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Optimization of Surgical Tactics for Non-Tumor Genesis Diseases of the Left Half of the Colon

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Abstract The authors, in the process of scientific and practical research, optimizing surgical tactics in patients with non-tumor diseases of the left half of the colon when performing reconstructive and restorative surgical interventions, reduced the frequency of postoperative complications associated with surgical intervention in the main group from 9.8 to 1.7%, wound complications - from 7 .4 to 5.2%, general complications - from 6.2 to 1.7%, mortality from 3.7 to 0%, which made it possible to achieve the desired aim of the research.

Keywords Non-tumor diseases, Volvulus of the sigmoid colon, Payr's disease, Adhesive disease, "U-shaped" stoma, Reconstructive and restorative operations

1. Introduction

Acute intestinal obstruction has been and remains an urgent problem in emergency surgery for more than a century. Currently, all over the world, patients with urgent diseases of the colon of non-tumor origin are of particular interest. Many of its clinical forms make it difficult to diagnose early, and its various types make the nature of surgical interventions difficult [11,16]. At the same time, many issues in determining surgical tactics remain complex and debatable [1,2,14]. Primary anastomosis against the background of necrosis, intestinal gangrene and peritonitis is doomed to suture failure, therefore, surgeons either bring both ends of the intestine to the anterior abdominal wall, or perform a surgical intervention such as the Hartmann operation in order to subsequently restore its continuity [3,6,12]. The frequency of its implementation ranges from 37 to 62% [4,15], and also requires the implementation of the recovery phase of the operation, which is often accompanied by the development of life-threatening postoperative complications - up to 25 - 60% and high mortality - 6 - 35% [5,7,15]. The issues of surgical rehabilitation of colostomy patients are also far from their final solution, due to the fact that these surgical interventions are no less complicated than primary operations, and restoration of intestinal continuity in 40-72% of cases is impossible [13] and is accompanied by high mortality - 19-20% and more [9]. Some surgeons recommend left-sided hemicolectomy with primary restoration of intestinal continuity and formation of a U-shaped anastomosis (in the literature it is called differently - U-shaped, Y-shaped, T-shaped), which, however, have not received wide practical application [8,10].

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Thus, urgent complications in non-tumor diseases of the left half of the colon, as well as issues of surgical rehabilitation, remain extremely relevant, which was the reason for this study.

The aim of the research is to improve the immediate and long-term results of surgical treatment of urgent complications of non-tumor diseases of the left half of the colon (with volvulus of the sigmoid colon, Payr's disease, cicatricial adhesive and diverticular disease), by optimizing surgical tactics.

2. Material and Research Methods

For the period from 2014 to 2022, 139 patients were operated on in the surgical departments of the clinic of the Andijan Medical Institute and the Andijan branch of the Republican Scientific Center for Emergency Medical Care for urgent diseases of the left half of the colon of non-tumor origin. According to the purpose and objectives of the study, we conditionally identified two groups:

- comparison group - (2014-2018) - 81 (58.3%) patients who underwent a retrospective analysis of the results of surgical treatment in compliance with traditional approaches;
- the main group - (2019-2022) - 58 (41.7%) patients who underwent a prospective study of surgical treatment using an optimized surgical approach.

3. Results and Its Discussion

The distribution of the studied patients, we carried out according to the WHO International Age Classification

(2021). With urgent diseases of the left half of the colon of non-tumor origin, the largest contingent was patients aged 45-59 years - 60 (48.9%), i.e. in adulthood, which make up the most able-bodied part of the population and is of great medical and economic importance. At the age of 19-44, i.e. at a young age, 29 (20.9%) patients, who are the future of our society, were urgently operated on. At the age of 60 years and older, i.e. in the elderly, 42 (30.2%) patients were urgently operated, which is of great medical and social importance.

