

Surgical Intervention for Complicated Peptic Ulcer Disease

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Abstract: Background. Peptic ulcer disease of the stomach and duodenum (DU) is one of the most common diseases, affecting 2-10% of the population in economically developed countries. Currently, drug therapy is successfully used in the treatment of peptic ulcer disease. Achievements of the late XX century brought radical changes in the understanding of the pathogenesis of peptic ulcer disease and its course, which contributed to the improvement of complex therapy with the use of powerful antisecretory and antibacterial drugs.

Keywords: pyloroduodenal ulcer, combined complications, gastric resection.

Introduction. Widespread introduction of powerful antisecretory drugs and their uncontrolled use has led to a significant decrease in the number of planned operations for peptic ulcer disease in recent years, but at the same time there is a tendency to a clear increase in the number of patients with complicated course of this disease in need of surgical treatment [1]. Such a complication as ulcer perforation is a real threat to the patient's life. The lethality in perforated ulcer remains high and is 5-15% [3]. Perforative pyloroduodenal ulcers account for 0.1% among surgical diseases, and in the structure of urgent abdominal surgical pathology 1.9-2.6% [2]. Pyloric and prepyloric ulcers (gastric ulcers of type III according to H. D. Johnson) account for 20-48% of all gastric ulcers and from the point of view of pathophysiology they belong to a special group of peptic ulcers. Ulcers of this localization occur against the background of chronic antral gastritis, different from other types of ulcers gastric secretion, specific morphological changes in the muscles and nerve plexuses of the distal part of the antral part of the stomach [5]. The question of the choice of surgical intervention in complicated peptic ulcer disease remains open to this day. Some authors recommend the use of gastric resection (GR), others prefer simple suturing of the perforation in combination with anti-ulcer therapy, others supplement suturing with vagotomy and pyloroplasty (PP).

The first surgical intervention for a perforating ulcer was suturing, rightly considered the first organ-preserving operation. After Johan Mikulicz performed suturing of traumatic gastric perforation in 1880, similar operations were performed by Czerny (1885), Taylor (1887), Dean (1888), and Wahl (1890). In Russia, the first successful suturing of perforative ulcer (uperforative ulcer) of the duodenum was performed by F. F. Libikh in 1899. Up to the present day, uperforative ulcer remains the most common operation for this complication and is used in 70-80% of cases [8]. A number of authors [11] note that they obtained excellent and good results of closure of perforative ulcer of the dpc on the background of modern anti-ulcer therapy in 75.7-93% of patients after uperforative ulcer of the dpc.

However, UPERFORATIVE ulcer in conditions of inflammatory-necrotic ulcer process with expressed periulcerogenic inflammatory infiltration of the edges of the duodenal wall is not always a simple surgical manipulation, and in some cases it is technically unfeasible. This was the reason to propose various ways of performing plasty of perforated ulcer of the duodenum.

Thus, V.A. Oppel [1900] and P.N. Polikarpov [1946] in situations when perforative ulcer cannot be sutured without gross deformation and stenosis of the duodenum, proposed the method of tamponade of the perforative ulcer with a strand of the greater omentum on a vascular pedicle.

In recent years, the widespread introduction of minimally invasive and videolaparoscopic surgical interventions has attracted additional attention to suturing of perforated ulcer. P. Mouret [12] performed the first laparoscopic closure of the perforating hole of the duodenal bulb with a strand of the greater omentum and a fibrin filling in 1989. In 1990 L. K. Nathanson [Surg. Endosc.] performed laparoscopic uperforative ulcer of the duodenum with additional sealing of sutures with a strand of the greater omentum. Two years later, laparoscopic uperforative ulcer was widely used in other clinics [10]. In Russia, laparoscopic uperforative ulcer was first performed in 1992 by O. E. Lutsevich [Moscow, 1993]. Along with laparoscopic operations, minimally invasive methods of uperforative ulcer of the dpc from mini-laparotomy access are being introduced into modern surgical practice. However, with all the advantages, uperforative ulcer is a palliative operation that does not affect the pathogenesis of peptic ulcer disease and, according to different authors, is accompanied by the development of disease recurrence in 80% of patients. Even S. S. Yudin [9] noted that uperforative ulcer of the dpc inevitably led to a significant narrowing of the exit from the stomach, so in all cases of perforative ulcer closure he performed gastroenterostomy. It should be noted that gastroenterostomy used to be widespread in the surgical treatment of peptic ulcer disease. In recent years, it has only historical significance, and only some authors (I. S. White, R. Sh. Vakhtangishvili, V. G. Walter) strongly recommend to improve the passage of food to supplement uperforative ulcer with large ulcer infiltrates, with penetration into adjacent organs, with low ulcers with stenosis of the lumen of the posterodiobodontic gastroenteroanastomosis.

