

Surgical Treatment of Complicated Low-Sitting Duodenal Ulcers with Preservation of the Pyloroantral Department According to The Methodology of Our Teacher, Candidate of Medical Sciences, Makhov Georgy Alekseevich

Vladimir Leonidovich Martynov^{1*}, Dmitry Germanovich Kolchin² and Mikhail Konstantinovich Kharlamov³

¹Doctor of Medical Sciences, Associate Professor, National Research Nizhny Novgorod State University named after N.I. Lobachevsky (UNN), Russia

²Resident of the surgical department, GBUZ GKB No. 12, Nizhny Novgorod, Russia

³Radiologist of computed tomography of the regional vascular center, GBUZ GKB No. 13, Nizhny Novgorod, Russia

*Corresponding author:

Vladimir Leonidovich Martynov,
Doctor of Medical Sciences, Associate Professor,
National Research Nizhny Novgorod State
University named after N.I. Lobachevsky (UNN),
st. Zaprudnaya, building 3, apartment 176,
City of Nizhny Novgorod, Russia,
Tel: 89049188600, E-mail: hirurgia12@mail.ru

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1. Abstract

Low-sitting duodenal ulcers are a difficult problem in surgery. An organ-preserving method for the treatment of peptic ulcer of this localization with the preservation of the passage by covering the ulcer with the posterior wall of the duodenum and stomach is proposed.

2. Introduction

Surgical treatment of complicated low-sitting duodenal ulcers is one of the most difficult and urgent problems of gastroenterology. The revival and rapid development in recent years from fundamentally new positions of preserving operations on the stomach and, above all, vagotomies, unfortunately, to a lesser extent affected complicated low-sitting duodenal ulcers. This is due primarily to the difficulty of covering them, the need to remove the pyloric pulp, which largely determines the high incidence of post-resection syndromes. The original operation developed earlier by the author of this technique G.A. Makhov (1986) [1] - proximal vagotomy with plastic cover of the ulcer and preservation of the

physiological passage of food in many ways allowed to solve this difficult problem.

On the basis of this operation, the authors of the guidelines developed and successfully introduced into clinical practice a new operation that allows not only to preserve the stomach and physiological passage of food, but also to ensure the safety of the pyloric pulp and reliable plastic cover of the ulcer.

Gastric resection according to the Billroth II method is one of the most common methods of treating gastric ulcer and duodenal ulcer. The most crucial stage in this surgical intervention is the suturing of the duodenal stump. Over the hundred-year history of gastric surgery, a large number of methods for closing the duodenal stump have been proposed, however, in recent years, the number of proposed methods for suturing the stump has not decreased.

The question of the complications associated with the formation of the duodenal stump is still important. These include: inconsistency of the sutures of the sutured stump, post-resection pancreatitis, injuries of the bile ducts, and ulceration when performing a shut-

down operation. Postoperative mortality after gastric resection, according to MI Kuzin et al (1983), is 5% [2].

Moreover, after resection of the stomach in 15 - 20%, various postoperative functional and organic complications occur associated with impaired evacuation of food from the stomach stump: dumping syndrome, hypoglycemic syndrome, adductor loop syndrome, peptic ulcer, post-resection pancreatitis and others [3]. Currently, selective proximal vagotomy in the surgical treatment of duodenal ulcers has found worldwide recognition. The advantage of this method is low postoperative mortality, low incidence of complications in the postoperative period. The decisions of the XXX All-Union (Minsk, 1981) and VI All-Russian (Voronezh, 1983) congresses of surgeons indicate that in duodenal ulcers, selective proximal vagotomy can be the method of choice. However, in the case of low-sitting duodenal ulcers complicated by penetration, stenosis, bleeding, various types of vagotomies and drainage operations, unfortunately, in some cases do not cure patients. And repeated surgeries for low-sitting ulcers represent significant difficulty and danger. The proposed method of surgical treatment of low-sitting duodenal ulcers penetrating into the pancreas or hepato-duodenal ligament, complicated by stenosis, bleeding, has been used in hospitals of the Gorky Railway since 1976 and allows avoiding the difficulties arising during gastric resection, and most importantly, not creating a closed stump intestine. Improvement of the operation technique allows at present to perform an organ-preserving operation, while preserving the pyloroantral part of the stomach, closing the ulcer defect and turning it off from the lumen of the intestinal tube, and eliminating duodenal stenosis. All this makes it possible to significantly reduce the incidence of various functional and organic disorders in the postoperative period. Preservation of the stomach with a functioning pyloroantral section also reduces various postvagotomy disorders (atony, diarrhea, dumping syndrome).

