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Long-Term Results of Endoscopic Operations in Chronic Sinusitis

Abdumutalipov U.Sh.

Abdumutalipov Ulugbek Shukhrat ugli

Department of otorhinolaryngology, Andijan State Medical Institute, Andijan, Republic of Uzbekistan

Resume. In recent years, there has been a significant increase in inflammatory diseases of the nose and paranasal sinuses, both in absolute numbers and their share in the structure of the overall JIOP morbidity. Considering the group of patients hospitalized in the JIOP hospital, the authors note that in 1981-1990 the proportion of patients with diseases of the nose and paranasal sinuses increased by 1.5-2% annually. Which were based on dispensary observation of 50,000 residents of Moscow using anterior and posterior rhinoscopy, polyps in the nasal cavity are detected in 1.02% of patients, and patients with polypous rhinosinusitis account for 5% of those who apply to the ENT rooms of polyclinics and 4% of those who apply to an allergist .

At the same time, the importance of this pathology is determined not only by its economic component, but also, to a greater extent, by its social significance. According to many authors, chronic rhinosinusitis significantly reduces the quality of life of patients.

Keywords: chronic rhinosinusitis, endoscopic surgery, long-term results.

Relevance. Chronic rhinosinusitis is one of the most common and often recurrent diseases of the nose and paranasal sinuses, the nature and mechanism of which have not been fully elucidated. The most common causes of chronic inflammation in the paranasal sinuses are: infection, allergy, local damage to the mucous membrane, as well as local anatomical causes. In the pathogenesis of the development of chronic rhinosinusitis, a significant role is played by the functional capacity and size of the sinus fistulas, impaired metabolism of arachidonic acid and intolerance to non-steroidal anti-inflammatory drugs, as well as impaired immunological mechanisms.

Despite the fact that some progress has been made in the treatment of acute rhinosinusitis, nevertheless, there is an increase in the number of patients suffering from chronic rhinosinusitis. The main principle of the treatment of chronic rhinosinusitis is the rational combination of measures of the general effect on the body with local treatment. The most powerful non-specific anti-inflammatory agent are corticosteroids. Numerous studies emphasize that long-term use of topical corticosteroids prevents the recurrence of polyposis or prolongs its remission.

If we talk about modern functional surgery of the paranasal sinuses, then it is a product of the parallel development of two directions: intranasal surgery, the history of which dates back to the 19th century, and the evolution of endoscopic examination of the nose and paranasal sinuses, which were originally used only for diagnostic purposes. All methods of polysinusotomy can be attributed to one of the following varieties. These are the classic techniques of W.Messerklinger and M.E.Wigand. As well as various options for maxillary etmoidotomy, in particular with the use of a microdebrider, a laser.

Since the 1990s, endoscopic operations on the paranasal sinuses have been used more and more widely in our country and are beginning to occupy a leading position in ENT surgery. Given the prevalence of chronic rhinosinusitis, their tendency to frequent exacerbations, recurrence after surgical treatment, sometimes in the next few months, as well as their significant impact on the quality of life of patients, the effectiveness of functional endoscopic rhinosinus surgery is becoming one of the most urgent problems in otolaryngology.

Purpose of the study. To conduct a comprehensive assessment of the effectiveness of endoscopic operations on the paranasal sinuses in chronic rhinosinusitis in the late postoperative period.

Materials and research methods. We examined 76 patients suffering from chronic rhinosinusitis in order to fulfill our task and to comprehensively assess the effectiveness of endoscopic operations in the long-term period after surgery.

Research results. As a result of a series of experimental studies, he made the following conclusion: if the sinus is opened so that at least part of the inhaled air enters its cavity, then the activity of the ciliated epithelium stops after a



few minutes. This fact, according to the author, is of paramount importance in planning a surgical intervention. Based on the results of these studies, the fundamental principles of sinus surgery were formulated: it is necessary to leave the sinus with a functioning mechanism, if possible; as far as possible, the natural anastomosis should be left intact; try to open the sinuses in such a way that the stream of inhaled air is not directed directly into their cavity; interventions on the nasal septum and turbinates should not change the passage of the inhaled air stream so that it is directed towards the natural openings of the paranasal sinuses.

The main criteria for the effectiveness of surgical treatment of patients with chronic purulent maxillary sinusitis were the endoscopic picture of the nasal cavity, the evaluation of computed tomography (CT) data of the paranasal sinuses, and the determination of the transport function of the ciliated epithelium.

Each experienced rhinosurgeon during anatomical dissection and during operations had the opportunity to see the optic nerve canal protruding more or less into the lumen of the sphenoid sinus or posterior ethmoid cells. The walls of this channel can also be very thin or have digestions. As early as the beginning of the 20th century, there were reports of cases of blindness in one eye as a result of damage to the optic nerve during surgery on the posterior group of the paranasal sinuses. Similar publications periodically appeared in subsequent years, and the question of the possibility of damage to the optic nerves did not become less relevant with the beginning of the widespread use of microscopic and endoscopic optics in rhinosurgery. The literature describes examples of bilateral blindness after ethmoidectomy. Although collisions with the pituitary gland and the second branch of the trigeminal nerve are less likely during polysinusotomy, the possibility of damage to them cannot be completely ruled out.

