



Improving Surgical Treatment of Maxillary Sinus Cysts

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Abstract: Introduction. Chronic cystic maxillary sinusitis (HCVS), occupies one of the leading places on the list of chronic nasal pathology. There is still no consensus on the modern approach to the diagnosis and treatment of cysts. In modern otorhinolaryngology, the problem of choosing an adequate treatment for chronic cystic maxillary sinusitis remains urgent.

The purpose of our study is to develop proposals and recommendations aimed at improving the surgical treatment of maxillary sinus cysts. The research work was based on examining 161 patients with chronic cystic maxillary sinusitis, who were divided into 2 groups depending on the presence of pathological changes in the ostiomeatal complex. All patients underwent an otorhinolaryngological examination, which consisted of an endoscopic examination of the nasal cavity and nasopharynx, pharyngoscopy, otoscopy, laryngoscopy, and MSCT of the paranasal sinuses. Surgical treatment to remove the maxillary sinus cyst was performed in one and two stages, and three approaches were used, depending on the location of the cyst in the sinus.

Results. The use of differentiated endoscopic surgery significantly improved the quality of the treatment of maxillary sinus cysts, and reduced the severity and number of complications after surgery.

Conclusions. With different cyst locations in the maxillary sinus, it is necessary, in our opinion, to choose a tactic that will provide better visualization of the cyst in the sinus and less trauma.

Key words: chronic cystic maxillary sinusitis, ostiomeatal complex, quality of life, endoscopy, paranasal sinuses.

Relevance

In otorhinolaryngologic practice, chronic cystic maxillary sinusitis (CMA) is often encountered, which occupies the leading position among chronic sinusitis. Over the last 20 years, the incidence of this disease has been increasing [1,4,8]. Inflammation of paranasal sinuses (PNS) is the most frequent disease in the structure of ENT pathology. The origin of nasal paranasal sinus cysts is usually associated with a chronic inflammatory process in the nasal perinasal sinuses, and according to some authors, the etiology of PNS cysts is more related to allergy, so they are considered as a manifestation of allergic sinusitis [3,6,10]. To date, there is no standardized opinion on the symptomatology of the course of cystic sinusitis, and interest in this pathology is not diminishing. A unified standard of modern diagnostics and treatment of cystic sinusitis has not been created. Modern rhinosurgery in otorhinolaryngology is looking for new, adequate principles of solving the problem of choosing an appropriate treatment for chronic cystic maxillary sinusitis [2,5,7,11]. At present, finding ways to improve the quality of surgical treatment of maxillary sinus cysts acquires an important meaning [9,12].

The aim of our study was to justify the choice of a differentiated approach in the surgical treatment of maxillary sinus cysts.



Materials and Methods of Study. The basis of our study consisted of 161 patients with chronic cystic maxillary sinusitis (CCMS), who were on outpatient and inpatient observation in the clinic of OOO “Golden medical group”, in the period from 2018-2023. All patients underwent surgical intervention to remove cysts from the maxillary sinus. When collecting anamnesis, one of the main complaints in all patients was headache (98%), 70% of patients complained of nasal discharge of mucous character. General weakness was detected in 61% of patients. 34.5% of patients reported a feeling of pressure in the area of the affected sinus. Most of the patients were found to have mucous flowing down the posterior wall of the nasopharynx and oropharynx. The study began with an otorhinolaryngologic examination, which consisted of endoscopic rhinoscopy, pharyngoscopy, otoscopy and laryngoscopy, and tomographic examination of the perinasal sinuses.

All patients underwent multispiral, on Siemens Somatom Sensation Cardiac (Germany), and cone-beam computed tomography. The study was performed in axial, coronal and sagittal projections. Computed tomography data were an important navigational material for the most accurate, sparing and safe surgical interventions. In the majority of cases n=53 (86%) unilateral lesion of maxillary sinuses was detected.

The study was conducted in different groups, main (n=161) and control (n=142).

Patients of the main group were observed by us in the department of otorhinolaryngology of Samarkand Regional Medical Center and in a private clinic (ENT-Markazi, Gamma-med, Doctor-O). Patients in the control group were retrospectively analyzed for case histories who were treated in the otorhinolaryngology department of Samarkand Regional Medical Center and other private clinics in Samarkand.

Patients of the main group were divided by localization of the cyst in the TMJ, as well as by the presence of pathological changes in the ostiomeatal complex (OMC). Among such changes we found such changes as nasal septum curvature in the form of a ridge at the level of the middle shell, bullous hypertrophy or curved middle shell, hypertrophy of the lattice bladder, anomalies of the hook-shaped process, the presence of Galer cells and additional accessory sinus of the maxillary sinus. Based on these data, we divided all patients in the main group into 2 large groups.

Table 1. Distribution of patients of the main group by groups

Patient groups n=161	
Group 1	n=58
Group 2	n=103

Group 1 included patients without pathologic changes in the structures of the maxillary sinus (n=58), and group 2 included patients with pathologic changes in the structures of the maxillary sinus (n=103). Each group was divided into subgroups a, b and c depending on the location of cysts in the maxillary sinus. Thus, groups 1a (n=33) and 2a (n=57) included patients with the location of the cyst on the inferior wall of the TMJ. Group 1b (n=14) and 2b (n=29) included patients with cysts located on the posterior wall of the TMJ. Group 1c (n=11) and 2c (n=17) included patients with cysts located on the anterior and superior walls of the TMJ (Fig.1).

