

Mel'nik Alexey Viktorovich – roentgen-endovascular surgeon of Irkutsk Regional Clinical Hospital, egg@iokb.ru,
Grigoryev Sergey Evgenievich - PhD, sur-

geon of the department of portal hypertension of Irkutsk Regional Clinical Hospital, grigorievse@gmail.com,
Novozhilov Alexander Vladimirovich - PhD,

head of the department of portal hypertension of Irkutsk Regional Clinical Hospital, novojilov_av@mail.ru.

V.V. Saveliev, M.M. Vinokurov, T.V. Yalynskaya

OUR EXPERIENCE OF LAPAROSCOPIC SUTURING PERFORATIVE GASTRODUODENAL ULCER IN THE MULTIDISCIPLINARY URGENT SURGICAL CENTER OF THE REPUBLIC SAKHA (YAKUTIA)

ABSTRACT

The **aim** of the study was to evaluate the results of surgical treatment of patients with perforated gastroduodenal ulcer, taking into account the use of the laparoscopic method in a multi-field surgical center of the Republic of Sakha (Yakutia).

Material and methods. The work is based on the analysis of the results of treatment of 108 patients with perforated gastroduodenal ulcer, of which 45 (41,7%) underwent laparoscopic suturing of the perforated opening.

Results. The first experience of laparoscopic suturing of perforated gastroduodenal ulcer demonstrated the promise of the method, as well as its high efficiency and safety. **Conclusion.** The introduction of the method allowed to reduce the number of postoperative complications by 1,7 times, and to reduce the length of stay in a multidisciplinary surgical hospital by 28,6%.

Keywords: perforated gastroduodenal ulcer, laparoscopic suturing.

Introduction. In urgent surgical practice, operations for perforated gastroduodenal ulcers are still relevant. According to a number of researchers [1], the incidence of gastric ulcer and duodenal ulcer among the adult population in the Russian Federation is 3-15%, in 5-15% of patients the disease course is complicated by ulcer perforation, while postoperative mortality ranges from 1,3 to 19,4%, depending on the time of admission of the patient to the hospital [6], and the number of postoperative complications reaches 17% [8].

It is worth noting that, at present, the treatment of this complication of peptic ulcer disease is one of the many unsolved problems of surgical gastroenterology [4]. The operation of choice in most clinical cases is laparoscopic suturing of the perforation hole. Technically, suturing is fairly easy to do and provides favorable immediate results of treatment [7]. The need to perform more complex operations rarely arises (a combination of perforated ulcers with stenosis of the output section of the stomach and duodenum, multiple and callous ulcers, widespread purulent peritonitis). The disadvantage of the suturing operation is the high purity of the recurrence of peptic ulcer - up to 45% [4]. At present, with the advent of a new generation of drugs that have a proven ability to significantly accelerate the processes of repair and healing of ulcers, as

well as prevent their relapses, prospects have opened up for improving the long-term results of the treatment of perforative ulcers after they are sutured [3].

In the Republic of Sakha (Yakutia), as well as in other regions of the Russian Federation, the perforation of the gastroduodenal ulcer is one of the leading places among urgent surgical pathology. According to the Yakutsk Republican Medical Information and Analytical Center (YRMIAC), in recent years there has been a slight decrease in the incidence of gastric ulcer and duodenal ulcer – 6,3% in 2017 compared to 7,8% in 2010, but the problem is significant degree complicates the formation of various forms of severe complications, including perforation, bleeding and malignancy. The current situation is alarming and creates the need to search for more effective diagnostic methods, as well as to improve the principles and methods of conservative and surgical treatment that exist today.

Research materials and methods. The presented work is based on a retrospective analysis of the results of complex treatment of 108 patients with perforated gastroduodenal ulcer who were treated in the emergency surgery department of the Republican Hospital № 2 - Emergency Medical Center of the Republic of Sakha (Yakutia) from 2010 to 2019. The average age of patients

was 35.2 ± 5.5 years, while there were 73 men (67,6%) and 35 women (32,4%). The diagnosis, perforated gastroduodenal ulcer, is verified on the basis of a modern multi-level comprehensive examination. Patients were divided into study groups. The main group consisted of 45 (41,7%) patients who underwent laparoscopic suturing (LS) of the perforation hole, and 63 (58,3%) patients with the control group who underwent perforation ulcer excision (PUE), including duodenoplastic (according to Judd-Tanaka, Judd-Horsley) depending on its location. Perforation of gastric ulcer during surgery was found by us in 27 (25%) and duodenal ulcers - in 81 (75,0%) patients. At the same time, in 39,7% of cases, local serous-fibrinous peritonitis was detected, in 55,0% - diffuse and 5,3% - widespread purulent. The diameter of the perforation hole, when conducting LS and PUE, averaged 5.0 ± 1.4 mm.

All operations were performed using the endoscopic system Karl Storz Endovision® DCI® with the autorotation system (ARS) - a digital single camera, PAL, NTSC color systems with an integrated digital image processing module. A set of DCI® HOPKINS®II laparoscopes (10 mm large format optics), trocars, forceps, scissors, dissectors, Karl Storz Click'Line® extractors under combined endotracheal anesthesia. We considered contraindications to the performance of

traditional laparoscopic suturing (LS) of perforated gastroduodenal ulcer: the time of the time from perforation is more than four hours, difficult localization of the ulcer, large diameter of the perforated hole, suspicion of ulcer malignancy, callus ulcer, perifocal inflammation of the intestinal wall more than 10 mm, purulent diffuse or widespread peritonitis, sepsis, the presence of associated diseases and conditions that prevent the imposition of carboxyperitoneum.