The essence of the operation lies in the fact that after performing a selective proximal vagotomy, immediately under the pyloric pulp, the duodenum is crossed. Along the intestine, its front wall is dissected to healthy tissues, thereby eliminating the stenosis, and if necessary, an ulcer of the anterior wall is excised, often located in the intestinal bulb. An ulcer is exposed, penetrating into the head of the pancreas, usually large. Around the ulcer, demucosation is performed; for this purpose, a defocused laser beam of the Scalpel-1 installation is used. The stomach with pyloric pulp is inserted into the duodenal lumen, positioning it above and below the ulcer, completely closing the back wall of the stomach and applying a direct gastroduodenoduodenal anastomosis. During the operation, it is envisaged not only to create a direct gastroduodenoduodenal anastomosis while preserving the pyloric pulp, but also to provide a plastic cover for the penetrating duodenal ulcer. In cases of

bleeding, it stops, ulcerative stenosis is eliminated. The creation of a direct anastomosis creates a decompression of the duodenum while maintaining a regulated passage of food from the stomach to the intestine. In the preoperative period, X-ray and fibrogastro-duodenoscopic examination of the stomach and duodenum, fractional study of gastric juice with an insulin-histamine test are performed. Methodical recommendations are based on 51 operations performed according to this technique. The nearest and long-term results have been traced for more than 5 years. In all cases, the operation saved the patients from many years of suffering.

2.1. Operating Procedure (drawings were made by the author of the technique, our teacher Makhov G.A.)

An upper median laparotomy is performed under general endotracheal anesthesia with the use of muscle relaxants. During the revision of the abdominal cavity, the nature of the ulcerative process and its localization are established. In the presence of an ulcer of the posterior wall of the duodenum, penetrating into the pancreas or the hepato-duodenal ligament, the stomach is mobilized in the area of the pyloric pulp for 2-2.5 cm. vagotomy according to the extended technique proposed by MI Kuzin (1980), but without crossing the main trunk of the right gastroepiploic artery (Figure 1).

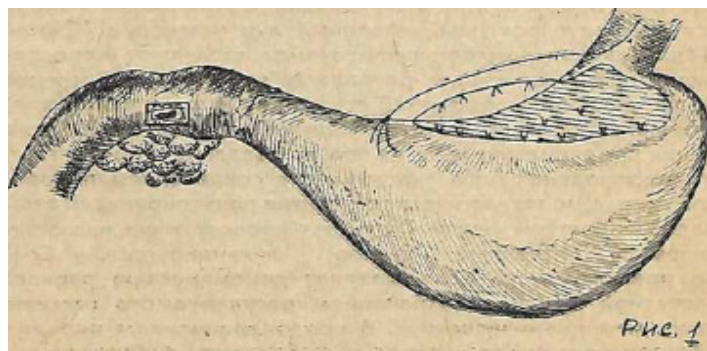


Figure 1: Proximal selective vagotomy

The innervation of the pyloroantral part of the stomach is necessarily preserved by carefully performing denervation of the lesser curvature while preserving the Latarje nerve. Below the pyloric pulp, but not less than 0.5 cm from it, we cross the duodenum in the transverse direction. A laser scalpel can be used successfully for transection. To increase the size of the anastomosis, the transection of the bowel bulb along the anterior part is performed in an ellipse-like manner, with a bulge facing the duodenum (Figure 2).

In the presence of an ulcer of the anterior intestinal wall, it is excised. Stenosis is eliminated by dissecting the narrowed area along the duodenum to healthy tissues. Dissection of the anterior wall of the intestine exposes the penetrating ulcer and removes the scar tissue of the anterior wall of the bulb (Figure 3).

