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10-YEAR EXPERIENCE OF SURGICAL TREATMENT OF GASTROESOPHAGEAL REFLUX DISEASE

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Abstract

Gastroesophageal reflux disease (GERD) is a common pathology among benign diseases of the upper gastrointestinal tract. Lifestyle adjustments and conservative treatments are effective in most patients and are the main treatment for GERD. But despite this, some patients require surgery - antireflux surgery. The article analyzes the results of surgical treatment of patients from 2010 to October 2020 who underwent surgical treatment for GERD in the conditions of the department of surgery of the gastrointestinal tract of the National Scientific Center of Surgery named after A.N. Syzganov.

Keywords
gastroesophageal reflux disease, Nissen's fundoplication, antireflux surgery, reflux esophagitis

Гастроэзофагеяльді рефлюкс ауруын хирургиялық емдеудің 10 жылдық тәжірбиесі

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Аңдатпа

Гастроэзофагеальді рефлюксты ауру (ГЭРА) асқазан-ішек жолдарының жоғарғы бөлігінің кең таралған ауруы ретінде белгілі. Көп науқастарда өмір сүру салтын өзгерту және консервативті емді қолдану ГЭРА-ның негізгі, әрі тиімді емдеу түрі болып саналады. Алайда, кейбір науқастарға хирургиялық ем – антирефлюксті операция қажет. Мақалада 2010 жылдан бастап 2020 жылдың қазан айына дейінгі А.Н. Сызғанов атындағы ҰҒХО-ның асқазан-ішек жолдары хирургиясы бөлімшесінде ГЭРА бойынша ем алған науқастардың хирургиялық емдеу нәтижелері талданған.

Түйін сөздер
гастроэзофагеальді рефлюксты ауру, Ниссен бойынша фундопликация, антирефлюксты ота, рефлюкс эзофагит

10-летний опыт хирургического лечения гастроэзофагеальной рефлюксной болезни

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Аннотация

Гастроэзофагеальная рефлюксная болезнь (ГЭРБ) является распространенной патологией среди доброкачественных заболеваний верхнего отдела желудочно-кишечного тракта. Коррекция образа жизни и консервативные виды лечения эффективны у большинства пациентов и является основным видом лечения ГЭРБ. Но несмотря на это, некоторым пациентам требуется хирургическое вмешательство - антирефлюксная операция. В статье проанализированы результаты хирургического лечения больныхс 2010 года по октябрь 2020 года, которым было проведено оперативное лечение по поводу ГЭРБ в условиях отдела хирургии желудочно-кишечного тракта Национального научного центра хирургии им. А.Н. Сызганова.

Ключевые слова
гастроэзофагеальная рефлюксная болезнь, фундопликация по Ниссену, антирефлюксная хирургия, рефлюкс эзофагит

Introduction

According to the WHO classification, GERD is a chronic recurrent disease characterized by reflux into the esophagus of gastric or duodenal contents resulting from disturbances in the motor-evacuation function of the esophagogastroduodenal zone, which are manifested by symptoms that disturb the patient and the development of complications [1].

The high prevalence of this disease among the working-age population is one of the reasons for the decline in the quality of human resources, and this makes the topic relevant not only in the health care system, but also in the socio-economic sphere. The frequency of GERD symptoms among the adult population of Europe is in the range of 8.8-25.9%, North and South America is in the range of 18.1-27.8% and 23%, respectively, and according to scientists from East Asia, this figure reaches from 8, 7 to 33.1% [3].

Reflux of acidic contents of the stomach and duodenum leads to symptoms of GERD: heartburn, belching, cough, dysphagia, etc. There are also complications of GERD, such as erosive esophagitis, bleeding, peptic ulcers of the esophagus, peptic strictures of the esophagus, Barrett's esophagus and esophageal carcinoma [2]. At the present stage of development of medicine, GERD is a multifactorial pathology that requires an integrated approach to prevention and treatment. Conservative treatment is aimed at eliminating the symptoms of GERD, as well as preventing and treating complications and improving the patient's quality of life [3].