Improving the technique of surgical treatment of perforating ulcer a number of surgeons suggested not to suture but to excise the perforating ulcer. In cases of ulcer localization near the gatekeeper in order to avoid stenosis of the outlet gastric outlet (EGO) and gastrostasis, they performed pyloric canal dilatation by transverse dissection of the gatekeeper. These operations were called pyloroplasty (PP). In 1915, s. judd and horsley performed diamond-shaped excision of small perforated dpc ulcers with dissection of the gatekeeper. In 1963, Tanaka proposed a modification of this operation by performing an anterior hemipilorectomy.

According to a number of authors, PP alone reduces gastric secretion by at least 17-18% [13]. Firstly, the draining operation promotes accelerated evacuation of gastric contents, reduces gastric stasis and shortens the time of exposure of food masses to the mucosa of the gastrin-producing part of the stomach, which leads to a decrease in the activity of gastric secretion in the hormonal phase. Secondly, by destroying the locking mechanism of the HEJ, the draining operation promotes irrigation of the mucosa of the DIC bulb with acidic gastric contents, activating the enterogastrone system, through which gastrin and hydrochloric acid production are inhibited [12].

One of the advantages of PP is the possibility of performing intraduodenal revision to reveal a "mirror" ulcer, which is impossible when performing uperforative ulcer [14]. A number of authors note that in 5-7% of cases perforative ulcer of the anterior wall of the duodenal bulb is combined with bleeding and excision of the edges of the ulcer defect completely excludes the possibility of leaving a bleeding vessel in it.

The accumulated clinical experience of gastric drainage operations shows that they can cause a number of pathologic syndromes. In 1970, Johnston and Hedenstedt, evaluating the causes of unsatisfactory results of organ-preserving operations in peptic ulcer disease, saw them in the destruction of the gatekeeper. G. Grassi [Brit. J. Surg., 1971], M. I. Kuzin et al. [15], noted that the origin of damping syndrome after stem vagotomy was associated not with the crossing of vagus nerves, but with the operation draining the stomach, i.e. with the violation of the locking function of the pyloric stomata. This was also associated with the development of reflux of duodenal contents, supporting the phenomena of chronic gastritis. According to different

authors, gastric draining operations lead to the development of dumping syndrome in 5-12%, and reflux gastritis - in 35% of operated patients [17].

The disadvantages of draining operations include deformation of the pyloroduodenal zone with the formation of diverticulum-like pockets. In the late postoperative period it leads to prolongation of the hormonal phase of gastric secretion and ulcer recurrence [I. V. Chislenko, 1998]. Trying to eliminate these disadvantages of PP, in 1971 Norman C. Tanner [18] for the first time performed subpyloric duodenal drainage in the image of Finney operation. This type of surgical treatment of peptic ulcer disease became known as duodenoplasty (DP). In this case, the pathologic focus was not excised, and this type of surgery was called palliative DP.

In 1978 Helwing E., Heymann H. [Chirurg, 1978], Grassi G. [Brit. J. Surg, 1971] performed a circular postpyloric resection of the duodenum within the upper and lower edges of the ulcer without mobilization of both sections of the intestine. They sutured the posterior wall of the proximal part of the duodenum to the ulcerated edge of its distal part. The sutures were placed through pathologic tissues and ulcer edges, thus reducing the quality of the operation.

O. B. Volkov et al. [15] proposed a method of valve pyloroduodenoplasty, in which an anterolateral hemipylorrectomy is performed with the formation of a valve from the walls of the pyloroduodenal canal according to the "sail" type. V. F. Saenko et al. [19] performed sphincter restoration by suturing the circular muscle layer.

The principles of the new direction in functional surgical gastroenterology fully correspond to the method of radical DP developed by V. I. Onopriev [Krasnodar, 1995] in 1976. This operation combines resection of the ulcer-altered zone of the duodenum with its plastic restoration by single-row precision sutures. Anatomic-functional preservation of pyloric stomata, postpyloric localization of pathological focus are indispensable conditions for performing this type of operation.

Simultaneously with organ-preserving operations on the stomach radical direction in the treatment of gastric and duodenal ulcer disease developed. In domestic surgery, the most active propagandist of gastric resection (GR) in the treatment of peptic ulcer disease was S. S. Yudin. At this time, the technique of performing the operation was developed and scientifically justified. According to the data of S. S. Yudin, up to 94% of durable, definitive cures from peptic ulcer disease and absence of any complaints that could be related to the operation were obtained after RP. The objectives of RR were defined as complete removal of the hormonal zone that excites the chemical phase of secretion, reduction of the acid-producing surface, and possibly complete crossing of the vagus nerves near the cardia. Classical resection of 2/3 of the stomach along with ulcer removal sharply reduces the production of hydrochloric acid and proteolytic enzymes in the first phase of digestion and practically eliminates the second phase, creates satisfactory conditions for the evacuation of gastric contents [21].

