



Immediate Results of Surgical Treatment for “Difficult” Duodenal Ulcers

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ABSTRACT: For the period from 2001 to 2020, 1567 patients were operated on for duodenal ulcers (DU) on the basis of the Department of Surgical Diseases and Urology of the Andijan State Medical Institute. At the same time, “difficult” DU was diagnosed in 494 (31.5%) patients. Of these, 364 (73.7%) patients were operated on in a planned manner and 130 (26.3%) - in an emergency. The subject of our study were only 262 patients with “difficult” DU who were admitted to the clinic in a planned manner. At the same time, the control group consisted of 114 (43.5%) patients and the main group - 148 (56.5%) patients.

Thus, the analysis of the causes of undesirable consequences and the revision of surgical tactics, taking into account the omissions made in patients of the control group and the widespread use of improved methods and techniques of operations, made it possible to reduce the frequency of postoperative complications associated with surgical intervention on the stomach - by 12.6% (from 19.3 to 6.7%), as well as mortality by 5.4% (from 6.1 to 0.7%). All this allowed us to achieve the desired goal.

KEYWORDS: Duodenal ulcer, Basal and maximum production of acid and pepsin motor-evacuation function of the stomach, Pyloroduodenal stenosis, Radiogastrography.

INTRODUCTION

Treatment of duodenal ulcer (DU) remains an urgent problem of surgical gastroenterology to this day. In addition, the results of surgical treatment of DU do not satisfy researchers. This is mainly due to the relatively high incidence of complications and mortality in “hard-to-remove” duodenal ulcers, which has not been given due attention in the literature. [1-7].

AIM OF THE STUDY

In “difficult” duodenal ulcers, to determine the nature and frequency of postoperative complications and mortality, taking into account the optimized surgical tactics.

MATERIAL AND METHODS

For the period from 2001 to 2020, 1567 patients were operated on for DU on the basis of the Department of Surgical Diseases and Urology of the Andean State Medical Institute. At the same time, “difficult” duodenal ulcers were diagnosed in 494 (31.5%) patients. Of these, 364 (73.7%) patients were operated on in a planned manner and 130 (26.3%) - in an emergency. The subject of our study were only 262 patients with “difficult” DU who were admitted to the clinic in a planned manner.

Distribution of the studied category of patients into groups:

- control group - from 2001 to 2010 - 114 (43.5%) patients;
- the main group - from 2011 to 2020 - 148 (56.5%) patients.

A comprehensive study, both before and after surgery, included:

Fibroendoscopic examination; study of motor-evacuation function of the stomach (MEFS) by methods of fluoroscopy, continuous electrogastrography and radiogastrography; study of the nature of gastric secretion by aspiration-titration method. The results of special studies were processed by the method of variation statistics according to Student using Microsoft Windows 10 application programs.

Taking into account the omissions in surgical tactics, in patients of the control group, we have optimized surgical tactics for “difficult” duodenal ulcers. In particular, methods and techniques of operations have been improved and adjustments have been

made to preoperative preparation and postoperative management.

In DU patients with “difficult” DU, the complications that have arisen are divided into two subgroups, which, in our opinion, allows us to fully analyze the results of the operations performed.

1. Postoperative complications typical for gastric surgery: suture failure, anastomosis, anastomosis entrapment in the window of the mesentery of the colon, pancreatitis (pancreatic necrosis).

2. Postoperative complications of a general nature, which can also occur during surgical interventions on other organs and systems of the body: bronchopulmonary complications (BPC), thromboembolic complications (TEC), complications from the surgical wound.

The frequency and nature of postoperative complications of a local nature associated with surgical intervention on the stomach in the control and main groups are presented in the following table 1.

Table 1. The frequency and nature of postoperative complications characteristic of gastric surgery.

The nature of postoperative complications	Patient groups			
	Control n=114		Main n=148	
	abs	%	abs	%
seam failure (leakage);	10 (5)	8,8	2 (1)	1,3
pancreatitis (pancreatic necrosis);	4 (2)	3,5	-	-
anastomosis;	7	6,1	7	4,7
bleeding from the carina of the stomach;				
strangulation of the anastomosis in the mesentery of the colon.	-	-	1	0,9
	1	0,9	-	-
TOTAL	22 (7)	19,3	10(1)	6,7

Mortality is indicated in parentheses.

