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# SURGICAL TREATMENT OF MEDIOGASTRIC ULCERS

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**Annotation**

Based on the results of experiments and clinical observations, a method for the surgical treatment of mediogastric ulcers is proposed. 20 patients were operated on in the clinic, there were no recurrences of peptic ulcer. In the postoperative period, good results of the operation were obtained in 85% of the operated patients.

The expediency of using resection of ½ part of the stomach is indicated, with excision of the lesser curvature, with selective vagotomy in the surgical treatment of mediogastric ulcers.

**Key words:** lesser curvature, mediogastral, anastomosis

Bibliography 20, table 1, figure 1.

**Аннотация**

Основываясь на результаты экспериментов и клинических наблюдений предложен способ хирургического лечения медиогастральных язв. В клинике оперировано 20 больных, рецидивов язвенной болезни не было.

В послеоперационном периоде хорошие результаты операции, получены у 85% оперированных.

Указывается целесообразность применения резекции ½ части желудка, с иссечением малой кривизны, с селективной ваготомией при хирургическом лечении медиогастральных язв.

**Ключевая слова:** малой кривизны, медиогастрал, анастомоз Библиогр. 20, табл.1, рис 1.

**Аннотация**

Тажрибалар ва клиник кузатишлар натижаларига кўра, медиогастрал яраларни жарроҳлик даволаш усули таклиф этилади. Клиникада 20 нафар бемор операция қилинди, операциядан кейинги даврда ошқозон ярасининг қайталаниши кузатилмади. Операция қилинган беморларнинг 85 фоизида ижобий клиник натижаларига эришилди.

Медиогастрал яраларни жарроҳлик даволашда ошқозоннинг ½ қисмини кичик эгриликни кесиш билан резекция қилиш ва селектив ваготомиядан фойдаланиш мақсадга мувофиқлиги кўрсатилган.

**Калит сўзлар:** кичик эгрилик, медиогастрал,анастомоз

Библиогр 20, таб. 1, расм 1.

**Introduction**. The generally accepted surgical treatment for mediogastric ulcers is classical or subtotal resection of 2/3 or 3/4 of the stomach using the second Billroth method (6-8, 9, 10).

While reliably curing the patient of the underlying disease, peptic ulcer disease, it carries the risk of developing post-resection syndromes and severe functional disorders, which develop in 15-30% or more of patients undergoing surgery.

The incidence of these disorders is largely related to the volume of the stomach removed and the exclusion of the pyloroduodenal region from digestion

with its pyloric mechanism, which ensures complex neurohumoral regulation of the pancreatoduodenal complex and the portioned flow of gastric contents into the duodenum (1-6, 9, 10, etc.).

In this regard, in recent years, surgical techniques preserving the pyloric sphincter and innervated antral portion of the stomach have been actively developed for the surgical treatment of mediogastric ulcers (7, 11, 12). This preserves the motor-evacuation function of the gastroduodenal complex and maintains the natural passage of contents, which contributes to improved long-term functional outcomes of surgical treatment.

A crucial condition for achieving the most adequate functioning of the remaining sections of the stomach is the maximum possible preservation of their innervation and blood supply, and restoration of their anatomical shape appropriate for their functions (7, 11, 12).

It is known that the primary location of mediogastric ulcers is the lesser curvature. At any level of the pathological process (body or cardiac region), due to the peculiarities of the stomach's innervation and the topography of the vessels and vagus nerve, the ulcer or ulcerative infiltrate spreads and penetrates the lesser omentum, involving the left gastric artery and the main trunk of the vagus nerve. Under these conditions, ulcer removal inevitably leads to damage to the vessels and nerves, disrupting the blood supply and innervation of the gastroduodenal complex. If the vagus is damaged at the trunk level, this disrupts the functioning of the pancreatoduodenal complex, liver, and extrahepatic bile ducts (7).

Therefore, most authors (7, 10-12, 16-17, etc.) in these circumstances abandon antrum-preserving and pylorus-preserving surgeries in favor of classic gastrectomy.

In light of the above, the development of new or improved technologies for the surgical treatment of mediogastric ulcers is a pressing issue in surgical gastroenterology.