When analyzed by gender, non – tumor diseases of the left half of the colon, subject to emergency surgical interventions, were 97 (69.8%) men and 42 (30.2%) women with a 2:1. When analyzed by gender, non-tumor diseases of the left half of the colon, subject to emergency surgical interventions, men accounted for 97 (69.8%), and women-42 (30.2%) with a ratio of 2: 1. Out of 139 patients, the cause of emergency surgical interventions was CC, without intestinal gangrene - in 74 (53.2%) patients, CC with intestinal gangrene - in 17 (12.2%), dolichocolon and dolichosigma - in 10 (7.2%)), as well as cicatricial adhesive obstruction - in 13 (9.4%) patients and diverticular disease (complicated form) - in 25 (18.0%) patients.

From the beginning of hospitalization, emergency surgical interventions were most often subject to the first 2-4 hours - 52 (37.4%) patients and from 5 to 6 hours - 36 (25.9%) patients. This circumstance makes it possible to judge the good awareness of the population and improvement to hospital diagnostics. In the period from 7 to 24 hours, 24 (17.3%) patients were subject and in the period of more than 1 day - 27 (19.4%), which was associated with the severity of the initial condition, due to the underlying disease and the presence of concomitant therapeutic pathology, requiring correction.

In the studied patients (139), primary anastomoses were formed in 54 (338.8%) patients, Hartmann-type colostomy in 51 (36.7%), as well as a “T-shaped” combined stoma with “side-to-end” anastomosis - in 15 (10.8%) and "U-shaped" stoma with "submersible" end-to-side anastomosis - in 19 (13.7%). Along with this, in recent years, in the formation of primary anastomoses, in the main group, the use of "submersible" invagination anastomosis has been widely used.

To solve the tasks, clinical, laboratory, instrumental and statistical research methods were carried out in accordance with the latest standard methods in accordance with the recommendations for examination approved by the Ministry of Health of the Republic of Uzbekistan.

Preoperative preparation of our patients began and was carried out in parallel with diagnostic measures from the moment of admission to the surgical department.

In accordance with the purpose and objectives of the study in the comparison group, we conducted a retrospective analysis of the surgical treatment of the studied patients operated on an emergency basis.

The reasons for urgent surgical interventions in the comparison group were SCI without intestinal gangrene in 42 (51.9%) patients and SCI accompanied by colon gangrene in 11 (13.6%). There were also cicatricial adhesive obstruction in 7 (8.6%) patients, dolicolon and dolichosigma (DS) in 6 (7.4%) patients, and complicated forms of diverticular disease (DD) in 15 (18.5%) patients.

A retrospective analysis showed that surgical interventions were performed within the first 6 hours in 27 (33.3%) patients, within 7-24 hours in 19 (23.5%), at 25-48 hours in 15 (18, 5%) and more than 48 hours in 20 (24.7%) patients.

Deserve special attention 15 (18.5%) patients operated on within 25-48 hours after admission to the hospital and 20 (24.7%) patients operated on more than 48 hours. This contingent mainly consisted of people over 60 years of age with relatively late hospitalization from the onset of the disease with symptoms of intoxication and with the presence of severe forms of concomitant therapeutic pathology.

The volume of surgical interventions in the comparison group consisted of performing primary colo-colonanastomoses in 27 (33.3%) patients: according to the "end-to-side" principle - in 5 (6.2%), according to the "side-to-side" principle – in 11 (13.5%) and the formation of invagination anastomosis - in 11 (13.5%) patients. At the same time, detorsion with Hagen-Thorne mesosigmoplication was performed in 6 (7.4%) patients due to the presence of severe comorbidity.

It is important to note that when performing emergency surgical interventions, in 31 (38.2%) patients, a Hartmann-type colostomy was performed, and a T-shaped combined stoma with side-to-end anastomosis was performed only in 5 (6.2%) and "In "- figurative combined stoma - in 3 (3.7%) patients.

