

Primary Combined Colonic Anastomosis in the Surgical Treatment of Acute Intestinal Obstruction

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Abstract The authors of the study substantiated the effectiveness and expediency of a wider use of a modified combined T-shaped stoma and colo-coloanastomosis in acute large bowel obstruction of tumor (with removal of the tumor and the absence of metastases) and non-tumor genesis, and during the reconstructive and restorative stage of the operation, its advantages are indisputable in terms of less trauma, safety, early surgical rehabilitation, as well as in the early restoration of normal work activities and the speedy return to normal life activities.

Keywords Acute bowel obstruction, Surgical treatment, T-colostomy, Colonic anastomosis, Hartmann's procedure

1. Introduction

Acute obstruction of the large bowel (AOLB) occurs in 29-62.9% of cases, tends to grow steadily. [1,2]. At the same time, radical surgical treatment is possible only in 30-40% of patients [3,4], and up to 65% of emergency operations end with the formation of a colostomy [5]. However, a Hartmann-type operation is accompanied by the development of serious postoperative complications - up to 25-60%, as well as mortality - up to 5-9%. In the vast majority of cases, stoma patients require reconstructive and restorative operations (RRO), which are overshadowed by the development of anastomotic suture failure - 18-20% of cases, purulent-inflammatory complications - 22-26%, and in 3-7% of cases death occurs [6,7].

AOLB of tumor origin remains extremely relevant due to a number of unresolved issues in determining surgical tactics and surgical rehabilitation of colostomy patients [8,9]. In particular, there is a high incidence of postoperative complications and mortality, as well as persistent disability in patients with colostomy. The presence of a colostomy in these patients often exacerbates the course of comorbidities, thereby making it difficult or excluding the possibility of performing the recovery phase of the operation [9,10]. In this regard, today there is a need for further research and a comprehensive in-depth study of the issues of surgical tactics and surgical rehabilitation of this group of patients. The solution of these issues will reduce the frequency of postoperative complications, mortality, improve the performance of labor and social rehabilitation in patients with AOLB of tumor and non-tumor genesis.

2. Materials and Methods

The subject of this study was only patients with acute obstruction of the colon of tumor and non-tumor genesis, who underwent resection of the colon with the formation of a colonic stoma according to the Hartmann type and with the formation of a combined T-shaped stoma with colo-coloanastomosis (according to the type "end to side" and "side to end") for the period from 2011 to 2020. Patients with non-removed tumors were excluded from the study.

According to the goal and objectives, we studied 96 patients who were conditionally divided into two groups:

- comparison group - 57 (59.4%) patients who underwent operations of the Hartmann type with the formation of a single-barreled colonic stoma;
- the main group - 39 (40.6%) patients who underwent surgery with the formation of a T-shaped colonic stoma.

Clinical, laboratory and instrumental studies were carried out at the modern level, using modern equipment, according to the protocol approved by the administration and the Ministry of Health of the Republic of Uzbekistan. The use of the above diagnostic measures made it possible to obtain reliable results and solve the tasks of the study. In the analysis of data, the significance of differences was used, determined by Student's t-test.

The largest contingent of patients was aged 60 years and older, i.e. in the elderly - 43 (44.8%) patients. This fact indicates the medical and social significance of the problem of surgical treatment of this disease. At the same time, a significant part was made up of persons aged 45-59 years, i.e. in adulthood - 35 (36.4%) patients. They make up a significant part of the most able-bodied age, on the working capacity of which depends both the well-being of the family and the state. Also, AOLB was diagnosed at the age of 19-44 years, i.e. at a young age - in 21 (21.9%) patients, which may

indicate rejuvenation of tumor diseases. This fact should alert the health authorities, since it is this age group that is the future of our society, which once again confirms the relevance of this problem.

