

## The results of surgical treatment of ulcer complications

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**Abstract.** Wide-spreading of ulcer among population leads to research and introducing of new surgical technologies. Selective proximal vagotomy, radical duodenoplastics have been worked out quite well. The nearest and distant results of their application are marked with high positive indexes. Minimal number of post-operative complications and backset require wide usage of these techniques by surgeons.

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### Introduction

The results of complex examination and operative treatment of 55 patients with ulcer complications became the basis of this article.

### Materials and methods

The patients age was from 18 to 78 and is presented in table 1.

**Table 1. The distribution of patients according to age and sex**

Age	Up to 20	21-30	31-40	41-50	51-60	61-70	>70	Total
Sex								
Male	1(1,8%)	6(10,9%)	15(27%)	15(27%)	9(16%)	2(3,6%)	1(1,8%)	49(89,1%)
Female	0	0	0	3(5,5%)	1(1,8%)	2(3,6%)	0	6(10,9%)
Total	1(1,8%)	6(10,9%)	15(27%)	18(32,7%)	10(18,2)	4(7,3%)	1(1,8%)	55(100%)

The largest group was represented by the patents at the age of 41-50 (18 persons, 32,7%), the smallest one by the patients up to 20 (1 person or 1,8%) and over 70 (1 person).

The patients were distributed by sex as the following: male-49 patients (89,1%), Female-6 patients (10,9%). Prescription of an ulcer disease was from 1 to 27 years and is presented in table 2

**Table 2. Prescription of an ulcer disease**

Number of years	Number of patients	%
1-5	25	45,5%
6-10	18	32,7%
11-15	6	10,9%
16-20	5	9,1%
>20	1	1,8%
Total:	55	100 %

The majority of the patients suffered from an ulcer disease for 1-5 years-25 patients (45,5%).

The least group was represented by the patient under 20 -1(1,8%) and over 70-1 patient (1,8%).

Active gastroduodenal ulcer was marked in average twice a year by all patients, in spring 15 patients(27%) had active ulcer in anamnesis.

**Table 3. Gastrointestinal ulcer complications in patients' anamnesis**

Complications	Number of patients	%
1. Gastrointestinal bleeding	2	13,3%
2. Ulcer perforation, gastrointestinal hemorrhage	2	13,3%
3. Ulcer perforation	9	60%
4. Ulcer perforation, peritonitis	2	13,3%
Total:	15	100%

Gastrointestinal hemorrhage was noted in 7,3% patients with ulcer disease (4 persons).3 patients from this group had hemorrhage once,1 patient had hemorrhage twice.

Ulcer perforation with subsequent gastrorrhaphy occurred in 23,6% (13) patients with ulcer disease.

In two patients ulcer was complicated by the development of general purulent peritonitis.

One patient had gastrointestinal ulcer perforation in anamnesis and in 7 years knife gastrointestinal wound. Two patients had in anamnesis gastrointestinal hemorrhage and ulcer perforation.

Accompanying pathology was in 100% of cases. More often it was chronic gastritis-37 persons (67,3%). From them antral gastritis in 7 people (18,9%), atrophic gastritis in 4 persons (11%),

endogastritis-in 9 persons (24%), erosive gastritis in 4 patients (11%), mixed gastritis in 1 patient (2,7%), chronic gastroduodenitis-in 12 patients (32,4%), chronic cholecistitis in 14 patients (25,5%). Furthermore in 6 patients was diagnosed diffused changes of liver, visceroptosis in 6 patients (11%), dolochocholon –in 5 persons (9%), chronic colitis-in 4 persons (7,3%).

The patients complained having pain syndrome, nausea, vomiting, epigastric burning, belching, weight loss.(table 4).

Pain syndrome was noted in 100% of patients with ulcer disease. The character of pain depended on localization of ulcer defect and on physical-climatic properties of meal. Early pain, characteristic of gastrointestinal ulcer was found in 25,5% of patients(27 persons).