In 42 (51.9%) patients with SCI accompanied without gangrene of the large intestine, primary cololoanastomoses were formed in 15 (18.5%) patients - according to the "end to side" principle - in 3 (3.7%), according to the principle "side to side" - in 7 (8.6%) and invagination - in 5 (6.2%) patients. Due to the preserved viability of the intestine, against the background of severe concomitant therapeutic pathologies and in the elderly, detorsion with Hagen-Thorne mesosigmoplication was performed in 6 (7.4%) patients. A single-barrel colostomy according to the Hartmann type had to be formed in 18 (22.2%) patients, and a T-shaped combined stoma with an anastomosis "side-to-end" - only in 2 (2.5%) and a "U"-shaped combined stoma with anastomosis according to the principle "end to side" - in 1 (1.2%) patient. All 11 (13.6%) patients developed a single-barrel colostomy in SCI accompanied by intestinal gangrene.

In DC and DS, primary colocoloanastomoses were formed in 2 (2.5%) patients - according to the side-to-side principle - in 1 (1.2%) and by invagination - in 1 (1.2%) patient. A single-barrel colostomy according to the Hartmann type had to be formed in 2 (2.4%) patients, a T-shaped combined stoma with an anastomosis "side-to-end" - in 1 (1.2%) and a "U"-shaped combined stoma with an anastomosis along the principle of "end to side" - in 1 (1.2%) patient.

With cicatricial adhesive obstruction, primary colo-colonanastomoses were formed in 6 (7.4%) patients - according to the "end-to-side" principle - in 1 (1.2%), according to the "side-to-side" principle - in 2 (2, 5%) and invagination method - in 3 (3.7%) patients, in 1 (1.2%) case a T-shaped

combined stoma with side-to-end anastomosis was applied.

In complicated forms of DD, primary colo-cololoanastomoses were formed in 4 (4.9%) patients - according to the "end-to-side" principle - in 1 (1.2%) according to the "side-to-side" principle - in 1 (1.2%) and invagination method - in 2 (2.5%) patients. A single-barrel colostomy of the Hartmann type was formed in 9 (11.1%) patients, a T-shaped combined stoma with side-to-end anastomosis - in 1 (1.2%) and a "U"-shaped combined stoma with anastomosis according to the "end-to-end" principle. to the side" – in 1 (1.2%) patient.

In the process of performing this study and gaining experience at the Department of Neurooncology and Transcranial Surgery of Tumor and Non-Tumor Genesis, we have improved the method of applying the colon. The modified technique for the formation of a combined "U-shaped stoma with bell anastomosis with" submerged "sutures, with contraindications to the primary anastomosis, in relation to the Hartmann operation, has a number of advantages:

- due to the formation of a "submersible" bell anastomosis by the type of intussusception, the load on the anastomosis suture line is reduced, the "wick effect" of the through suture is eliminated, mechanical strength and physical tightness of the anastomosis are achieved;
- suturing (fixation) of the peritoneum under the formed anastomosis eliminates retraction (falling into the abdominal cavity) and prolapse (falling out) of the anastomosis;
- partial removal of the contents through the stoma and partial, in a natural way, provides decompression of the proximal colon;
- extraperitoneal location of the combined "U-shaped stoma with bell anastomosis with "submerged" sutures allows performing the recovery stage of surgery without laparotomy, using the extraperitoneal method and in the shortest possible time (15-30 days).
- performing the recovery phase of the operation eliminates the occurrence of life-threatening complications (failure of anastomotic sutures) and associated deaths.

The reasons for urgent surgical interventions in the main group were SCI without intestinal gangrene in 32 (55.2%) patients and SCI accompanied by colon gangrene in 6 (10.3%). Also, the reasons for emergency surgical interventions in the main group were cicatricial adhesive obstruction - in 6 (10.3%) cases, dolicolon and DC - in 4 (6.9%) cases, and complicated forms of diverticular disease (DD) - in 10 (17.3%) cases. %) of patients.

In the main group, a prospective analysis showed that surgical interventions were performed within the first 6 hours - in 25 (43.1%) patients, within 7-24 hours - in 17 (29.3%), within 24-48 hours - in 9 (19.0%) and in terms of more than 48 hours in 7 (12.1%) patients. In terms of 25-48 hours after admission to the hospital, only 9 (15.5%) patients were operated on, and in terms of more than 48 hours in 7 (12.1%) patients. That is, 42 (72.4%) patients were operated on in the first 6 hours (43.1%) and 7-24 hours (29.3%), which, along with other factors, significantly influenced the outcomes of surgical treatment.

