

## **The Removal Cysts of Maxillary Sinus Cavities through Mini-Access**

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**Annotation:** Diseases of the mucous membrane of the nasal cavity and paranasal sinuses consistently occupy a high proportion among all diseases of the ENT organs and are one of the most pressing problems of modern otorhinolaryngology. Among all sinusitis, inflammatory diseases of the maxillary sinuses account for the largest number, due to their prevalence, tendency to chronic recurrent course and insufficiency of traditional treatment methods. The aim of the work was to improve the methods of surgical treatment of patients with chronic inflammatory diseases of the maxillary sinuses. 43 patients were under observation, including 15 women, 28 men aged 15 to 65 years with cystic lesions of the maxillary sinuses. All patients underwent endoscopic surgery on the maxillary sinuses through a mini-probe. A technique has been developed by which it is possible to fully examine the sinus and carefully remove the cyst under endoscopic control using all the principles of minimally invasive surgery. The healing process of the surgical wound ends with the formation of a delicate scar within 7-10 days.

**Keywords:** Mini access, cyst, maxillary sinus, bor, trocar.

Diseases of the mucous membrane of the nasal cavity and paranasal sinuses steadily occupy a high specific weight among all diseases of ENT organs and are one of the most urgent problems of modern otorhinolaryngology. It should be noted that the main part of patients belongs to people of working age from 18 to 55 years old, thus the problem from medical to medical and social. The structure of the pathology itself is changing towards an increase in the number of combined lesions of the ENP, as well as chronic and sluggish processes. Among all sinusitis, inflammatory diseases of the maxillary sinuses account for the largest number, which is due to their prevalence, tendency to chronic and recurrent course and insufficiency of traditional methods of treatment. During the last 10-15 years, the choice of the method of surgical intervention on the maxillary sinus for the same pathology - purulent and polyposis sinusitis, as well as cysts varies from Subscribe to DeepL Pro to edit this document. Caldwell-Luke operation with removal of the entire mucous membrane, to various methods of "microgymnotomy". The Caldwell-Luca operation provides the most complete access to all parts of the maxillary sinus. At the same time, despite the radicalism present, recovery of patients after such surgical intervention does not always occur. It should be noted that intranasal surgeries performed with the use of microendoscopic intranasal technologies also do not always lead to the elimination of the inflammatory process in the maxillary sinuses. The endoscopic endonasal approach widens the natural sinus recess, thus providing drainage, but it is not always possible to inspect the sinus completely and thoroughly remove the cyst, polyps or foreign body. Thus, it can be stated that the problem of surgical treatment of maxillary sinus diseases is far from being finally solved, which predetermined the purpose of this work.

The aim of the work was to improve the methods of surgical treatment of patients with cystic lesions of the maxillary sinuses

In order to fulfill the purpose of the study, the following objectives were set:

1. To evaluate the efficacy of microgymnotomy in patients with cyst location on the posterior wall of the maxillary sinus.
2. To study the peculiarities of postoperative healing of the surgical wound at microgymnotomy.

**Patients and Methods.** There were 43 patients under observation, including 15 females, 28 males aged 15 to 65 years with cystic lesions of maxillary sinuses. The preoperative examination algorithm included anamnesis collection, endoscopy of the nasal cavity, computed tomography of the paranasal sinuses in coronal and axial projections, rhinomanometry. All patients underwent endoscopic surgery of the maxillary sinuses through a mini-access on the anterior wall of the MS.

**Methods of surgery.** Kozlov trocar and ball-shaped carbide burr were used for the operation. The trocar consists of a stylet ending with a trihedral end and a cannula (Fig. 1.).