Late pains, characteristic of ulcer of pylorobulbar department were in 71% of patients (39persons). 'Hunger' pains were noted in 49% (27 persons).

Pain localization is quite diverse: in epigastricpart, right and left hypochondrium with radiation into back. Predominantly patients with ulcer 30% (17 persons) and patients with duodenal ulcer 26% (15 persons) complained of pain.

Pains in the right hypochondrium occurred more often in patients with ulcer-50% (9 persons), with subcompensated stenosis of duodenal bulb 28% (5 persons). Irradiation of pain into back more often was noted in patients with penetration of ulcer into pancreas 62,5% (10 patients).

**Table 4. Clinical symptoms of ulcer**

Ulcer localization	Gastric ulcer	Duodenal ulcer	Duodenal bulb stenosis				Ulcer penetration				Total
			compensated	acid subcompensated	decompensated	into hepatoduodenal	into pancreas gland	into mesocolon	into gallbladder		
Symptoms:											
1 Pain	17(20%)	30(36%)	4(4,8%)	16(19%)	3(3,6%)	1(1%)	10(12%)	1(1,4%)	2(2%)	84	
In epigastrium	17(30%)	15(26%)	1(1,8%)	10(17,5%)	3(5,3%)		10(17,5%)	1(1,2%)		57	
In right hypochondrium	3(6%)	25(51%)	1(2%)	14(29%)	3(6%)	1(2%)				2(5%) 49	
In left hypochondrium	9(50%)			5(28%)	1(5,6%)		3(17%)			18	
With irradiation into back	6(37,5%)						10(62,5%)			16	
2 Nausea	12(16,2%)	30(40,5)	4(5,4%)	16(22%)	3(4%)		6(8%)	1(1%)	2(3%)	74	
3 Vomiting	8(13%)	25(41%)	2(3%)	16(26%)	3(4,9%)		5(8%)		2(3%)	61	
4 Epigastric burning	4(6,3%)	9(14,3%)	1(1,6%)	12(19%)	3(5%)	1(1,6%)	4(6,3%)	1(1,6%)	2(3%)	63	
5 Belching	12(26%)	15(32%)	1(2%)	13(28%)	3(6,4%)		2(4%)		1(2%)	47	
6 Weight loss											
Up to 2 kg.	15(50%)	11(37%)	4(13%)							30	
from 2-7 kg.	2(5%)	13(32,5%)		13(32,5%)		1(2,5%)	8(20%)	1(2,5%)	2(5%)	40	
from 8-10 kg. and more		6(43%)			6(43%)		2(14%)			14	

Dyspeptic syndrome occurred in 100% of patients but it was the most expressed in the patients

with duodenal ulcer and subcompensated stenosis of bulb.

40,5% (30 persons) and 22% (16 persons) hadnausea. 41 % (25 persons) and 26% (16 persons) had vomiting. Epigastric burning was found in 14,3% (9persons) and 19 % (12 persons). Belching was revealed inpatients with duodenal ulcer and in 28% (13 persons)with subcompensated stenosis.

The majority of the patients lost weight. The weigh tlossupto 2 kg.was main lynotedin patients with gastriculcer 50% (15 persons), by 2-7 kg. –in patients with duodenal ulcer - 32,5% (13 patients). The loss of weght by 8-10 kg. and more (27 kg.) was in patients with duodenal ulcer - 43% (6 persons) and with decompensated bulb stenosis - 43% ( 6 persons).

Clinical picture depended on ulcer process activity and stenosis intensity.

### Instrumental examination results

Diagnosis of ulcer disease was based on laboratory and instrumental methods of research. The most informative were the data of fibrogastroduodenoscopy (FGDS) and roentgonoscopy of gastrium. FGDS revealed the presence of ulcer defect in 47 patients(85,5%).