The volume of surgical interventions in the main group consisted in performing primary colo-coloanastomoses in 17 (29.3%) patients, however, unlike the comparison group, "submersible" invagination anastomoses were used according to the "end-to-side" principle. At the same time, detorsion with Hagen-Thorn mesosigmoplication was performed only in 4 (6.9%) patients due to the presence of severe comorbidity. It is important to note that in the main group, in contrast to the comparison group, a T-shaped combined stoma with "side-to-end" anastomosis was applied in 10 (17.2%) and "U"-shaped combined stoma with anastomosis according to the "end-to-end" principle "to the side" – in 16 (27.6%) patients.

In SCI accompanied without gangrene of the large intestine - 9 (15.5%) primary colo-cololoanastomoses were formed in 9 (15.5%) patients by the "submersible" invagination method according to the "end to side" principle. In connection with the preserved viability of the intestine, against the background of severe concomitant therapeutic pathology and in an elderly patient, detorsion with mesosigmoplication according to Hagen-Thorn was performed in 4 (6.9%). T-shaped combined stoma with side-to-side anastomosis was formed in 6 (10.3%) patients and U-shaped combined stoma with end-to-side anastomosis was formed in 8 (13.8%) patients. All 6 (10.3%) patients with SCI accompanied by intestinal gangrene had a single-barrel colostomy of the Hartmann type.

In DC and DS, primary colo-cololoanastomoses were formed in the form of a "submersible" invagination method according to the "end-to-side" principle; they were formed in 2 (3.4%) patients. T-shaped combined stoma with side-to-end anastomosis - in 1 (1.7%) and "U"-shaped combined stoma with end-to-side anastomosis - in 1 (1.7%) patient.

With cicatricial adhesive obstruction, primary colo-coloanastomoses were formed; primary colo-coloanastomoses were formed by the "submersible" invagination method according to the "end-to-side" principle in 3 (5.2%) patients, in 1 (1.7%) case T- shaped combined stoma with side-to-end anastomosis, and in 2 (3.4%) patients "U"-shaped combined stoma with anastomosis according to the "end-to-side" principle.

In complicated forms of DD, primary colo-cololoanastomoses were formed in 3 (5.2%) patients using the "submersible" invagination method according to the "end-to-side" principle. T-shaped combined stoma with side-to-end anastomosis - in 2 (3.4%) patients and "U"-shaped combined stoma with end-to-side anastomosis - in 5 (8.6%) patients.

A retrospective analysis of the results of surgical treatment showed that in the comparison group of 81 (58.3%) patients, postoperative complications after the primary ones were observed in 35 (43.2%). Complications associated with surgery were found in 14 (17.2%) patients, wound - in 9 (11.1%) and general complications - in 12 (14.8%) with a fatal outcome - in 4 (4.9%) patients.

The occurrence of complications in the comparison group was associated with inadequate adequate preoperative preparation and postoperative management, and technical errors in the operation, which obliges to maintain constant

vigilance, strict consideration of indications for operations, as well as strict adherence to the basic canons of intestinal surgery.

As a result of surgical treatment of this contingent, adhering to a modified technique of formation, a combined "U-shaped stoma" with an "end-to-side" bell anastomosis with "submersible" sutures, and incl. "T-shaped stoma" with "side-to-end" bell anastomosis, as well as the proposed diagnostic and treatment algorithm, in the main group of 58 (41.7%) patients, postoperative complications after the primary ones were observed in 11 (18.9%). Complications associated with surgery were found in 4 (6.8%) patients, wound - in 3 (5.2%) and general complications - in 4 (6.8%) with a fatal outcome - in 1 (1.7 %) of the patient.

