

EVALUATION OF THE EFFICACY OF TREATMENT BY PROBING THE FRONTAL SINUS

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Abstract: Currently, there is a significant increase in the incidence of frontal sinusitis. At the same time, the structure of this pathology changes, an increasing proportion is occupied by combined lesions of the paranasal sinuses, as well as chronic and sluggish processes in the frontal sinuses. In the ENT department under our supervision there were 37 patients diagnosed with chronic frontal sinusitis, aged 18 to 60 years. All patients were divided into two groups: the main group consisted of 19 patients who underwent long-term drainage using a subclavian catheter, and the control - from 18 patients who were washed with a sinus using a metal probe once a day. Thus, our treatment of patients with exudative frontal sinusitis by the method of long-term drainage of the sinuses (s) showed a good clinical effect, which made it possible to reduce the treatment time for patients by 2-3 days.

Keys words: frontal sinusitis, treatment, drainage, catheter, mucociliary activity

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Ethics approval and consent to participate. This study was approved by the Ethics Committee. Hospital and conducted following the guideline of the Declaration of Helsinki. Written consent was obtained from patients for participation.

Consent to participate

Not applicable.

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Not applicable.

Competing interests

The author reports no conflicts of interest in this work.

Introduction

The etiological factor in the development of sinusitis is a bacterial factor, the onset of inflammation in the sinuses in most cases is preceded by an acute infectious process - influenza or acute respiratory infection. Predisposing factors in the development of sinusitis are chronic diseases of the nasal cavity and nasopharynx, hypothermia, abuse of local vasoconstrictors, various occupational hazards, especially dust [2,6,7].

Thus, with the defeat of the paranasal sinuses, a vicious circle is created. Obstruction of the sinus fistula due to swelling of the mucous membrane leads to a decrease in the oxygen concentration in the sinus, an increase in the concentration of carbon dioxide, inhibition of mucociliary activity, mucus retention, a decrease in the barrier function of the mucous membrane, and the development of a purulent infection. The onset of the inflammatory process in the paranasal



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sinuses causes even greater obstruction of the mouth of the affected sinus. The peculiarity and specificity of the treatment of exudative frontal sinusitis lies not only in the appointment of antibiotics, but also in the methods of evacuation of purulent discharge from the sinus [1,5].

Currently, there is a significant increase in the incidence of frontal sinusitis. At the same time, the structure of this pathology changes, an increasing proportion is occupied by combined lesions of the paranasal sinuses, as well as chronic and sluggish processes in the frontal sinuses [2,4].

A particular problem in the treatment of chronic frontal sinusitis is the frequent recurrence of the disease after puncture and surgical treatment. The reasons for the recurrence of chronic frontal sinusitis are well known. The leading place among them is given to the narrowing and cicatricial fusion of the anastomosis of the frontal sinuses with the nasal cavity. At the same time, the formation of the fronto-nasal fistula is the final and most difficult stage of the operation on the frontal sinus. Most of the classical extranasal methods of operations provide good access to the frontal sinus, but do not solve the problem of an adequate fronto-nasal fistula and in many cases do not give a stable remission [2,7].

In full accordance with the concept of the rhinogenic nature of most rhinosinusitis, the so-called functional endoscopic surgical technique was developed for operations on the side wall of the nasal cavity and paranasal sinuses. The method gives good long-term results in chronic and recurrent sinusitis, especially in chronic exudative inflammation of the maxillary and ethmoid sinuses. The formation of an anastomosis during endonasal opening of the frontal sinuses is complicated by a more complex and variable anatomical structure of the frontal-ethmoid zone in comparison with the maxillary sinus. Possibilities of preoperative clarification of individual

anatomical features of the frontal-ethmoid zone, and how they affect the technique and long-term results of functional endoscopic surgery, are not well defined [3,6].

One of the effective methods of treating chronic sinusitis is sinus probing and washing with antiseptic solutions. Daily drainage of the sinus occurs through the fronto-nasal canal, the width and course of which have various options. It is quite easily closed by an inflamed mucous membrane from the side of the frontal sinus and middle nasal passage. Isolated frontal sinusitis is rare. Almost always it is combined with ethmoiditis, sinusitis, in connection with which the treatment of polysinusitis is most often carried out. To exclude re-probing, a drainage tube can be inserted into the sinus on a rigid conductor, bent in the shape of the probe [2,5].

Materials and research methods.

