International Journal of Psychosocial Rehabilitation, Vol. 24, Special Issue 1, 2020
ISSN: 1475-7192

Modern Aspects of Surgical Treatment of Pyloroduodenal Ulcers

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Abstract--*The authors analyze 147 patients with trial pyloroduodenal ulcers, who were performed various types of surgery on the basis of the Department of Surgery in 2007-2016. The authors conclude that the application of a set of developed preventive measures has significantly improved the immediate results of surgical treatment of patients with duodenal ulcer.*

Keywords--*Piloroduodenal ulcer, perforation, excisions, resection, decompression.*

I. INTRODUCTION

The relevance of the problem Despite the known indications and contraindications to the choice of the method of operation in case of trial duodenal ulcers (TDU), the main type of operation is suturing of the perforation hole, which is performed in 70-90% of patients [1,4,7,9]. The operation is low-trauma and accessible to a wide range of surgeons. No particular approaches or surgical instruments are required to perform it, and, as a rule, it saves the patient from death in the vast majority of cases [2,3].

Unsatisfactory results after suturing the TDU, which were studied and described many times by the previous generation of surgeons, have convincingly shown that this operation creates a new problem - the problem of sutured TDU. Some of them are successfully treated conservatively, while others (80-85%) have persistent forms of the disease and require repeated surgical intervention [5,6,8,10].

Aimto improve the results of surgical treatment of patients with trial duodenal ulcers.

II. MATERIALS AND METHODS OF RESEARCH.

To achieve the goal of scientific research and solve the tasks set in this section, 147 (100%) patients with perforation of pyloroduodenal ulcers operated on in the clinic from 2007 to 2016 were divided into 2 clinical groups: control 83 (56.46%) patients (2007-2011) and the main 64 (43.54%) patients (2012-2016).

The largest contingent of patients with TDU was persons aged 19-44 years - 99 (67.3%). At the age of up to 19 years - 18 (12.2%) patients. The smallest contingent consisted of elderly people - 11 (7.5%) patients. At the same time, men accounted for 140 (95.2%) and women for 7 (4.8%), with a ratio of women to men of 1:20.

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DOI: 10.37200/IJPR/V24SP1/PR201175
Received: 16 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 25 Feb 2020

Thus, the largest contingent with the trial TDU were the persons of the most able-bodied age. This fact once again confirms the relevance and social significance of this problem.

In patients with trial ulcer for the choice of the method of operation and the outcome of treatment, the terms from the moment of perforation to admission to the hospital are of great importance.

Distribution of patients depending on the terms of perforation up to the moment of admission to the hospital is presented in Table 1.

Table 1.Distribution of patients depending on the terms of perforation by the moment of admission to hospital.

Timeframe (in hours)	**Quantity**	
	Abs	**%**
Up to 6	103	70,6
From 6 to 12	28	19,04
From 12 to 24	14	9,5
Over 24	2	1,36
Total	147	100

As can be seen from Table 1, 103 (70.6%) patients with trial TDU were admitted in the first 6 hours from the moment of perforation. In the next 6 -12 hours 28 (19.04%), from 12 to 24 hours - 14 (9.9%). It should be noted that after 24 hours from the onset of the disease, patients came in very rarely. In the control group of such patients, there were 2 (1,36%), and in the main group, they were absent.

The given data testify that the main contingent of patients with trial TDU came within the first 12 hours from the moment of perforation, i.e. there were quite favorable conditions for performance of more radical (excision of ulcers or resection of the stomach) surgical interventions.

When all patients without exception were admitted, a thorough clinical and instrumental examination was carried out according to the standard recommended by the Ministry of Health of the Republic of Uzbekistan. All patients underwent X-ray and abdominal ultrasound examinations. If no free gas was detected in other parts of the abdominal cavity, the patient was checked by the FGDS for the diagnosis, and then, if necessary, the abdominal cavity radiography was repeated.