**Table 5. Ulcer defect localization in patients with ulcer ( according toFGDS data)**

Ulcer localization	Number of patients	%
1. body of stomach:	14	30%
From them	12	25,5%
a) middle third of body		
b)lower third	2	4,3%
2. Pyloric part	3	6,4%
3. Duodenal bulb	30	64%
From them	17	36%
a) anterior wall		
b) posterior wall	12	25,5%
c) upper wall	1	2%
Total:	<b>47</b>	<b>100%</b>

Ulcer was predominantly located in duodenal bulb-30 patients(64%),more often on the anterior wall-17 patients(57%).

In the body of stomach dominated giant ulcers (>2 cm.in diameter)-6 patients(43%).Ulcer up to 2 cm in diameterwaswas noted in 4 patients (28,6%), up to 1,5 cm. - in 2 patients (14,3%),up to 1cm. - in 2 patients (14,3%).

In pyloric part there was prevalence of ulcer up to 1,5cm. in diameter - 2 persons (66,7%), up to 2 cm. - 1 person (33,3%).

In duodenal bulb the majority of patients had ulcer up to 1 cm. in diameter - 12 persons (46,2%), up to 1,5 cm. –in 10 patients (38,5%), up to

2 cm. - in 2 patients (7,7%), more than 2cm. - in 2 patients (7,7%).

In 8 patients (14,5%) we discovered only post-ulcer scars, there were also scar deformation of pylorobulbaric part. In 7 patients (14,9%) there were also post scars. (table 6).

Ulcer-cicatricial deformation of pylorobulbaric part was noted in 41 patients (74,5%). From table 6 we see that more apparent disorders take place in localization of ulcer in duodenal bulb: very high indexes of reflux-esophagitis - 87,5% (35 patients), cardia insufficiency - 81,4% (35 patients), duodenal-gastric reflux 67% (10 patients).

**Table 6.** More apparent disorders take place in localization of ulcer in duodenal bulb

FGDS data of patients with ulcer								
№	Symptoms	Ulcer localization						Total
		Body of stomach		Pyloric part		DPK bulb		
		Number of patients	%	Number of patients	%	Number of patients	%	
1	Reflux esophagitis	4	10%	1	2,5%	35	87,5%	40
2	Cardia insufficiency	6	14%	2	4,7%	35	81,4%	43
3	Duodenal-gastric reflux	4	27%	1	6,7%	10	67%	15
4	Bulbitis	17	45%	3	7,9%	18	47,4%	38
5	Chronic gastritis	5	13,5%	1	2,7%	32	86,5%	37
5,1	antral			1	14,3%	6	86%	7
5,2	atrophic	1	25%			3	75%	4
5,3	superficial	5	55,6%			4	44,4%	9
5,4	erosive	2	50%			2	50%	4
5,5	mixed					1	100%	1
5,6	gastroduodenitis			2	16,7%	10	83,3%	12
6	Ulcer-cicatricial stenosis Of pylorobulbarial part					23	56%	41
6,1	compensated					14	57%	7
6,2	subcompensated					6	100%	16
6,3	decompensated					3	100%	3
7	Ulcer penetration	8	57%			6	43%	14

Often occurrence of chronic gastritis is noted at - 86,5% (37 patients). Percentage of ulcer complications –stenosing is high.

Penetration of ulcer is marked in 25,5% (14 patients). More often there are complications of gastric ulcer - 57% (8 patients). Ulcers penetrated into gallbladder - 70 % (7 patients), into mesocolon - 100% (1 patient). Duodenal ulcer penetrated into hepatoduodenal ligament with anterior wall of bulb - 100% (1 patient), from posterior wall into gallbladder - 30% (3 patients) and into pancreatic gland 100% (2 patients).

X-ray of stomach vividly demonstrates that in patients with ulcer-cicatricial deformation there is a prevalence of signs of compensated stenosis-normal stomach size -63,4% ( 26 patients), evacuation delay for 6 -12 hours from stomach in 39% (16 persons).