RR is not only radical, but also a much more complicated traumatic operation performed in conditions of peritonitis, with removal of a significant part of the stomach, gatekeeper, violation of nervous regulation of the gastrointestinal tract, which increases the risk of intraoperative trauma to the pancreas, extrahepatic biliary passages, which is reflected in the number of intra- and postoperative complications, worsening the quality of life of patients due to the development of postgastroresection syndromes.

I. I. Neimark 1972 formulated the most general indications and conditions for RR in perforating ulcer:

The presence of an ulcerative history prior to perforation (especially if there is a history of bleeding or perforation);

the time from perforation to surgery does not exceed 6-8 hours;

satisfactory general condition of the patient in the absence of concomitant diseases;

absence of purulent exudate and a large amount of gastroduodenal contents in the abdominal cavity;

the age of the patient from 25 to 50 years;

availability of trained surgeons of high qualification.

The majority of surgeons still limit the possibility of performing primary PCI for perforated ulcer by the presence of peritonitis in patients. In their opinion, this technically complex and traumatic operation in emergency surgery has an increased operative risk in patients without preoperative examination and preparation. Like most other surgeons [7], I. I. Bachev points out that indications for primary RR should be strictly limited by the duration of peritonitis (up to 6 hours from the time of the disease). The author reports 90% of good results after RR. According to F. N. Nishanov [8], the results of RR are estimated as good in 62-80% of patients, satisfactory - in 10-29% of patients, poor - in 10-12% of patients.

The ambiguity of tactical approaches in surgical treatment of complicated peptic ulcer disease prompts to study not only immediate but also long-term results of each method of surgery. Search for the most rational and effective technique of surgical treatment of perforated pyloric and prepyloric ulcers in the era of new possibilities of anti-ulcer therapy is a very urgent problem of urgent surgery.

Surgical treatment of pyloroduodenal ulcers for many years remains an extremely important, interesting and in many respects controversial section of surgical gastroenterology. A certain success achieved due to the possibilities of modern pharmacotherapy allowed to reduce the number of planned surgical interventions to a great extent, but still, as a quarter of a century ago, the number of emergency operations for complicated forms of peptic ulcer disease remains at the same level, and according to some reports, even increased [22].

The methods of fibrogastroduodenoscopy (FGDS), as well as light-optical and electron-microscopic studies of biopsy specimens play an important role in elucidating the essence of pyloroduodenal ulcers, etiology, pathogenesis and diagnostics [5].

The use of methods of lifetime morphological study allows to connect the changes of structures with the state of their functions, i.e. to obtain structural and functional characteristics of the process, to judge its dynamics under the influence of surgical treatment. At the same time, the question of treatment tactics is successfully solved [3, 4]. This would realize the final provisions of the concept of preemptive surgical treatment, allowing to prevent the development of life-threatening complications of pyloroduodenal ulcers [6, 8]. However, to date, despite the available studies, this issue cannot be considered to be definitively solved. The reason is that pathological changes in the gastric and duodenal mucosa in the immediate and distant period after selective proximal vagotomy (SPV) and gastric resection are incompletely and inconsistently described.

Modern peptic ulcer (PU) surgery is characterized by the fact that it has almost completely moved into the category of emergency surgery [1, 2]. At the same time, the technical complexity of surgical interventions has sharply increased due, first of all, to the growing incidence of combined complications, which, according to the literature, varies from 30 to 59% [3, 4]. It is quite natural that the greatest difficulties due to anatomical proximity of the pancreas and bile ducts arise in combined complications of pyloroduodenal ulcers (PDU). In such situations the operation of choice is gastric resection (GR), but its results cannot be recognized as satisfactory: the frequency of early and late postoperative complications reaches 30%, postoperative mortality - 37%, low quality of life indicators of operated patients [5, 6, 7, 8].

Conclusions: thus, in spite of the fact that chronic duodenal patency disorders (CDPD) are officially recognized by the modern concept of ulcer formation as one of the aggression factors, there is no unified opinion concerning their frequency of occurrence and significance in the development and progression of combined complications of IBD, as well as approaches to

differentiated diagnostics and reasonable surgical correction [9, 10, 11]. In this regard, the problem of individualization of surgical tactics when performing RP for combined complications of PJD continues to remain relevant.

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