Table № 2. Main complaints of patients

Patient complaints N=161	Number of cases	%
Headache	95	59,3%
Disturbance of nasal breathing	56	35,1%
Nasal discharge	103	64,2%
Mucus flowing down the posterior pharyngeal	49	30,6%



wall		
Pain in the projection of the TMJ	51	32,1%
Olfactory disturbance	25	16,05%
asymptomatically	35	22,1%

Results of clinical studies All patients underwent surgical treatment for cyst removal. The surgical intervention was performed under general anesthesia with additional local anesthesia, and in some cases by patients' consent only under local infiltration anesthesia.

In group 2 patients (n=103) the surgical intervention consisted of 2 stages, the first stage consisted of correction of intranasal structures and pathologic changes of the ostiomeatal sinus (partial resection of the middle shell, hook-shaped process, joining of the additional joint with the main one, opening of the Haller cells, septoplasty). At the second stage, the maxillary sinus was opened depending on the cyst localization. Patients from group 1 (n=58) underwent only the second stage of surgical intervention.

When cysts were localized on the lower wall of the TMJ, patients underwent sinus opening using our improved technique through the lower nasal passage. Our technique consisted in the fact that after breaking and luxation, medialization of the lower nasal shell a "G" shaped incision of soft tissues of the lateral wall of the lower nasal passage with the length of 1.5 -2 centimeters was made. Soft tissues were cut off with the help of a raspator, after exposing the bony wall, a boron was used to create a joint sufficient for simultaneous insertion of the endoscope tip and shaver nozzle. After visualization of the cysts with the endoscope, they were removed with forceps. The sinus was washed with warm physiologic solution. Upon completion of manipulations in the sinus, a syntomycin swab was placed in the lower nasal passage, which was removed after 1-2 days.

When cysts were localized on the posterior wall of the TMJ, patients underwent sinus opening through the anterior wall of the TMJ (microgagymorotomy). And when cysts were located on the upper and anterior walls, opening of the TMJ through the middle nasal passage was performed.

During surgical interventions we used endoscopic optics 2,7 and 4 mm, with angles of vision from 00 to 700; video equipment with HD monitor and necessary instruments.

In early and late postoperative periods, endoscopic examinations and, if necessary, dressings were performed, and the dynamics of changes in the postoperative inflammatory process was recorded in different terms of the postoperative period (up to 2 years).

On the 7th-10th day after the surgical interventions we performed lavage of the maxillary sinus with warm physiologic solution, with the addition of antibiotic, antiseptic and proteolytic enzyme. Endoscopic and retgenologic examination of the maxillary sinus was performed on day 30, after 3, 6 and 12 months. If necessary, fibrin films and traction, crusts and scabs after coagulation were removed. All patients were treated with antibiotic therapy depending on the results of bacteriologic culture with determination of sensitivity to one or another antibiotic. As a local desensitizing therapy a local glucocorticoid drug of combined action Rialtris was prescribed for a duration of a year to 2 years. The composition of Rialtris includes mometasone furoate and olopatadine, these active substances are representatives of 2 different classes of drugs (synthetic glucocorticosteroid and H1-histamine receptor antagonist).

Patients of the control group (n=142) underwent cyst removal by access through the middle nasal passage (113 patients) and access through the anterior wall, microgagymorotomy (29 patients). During surgical treatment of these patients the localization of the cyst in the TMJ and the presence or absence of pathological changes in the structures of the TMC were not taken into account.

Our study revealed the following complications in our patients: trigeminal neuropathy, cyst recurrence, suppuration of the maxillary sinus, a feeling of heaviness in the area of the anterior sinus wall, adhesions in the middle and lower nasal passages.

Table 3. Presence of complications in patients after surgical intervention.

	Types of complications	Main group						Control group
		Group 2			Group 1			
		2a	2B	2c	1a	1B	1c	
1	Neuropathy of the second branch of the trigeminal nerve	-	3	-	-	5	-	11
2	Recurrent cyst formation	-	-	1	-	-	1	9
3	Inflammation of the operated sinus	-	1	-	1	-	-	10
4	Sensation of compression and heaviness in the projection of TMJ	-	3	-	-	2	-	7
5	Formation of adhesions in the nasal passages	2	-	3	1	-	2	7

When using differentiated endoscopic surgical intervention, as we can see from the table, the quality of the performed treatment of maxillary sinus cysts in the patients of the main group has significantly increased, which is expressed by a decrease in the number of complications after surgical intervention (Table 3).

Conclusions. The choice of tactics of surgical treatment of maxillary sinus cysts should always be left to the operating surgeon. Comparison of the results of our study on the choice of the course of surgical intervention suggests that in case of different locations of cysts in the maxillary sinus it is necessary, in our opinion, to choose such a differentiated tactics with better visualization of the cyst in the sinus, less traumatism and recurrences of the disease.

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