In the ENT department under our supervision there were 37 patients diagnosed with chronic frontal sinusitis, aged 18 to 60 years, of which 22 (59,5%) were men and 15 (40,5%) were women). The diagnosis was made on the basis of rhinoendoscopy, using a rigid endoscope with a section angle of 0 ° and 30 ° ; during endoscopic examination, the condition of the mucous membrane of the nasal concha, nasal septum, osteomeatal complex, and fistulas of the frontal sinuses was assessed; as well as radiography and computed tomography of the nose and paranasal sinuses. All patients were divided into two groups: the main group consisted of 19 (51,4%) patients who underwent long-term drainage using a subclavian catheter № 0,6), and the control - from 18 (48,6%) patients who were washed with a sinus(s) using a metal probe once a day. As a solution for washing in both groups, a mixture of warm saline 200 ml, an antibiotic (after determining the sensitivity of the microorganism), an antihistamine, chymotrypsin, a vasoconstrictor, an antifungal drug was

used. The procedure was performed 2 times a day for 4–7 days.

Results and its discussion.

We evaluated the dynamics of the clinical effectiveness of this technique in both groups based on the patient's complaints (headache, difficulty in nasal breathing, nasal discharge), rhinoendoscopic examination data (hyperemia and swelling of the nasal mucosa, hyperemia and enlargement of the middle and lower turbinates, the presence of secretions in the middle nasal passage and the posterior wall of the nasopharynx), the amount and nature of the discharge from the sinuses. In patients of the main group already on the 2nd day of treatment, there was a decrease in headache and improvement in nasal breathing, on the 3rd–5th day the headache stopped, nasal breathing returned to normal; the nature of the discharge on days 1–2 was mucopurulent or purulent, on the 3rd–4th day the discharge acquired a mucous character, and on the 7th day no pathological discharge was visually detected in the washings.

Rhinoendoscopic picture: on day 3–4, hyperemia, swelling of the nasal mucosa and middle turbinate decreased, due to a decrease in edema of the natural fistula, the amount of discharge from the middle nasal passage increased, and on day 7, the mucous membrane of the nose and middle concha acquired a pink tint, normalized size middle nasal concha, no discharge was found in the middle nasal passage. In the control group, 18 patients after local anesthesia underwent washing of the frontal sinus with a metal probe, through a natural fistula, for 4–7 days with a solution containing the same components that were used in patients of the main group. The positive dynamics of clinical manifestations compared with the main group differed by a difference of 2 to 4 days.

Conclusion.

Thus, our treatment of patients with exudative frontal sinusitis by the method of long-term drainage of the sinuses (s) showed a good clinical effect, which made it possible to reduce the treatment time for patients by 2-3 days.

References:

1. Abuzeid W. M. et al. Outcomes of chronic frontal sinusitis treated with ethmoidectomy: a prospective study //International forum of allergy & rhinology. – 2016. – T. 6. – №. 6. – C. 597-604.
2. Askar M. H. et al. Endoscopic management of chronic frontal sinusitis: prospective quality of life analysis //Annals of Otolaryngology, Rhinology & Laryngology. – 2015. – T. 124. – №. 8. – C. 638-648.
3. Fleischman G. M. et al. Treatment of chronic frontal sinusitis with difficult anatomy: A hybrid balloon technique in four cases //Allergy & Rhinology. – 2014. – T. 5. – №. 3. – C. ar. 2014.5. 0096.
4. Kubota K., Takeno S., Hirakawa K. Frontal recess anatomy in Japanese subjects and its effect on the development of frontal sinusitis: computed tomography analysis //Journal of Otolaryngology-Head & Neck Surgery. – 2015. – T. 44. – №. 1. – C. 1-6.
5. Mashkova T. A., Chernykh A. V., Nerovnyĭ A. I. Clinical and morphological aspects of diagnostics and treatment of exudative frontitis //Vestnik Otorinolaringologii. – 2010. – №. 5. – C. 10-12.
6. Sohal M., Tessema B., Brown S. M. Medical management of frontal sinusitis //Otolaryngologic Clinics of North America. – 2016. – T. 49. – №. 4. – C. 927-934.
7. Velasquez N. et al. Clinical and Radiologic Characterization of Frontal Sinusitis in the Pediatric Population //Annals of Otolaryngology & Laryngology. – 2021. – T. 130. – №. 8. – C. 923-928.

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