As can be seen from Table 1, in DU patients with “difficult” DU, in the control group (114), postoperative complications typical of gastric surgery were diagnosed in 22 (19.3%) patients. Of these, the failure of the duodenal stump sutures was diagnosed in 10 (8.8%) patients, with a fatal outcome in 5 (4.4%) cases. The reason for the insolvency of the sutures of the duodenal stump, in all patients, was technical difficulties in processing the duodenal stump due to the “difficult” duodenal ulcer. In addition, in 6 of them, excessive exposure of the initial part of the duodenum was performed in order to excise giant (5) and callous (2) duodenal ulcers and damage to the vessels supplying the duodenum (2), which was accompanied by trauma to the pancreas, and in 1 of them - not corrected. chronic violation of duodenal patency.

In the last 10 years, with “difficult” DU, we prefer gastric resection (GR) in modifications of the first Billroth method, as a measure of surgical prevention of complications. To expand the indications for modifications of the first Billroth method, we have developed and clinically tested a number of methods and techniques of operations.

In the control group, 4 (3.5%) patients in the postoperative period were diagnosed with post-traumatic pancreatitis with the development of pancreatic necrosis, with a fatal outcome in 2 (1.7%) cases. In 2 (1.7%) patients, the operation was accompanied by significant technical difficulties in the treatment of “difficult” DU, which led to pancreatic injury with a fatal outcome. Therefore, in order to prevent postoperative pancreatitis, we further carried out careful manipulation in the gland area, novocaine blockade of parapancreatic fiber, after surgery, enzyme inhibitors and cytostatics were prescribed, a glucose-novocaine mixture was administered, as well as combinations of antispasmodics and antibiotic therapy.

Motor disorders in the form of anastomosis due to inflammation in the area of the anastomosis in the control group were diagnosed in 7 (6.1%) patients. Anastomosis was diagnosed on the 5th - 9th day of the postoperative period by X-ray endoscopic and continuous radiogastrography. At the same time, there was a pronounced edema of the anastomosis area, the presence of stagnant



fluid and a slowdown in MEFS. The reason for the development of anastomosis was due to the use of coarse suture material, technical errors in the formation of the anastomosis.

In the control group, 1 (0.9%) patient on the 5th day of the postoperative period developed a clinical picture of “acute abdomen”, which required emergency relaparotomy. During relaparotomy, an infringement of the efferent loop of the intestine in the window of the mesentery of the transverse colon was established. The viability of the intestine is preserved, the mesentery of the mesocolon window is re-fixed to the stomach stump. Recovery has come. The cause of this complication was a technical error made during the operation.

In the main group of patients (148), postoperative complications typical of gastric surgery were diagnosed in 10 (6.7%) patients. Of these, after GR, 2 (1.3%) patients developed suture failure, with lethality in 1 (0.7%) case. The analysis of this complication showed that in this case, we overly expanded the indications for gastric cancer according to Gaberer, where it was necessary to produce gastric cancer according to L.G. Khachiev, because with this technique, the posterior wall of the gastric stump itself would plug the suture line of the duodenal stump.

In the main group, motor disorders in the form of anastomosis were diagnosed in 4 (4.7%) patients. The occurrence of anastomosis after gastric cancer was due to technical errors in the formation of anastomoses (the creation of a narrow lumen during the formation of the anastomosis, the imposition of an excessive number of sutures).

Anastomosis was diagnosed on the 4-7th day of the postoperative period by X-ray endoscopic and continuous radiogastrography. At the same time, there was a pronounced edema of the anastomosis area, narrowing its lumen, the presence of stagnant fluid, which was the reason for the slowdown in MEFS. In addition, the reason for the development of anastomosis in these patients was due to the use of coarse suture material and technical errors in the formation of the anastomosis.

In the main group, 1 (0.9%) patient had bleeding into the lumen of the gastrointestinal tract from the keel of the stomach stump after Hofmeister-Finsterer gastric cancer. The patient underwent relaparotomy, the postoperative course was smooth. Discharged in a satisfactory condition.