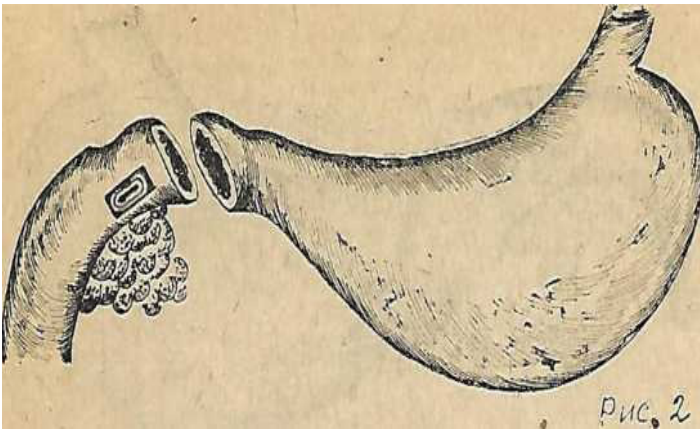


Figure 2: Intersection of the duodenum 12 below the pylorus

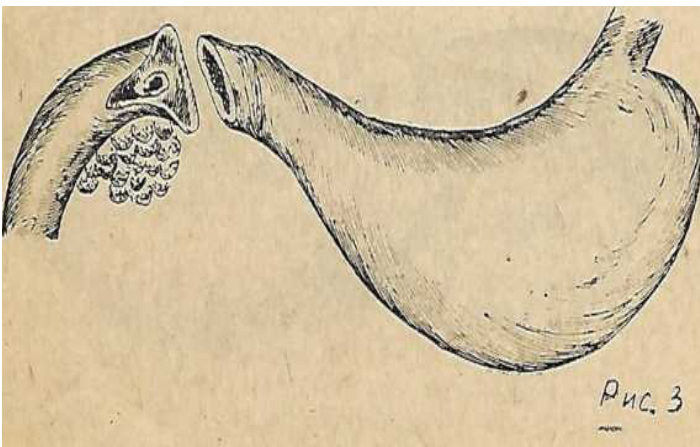


Figure 3: Dissection of the anterior wall of the duodenum with exposure of the posterior wall ulcer

Next, they begin to cover the ulcer and apply a direct gastroduodenoduodenal anastomosis. In accordance with the method of operation, the duodenum is not mobilized so as not to disrupt its blood supply. The formation of the posterior wall of the anastomosis takes a leading place in the method of surgery. The first row of sutures of the posterior wall of the anastomosis (serous-serous interrupted sutures) is applied between the posterior wall of the duodenum, above the head of the pancreas, and the posterior wall of the stomach, departing from the pyloric pulp by the size necessary for the formation of the invaginating tube. The sutures are started sequentially with a large curvature towards a small one (Figure 4).

With the help of a defocused laser beam or diathermocoagulator, the mucous membrane of the posterior wall of the duodenum around the ulcer is burned out (demucosis). The invaginated segment of the stomach is inserted into the duodenal lumen to cover the ulcer with the posterior wall of the stomach. Previously, around the ulcer, the stomach wall is sutured with separate sutures to the demucosized posterior wall of the duodenum without trapping the tissue of the pancreas (Figure 5).

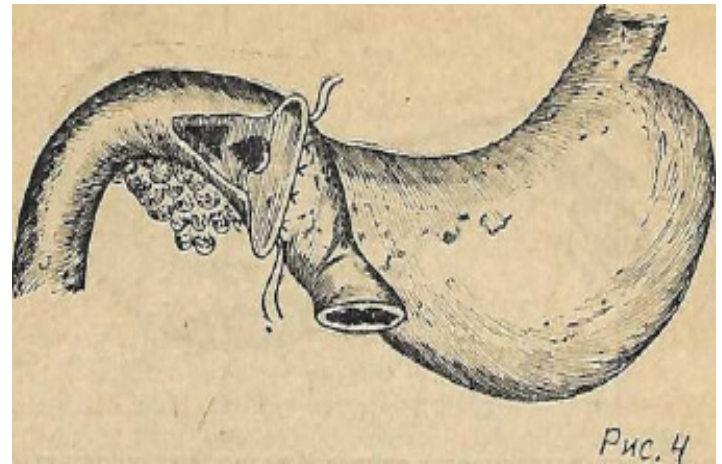


Figure 4: The first row of sutures of the posterior wall of the anastomosis (serous-serous interrupted sutures) is applied between the posterior wall of the duodenum, above the head of the pancreas and the posterior wall of the stomach