Based on the results of experimental studies examining the angioarchitecture and microcirculation of the gastric wall, clinical observations indicating the dependence of the functional state and pathological changes in the gastric mucosa on the state of blood and lymph circulation (8), and based on the concept of Oii et al. (13) that gastric ulcers occur primarily at the junction of the antral mucosa with the acid-producing zone, we employ a gastric resection technique for the surgical treatment of mediogastric ulcers. The lesser curvature is excised 1.5–2.0 cm below the cardiac sphincter, while the vagus nerves are additionally transected below the origin of the hepatic branches, i.e., we perform a selective vagatomy. If the ulcer is located in the cardiac or subcardiac region, we ligate the main trunk of the left ventricular artery above the origin of the first transverse branch. If the ulcer is located along the lesser curvature, below the subcardia, or in the gastric angle region, we always strive to preserve the main trunk and the first transverse branch of the gastric artery, which ensures adequate blood supply to the gastric stump.

The gastric resection boundary along the greater curvature was the terminal gastric branch of the right gastroepiploic artery or the junction of both gastroepiploic arteries. In all patients with cardiac or subcardial ulcers, due to adhesions and inflammatory infiltration, after excision of the

lesser curvature, the gastric stump is formed using an open technique, strengthening the esophagogastric angle

with a "lock" according to S.S. Yudin (1955). The gastric stump is sutured with two-row interrupted sutures along the lesser curvature, creating a tubular stem from the walls of the greater curvature with a lumen corresponding to the lumen of the duodenum. Next, we resect no more than 1/2 of the stomach below the pylorus, along with the ulcer infiltrate, and restore gastrointestinal tract continuity by creating a direct gastroduodenal anastomosis. The theoretical premise of the proposed gastric resection method is as follows:

- the above-described technology preserves the gastric stump's adequate reservoir function and natural passage of food, reducing the likelihood of post-resection syndromes.

- ulcers located on the lesser curvature of the stomach can be removed, allowing for excision of the entire ulcerogenic zone with its underdeveloped vascular system without increasing the extent of gastric resection.

- the ability to adequately reduce gastric acid production by surgically targeting both phases of gastric secretion through selective gastric vagotomy and antrectomy.

- the newly created pyloric channel from the walls of the greater curvature prevents the "fall" of gastric stump contents into the efferent loop, slowing evacuation.

Materials and Methods. The clinical portion of the study is based on the results of examination and surgical treatment of 20 patients with mediogastric ulcers over the past 30 years. Of these, three patients had cardiac or subcardial ulcers, while the remaining 17 patients had ulcers in the body and angle of the stomach along the lesser curvature.

Giant gastric ulcers with a diameter of 3 cm or more were detected in six patients. Of these, four developed ulcers after selective proximal vagotomy. In eight patients, the ulcer crater diameter was 2 cm or more.

In the remaining seven patients, the ulcer crater diameter was normal, up to 2 cm, i.e., a common peptic ulcer.

Various complications of gastric ulcer were detected in 14 patients: ulcer penetration into the lesser omentum, involving elements of the hepatogastric ligament in the inflammatory process, occurred in 10 patients, and in the remaining four patients, the ulcerative-destructive process was complicated by bleeding.

Sixty percent of patients experienced combined complications of gastric ulcer disease (penetration and bleeding). The ulcer history ranged from 6 months to 21 years.

Average: 8.0 ± 5.0 years.

Patient ages ranged from 36 to 70 years. Three patients were female and 17 were male. In addition to general clinical examinations, special methods were used in all patients:

- The acid-producing and acid-forming functions of the stomach were studied using intragastric pH-metry and a fractional probe method.

Histamine hydrochloride (0.025 mg/kg) and insulin (0.2 U/kg) were used to stimulate gastric secretion.

- The motor-evacuation function of the stomach, its stump, and the functional state of the gastrointestinal junctions and the efferent loop were studied radiographically using continuous electrogastrointestinal imaging (EGIG). - Endoscopic assessment of the gastric mucosa and its stump, as well as the function of gastrointestinal anastomoses.

- Histological examination of the resected gastric sections along with the ulcer. Results and discussion: A total of 20 patients with mediogastric gastric ulcers were operated on.

All patients underwent gastric resection using the first Billroth method with excision of the lesser curvature and selective vagatomy.

In 18 of these patients, gastrointestinal tract continuity was restored by creating a terminal gastroduodenostomy, and in the remaining 2 patients, a terminal lateral gastroduodenostomy was performed between the gastric stump and the duodenum.