In both groups, pain syndrome (100%) and other dyspeptic disorders in the form of bloating (91.2% and 84.6%, respectively), nausea and vomiting (93.3% and 92.3%, respectively), as well as gas and stool delays (94.7% and 76.9%, respectively) were determined with a certain constancy in both groups of patients. The symptom of "oblique abdomen" was pronounced and was observed more often in the main group - in 22 (56.4%) patients, which was due to the prevalence of sigmoid volvulus (SV) in this group. In the compared group, this symptom was diagnosed only in 10 (17.5%) patients who had AOLB associated with sigmoid volvulus. An empty ampoule of the rectum in the compared group was diagnosed in 32 (56.1%) patients, while in the main group - 29 (74.4%), which was predetermined with the genesis of AOLB.

In the comparison group, 15 (26.3%) patients were hospitalized in the first 6 hours from the onset of the disease, and 8 (14.0%) patients were hospitalized in the period from 7 to 24 hours. In the period from 24 hours to 48 hours, 14 (24.6%) patients were hospitalized. Noteworthy is hospitalization within 2 days or more in 20 (35.1%) patients, which was due to the fact that the main contingent in this group were with AOLB of tumor origin and, in this regard, patients were deluded due to chronic dyspeptic manifestations of the disease. This circumstance alarms surgeons and testifies to the obviously severe initial state of this contingent of patients.

In the main group, 16 (41.0%) patients were hospitalized in the first 6 hours from the onset of the disease, and 11 (28.2%) patients were hospitalized in the period from 7 to 24 hours. The high frequency of early referral and hospitalization of this group was the specificity of the disease in CBD. Only 5 (12.8%) patients were hospitalized within 24 hours to 48 hours, and 7 (18.0%) patients were hospitalized within 2 days or more, which were mainly associated with AOLB of tumor origin. In patients with SV, the degree of expansion of the adductor colon and the presence of gangrene with peritonitis were important. All surgical interventions were performed with strict observance of oncological principles: ablascity, asepticity, atraumaticity, radicality.

In a comparative assessment of AOLB of tumor and non-tumor origin, according to the nature of comorbidity, diseases of the cardiovascular system prevailed in the comparison group and the main group - 22 (38.6%) and 16 (41.0%), respectively. At the same time, a considerable contingent was made up of patients with diabetes mellitus (mainly type 2) - 6 (10.5%) and 3 (7.7%), respectively, and obese patients - 7 (12.3%) and 4 (10.3%), respectively. Diseases of the respiratory system were diagnosed in 4 (7.1%) and 2 (5.2%), respectively, and the genitourinary system - in 3 (5.3%) patients and 2 (5.2%), respectively. The data obtained indicate that diseases of the cardiovascular system, diabetes mellitus and obesity prevailed with almost equal frequency in the compared groups.

It should be noted that in the compared groups, patients in whom the tumor was diagnosed at the first and second stages with an endophytic form of tumor growth prevailed (58.1%). The histological structure was dominated by adenocarcinoma of varying degrees of differentiation. During surgical interventions for SV in the comparison group in 5 (8.7%) cases and in the main group - in 7 (17.9%) cases, a site of gangrenous bowel with peritonitis and intoxication was diagnosed, which was associated with late negotiability and the degree of SV around its axis (180-270 degrees or more), which created certain difficulties in the postoperative management of these patients.

3. Results

In the process of carrying out this study and gaining experience in AOLB of tumor and non-tumor genesis, we have improved the method of applying a colonic stoma. This method is easy to perform, affordable, non-traumatic, the results obtained allow us to recommend it for widespread use in practical healthcare. The formation of a combined T-shaped stoma and colo-colonostomy allows the contents of the intestine to be partially emptied through the stoma and partially, naturally.