**Table 7. Data of roentgoenecopy examination of stomach**

Signs:	Stenosis level		
	compensated	Sub-compensated	decompensated
1) Sizes of stomach			
a. normal	26(63%)	-	-
b. enlarged	—	11(26,8%)	-
c. ecstatic	—	—	4(9,7%) V
2)Stomach apolepsis			
a. up to 6-12hours	16(39%)	-	-
b. by 12-24 hours	—	13(32%)	-
c. more than 24 hours	-	-	3(7,3%)
3)Accelerated evacuation	5(13%)	2(4,9%)	—
4)Normal evacuation from stomach	5(13%)		
<b>Total : 41patients</b>	<b>100%</b>		

Analyzing the dependence of ulcer anamnesis and stenosis degree the following data were got. Compensated stenosis developed in average in 12 years from the onset of disease.

There were no complication in anamnesis. Sub-compensated stenosis developed in 7 years already from the onset of disease but in 46% there were complications in anamnesis in the form of ulcer perforation, ulcer hemorrhage, general purulent peritonitis. Decompensated stenosis occurred in 13 years, in anamnesis in 67% ulcer disease was complicated with ulcer perforation.

Conservative treatment of ulcer was conducted in 29% (16 patients) cases. Refusal from operative treatment was due to anti-ulcerogenic therapy, serious accompanying diseases- IHD, severe anaemia, refusal from operation by the patient..

Surgical treatment was conducted in 71% of cases (39 patients). Various methods of surgical treatment have been used. (table 8).

**Table 8. Methods of surgical treatment of patients with ulcer complications**

Methods of surgical treatment	Number of patients	%
1. Billroth operation 1	12	30,8%
2. Billroth operation 2	5	12,8%
3. Selective proximal vagotomy with Jabouay pyloroplasty	4	10,3%
4. Selective proximal vagotomy with Finnaypyloroplasty	1	2,6%
5. Truncal vagotomy	2	5,1%
6. Posterior truncal and anterior selective proximal Tailor vagotomy with duodenoplasty	15	38,5%

Posterior truncal and anterior selective proximal Tailor vagotomy with duodenoplasty and bridging excision of ulcer has been used more often

38,5% (15 patients). It was used in duodenal bulb ulcer- 93% (14 patients) and ulcer of middle third of stomach body in 7% (1 patient), in ulcer-cicatrical deformation of bulb and outlet - 100% (15 patients), in compensated stenosis - 2 patients and sub-compensated stenosis - 2 patients.

Bilroth operation 1 was performed in ulcers of middle third of stomach - 83% (5 patients), in pyloric ulcers - 17% (1 patient).

Gastroectomy in modification of Maki-Shalimov was performed in giant ulcers of middle and lower third of stomach.

We finished Bilroth operation 2 by Vitebsky gastroenteroanastomosis - 75% (3 patients) and by Gofmeister - Finsterery - 25% (1 patient).

Vitebsky gastroenteroanastomosis was made in ulcer of anterior wall (66%) - 2 patients and posterior wall of duodenal bulb ulcer -33% (1 patient) with the diameter up to 1,5cm.

Gofmeister-Finsterer gastroenteroanastomosis was performed in cases of ulcer of bulb posterior wall with subcompensated stenosis - 100% (1 patient).

Selective proximal vagotomy was used with Jabuley pyroplasty and Finney pyroplasty.

The first was used in ulcers of anterior wall of gastrointestinal bulb - 50% (2 patients), with sub-compensated stenosis - 25% (1 patient) and in bulb posterior wall ulcers with the diameter up to 1,5cm. - 50% (2 patients).

Finney pyroplasty was made in ulcer of pyloric part of stomach - 100% (1 patient).

Method of stem vagotomy with Makulich pyroplasty was performed in ulcers of posterior - 50% (1 patient) and anterior - 50% (1 patient) wall of duodenal bulb.

It is seen from table 9 that most of post-operative complications were after the use of posterior stem vagotomy and anterior selective proximal vagotomy and Tailor anterior selective vagotomy 64% (7 patients), that can be explained by recent introduction of this method in wide practice.