With the ineffectiveness of drug therapy, as well as with complicated forms of GERD, surgical intervention is indicated. In the recommendations of SAGES (Society of American Gastrointestinal and Endoscopic Surgeons), the "gold standard" of surgical treatment of GERD is laparoscopic fundoplication according to Nissen and Toupe. However, this operation has its drawbacks, and basically the success of the performed operation depends on the qualifications and skills of the surgeon and technical equipment [2,4,5].

In the literature, many complications of the primary operation are described. The most common complications were the migration of the fundoplication wrap into the mediastinum (from 18.8% to 30%) [6] and the formation of a paraesophageal hernia (6.7%) [7]. Thus, despite the significant progress made in recent years in the development of new minimally invasive methods for correcting GERD, there are many unresolved problems, one of which is the creation of an optimal fundoplication wrap when performing laparoscopic fundoplication.

Purpose

Comparative analysis of the clinical outcomes of laparoscopic and open Nissen fundoplication of adult.

Materials and methods

The study is based on a retro- and prospective analysis of the case histories of patients who underwent surgical treatment for GERD on the basis of the Department of Gastrointestinal Surgery of the National Scientific Center for Surgery named after A.N. Syzganov. An analysis of the case histories of 340 patients from 2010 to October 2020 was carried out, the study involved 124 (36.4%) men, 216 (63.6%) women aged 19 to 84 years. The main type of surgical correction of GERD was total (circular) Nissen fundoplication.

The introduction of minimally invasive technologies into surgical practice has increased the number of laparoscopic antireflux operations. The trend in the choice of surgical access is shown in the diagram (Figure 1).

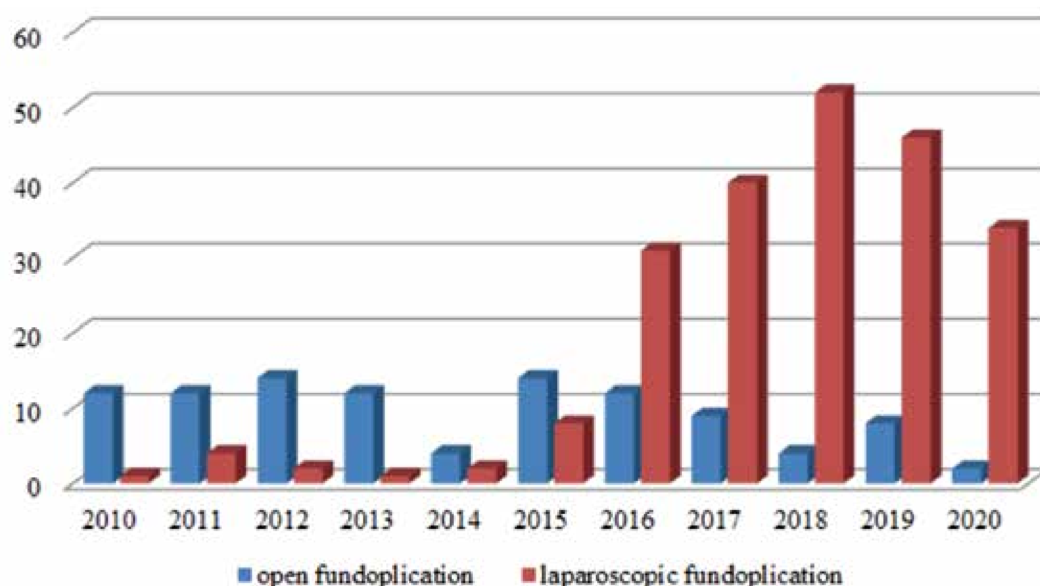

Figure 1.
Trends in the choice of surgical access

Table 1. The distribution of patients among groups by diagnosis

Diagnosis	Controle group (n=118)		Main group (n=222)		Total (n=340)		p
	Abs.	%	Abs.	%	Abs.	%	
GERD with hiatal hernia	95	80,5	193	86,9	288	84,8	p>0.05
GERD with esophageal stenosis	13	11,1	16	7,3	29	8,5	p>0.05
Barret's esophagus	3	2,5	8	3,6	11	3,2	p>0.05
Peptic esophagitis	7	5,9	5	2,2	12	3,5	p>0.05
Total	**118**	**100,0**	**222**	**100,0**	**340**	**100,0**	

The control group consisted of 118 patients who underwent traditional types of interventions. Also in this group were included patients (5 cases), reoperated for relapse after various types of antireflux surgery.