The main clinical manifestations were "dagger" pain (92%), muscle defiance (92.5%), positive symptoms of Shchetkin-Bloomberg (96.1%) and the presence of ulcer history (79.6%). Perforation of "silent" ulcers was observed in 30 (20.4%), in these patients it is necessary to perform thorough instrumental studies.

Based on clinical and instrumental verification of the diagnosis of TDU perforation (clinical picture, abdominal radiography, ultrasound, EGDS) the indication for emergency surgical intervention is given.

DOI: 10.37200/IJPR/V24SP1/PR201175
Received: 16 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 25 Feb 2020

To optimize the results of diagnostics and treatment of patients with perforative TDU, an algorithm was created (Program for the diagnosis and selection of tactics of treatment of perforative duodenal ulcers № DGU 02452 - certificate of official registration of the program for computer - 2012), which is shown in the figure. The basis of the algorithm is a step-by-step consideration of the factors that are indications for the conduct of a particular research method to establish the final diagnosis and determine the choice of the method of operation.

2) if possible, pathogenetically justified effect on duodenal ulcer disease.

At the same time, not all surgeries tend to solve the second task of surgery, indicating different reasons, more often such as the presence of peritonitis and the overall severity of the patient's condition.

At excision of ulcers, the perforative aperture and surrounding scar-ulcer focus with preservation of the most critical formations and maximal restoration of the anatomy of gastroduodenal transition are removed radically.

The main group included 64 (43,54%) patients, 59 of them (40,13%) performed excision of pyloroduodenoplasty with a trial ulcer, 5 (3,4%) patients underwent economic resection of stomach with excision of the small gland, gastroduodenoanastomosis by Gaberer single-row suture. In these patients during the operation a nasogastroduodenal probe was introduced for decompression of stomach and 12 duodenums, rinsing of excess blood into the lumen and contents, as well as for control of tightness of anastomosis area and pyloroduodenoplasty.

The control group consisted of 83 (56.46%) patients. Stomach resection was performed in 12 (8,16%) patients, of them by superimposing gastroduodenoanastomosis in 10 and 2 gastroyoanastomosis according to Hofmeister-Finster (Table 2).

Table 2 Data on the types of operational interventions performed in the sample TDU groups compared

Types of surgical interventions	**Control**		**Main**	
	abs	**%**	**abs**	**%**
Stomach resection by B-I				
Gastroduodenoanastomosis	3	2,04	4	2,72
Terminolateral transverse hydrogen anastomosis (TLPPHA)	2	1,36	-	-
Terminolateral oblique gastroduodenoanastomosis (TLODA)	1	0,68	1	0,68
Stomach resection by B-II				
Gastroeyunoanastomosis on Hofmeister-Finsterer	2	1,36	-	-
Pulp ulcer dissections with pyloroduodenoplasty				

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Judd's pyloroduodenoplasty	27	18,36	22	14,96
Finney's pyloroduodenoplasty	33	22,44	25	14,0
Pyloroduodenoplasty according to the clinic technique (CT)	10	6,8	12	8,6
Tissue ulcer sutures	5	3,40	-	-
Total:	**83**	**56,46**	**64**	**43,54**
Total number of patients 147 (100%)				

Surgical technique (patent No. IAP 04962 of the Republic of Uzbekistan), the dissection of sample TDU and pyloroduodenoplasty in each patient is individual and determined by the nature of pathomorphological changes, which are studied at the diagnostic stage during the precision preparation of the ulcerative focus (intraoperative examination). Perforative ulcer dissection was performed with a finger-controlled section fringing the ulcer in the transverse direction to the intestinal axis with preservation of circular muscle fibers of the duodenal bulb. The posterior, lateral one or both walls of the intestine were preserved in the form of duodenal neuromuscular bridges. Even when perforative ulcer of one front wall was dissected, a rather large defect was formed, through which the edges of the ulcer on the back wall of the pyloroduodenal area could be dissected without any special technical difficulties. Introduction and fixation of the nasogastroduodenal probe.