In the comparison group, under the above circumstances, 19 (33.3%) patients underwent the Hartmann operation and 38 (66.7%) underwent the Hartmann operation (when a part of the sigmoid colon remained above the rectum during the formation of the stump). In the main group, under the above circumstances, 22 (56.4%) patients had a combined T-shaped stoma with end-to-side colon anastomosis, and 17 (43.6%) patients had a combined T-shaped stoma with Colonic anastomosis according to the "side to end" principle. It should be noted that the combined T-shaped stoma with end-to-side colo-coloanastomosis was formed when there was a sufficient part of the sigmoid colon above the rectum, i.e. it was possible to bring it out without tension in the form of a colonic stoma. In the absence of such an opportunity, a large-colonic anastomosis was formed according to the "side-to-end" principle.

A comparative analysis of postoperative specific complications showed that in the comparison group, the frequency of postoperative complications associated with the surgical technique was diagnosed in 10 (17.5%) patients with a fatal outcome in 2 (3.5%), while in the main group, postoperative complications were diagnosed in 6 (15.4%) with a fatal outcome in 2 (5.1%). This type of complications is specific, i.e. associated with the technique of surgical intervention plays a decisive role in assessing the results of surgical treatment in urgent situations.

In the main group, postoperative mortality slightly exceeded (by 1.6%) compared with the comparison group (in the main group - 5.1%; in the comparison group - 3.5%). The reason for such indicators in the main group was the failure of the sutures during the formation of a combined T-shaped stoma with colo-colonastomosis due to the tension of the suture line, including errors in the technique of anastomosis

formation, which were noted in the initial period of our work and corresponded to the period of mastering the method of forming a combined T-shaped stoma. figurative stoma with colo-coloanastomosis.

With the accumulation of practical experience, these complications were not observed. The cause of postoperative lethality in the comparison group was the failure of the sutures at the site of suturing the deserized and sutured wall of the sigmoid intestine (1) and the failure of the rectal stump (1).

Nonspecific wound complications were diagnosed in 8 (14.0%) patients in the comparison group, while in 5 (12.8%) patients in the main group. In our opinion, this circumstance was due to the presence of peritonitis and weakened immunity against the background of a tumor disease, as well as a highly virulent infection due to the formation of a colonic stoma.

Nonspecific postoperative complications of a general nature in the comparison group were diagnosed in 5 (8.7%) patients with a fatal outcome in 1 (1.8%) case, while in the main group - in 3 (7.7%) patients with a fatal outcome in 1 (2.6%) case. A comparative analysis showed that postoperative complications of a general nature occurred with approximately the same frequency and were not associated with the nature of the surgical intervention. The occurrence of postoperative complications of a general nature was predetermined by the presence of chronic concomitant therapeutic diseases. Postoperative mortality in the comparison group - in 1 (1.8%) and in the main - in 1 (2.6%) cases. In both groups, the cause of postoperative mortality was pulmonary embolism (PE) in elderly patients with diseases of the cardiovascular system. Although in both compared groups, nonspecific and specific prevention of thromboembolic complications was carried out according to the approved protocol.

In non-tumor ONTC, an important condition for the formation of a combined T-shaped stoma with colo-colonostomy was the absence of a significant expansion of the afferent section of the large intestine over a significant extent and the absence of SC gangrene throughout. With AOLB of tumor origin, all surgical interventions were performed with strict observance of oncological principles: ablasticity, asepticity, atraumaticity, radicality.

The preparation of patients for repeated operations, along with general strengthening therapy, required the implementation of measures aimed at caring for the stoma and preparing the proximal and distal colon for anastomosis in order to restore its continuity. At the same time, special attention was paid to the recurrence of the tumor (with tumor genesis of the disease), the condition of the stoma, the presence of paracolostomy complications, the determination of diastasis between the afferent loop (stoma) and the stump of the large intestine. Activities aimed at preparing for a second operation began on an outpatient basis. Reconstruction was possible if after a course of chemotherapy after 3-4 days there were no pronounced toxic reactions - leukopenia less than 2 thousand per 1 mm³, severe toxic enteropathy. Immediately after the completion of the operation, along

with generally accepted measures, the importance of early stimulation of the intestine, the appointment of a slag-free diet, as well as the correction of concomitant diseases and the treatment of postoperative complications, was emphasized.