The main group consisted of the remaining 222 patients who underwent fundoplication with laparoscopic access (data are presented below - table 1).

Patient complaints were consistent with the clinical manifestations of GERD. Heartburn, being the main symptom of GERD, according to our data, was detected in 84 (71.2%) patients in the control group and in 189 (85.5%) patients in the main group. Pain syndrome of varying intensity in the epigastrium and behind the sternum was experienced by 91 (77.1%) and 129 (58.1%) patients of the control and main groups, respectively. Most of the observed pain syndrome occurred during the period of heartburn. Also, the frequent complaints of patients were discomfort and heaviness in the epigastric region. A feeling of discomfort was experienced by 80 (67.8%) patients in the control group and 182 (81.9%) patients in the main group. Severity in the epigastricregion was observed in 48 (40.6%) patients of the control group, in the main group - 154 (69.3%) patients. The ratio of the remaining symptoms is indicated in the diagram (Figure 2).

In the preoperative period, all patients of both groups underwent examination, including the collection of complaints and anamnesis data, physical examination methods, clinical laboratory studies, instrumental studies. To assess the state of the upper gastrointestinal tract, mainly polypositional X-ray contrast and endoscopic studies of the esophagus and stomach were carried out.

According to the results of an endoscopic study (classification of Savary-Miller, 1978), GERD of the I degree was detected in 82 (24.2%) patients, II - 158 (46.5%) patients, III - 61 (17.9%) patients , IV - 39 (11.4%) patients (figure 3). Hiatal hernia of varying degrees was detected in 287 (84.4%) patients (figure 4).

Indications for surgical treatment were: 1) the ineffectiveness of complex conservative therapy; 2) a combination of pronounced manifestations of GERD with hernias of the esophageal opening of the diaphragm of any size; 3) the presence of extra-esophageal manifestations of GERD - cardiac, bronchopulmonary and others .; 4) the presence of complicated forms of GERD (Barrett's esophagus, peptic ulcers of the esophagus, esophageal stenosis); 5) the presence of concomitant surgical pathology (gallbladder stones, gastric ulcer and duodenal ulcer, hernias of the anterior abdominal wall).

Results and discussion

All patients of the main group (n = 222) were performed laparoscopic Nissen fundoplication. Of