Complications were observed in three patients. The first patient, operated on for a subcardial ulcer confirmed by biopsy, experienced gastroduodenostomosis suture failure

with subsequent formation of a gastric fistula, which closed spontaneously. Another patient experienced gastric stump atony

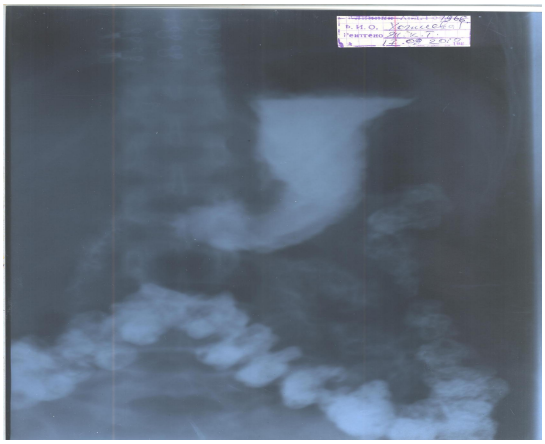
with pronounced clinical manifestations of gastric stasis for 10-12 days, which was resolved with conservative measures.

The last patient developed an anastomosis associated with the use of non-absorbable suture material after a Billroth-I gastrectomy with end gastroduodenostomosis. We believe the cause of the complication in the first patient is related to ligation of the main trunk of the gastric artery with high excision of the lesser curvature, while the cause of the gastric stump atony is transection of the main trunk of the vagus nerves below the origin of the hepatic branches, i.e., Additional selective gastric vagotomy.

There were no fatalities. Long-term surgical outcomes were studied for up to 5 years, involving 18 patients. General clinical methods were used, including dynamic observation of the patients, and examination of the secretory, motor, and evacuation functions of the gastric stump using the fractional probe method, as well as radiographic and endoscopic examinations. A study of the acid-producing function of the stomach revealed that

with time, acid production significantly decreases, and free hydrochloric acid in the gastric juice is not detected in 85% of patients. The remaining patients showed a small, safe decrease in acid production.

After gastric resection with excision of the lesser curvature and selective vagotomy, gastric stump tone was restored after 12 months, and the frequency of gastric contractions was restored by the beginning of the 5th or 6th month. Motor function of the efferent loop of the intestine was restored within 1 month. Gastric resection according to the technique we proposed, with restoration of gastroduodenal continuity, contributes in most cases to the preservation of the normal shape of the stomach (Fig. 1), consisting of a proximal reservoir and a distal pseudopyloric canal with a portion-slow type of evacuation of contents, which is most advantageous in functional terms (Table 1).



Radiograph of patient G., 35, 10 months after Billroth-I gastrectomy with excision of the lesser curvature and selective vagotomy.

The gastric stump is normal, with a proximal reservoir and a distal pseudopyloric channel. Evacuation is slow and incremental. Therefore, creating a direct gastroduodenostomy is the most appropriate option for restoring gastrointestinal tract continuity. It requires less time and is easy to perform.

Types of evacuation of contents from the gastric stump. Table 1

| **Типы эвакуации** | **Колличество** |
|---|---|
| Непрерывно-ускоренный | 1 |
| Непрерывно-замедленный | 2 |
| Порционно-ускоренный | 1 |
| Порционно-замедленный | 11 |
| Функциональная-задержка | 3 |
| Всего | 18 |

Esophagogastroscopy after gastric resection revealed that inflammatory changes in the mucosa of the gastric stump and anastomosis most often occur within 3 months. No recurrent peptic ulcer or peptic ulcer of the anastomosis was detected.

Mild dumping syndrome was detected in 1 patient, easily corrected with diet and nutritional regimen.

The results were assessed using the Visik scale. Good results were noted in 18 patients, and satisfactory results were observed in 1. The majority of patients (90%) had no complaints, noted an improvement in their condition after surgery, positive and stable weight gain, felt satisfactory, and resumed their previous employment in their specialty. One patient switched from heavy physical labor to lighter work.

Conclusion: Thus, gastric resection with excision of the lesser curvature and restoration of gastroduodenal continuity helps in most cases to maintain the portion-slow evacuation, which is the most functionally beneficial. It allows for a reduction in postoperative complications, a decrease in the incidence of post-resection syndromes, and improved functional outcomes in the late period.

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