The absence of post-operative complications is different in Bilroth 1 surgery as this method has widely been used in practice for many years and mastered by many surgeons. It is difficult to speak about efficiency of selective proximal vagotomy of Finney pyroplasty and selective proximal vagotomy with Mikulich pyroplasty as they have been performed in only 1 and 2 operations respectively. In overall early post-operative complications reached 28% (11 persons). There were no fatal cases.

Criteria of treatment results evaluation are:

1) Absence of post-operative complications.

2) Normalizing of motor-evacuative function of stomach and duodenal tract.

3) Ulcer backset absence.

**Table 9. Early post-operative complications**

Post-operative complications	Methods					Posterior stem and anterior Tailor SPV №15
	Bilroth 1 surgery №12	Bilroth 2 surgery №5	SPV Jabuley pyloroplasty №4	SPV Finney pyloroplasty №4	Stem vagotomy	
Hemorrhage						2(18%)
Anastomosis						1(9%)
Ileus		1(9%)				
Pancreatitis		1(9%)				
Stomach atony			2(18%)			2(18%)
Spleen wound during surgery						1(9%)
Peritonitis						1(9%)
Total: 11(100%)		2(18%)	2(18%)			7(64%)

Taking into account the absence of data about after history results of surgical treatment and based only on data of post-operative period we got the following results.

Excellent results in 100% of cases were noted after Bilroth 1 surgery, selective proximal vagotomy with Finney pyloroplasty, stem vagotomy.

After Bilroth 2 surgery with Vitebsky GEA excellent and good results were noted in 80% (4 persons). Satisfactory results in - in 20% (1 person).

After SPV with Jabuley pyloroplasty there were excellent and good results in - 50% (2 persons), satisfactory results - 50% (2 persons).

After posterior stem and anterior Tailor SPV there were excellent and good results in 80% (12 persons), in 20% (3 persons) - we got satisfactory results.

Hospital stay of patients was in average: conservative treatment patients - 12 bed days, in surgically treated patients without post-operative complications - 16,7 bed days. In case of post-operative complications period of hospital stay increased by 4,3 bed days and was in average 21 bed days.

Complications treatment was conservative - 45% (5 patients) and surgical one - 55% (6 patients).

Conservative treatment was used in anastomosis, pancreatitis, postvagotmic atony of stomach.

Surgical treatment was performed in cases of high bowel obstruction, gastric hemorrhage, general serous peritonitis.

## Conclusion

Ulcer disease is the most spread disorder of gastrointestinal tract [1,2]. More often it occurs in males of the Russian nationality at the age of 41-50 years, living both in Yakutsk and in northern and southern regions. Patients have usually working professions [5,6]. Length of time of ulcer in these

patients is from 1 to 5 years. There were complications in anamnesis such as ulcer perforation and gastric hemorrhage.

All patients with ulcer have accompanying diseases of gastro-intestinal tract. Among them there are: chronic gastritis, chronic cholecystopancreatitis, diffuse hepatic changes, viscerotomosis, dolichocolon.

Complaints of patients are pain syndrome, vomiting, nausea, epigastric burning, belching, weight loss [1,2]. Pains in epigastria are marked by the patients presumably with gastric ulcer, pains in the right hypochondrium are in patients with duodenal ulcer, sub-compensated stenosis of pylorobulbaric part.

Dispeptic syndrome was in 100%.

Clinical picture depends on activity of ulcer process and on intensity of stenosis.

Diagnosing of ulcer is based on laboratory and instrumental methods of examination. The more informative are results of fibrogastroduodenoscopy and gastric roentgenoscopy.

According to FGDS data ulcers were localized presumably in duodenal bulb, more often on a anterior wall, up to 1 cm. in the diameter, in the body of stomach were predominantly giant ulcers (more than 2 cm. in diameter). More intensive disorders occur in localization of ulcer in duodenal bulb: high indexes of reflux-esophagitis, cardiac insufficiency, duodenogastric reflux. There is a high percentage of ulcer complications-stenosing (76%) and penetration (57%).