Figure 5: Around the ulcer, the stomach wall is sutured with separate sutures to the demucosized posterior wall of the duodenum without trapping the tissue of the pancreas

The cover of the ulcer by the gastric wall with its suturing provides hemostasis, elimination of free space, plastic closure of the ulcer defect, the bottom of which is sometimes the tissue of the pancreas. After suturing the posterior wall of the gastric tube, the postero-lateral lips of the anastomosis are formed by suturing below the ulcer and on the side walls. For this purpose, screw-in "P"-shaped seams are used. The suture is applied at the junction of the anastomosis in the following sequence: an injection from the side of the gastric mucosa at the border of the posterior and lateral walls, then from the side of the duodenal serosa, also at the border of the posterior and lateral walls, the needle is withdrawn into the intestinal lumen. Retreating 0.5 cm up the side wall, puncture the needle from the side of the mucous membrane from the inside out and end with an injection from the side of the serous membrane of the lateral wall of the stomach, also retreating 0.5 cm from the first injection, withdrawing the needle into the lumen of the stomach. With this suture, a tightness is achieved between the lateral walls of the stomach and the duodenum. Similar seams are applied from the side of small and large curvatures (Figure 6).

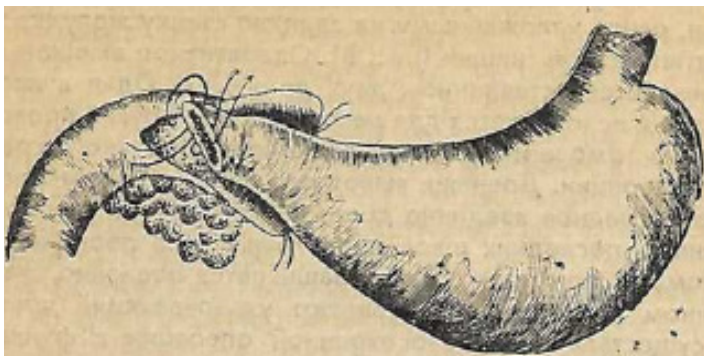


Figure 6: Formation of the postero-lateral lips of the anastomosis

Both superimposed sutures complete the formation of the posterior wall of the anastomosis and serve as the beginning of the creation of the anterior lips (Figure 7).

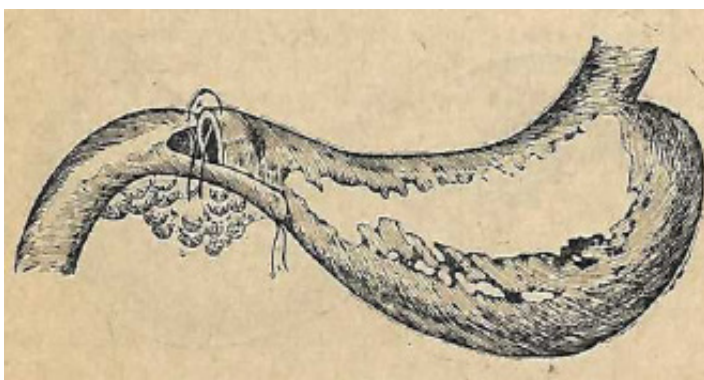


Figure 7: Completion of the formation of the posterior wall of the anastomosis

Anastomosis is formed by two-row interrupted sutures. The second row of gray-serous sutures is applied to the anterior and lateral walls of the anastomosis until meeting with the gray-serous sutures previously applied to the posterior wall of the stomach and duodenum (Figure 8).