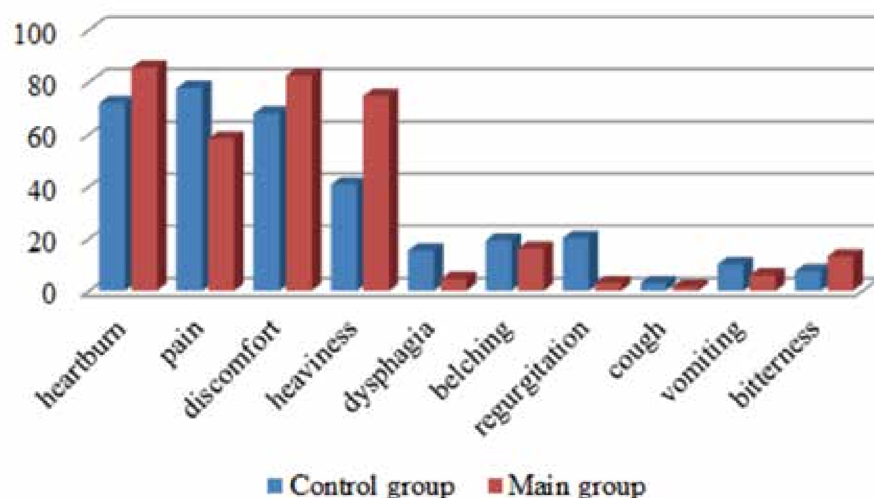

Figure 2. Distribution of GERD symptoms in patients of both groups

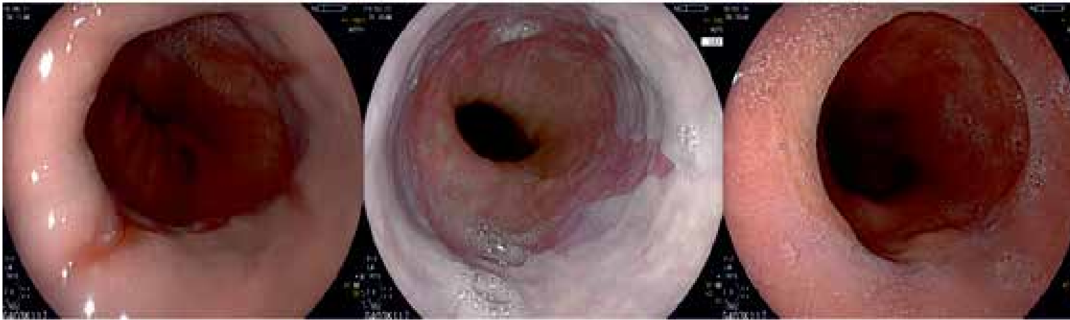

Figure 3.
Endoscopic picture of GERD

Figure 4.
X-ray examination of hiatal hernia

these, 3 (%) patients who had stenotic esophagitis in the preoperative period underwent endoscopic bougienage of esophagus. When performing laparoscopic fundoplication, a calibration catheter with a diameter of 36 Fr (12.0 mm) was used to form the cuff.

The results of surgical treatment of all 340 patients were analyzed. The average duration of surgery was 119.04 ± 46.82 and 136.34 ± 52.01 minutes in the control and main groups, respectively. At the stage of accumulating experience and mastering the laparoscopic technique, the operation lasted up to 3.5 hours. Over time, the minimum duration of surgery was 60 minutes. All patients were activated on the 1st day after the operation and were led according to the technology of accelerated rehabilitation. For the control group, the average postoperative bed-day was 9.79 ± 4.42 days, for the main group - 6.3 ± 3.16 days.

In patients of the control group who underwent open fundoplication, intraoperative complications were observed in 4 (3.3%) patients. Of these, spleen decapsulation was in 3 cases, which required splenectomy. In 1 patient, the mediastinal pleura was opened, in connection with this, the pleural defect was sutured and an additional drainage tube was installed in the pleural cavity. In 3 (1.3%) cases of the main group, complications were observed in the postoperative period. In the first case, the patient on the third day after the operation developed left-sided lower lobe pneumonia. Conducted a comprehensive conservative, antibacterial therapy, against which the patient's condition improved. 1 patient developed exudative pleurisy, pleural cavity drainage was performed, as well as antibiotic treatment, as a result of which the patient was discharged with improvement. Dysphagia appeared in 1 patient, which was eliminated by two sessions bougienage of esophagus.

Intraoperative complications were observed in 3 (1.3%) cases of the main group. Of these, in 2 cases, the mediastinal pleura was damaged, which was complicated by intraoperative pneumothorax. The pleural defect was sutured, drainage tubes were installed in the pleural cavity. In 1 case, with the introduction of the calibration probe, perforation of the abdominal segment of the esophagus occurred, and therefore a conversion was performed. The perforation hole was sutured with a 2-row seam, in addition, the seam area was covered with a fundoplication cuff. In 2 (0.9%) patients of the main group, in the early postoperative period, a clinic of dysphagia was observed, which was eliminated with one session of pneumodilatation.