Test examination of anterior wall ulcer and excision of ulcer edges on the posterior wall was performed according to the method developed by us (patent No. IAP 04962 of the Republic of Uzbekistan) in the presence of "kissing" ulcers in patients of control (10) and main (12) comparable groups. After the completion of duodenoplasty the final rehabilitation and drying of the abdominal cavity was performed. The hepatic spaces, lateral channels and pelvic cavity were drained for control.

III. THE RESULTS AND THEIR DISCUSSIONS

Numerous studies conducted in our clinic show that suturing of perforative ulcer without removal of the edematous scarred-solder mantle does not allow to control anatomical orientations of the ulcer focus. Presence and degree of gatekeeper lesion, borders of duodenal ligament wall and hepatoduodenal ligament, presence or absence of ulcer on the back wall.

The performed intraoperative study testifies that when perforative anterior wall ulcer (n=5) is sutured by one or two rows of sutures, the proximal part of duodenum corrugated transversely and is significantly shortened. The second row of sutures usually includes the gatekeeper, bulbodenal sphincter, and the root of the mesentery of the large intestine. The created invaginate, as a rule, increases the degree of stenosis of the duodenum.

The proposed algorithm of diagnostics and treatment in case of trial TDU was tested in 64 patients of the main group, which resulted in the increase of resection of sample ulcers with plastic surgeries and refusal of the

DOI: 10.37200/IJPR/V24SP1/PR201175
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majority of cases of trial ulcers closure. Application of pathogenetically justified pharmacotherapy of ulcer disease (PPI, H_2 receptor blockers, Hperadication) resulted in complete exclusion of vagotomy from the arsenal of surgical interventions.

Patients in the main group during the operation (bonus therapy) and after the operation period underwent eradication therapy with the following transition to the use of anti-secretory drugs in full therapeutic dose (4 weeks), and then supported the use of proton pump inhibitors (2-3 months). Eradication therapy included taking omeprazole 20 mg 2 times a day, amoxicillin 1.0 mg 2 times a day, clarithromycin 500 mg 2 times a day for 7 days; in case of intolerance or presence of contraindications to amoxicillin taking into eradication therapy included metronidazole 500 mg 2 times a day.

Direct results of treatment of patients in the compared groups are presented in Table 3.

Table 3. Complications of the early postoperative period.

Complications	**Groups**				**Difference statistics by t criterion (P)**
	Control n=83		**Main n=64**		
	abs	**%**	**abs**	**%**	
Insolvency of the Cult of duodenum	2 (1)	1,36	-	-	$P_{1,2}<0,01$
Narrowing the anastomosis	1	0,68	-	-	
Pancreatitis	2	1,36	1	0,68	$P_1<0,05$
Gastroplegia	3	2,04	2	1,36	$P_1<0,05$
Bleeding.	2 (1)	1,36	1	0,68	
Peritonitis	2	1,36	-	-	
Lethality	2	1,36	-	-	
Total:	**12**	**8,16**	**4**	**2,72**	

Note. The number of deceased patients is indicated in parentheses.

The analysis of the results of early postoperative complications of surgical interventions in case of trials of TDU was as follows. Out of 83 patients (control group) 2 (2,4%) died. One of them was caused by peritonitis as a result of the failure of the duodenal residual limb, despite the relaxation and drainage of the abdominal cavity, and the other one was caused by bleeding from the left ulcers on the back wall after suturing of the duodenal ulcer. Postoperative complications developed in the main group, lethality was not observed. After the surgical complications developed in 12 (8,16%) in the control group, in 4 (2,72%) in the main group.

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IV. CONCLUSION

Thus, the excision of trial ulcer with the duodenum, as well as the use of the algorithm of complex (surgical and medical) treatment of trial TDU is accompanied by good immediate results: low percentage of complications (2.72%), absence of lethality, preservation of natural food passage through the gastrointestinal tract. It is shown that timely execution of dissection of test ulcers of the anterior wall + dissection of ulcers on the posterior wall with duodenum saves the life of the patient and guarantees the surgical achievement of hemostasis.

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DOI: 10.37200/IJPR/V24SP1/PR201175
Received: 16 Jan 2020 | Revised: 06 Feb 2020 | Accepted: 25 Feb 2020