Improving the choice of tactics of surgical treatment of surgical treatment of urgent complications of volvulus of the sigmoid colon, Payr's disease, cicatricial adhesive disease, diverticular disease of the left half of the colon could not but affect the immediate results of managing this category of patients (from 43.2% to 18.9%). Thus, compared with the comparison group, the frequency of immediate postoperative complications associated with surgery in the main group decreased by almost 8.6% - from 17.2 to 6.8% (in 14 patients of the comparison and in 4 patients of the main group), the indicator mortality decreased from 4.9% to 1.7%. Complications such as suppuration of the postoperative wound and infiltration began to occur significantly less - from 11.1 to 5.2%, i.e. by 5.9%, the development of general complications after surgery by 8.0% - from 14.8 to 6.8%, mortality by 3.2% - from 4.9% - to 1.7% (in 4 patients of comparison and in 1 patient of the main group).

The preparation of patients for restorative surgical interventions, along with general strengthening therapy, required the implementation of measures to care for the stoma, as well as the oral and aboral sections of the colon. In this regard, we separately conducted a study of the results of reconstructive and restorative operations in the comparison group and in the main group.

Thus, in case of urgent complications of volvulus of the sigmoid colon, Payr's disease, cicatricial adhesive disease, diverticular disease of the left half of the colon, if there are indications for the formation of a primary colocoloanastomosis, the method of choice is "submersible" invagination anastomosis. If there are contraindications to the formation of a primary cololoanastomosis, the method of choice is the formation of a combined "U-shaped stoma" with an "end-to-side" bell anastomosis with "submersible" sutures, incl. "T-shaped stoma" with "side-to-end" bell anastomosis.

In our clinic, over a long period of time, the surgical tactics of acute obstruction of the left half of the colon of non-tumor origin has changed. In the first years of work, palliative operations were more often used - straightening the volvulus, straightening with the removal of the intestine or with a cecostomy. Recently, we have been setting indications for radical primary recovery operations more widely.

In case of SCI without intestinal gangrene, resection of the intestine with the formation of a combined “U”-shaped combined stoma with anastomosis according to the “end to side” principle, incl. "T-shaped" stoma "side to end". In case of SCI with intestinal gangrene, we use resection of the sigmoid colon with the imposition of a Hartmann colostomy.

With urgent complications: volvulus of the sigmoid colon, Payr's disease, cicatricial adhesive and diverticular disease, the use of a combined "U-shaped stoma" with "end-to-side" bell anastomosis with "submersible" sutures and incl. "T-shaped stoma" "side to end" in the presence of established indications, may be the operation of choice. In the presence of established contraindications: excessive dilatation of the adductor aboral part, resection of a significant portion of the intestine due to its necrosis and gangrene, as well as hemicolectomy, on the left, one should adhere to the Hartmann operation.

In the course of the study, in the comparison group after RRO, complications associated with surgery were found in 8 (9.8%) patients, wound - in 6 (7.4%) and general complications - in 5 (6.2%) with death - in 1 (1.2%) patients.

Development of a modified technique for the formation of a "U-shaped stoma" according to the "end-to-side" principle with submerged" sutures, using, incl. "T-shaped stoma" side to end ", as well as the definition of indications and contraindications for their implementation and adhering to the proposed diagnostic and treatment algorithm in the main group after reconstructive operations, complications associated with surgical interventions (failure of sutures of interintestinal anastomoses - 1) occurred only in 1 (1.2%) patient, wound complications - in 3 (5.2%) and general complications - in 1 (1.7%) patient, without death.

4. Conclusions

Thus, in the process of scientific and practical research, the optimization of surgical tactics in patients with non-tumor diseases of the left half of the colon with reconstructive surgical interventions showed that the frequency of postoperative complications associated with surgical intervention in the main group decreased by 8.1% (from 9.8 to 1.7%), wound complications by 2.2% (from 7.4 to 5.2%), general complications by 4.5% - (from 6.2 to 1.7%), mortality from 3, 7 to 0%, which made it possible to achieve the desired aim of the research.

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