The reason for this complication was the fact that there was a period of mastering the technique of the formation of a stomach stump without a stomach stump. This complication allows us to conclude that before the formation of the anastomosis, it is necessary to carefully check the reliability of hemostasis in the “keel” of the stomach stump. In our subsequent work, this complication was not observed.

Complex anti-inflammatory treatment, constant decompression of the stomach with stimulation of the gastrointestinal tract (prokinetics), parenteral and enteral tube nutrition resolved this complication and did not require repeated surgical intervention.

So, in patients with “difficult” DU, the revision of surgical tactics allowed to reduce the percentage of postoperative complications associated with surgical intervention on the stomach by 12.6% (from 19.3 to 6.7%), as well as deaths by 5.4% (from 6.1 to 0.7%).

General complications were diagnosed in the control group in 12 (10.5%) patients. At the same time, bronchopulmonary complications were diagnosed in 6 (5.3%) patients (in 2 - bronchopneumonia and in 4 - exacerbation of chronic bronchitis). In our opinion, their occurrence was due to the presence of smoker’s bronchitis and bed rest (inactivity). In addition, all these patients were operated on in the winter season. All patients underwent a course of antibiotic therapy, breathing exercises, vibromassage and physiotherapy procedures with a favorable outcome.

In the control group, 4 (3.5%) patients were diagnosed with thromboembolic complications. 2 of them had acute thrombophlebitis of the right lower extremity, 1 acute thrombophlebitis of hemorrhoidal veins and 1 patient had pulmonary embolism. A patient with PE has died. After conservative treatment, the remaining (3) patients were discharged from the hospital in a satisfactory condition. In the control group, complications from the wound in the form of its suppuration were noted in 2 (1.7%) patients. After an appropriate course of treatment (drainage of the wound, the appointment of antibiotics, sulfa drugs, dressings), the wound healed.

In the main group of patients, general complications were diagnosed in 8, which amounted to 5.4%. Of these, bronchopulmonary complications in the form of pneumonia (1) and exacerbations of chronic bronchitis were diagnosed in 4 (2.7%) patients, thrombophlebitis of the vein of the lower limb in 1 (0.7%) and on the side of the surgical wound in the form of its infiltrate in 3 (2.0%) of patients. In all patients, these complications were amenable to conservative treatment by conventional measures.



In general, in the main group of patients, general complications decreased from 10.5 to 5.4% (a decrease of 5.1%). However, we did not use special measures aimed at their reduction.

At the same time, complications of a general nature, although they tended to decrease, nevertheless, we did not establish a clear improvement compared to the control group of patients. Despite the implementation of a set of preventive measures, they were still observed with a certain constancy. The favorable outcome of the operation was also predetermined by the active rational management of the early postoperative period. For the purpose of timely restoration of MEFS and correction of metabolic disorders, along with conventional intensive therapy, we used the method of tube enteral nutrition, carried out against the background of early intestinal stimulation. A two-channel probe (for decompression and enteral nutrition) before the formation of gastroenteroanastomosis is passed into the small intestine at least 30-40 cm below the Treitz ligament.

Against the background of ongoing intensive corrective therapy, on the second day after the end of the operation, the first session of intestinal stimulation was prescribed (bisacodyl suppositories, cleansing enemas, constant decompression of the stomach and fistula area, cerucal, generally accepted gymnastic exercises in bed). Given that the suction function of the intestine in 1-2 days is preserved only in relation to the ingredients of saline solutions, tube enteral nutrition during these periods was carried out at the expense of 1-1.5 liters of polyionic solutions. After the normalization of the processes of digestion and absorption against the background of intestinal stimulation for 2-3 days, they switched to enteral administration of protein hydrolysates and mixtures of natural products.

The need for plastic material was determined taking into account the degree of metabolic disorders, the severity of the surgical intervention and the magnitude of pathological losses. The volume of enterally administered mixtures from the 3rd day was up to 2.5-3.0 liters. With the transition of the patient to oral nutrition, the probe was removed.