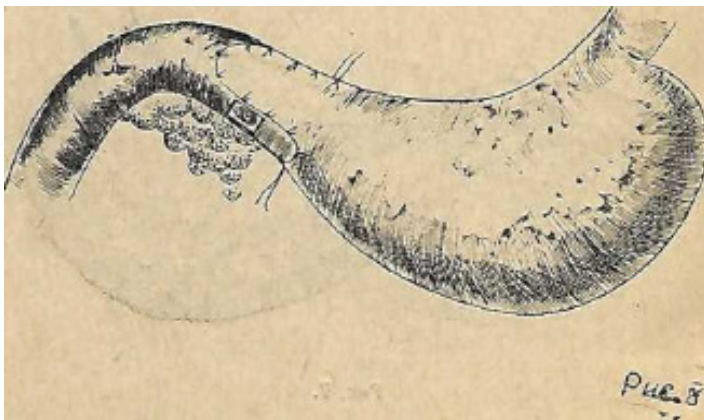


Figure 8: Formation of the anterior wall of the anastomosis

Surgical intervention ends up leaving two drains. One is in the lumen of the stomach and is used for decompression, the other is held below the anastomosis and serves to feed the patient immediately after surgery. Drains are led out through the nose and

secured. Retrograde insertion of drains is performed before the last sutures of the first row are placed on the anterior lip of the anastomosis. The abdominal cavity is sutured in layers. A trapping drainage is left in the subhepatic space.

The implementation of organ-preserving surgery with a functioning pyloroantral section, the creation of a direct gastroduodenoduodenal anastomosis, with the exclusion of the ulcer from the lumen of the digestive tube and plastic covering of its posterior wall of the stomach is a fundamentally new method of treatment of low-sitting penetrating duodenal ulcers, bleeding from stenosis.

Preservation of the stomach with the pyloroantral section allows you to preserve a functionally complete organ, significantly reduce the frequency of dumping syndrome and other functional disorders that occur after gastric resection.

The proposed method does not create a closed duodenal stump, which prevents such a formidable complication as its insufficiency. The natural passage of food through the duodenum is restored and the ulcer is plastically concealed and penetrates into the pancreas. Pain is relieved immediately in the postoperative period. The operation is performed within healthy tissues without entrapment of pancreatic tissue in the seams.

Contraindication to surgery can only be an abnormal confluence of the common bile duct into the duodenal bulb and a pronounced inflammatory infiltrate in the duodenal region. In order to avoid damage to the large duodenal nipple, in cases of its anomalous location, it is necessary to inspect its walls on the opened duodenum. The postoperative period was uneventful. Long-term results were traced for 5 years. The results of the operation were good. In all cases, the pyloric pulp is functioning normally. All patients returned to their work.

3. Conclusion

Clinical observations of patients who underwent the operation according to the proposed technique showed undoubted advantages over other types of surgical interventions for low-sitting duodenal ulcers complicated by penetration, stenosis, bleeding, this method of surgical treatment. I performed several dozen operations using the method of G.A. Makhov, with the results of which I am satisfied. The operation was especially remembered for a patient who simultaneously had all the complications of duodenal ulcer: bleeding, perforation, stenosis of the gastric outlet, penetration into the pancreas. Operation Makhov G.A. became a way out of this situation, which can be useful for surgeons dealing with peptic ulcer surgery.

3.1. These Benefits are as Follows:

1. The operation of SPV for low-sitting duodenal ulcers is well combined with the technique of covering them with the stomach wall without resecting it and preserving the physiological passage of food.

2. An organ-preserving operation is performed with a functioning pyloroantral section, plastically covering the ulcerative defect.
3. Preservation of the pyloroantral region allows avoiding the so-called post-resection syndromes (dumping syndrome, adductor loop syndrome, hypoglycemic syndrome, etc.).
4. A closed duodenal stump is not formed, the failure of which is one of the main causes of death.
5. The duodenum is involved in the act of digestion.
6. A direct gastroduodenoduodenal anastomosis is formed within healthy tissues.
7. The penetrating duodenal ulcer is plastically covered by the serous membrane of the posterior wall of the stomach, which simultaneously performs a hemostatic role.

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