With Barrett's esophagus, 11 patients (3.2%) in both groups underwent Nissen fundoplication. In the postoperative period, all patients with Barrett's esophagus were prescribed continuous antisecretory therapy with proton pump inhibitors.

There were no fatal outcomes in the intra-, postoperative period in our observations.

Long-term results of surgical treatment were studied in patients included in the period from 2 to 24 months or more. 126 patients who were operated on in the period 2015-2020 were available for the assessment. Of these, 17 (13.5%) patients in

the control group and 109 (86.5%) patients in the main group. The GERD-HRQL questionnaire was used to assess the effectiveness of fundoplication. This questionnaire allows you to determine the complaints of patients after undergoing antireflux surgery.

When studying long-term results, positive results of the intervention, in the form of the disappearance of symptoms of gastroesophageal reflux, were noted by 104 (88.1%) patients in the control group and 209 (94.1%) patients in the main group. GERD recurrence was observed in 2 patients: 1 case after open and 1 case after laparoscopic correction of hiatal hernia. Both patients underwent open Nissen refundoplication.

Conclusion

Nissen laparoscopic fundoplication remains the "gold standard" and is the operation of choice in antireflux surgery in the treatment of patients with GERD. Compared with open interventions, it allows to reduce the patient's hospital stay and significantly improve the quality of life of patients in the long-term period. This technology allows without the expansion of operational access to successfully perform simultaneous operations on the abdominal organs.

References

1. Hunt, Richard UK/Canada; Armstrong, David Canada; Katelaris, Peter Australia; Afihene, Mary Ghana; Bane, Abate Ethiopia; Bhatia, Shobna India; Chen, Min-Hu China; Choi, Myung Gyu Korea; Melo, Angelita Cristine Brazil; Fock, Kwong Ming Singapore; Ford, Alex United Kingdom; Hongo, Michio Japan; Khan, Aamir Pakistan; Lazebnik, Leonid Russia; Lindberg, Greger Sweden; Lizarzabal, Maribel Venezuela; Myint, Thein Myanmar; Moraes-Filho, Joaquim Prado Brazil; Salis, Graciela Argentina; Lin, Jaw Town Taiwan; Vaidya, Raj India; Abdo, Abdelmounen Sudan; LeMair, Anton The Netherlands; Review Team: World Gastroenterology Organisation Global Guidelines, Journal of Clinical Gastroenterology: July 2017 - Volume 51 - Issue 6 - p 467-478. https://doi.org/10.1097/mcg.0000000000000854
2. Moore, M., Afaneh, C., Benhuri, D., Antonacci, C., Abelson, J., &Zarnegar, R. (2016). Gastroesophageal reflux disease: A review of surgical decision making. World journal of gastrointestinal surgery, 8(1), 77–83.https://doi.org/10.4240/wjgs.v8.i1.77
3. Sandhu, D. S., & Fass, R. (2018). Current Trends in the Management of Gastroesophageal Reflux Disease. Gut and liver, 12(1), 7–16. https://doi.org/10.5009/gnl16615
4. Peters, J.H. (2013) SAGES guidelines for the management of hiatal hernia. SurgEndosc. 27(12):4407-8. https://doi.org/10.1007/s00464-013-3212-0
5. Park C. H. (2019). Surgical Treatment for Gastroesophageal Reflux Disease: Is It Effective Even for Asians?. Journal of neurogastroenterology and motility, 25(3), 337–339. https://doi.org/10.5056/jnm19127
6. Symons N.R., Purkayastha S., Dillemans B., Athanasiou T., Hanna G.B., Darzi A., Zacharakis E. Laparoscopic revision of failed antireflux surgery: a systematic review // American Journal of Surgery, 2011 Sep. 202(3). P. 336-343. https://doi.org/10.1016/j.amjsurg.2011.03.006
7. Yadlapati R., Eric S. Hungness, John E. Pandolfino. Complications of Antireflux Surgery // American Journal of Gastroenterology, 2018 Aug. 113(8). P. 1137-1147. https://doi.org/10.1038/s41395-018-0115-7