table 2) and discharge obtained during paranasal sinus puncture (Table 3) provided the following information.

Table 2.

Results of bacteriological examination of smears from the mucous membrane of the middle nasal passages in patients with chronic bronchiectasis.

Microorganism	Number of patients	Percentage (%)
Staphylococcus aureus	11	22
Staphylococcus haemolyticus	10	20
Staphylococcus epidermidis	9	18
Streptococcus pneumoniae	7	14
Klebsiella pneumoniae	5	10
Haemophilus influenzae	4	8
Staphylococcus haemolyticus + Klebsiella pneumoniae	2	4
Staphylococcus haemolyticus + Enterococcus faecalis	1	2
Klebsiella oxytoca	1	2
Total	85	100

Table 3.

Results of bacteriological studies of discharge from the affected paranasal sinuses in patients with chronic bronchiectasis.

Microorganism	Number of patients	Percentage (%)
Staphylococcus epidermidis	22	44
Klebsiella pneumoniae	10	20
Staphylococcus haemolyticus	4	8
Citrobacter sp	4	8
Streptococcus equi	3	6
Enterobacter aerogenes	3	6
Staphylococcus saprophyticus	4	8
Total	85	100

A study of the species composition of the nasal mucosa microflora revealed variability in the pathogen spectrum among 8 patients with chronic bacterial rhinosinusitis.

Examination of nasal mucosa smears from patients with bacterial rhinosinusitis using a fluorescent microscope identified two groups of patients: "biofilm-positive" (56%) and "biofilm-negative" (44%). No biofilms were found in local smears from the control group.

There were no significant differences between the groups in the questionnaire sections (Table 3).

Table 4.

Clinical characteristics of patients with CBRS

Characteristics of sinusitis	"Biofilm-positive"	"Biofilm-negative"

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Total number of patients with sinusitis	28	22
Antibacterial therapy for pre-hospital stage		
- administered	15	12
- not administered	13	10
Complaints after admission:		
Nasal congestion	19	16
Headache	25	20
Nasal discharge	20	21
Endoscopic findings:		
Mucosal hyperemia	25	19
Mucosal edema	20	17
Free purulent discharge	16	15
Results of sinus puncture (amount of purulent discharge)		
Large	**27**	-
Medium	1	17
Small	-	5

It should be noted that in all "biofilm-positive" patients (100%), significantly more purulent discharge was observed in the irrigation fluid during diagnostic and therapeutic puncture of the paranasal sinuses.

The object of the study was human tissue, specifically nasal polyps and the mucous membrane of the inferior nasal turbinates. The material was collected from male and female patients aged 35 to 70 years, totaling 70 individuals (50 patients in the study group and 20 patients in the control group). The study group consisted of patients with a clinically confirmed diagnosis of chronic polypous rhinosinusitis without concurrent inflammatory (purulent maxillary rhinosinusitis) or allergic (allergic rhinitis, bronchial asthma, aspirin triad) pathologies. The control group comprised patients without polyps and without inflammatory or allergic pathology of the mucous membrane, who underwent rhinoseptoplasty. Sections of nasal mucosa removed during surgery were used for a comparative analysis of morphological changes.

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