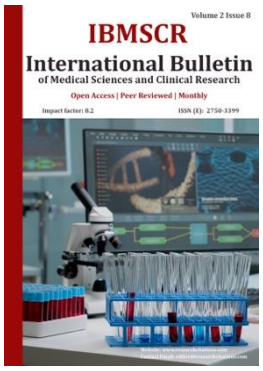

MODERN METHODS FOR TREATING POLYPOUS RHINOSINUSITIS

Narbayev Zafar Kamilovich
Andijan State Medical Institute.
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Abstract: Polyposis rhinosinusitis (PRS) is a chronic inflammatory disease of the nasal and paranasal sinus mucosa lasting more than 12 weeks, characterized by the formation of nasal polyps. A type 2 (Th2) immune response, eosinophilic infiltration, and cytokine imbalance play a key role in the pathogenesis of the disease. PRS is often accompanied by bronchial asthma and aspirin intolerance. Modern treatment includes intranasal corticosteroids, short-term systemic steroids, biologic therapy, and functional endoscopic sinus surgery. An individualized approach and long-term monitoring are the main conditions for effective control.

Keywords: polyposis rhinosinusitis, nasal polyps, chronic inflammation, eosinophilia, biologic therapy. Choanal atresia is an example of such a pathological condition. Atresia of the choanae can be complete or partial, anterior or posterior, unilateral or bilateral, and depending on the occluding tissue, it can be fibrous, cartilaginous, bony, or sometimes of mixed tissue. The thickness of this tissue can range from 2 mm to 12 mm. The cause of choanal atresia has not yet been fully studied. While some authors suggest the cause is congenital syphilis, others state that it arises from the failure of the bucco-nasal membrane, which forms from the soft palate during embryonic development, to resorb. Newborns with total choanal atresia cannot breathe freely through the nose or suckle, and may perish prematurely within the first days of infancy. However, infants born with unilateral choanal atresia may experience difficulty breathing (cough, shortness of breath, stridor, cyanosis). If children born with congenital total choanal atresia are enabled to breathe through a surgical procedure on their first day of life, the child may survive. In children born with partial atresia, attention is paid to the degree to which they have adapted to oral breathing. If inhaled with, the baby may survive. Congenital with partial atresia the degree of adaptation of oral breathing in children to adaptation. attention is paid.

Other symptoms include olfactory disturbance, taste disturbance, head aches, changes in the nasal mucosa, irritability, fatigue, physical and mental developmental delays, and craniofacial dysmorphia. Anterior rhinoscopy reveals a deviated nasal septum in the area of the atresia, atrophy of the nasal concha, a bluish discoloration of the nasal concha, and the nasal passage is narrowed in the area of atresia. Posterior rhinoscopy reveals unilateral or bilateral choanal occlusion, covered by a fine fibrous tissue.

Treatment. The treatment for choanal atresia is always surgical. There are 3 different methods of choana tomy.

1. Transnasal method (elimination of choanal atresia through the nasal cavity) is primarily performed on newborns and young children. In other words, the atresia is eliminated intranasally. In maternity hospitals, this is performed using trocars. In older children, an oval incision is made with a scalpel in the area of the atresia near the nasal septum and is widened with a choanotome. After that, the edges of the choana are shaped with a sharp bone-cutting curette. A special thermoplastic tubular drain is placed into the newly formed opening.

2. Transmaxillary method. This method is only performed if there is empyema of the maxillary sinus. This method cannot be used on newborns and young children because it is possible to damage the tooth buds.

3. Transpalatal method is performed through the hard palate. After the mucoperiosteal flap of the hard palate is elevated (0.5 cm away from the gums), the posterior edge of the hard palate is trephined. After entering the nasal cavity, the choanal atresia is eliminated. For older children, the transpalatal method remains an effective option. You can touch their tacks.

Polyposis rhinosinusitis is one of the most common chronic diseases in otorhinolaryngology practice, characterized by the formation of polypoid tissue resulting from prolonged inflammation of the mucous membrane of the nasal cavity and paranasal sinuses. According to modern classification, it is considered a phenotype of chronic rhinosinusitis with nasal polyps (CRSwNP). Clinically, the disease is characterized by constant nasal congestion, a decreased or complete loss of the sense of smell (anosmia), mucous discharge, and a feeling of pressure in the facial area. In particular, anosmia is one of the most typical symptoms of polyposis rhinosinusitis. According to epidemiological data, the condition occurs in 1-4% of the adult population. It is diagnosed more frequently in men and typically develops between the ages of 30 and 60. Polyposis rhinosinusitis has significant social importance as it considerably reduces patients' quality of life, leading to sleep disturbances and a decrease in work capacity. Its pathogenesis is based on type 2 immune inflammation. Cytokines IL-4, IL-5, and IL-13, produced by Th2 lymphocytes, enhance the migration and activation of eosinophils. Eosinophils accumulate in the mucous membrane, causing tissue remodeling and polyp formation. Polyposis rhinosinusitis often co-occurs with bronchial asthma, which indicates a shared pathogenetic mechanism affecting the upper and lower respiratory tracts. In some cases, the disease manifests as part of Aspirin-Exacerbated Respiratory Disease (AERD) and follows a more severe course. Diagnosis is based on clinical symptoms, endoscopic examination, and computed tomography (CT) results. Endoscopy allows for the identification of polypoid masses in the nasal passages, while CT assesses the extent of sinus involvement. When necessary, allergological tests are also conducted.