A good result was recorded in 92.5% of patients in the main group, in 60% of patients in the first comparison group and in 73.3% of patients in the second comparison group. A satisfactory result was shown by 7.5% of patients in the main group, 26.7 and 16.7% of patients in the first and second comparison groups, respectively. An unsatisfactory result was obtained in both comparison groups - 13.3% in the first and 10% in the second.

In endoscopic evaluation (Table 2), a good result was observed in 87.5% of patients of the main group, 60% of patients in the first comparison group and 70% of the second comparison group. A satisfactory result was obtained in 7.5% of patients of the main group, 23.3% and 20% of patients in the first and second comparison groups, respectively. An unsatisfactory result was recorded in 5% of patients of the main group, 16.7 and 10% of patients in the first and second comparison groups, respectively.

Complications of endoscopic endonasal sinus surgery are divided into intraoperative and postoperative. The first group includes: bleeding, rhino-liquorrhea, meningitis, blindness, intraorbital hematoma, orbital emphysema, diplopia, epiphora (lacrimation). The group of postoperative complications includes: exacerbation of concomitant bronchial asthma; with inechia, blocking access to the opened cavities of the lattice labyrinth; stenosis of the anastomosis between the operated sinus and the nasal cavity; neuralgia of the branches of the trigeminal nerve; anosmia.

A detailed analysis showed that unsatisfactory results in the main group were associated with significant stenosis of the natural fistula of the maxillary sinus in one patient and narrowing of the natural fistula to 0.3 cm with signs of a sluggish inflammatory process, but in the absence of obvious clinical symptoms and complaints - in another.

According to the data of anterior active rhinomanometry, in 25 patients with polypous rhinosinusitis, the normative parameters of the nasal cavity were reached (Fig. 10). SOP was 729 ± 15.3 cm³/s (before VC) and 788 ± 16.6 cm³/s (after VC) (p 0.001). In 19 examined patients, SOP was 525 ± 15.4 cm³/s (before VC) and 575 ± 13.6 cm³/s (after VC) (p 0.001). These indicators were significantly lower than the indicators of the total volumetric flow of the group of healthy individuals (p 0.05). In our opinion, this is due to inflammatory changes in the nasal mucosa. The total resistance was 0.298 ± 0.0347 Pa/cm³/s (before VC) and 0.278 ± 0.0375 Pa/cm³/s (after VC) (p 0.001). The indicators of total resistance in these patients were significantly higher than those of the group of healthy individuals (p 0.05). This group of patients was offered conservative treatment.

Staphylococcus epidermidis, which belongs to saprophytes, was sown in 24 patients. This made up the majority of patients (40.7%). Staphylococcus aureus was isolated from pathogenic microorganisms in 14 patients (23.7%). In 4 patients (6.8%), Corynebacterium spp was inoculated, in 6 - Streptococcus pneumoniae (10.1%). Klebsiella spp. were sown in 2 patients, Streptococcus gr. "A" hemolytic (3.4% each). Proteus vulgaris, Esherichia coli, Acinetobacter species, Pseudomonas aeruginosa (no 1.7%) were sown once.

In 7 patients (11.8%), microbial associations were noted, consisting of: Staphylococcus epidermidis and Corynebacterium spp in 2 patients (3.4%); Staphylococcus epidermidis and Streptococcus pneumoniae in 2 patients (3.4%); Staphylococcus aureus and Corynebacterium spp in 1 patient (1.7%); Staphylococcus aureus and Streptococcus gr. "A" hemolytic in 1 patient (1.7%); Pseudomonas aeruginosa and Streptococcus pneumoniae in 1 patient (1.7%). In 9 patients (15.3%) no growth of microorganisms was detected.

It should be noted that in 10 patients (16.9%) with polypous rhinosinusitis, the transport function of the ciliated epithelium was sharply reduced and was more than 30 minutes. This group included patients with obstructive polyps of



the nasal cavity (4 people - 6.8%), as well as patients who underwent repeated nasal polypotomies and endoscopic operations on the paranasal sinuses.

In 5 patients (8.5%) with polyposis rhinosinusitis, the dissolution time of the polymer film was more than 20 minutes, of which in one person (1.7%) this was due to dryness of the nasal mucosa, and in 4 (6.8%) - with obturating polyps in the common nasal passage.

In the study of the absorption function of patients with polypous rhinosinusitis, intense staining of the nasal mucosa was detected in 15 patients (25.4%). In 7 (11.8%) of them, there was a pronounced dryness of the nasal mucosa with the presence of crusts. 5 patients (8.5%) were chronic users of topical corticosteroid sprays. In the rest of the patients, a violation of the absorption function of the mucous membrane of the nasal cavity was detected only when examining a film with methylene blue.

Indicators of the functional state of the nasal mucosa in patients with polyposis rhinosinusitis are better than in the group of patients before surgery ($p < 0.05$). 83.1% of patients had satisfactory indicators of the functional state of the nasal mucosa.

Conclusion. The work carried out made it possible to scientifically substantiate the expediency of using rhinomanometric, endoscopic, functional research methods, as well as the method of computed tomography in the examination of patients with chronic rhinosinusitis in the late postoperative period.

The developed examination complex allowed to improve the tactics of managing patients in the late postoperative period, which helps to prevent the recurrence of the disease and improve the quality of life of the patient.

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