With suture failure, patients are usually deprived of the possibility of enteral nutrition for a long time. This leads to the depletion of protein reserves, nitrogen and energy balances become negative, water-salt metabolism and other vital substances of the body are disturbed. A very effective addition was gastric lavage. The drunk liquid is evacuated through the channel of the probe for decompression, i.e. lavage of the stomach stump is carried out. Such a liquid intake (“imaginary drink”) had a favorable psychological effect on the patient and quenched his thirst.

Radical suppression of excess acid formation is one of the main criteria in evaluating the results of surgical treatment of DU.

In the short term after the performed operations, the nature of gastric secretion was studied in 126 patients with “difficult” DU (40 patients in the control group and 60 patients in the main group). Comparative assessment of gastric secretory function indicators in the nearest time after surgery in patients with “difficult” DU in the control and main groups are presented in Table 2.

Table 2. Comparative evaluation of indicators of the secretory function of the stomach in the short term after the operations.

Indicators of gastric juice (unit/meas.)	Study groups				
	Initial indicators of patients with “difficult” DU	Control group	Degree of reduction (%)	Main group	Degree of reduction (%)
	n – 126 (P ₁)	n - 40 (P ₂)		n – 60 (P ₃)	
BAP (mmol/h)	12,6 ± 1,2	2,9 ± 2,9	77,0	2,7 ± 1,8	78,6
MAP (mmol/h)	29,3 ± 1,5	7,8 ± 3,5	73,4	6,9 ± 3,7	76,5
BPP (mg/%)	89,9 ± 8,4	35,3 ± 3,2	60,7	28,5 ± 2,4	68,3
MPP (mg/%)	192,4 ± 17,3	84,2 ± 7,4	56,2	70,7 ± 5,4	63,3

Note: $P_{2-3} > P_1$ - differences in the indicators of basal and maximum production of hydrochloric acid and pepsin in patients with “difficult” DU in the short term after the operations performed are statistically significant compared to the baseline and unreliable among themselves.

To compare the indices of gastric secretion in patients with “difficult” DU after the performed operations, we compared with the indices of gastric secretion with healthy individuals. At the same time, the average BAP in healthy individuals turned out to be



3.9±0.8 mmol/h, MAP - 18.4±0.9 mmol/h, and BPP - 47.6±3.9 mmol/h and MPP 94.5±10.1 mmol/h.

As can be seen from table No. 2, the gastric secretory function indicators in the near future in both groups after the operations performed, compared with preoperative ones, basically decreased by more than 2 times. So, compared with the initial indicators of gastric secretion, in patients of the control group, basal acid production decreased by 77.0%, the maximum - by 73.4%. At the same time, the basal production of pepsin decreased by 60.7%, and the maximum - by 56.2%.

In the operated patients of the main group, in the nearest future, the basal acid production decreased by 78.6%, and the maximum by 76.5%. At the same time, the basal production of pepsin decreased by 68.3%, and the maximum - by 63.3%. That is, in operated patients with “difficult” DU in the control and main groups, a significant decrease in gastric secretion was noted.

In the short term after the performed operations, we examined MEFS by continuous radiogastrography (CRGG) and fluoroscopy of the gastrointestinal tract.

We studied CRGG in 163 patients (in the control - 85, in the main - 78). CRGG in the short term after the performed operations, we found that there is some degree of suppression of the evacuation function of the stomach. The decrease in MEFS was observed throughout the study, that is, the suppression of the evacuation function of the operated stomach occurred after all operations. At the same time, MEFS tends to normalize after the expiration of the operation time.

X-ray of the gastrointestinal tract was studied by us in 171 patients (in the control - 77; in the main - 94). At the same time, in the short term after surgery, the vast majority of patients had wall hypotonicity, weakened peristalsis, and the presence of mucus and liquid in the stomach on an empty stomach. All this causes a slowdown in the MEFS. However, over time, there was a clear trend towards recovery of the MEFS.

CONCLUSION

Thus, the analysis of the causes of undesirable consequences and the revision of surgical tactics, and the widespread use of improved methods and techniques of operations, allowed us to reduce the frequency of postoperative complications associated with surgical intervention on the stomach - by 12.6% (from 19.3 to 6.7 %), as well as postoperative mortality by 5.4% (from 6.1 to 0.7%). All this allowed us to achieve the desired goal.

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