For various reasons, in the comparison group, we traced the fate of 41 patients out of 57, while in the main group - in 34 out of 39 patients. The analysis showed that in the main group in relation to the comparison group there is a well-founded opportunity to perform early RRO (in terms of 1-3 months - in 76.5% and in terms of 3-6 months - in 17.7%), then as in the comparison group, it was almost impossible to perform an early RRO within 1-3 months (mostly performed within 7-12 months - 65.9%). In addition, in 6 (14.6%) RRO were completed within a period of more than a year, and only in 8 (19.5%) - within 3-6 months. A comparative analysis of the results of restorative operations in both groups showed that in the comparison group, in 17 (41.4%) cases, well-known colonic anastomoses were formed and in 24 (58.6%) cases, colonic anastomoses were formed using an invagination method.

It is important to note that in the main group, the elimination of T-shaped anastomoses was carried out by an extraperitoneal method, which significantly reduces the morbidity of repeated surgical intervention and provided a more favorable course of the postoperative period.

In the comparison group, the frequency of specific complications associated with the elimination of the colonic stoma after the Hartmann operation was noted in 4 (9.7%) patients with a fatal outcome in 1 (2.4%) case. In all 4 (9.7%) patients, the cause of specific complications associated with the elimination of the stoma was the failure of the sutures with the development of peritonitis, which required relaparotomy with repeated reconstruction of the stoma. Of these, in 1 case, despite an intensive set of measures, a fatal outcome occurred. In the main group, specific postoperative complications occurred only in 2 (5.9%) patients - a decrease of 3.6%. The reason was the failure of the sutures, with a favorable outcome due to long-term conservative treatment, without a fatal outcome.

Wound purulent-septic complications in the comparison group were diagnosed in 4 (9.7%) patients, while in the main group - in 2 (5.9%). Nonspecific complications of a general nature were diagnosed in 3 (7.3%) patients with a fatal outcome in 1 (2.4%) case, while in the main group - 3 (8.8%) with a favorable outcome after the appropriate complex of conservative treatment.

As our experience has shown, RRO after the formation of a combined T-shaped stoma with a colo-colonostomy is performed at a much earlier time, and most importantly, by an extraperitoneal method, which ensures less safety and less traumatic operation than after Hartmann's operation. So, after the formation of a combined T-shaped stoma with colo-coloanastomosis, extraperitoneal RRO was performed in 1-3 months in 76.5% of patients and in 3-6 months in 17.7%, while after the Hartmann operation - RRO in terms of 1-3 months was not performed at all and in terms of 3-6 months - in 19.5%. After the formation of a T-shaped

colo-coloanastomosis, RRO was performed within 7-12 months only in 5.8% of patients, while after the Hartmann operation, RRO was performed within 7-12 months in 65.9% and within more than a year - in 14.6% of patients.

The frequency of specific complications associated with the technique of reconstructive surgery in the comparison group occurred in 9.7% with a fatal outcome in 2.4% of patients, while in the main group - only in 5.9%, but without fatal outcomes. At the same time, the frequency of non-specific complications, in general, in the comparison group occurred in 17.0% with a fatal outcome in 2.4% of patients, while in the main group - in 14.7%, but without fatal outcomes.

4. Conclusions

Thus, the study substantiates the effectiveness and expediency of a wider use of a combined T-shaped stoma with a colo-coloanastomosis in AOLB of tumor (with removal of the tumor and the absence of metastases) and non-tumor genesis. Carrying out the reconstructive and restorative stage of the operation by the extraperitoneal method provides indisputable advantages in terms of less trauma, safety, early surgical rehabilitation, as well as in the early restoration of normal work activities and the speedy return to normal life.

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