**Fig.1 Kozlov trocar**

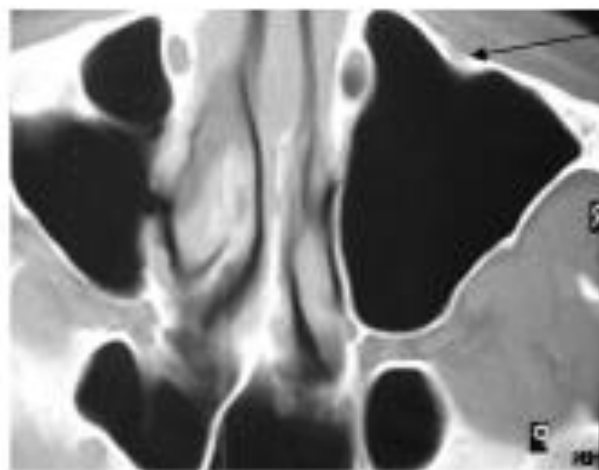


**Fig.2 Set of cutters for boron machine**

The cannula is made in the form of a cone-shaped funnel, the inner diameter of which is 6 mm, which allows simultaneously with the endoscope (0, 30 degrees and 2.2 mm in diameter) to introduce a shaver tip or Blackley forceps into the sinus for manipulation. Surgical intervention is performed under endotracheal anesthesia. Anesthesia is supplemented with local anesthesia by injecting 1 ml of 1% lidocaine with adrenaline 1: 200000 into the area of Fossa canina. After anesthesia, the lip on the side of the operation is pulled upwards with a Farabef hook and, orienting on a conventional line parallel to the back of the nose, a trocar is inserted into the canine fossa at the level between the 4th and 5th teeth. By means of rotational movements the trocar is inserted into the maxillary sinus to a depth of up to 5 mm. After that, the stylet is extracted holding the funnel with the other hand. Then the funnel is fixed to the flexible metal arm, which allows further manipulations in the sinus bimanually. Bleeding in this case, as a rule, there is no bleeding, because the wound edges are pressed by the edges of the funnel. If the sinus is filled with secretion, it is aspirated by suction. Then through the funnel of the trocar into the sinus is introduced endoscope with a diameter of 2.7 mm with optics of 30 degrees and assess the condition of the mucous membrane of the sinus, the size and location of the joint, the presence of pathological formations, foreign bodies in the sinus. After that, under the control of the endoscope, proceed to the removal of cysts, using Blakesley forceps or microdebrider.

In case of isolated cysts and absence of inflammatory changes in the sinus mucosa, the contents and the cyst shell were removed, but no dilation of the joint was performed. After completion of surgical manipulations, the sinus was intensively washed with Decasan solution in dilution 1:6, a final endoscopic revision was performed and proceeded to dilation of the joint. The joint was dilated through the sinus by removing a part of the posterior fontanelle. The operation was completed by removing the trocar funnel from the wound. The wound was not sutured. A bladder with ice was applied to the cheek area for 6 hours. In the postoperative period, patients were prescribed antibiotics for 5 days. It was strictly forbidden to blow for 3 days after surgery, as it could lead to the development of emphysema. Twice a day the toilet of the nasal cavity was performed, including anemization of the mucous membrane, irrigation of the nasal cavity with decasan solution. The toilet was completed with a 30-minute application of 10% methyluracil ointment on a swab. On the third day after the operation the sinuses were washed with antiseptic solution in patients in whom the expansion of the joints was performed.

**Results and their discussion.** On the 5th day 98 (97,03%) patients were discharged from the ENT department in satisfactory condition. No recurrences requiring repeated surgical interventions were observed in this group of patients during the observation period (maximum 2 years). Three patients were discharged on the 8th day. One of the objectives of our work was to investigate the peculiarities of postoperative healing of the surgical wound with minidostup. After surgery, patients filled out a questionnaire where they were asked to evaluate their complaints on a five-point scale according to the following criteria: cheek swelling, pain in the wound area, and decreased sensitivity in the form of numbness. In 15 patients the cheek edema on the next day after the operation was practically absent, in 18 patients it was insignificant, and in 10 patients it was moderately expressed. No patient had severe edema on the 1st day after the operation. By 5 days after the operation 32 patients had no cheek edema, 8 patients had minor edema, and 3 patients had moderate edema, which resolved by 8 days. No patient reported severe pain on the first day after surgery, 25 patients reported moderate pain, 12 patients had mild pain syndrome, and 6 patients had no pain at all. It should be noted that all patients received analgesics in the early postoperative period, so it is difficult to objectively evaluate this index. However, on the 3rd day 2 patients had a pronounced pain in the area of the postoperative wound, as it turned out later these patients developed a complication in the form of hemosinus. On the 7th day 97 patients had no pain, and only 4 patients had mild pain sensations that did not require analgesics. On the first day after the operation strong numbness in the area of the cheek and teeth on the side of the intervention was noted in 3 patients, moderate and weak numbness was in 15 and 23 patients respectively, 30 patients did not notice parasthesia at all. By the 7th day a slight sensation of numbness remained in 8 patients, which practically did not bother them. Healing of the wound under the lip does not require any special therapeutic measures. The healing process ends with the formation of a tender scar within 7-10 days after the intervention. A very interesting question is what happens to the anterior wall of the maxillary sinus in the future. Unfortunately, it is impossible to perform CT scanning in the distant postoperative period in all operated patients. However, in 32 observations CT studies were performed for one or another indication. Analysis of CT findings showed that a bone callus was formed at the site of trocar perforation of the anterior wall of the sinus, leaving no bone defect (Fig. 2.).



**Fig. 3 Arrow shows the site of TMJ opening 6 months after surgery**

**Conclusions:** 1. A technique has been developed, which allows to completely inspect the sinus and carefully remove the cyst under endoscopic control, applying all the principles of minimally invasive surgery. 2. The healing process of the surgical wound ends with the formation of a delicate scar within 7-10 days. A bone callus is formed in the place of perforation by the trocar of the anterior wall, leaving no bony defect

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