Stomach X-ray demonstrates that in patients with big ulcers with scar-ulcer deformation compensated stenosis prevail.

In average compensated stenosis develops in 12 days from the onset of a disease, there were no complications in anamnesis. Sub-compensated stenosis developed in 7 years, in anamnesis there were - 46% of complications as perforation, hemorrhage, peritonitis. The signs of decompensated stenosis occurred in 13 years, in anamnesis in 67% - complications as ulcer perforation.

Conservative treatment of ulcer was administered in 29%. Refusal was caused by anti-ulcer therapy effect, severe accompanying diseases - IHD, severe anaemia and finally patient's refusal from surgery.

Surgical treatment was conducted in 71% of cases. Different method of operative treatment were used.

Posterior stem and Tailor anterior SPV with duodenoplasty and bridge ulcer incision were used more often - 38,5%. It was used in Duodenal bulb ulcer - 93%, ulcers of middle third part of

stomach in cicatricious-ulcer deformation of a bulb and gastric outlet, in compensated stenosis.

Bilroth1 surgery was performed in ulcers of middle third part of a stomach, pyloric department.

Maki-Shalimov modification was used in giant gastric ulcers.

Bilroth operation 2 by Vitebsky gastroenteroanastomosis was made I ulcers of anterior and posterior walls of duodenal tract bulb. - 25% (1 patient).

Gofmeister - Finsterery gastroenteroanastomosis was performed in ulcer of middle bulb wall with subcompensated stenosis.

SPV with Jabuley pyloroplasty was used in ulcer of pyloric part of a stomach.

SPV with Finney pyroplasty was performed in ulcer of pyloric part of a stomach.

Stem vagotomy with Makulich pyroplasty was used in ulcers of posterior and anterior walls of duodenum.

The majority of post-operative complications occurred after performing of Tailorposterior SPV explained by recent introduction of this method into wide practice.

There were no post-operative complications after Bilroth 1 surgery as this method has been widely used since long time and has been mastered by many surgeons, in Finney pyloroplasty, stem vagotomy with Mikulich pyloroplasty. To judge about efficiency of these methods is early as 1 or 2 operations were performed respectively.

On the whole early post-operative complications made 28%. There were no fatal cases.

Criteria for treatment results evaluation are:

1. Absence of post-operative complications.
2. Normalization of motor-evacuative function of a stomach and duodenum [4].
3. Absence of ulcer recurrence.

Excellent and good results in 100% of cases were noted after Bilroth 1 surgery, SVP with Finney pyroplasty, stem vagotomy.

After Bilroth 2 surgery excellent results were in 80%, satisfactory results were in 20%.

After SPV with Jabuley pyloroplasty there were excellent and good results in - 50%, satisfactory results - 50%. After posterior stem and anterior Tailor SPV there were excellent and good results in 80%, in 20% we got satisfactory results.

Hospital stay of operated patients without post-operative complications was in average 16,7 bed days. In case of complications period of hospital stay was increased by 4,3 bed days and made in average 21 bed days.

Treatment of complication was conservative and surgical.

Thus our research has shown that active introduction of new surgical technologies (SPV with duodenoplasty) let to evade harmful for stomach operations, reduces percentage of post-operative complications, re-occurrence of ulcer disease and gives high index of excellent and good results[3].

### **Conclusions**

1. Florid disorders occur in localization of ulcer in duodenal bulb-reflux esophagitis, cardia insufficiency, duodeno-gastral reflux, stenosing and ulcer penetration.

2. Excellent and good results in 100% of cases were noted after Bilroth 1 surgery, SVP with Finney pyroplasty, stem vagotomy. After posterior stem and anterior Tailor SPV there were 80% of excellent and good results, 20% of satisfactory results.

3. The majority of post-operative complications occurred after performing of Tailor posterior SPV -64% and Billroth 2 surgery-18%.

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