Statistical processing of the material was made using the IBM.SPSS.Statistics.v22 software package. The coefficient of reliability of differences (p) was determined by the t -criterion of Student.

Results and discussion. During the operation of the LS perforated gastroduodenal ulcer, the transition to laparotomy (conversion) took 3 (6,7%) patients, and in which, despite a three or four hour exposure, the prevalence and nature of the inflammatory process in the abdominal cavity corresponded to diffuse purulent peritonitis. In all cases of conversion, laparotomy access was used. At the same time, in all three cases, ulcer perforation was detected in the projection of the duodenal bulb, which required the implementation of an operation commonly used in our clinic, such as Judd-Horsley, followed by rehabilitation and drainage of the abdominal cavity.

From the moment the patient arrived at the surgical hospital (taking into account the necessary examination) and until the surgical intervention was completed, no more than 60 minutes passed. The time of surgical intervention when performing LS ranged from 45 to 125 minutes and averaged 98.5 ± 24.8 minutes. Operation of PUE took from 60 to 130 minutes (average of 75.3 ± 22.1 minutes). The time difference was statistically significant ($p < 0.05$). It should be emphasized that the duration of the laparotomy wound closure has the main influence on the duration of the PUE operation; this fact is confirmed by other researchers [5, 9].

Another important parameter is the average time of activation of patients after surgery, as indicated by many researchers [2, 10]. In our case, the time of activation of patients after the LS was 1.6 ± 0.6 days. After the operation of the PUE – 2.1 ± 0.7 days. ($p < 0.05$). The increase in bed rest after PUE was largely due to pain from the laparotomy wound.

Along with such a parameter as the time of activation of the patient, one of the important aspects is the time of appearance of active intestinal motility [2], the ability to take liquid and solid food

in order to maintain energy balance and plastic function of the body. In our case, after the operation of the LS, this time was 1.0 ± 0.3 days, and after the operation of PUE – 1.2 ± 0.5 days.

The total number of complications in the main group was 3 (6,7%), in all three cases the complications were associated with the failure of the sutures of the previously sutured perforated hole, which required a laparotomy, excision of the ulcer, followed by Judd-Horsley or Judd -Tanaka, depending on its location, with subsequent rehabilitation and drainage of the abdominal cavity. In the control group, the total number of complications was 5 (7.9%). At the same time, only 1 (1,6%) intra-abdominal complication was recorded - sluggish peritonitis, which required carrying out a program of rehabilitation of the abdominal cavity, the patient subsequently recovered. In the remaining 4 (6.3%) cases, complications from the operating wound (infiltration, suppuration) were recorded. There were no deaths in both groups. The average length of stay in the in-patient department after the LS was 5.0 ± 1.0 bed-days, after the operation of PUE – 7.0 ± 2.0 bed-days. Patients after LS were on average 2 bed-days less than those who underwent PUE.

Thus, the following **conclusions** can be made that with the widespread introduction of minimally invasive technologies into clinical practice, along with performing such operations as: laparoscopic appendectomy, hernioplasty and many others, the operation of LS perforated gastroduodenal ulcer is becoming more and more stable. First of all, this is facilitated by the positive results of treatment: reduction of postoperative complications and length of stay in the surgical hospital, reduction of the rehabilitation period and early rehabilitation. Comprehensive introduction into the practice of urgent surgical clinics of the LS perforated gastroduodenal ulcer should be considered a priority for modern technological medical care. The data we obtained allow us to consider surgical operations in which special attention should be paid to the theoretical and practical training of surgeons, as well as the use of common tactical approaches and solutions in various clinical situations.

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The authors

FGAOU VO «M.K. Ammosov North-Eastern Federal University» 677000, Yakutsk, st. Belinsky, 58. Phone: 8 (4112) 35-20-90, fax: 8 (4112) 32-13-14. E-mail: rector-svfu@ysu.ru.

Savelyev Vyacheslav Vasilyevich - Professor of the Department of Faculty Surgery, Urology, Oncology and Otorhinolaryngology, Medical Institute, Federal State University «M.K. Ammosov North-Eastern Federal University», 677018, Yakutsk, st. Krupskaya 37, Apt. 58. E-mail: vvsavelyev@mail.ru;

Vinokurov Mikhail Mikhailovich - Professor, Head of the Department of Faculty Surgery,

Urology, Oncology and Otorhinolaryngology, Medical Institute of the Federal State University «M.K. Ammosov North-Eastern Federal University», 677000, Yakutsk, st. Dzerzhinsky 41, apt. 26. E-mail: mmv_mi@rambler.ru;

Yalynskaya Tatyana Vadimovna - clinical resident of the Department of Surgical Diseases and Dentistry of the Faculty of Postgraduate Education of Physicians of the Medical Institute of the Federal State University « M.K. Ammosov

North-Eastern Federal University», 677009, Yakutsk, st. Dzerzhinsky 45/2, apt. 70. E-mail: bar-buzyaka@mail.ru.