Prolonged bacterial infection and decreased local immunity lead to tissue damage in the nasal mucosa, causing chronic inflammation and creating a vicious cycle based on the stimulation of inflammatory mechanisms by bacteria and their products. In patients with chronic polypous rhinosinusitis, a decrease in the rate of mucociliary transport was noted, due to a reduction in the number of ciliated cells and cilia, and an increase in the number and hyperplasia of goblet cells.

Despite the full autonomy of the immune protection mechanisms of the nasal mucosa and its paranasal sinuses, local immunity is an integral and subordinate part of general immunity. Thus, a pathology in the immune system can trigger the development of pathology in the nose and its paranasal sinuses, as well as influence its progression.

Disorders in the humoral and cellular immunity systems play an important role in the pathogenesis of chronic polypous rhinosinusitis. Currently, many authors associate CPRS with secondary immunodeficiency conditions. In patients with CPRS, a disruption in the balance of the functional activity of regulatory and effector subpopulations of lymphocytes was identified - hyperfunction of the B-cell immune system, an increase in the number of T-helpers, and a decrease in the number of T-suppressors, while the levels of IgA, M, and G decrease.

Regarding the characteristics of the flora in patients with chronic rhinosinusitis, according to Brook, anaerobes and Staphylococcus aureus are the most common in chronic sinusitis. Pseudomonas aeruginosa is a potential pathogen in patients with immunodeficiency, in patients with nasal catheters or tubes, or in intubated patients. In the course of the study, the author notes that in patients with chronic sinusitis, aerobes (most often Enterobacteriaceae and Staphylococcus aureus) were cultured in 25% of cases, anaerobes (Peptostreptococcus and Fusobacterium subspecies, anaerobic gram-negative bacilli) in 34% of cases, and mixed flora in 41% of cases. During an exacerbation of chronic sinusitis, aerobes (Str. pneumoniae, Enterobacteriaceae, Staphylococcus aureus) are isolated in 27% of cases, anaerobes (Peptostreptococcus, Fusobacterium subspecies, anaerobic gram-negative bacilli) in 37% of cases, and mixed flora in 36% of cases. Thus, the author concludes that in chronic sinusitis, the flora is mainly represented by anaerobes, however, aerobes, which are recognized as the main causative agents of acute sinusitis, also play an important role. A.M. Khudiev conducted a bacteriological study in patients with chronic sinusitis: in 59% of cases, the bacterial flora of the nasal cavity and the maxillary sinus were a match. Staphylococcal flora was isolated in 50.7%, streptococci in 39.4%, E. coli in 7%, and polyflora in 16% of cases. In 2.8% of cases, the cultures were sterile.

Similar to pneumococcus, an increase in resistance is characteristic of H. influenzae and Moraxella catarrhalis. The primary mechanism for resistance development in these microorganisms is the production of β-lactamases. High activity is maintained by amoxicillin/clavulanate, cefuroxime, cefixime, cefpodoxime, and fluoroquinolones, while 24% of strains are resistant to cotrimoxazole. According to the literature, the main approach to treating chronic rhinosinusitis is the administration of a new generation of broad-spectrum oral antibiotics for 7-14 days without sinus punctures. In this regard, rhinosinusitis ranks 5th among all diseases in terms of the number of prescribed antibiotics. Refusal to use uncomfortable but highly effective methods for acute purulent sinusitis is a pressing issue, as many patients in otorhinolaryngology practice strictly refuse punctures and the use of a sinus catheter. Antimicrobial drugs can effectively act on various microorganisms, potentially causing profound changes in the quantitative and functional parameters of the immune system. Antibiotics inhibit antiviral activity and suppress the body's phagocytosis and antimicrobial resistance. By suppressing cellular immunity, antibiotics can lead to severe complications, including allergic diseases. Irrational antibiotic therapy for recurrent rhinosinusitis becomes one of the causes for the development of secondary immunodeficiency states. There are other problematic aspects in rational antibiotic therapy, such as the high probability of side effects when using an antibacterial drug. For instance, according to O.Poschanukoon and M. Kitcharoensakkul, the incidence of diarrhea with amoxicillin use reaches 18.1%. Furthermore, serious side effects can develop with the use of systemic antibacterial drugs. For example, some studies indicate that taking amoxicillin can lead to the development of liver damage. The development of hepatitis was observed in a 53-year-old patient with chronic rhinosinusitis after a course of treatment. In chronic rhinosinusitis, the oral drug of choice is an inhibitor-protected

aminopenicillin - amoxicillin - or second-generation oral cephalosporins such as cefuroxime axetil and cefaclor, as well as the macrolides clarithromycin, azithromycin, and the

tetracycline doxycycline. Severe chronic rhinosinusitis requires parenteral administration of inhibitor-protected aminopenicillins.

Conclusion. The clinical manifestations of polypous rhinosinusitis are the result of impaired nasal breathing, which is caused by functional disorders of the mucociliary transport system, the local immunity of the nasal mucosa, and the obstruction of the paranasal sinuses and their cavities by polypous growths. Chronic polypous rhinosinusitis develops against a background of moderate immunodeficiency of the T-cell link. In patients with a recurrent course of the disease, these issues are more pronounced, are not corrected, and do not normalize after surgical treatment.

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