

Analysis of the Early Postoperative Complications in Patients with Acute Malignant Bowel Obstruction

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Abstract

The aim of our study was to analyze early postoperative complications in patients with colon cancer complicated by acute malignant bowel obstruction (AMBO).

We analyzed surgical outcomes in 90 patients aged 48 years and over (both sexes) with AMBO, who underwent surgical treatment. The results of the study showed that 30 (33.3%) of the 90 patients studied had postoperative complications, of which 6 (6.7%) had two or more combined complications; the mortality rate was 3.3%. The most frequent complications were postoperative suppuration (15.6%) and suppuration of the paracolostomy wound (18.9%). In our opinion, a significant number of postoperative complications are associated with the advanced age of patients (mean age of 65.3 ± 9.8 years), comorbidity in 96.7% of patients, and late diagnosis of colon cancer (stage IV in 25.6% of patients). Development and implementation of more advanced methods of colostomy formation, algorithms for predicting and preventing postoperative complications in patients with AMBO will help reduce the occurrence of complications. (**International Journal of Biomedicine. 2019;9(3):257-259.**)

Key Words: colon cancer • acute malignant bowel obstruction • postoperative complications

Introduction

Currently, in the Russian Federation the number of patients with acute intestinal obstruction is 5 people per 100,000 of population.⁽¹⁻³⁾ In the United States of America, more than 100,000 patients a year undergo ileo or colostomy for diseases of the large intestine.⁽⁴⁻⁶⁾ In most cases, the cause of acute intestinal obstruction is cancer of the descending colon and rectum.^(1,3,7,8) Up to 30% of newly diagnosed colon cancers present with acute intestinal obstruction, particularly in the case of left-sided tumors.⁽⁹⁾ The leading method of treatment for acute malignant bowel obstruction (AMBO) is surgery.^(1,7,10)

Studies involving a series of surgical cases of malignant bowel obstruction have shown a 30-day mortality of 25% (9%–40%), postsurgical morbidity of 50% (9%–90%), a rate of reobstruction of 48% (39%–57%), and a median survival of 7 months (2–12 months).⁽¹¹⁾ Age, advanced disease, malnutrition,

and deterioration in the general status are considered factors of poor prognosis even in cases where surgery may technically be possible.^(12,13)

According to data in the literature, the failure of the colonic anastomosis is one of the frequent and formidable postoperative complications, leading to death, recurrence of the disease and shorter life expectancy.^(1-3,7,8) To prevent this complication and eliminate the load on the colonic anastomosis, colostomy is performed. Currently, most foreign⁽⁴⁻⁶⁾ and domestic^(1-3,7,8) clinical recommendations recommend imposing a temporary colostomy during resection of the large intestine due to AMBO.

The possible complications of a colostomy are skin maceration, suppuration of postoperative and paracolostomy wounds, colostomy necrosis, abscess of the abdominal cavity, paracolostomy fistulas, colostomy prolapse, parastomal hernia, etc.^(1-3,7,8) The incidence rate of the above complications ranges from 1% to 50%.^(1-3,7,8) Violations of the surgical technique, the presence of severe concomitant pathology, and reduced immunity in patients with AMBO are leading factors in the occurrence of paracolostomy complications.^(2,3,6-8)

The aim of our study was to analyze early postoperative complications in patients with colon cancer complicated by AMBO.

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Materials and Methods

We analyzed surgical outcomes in 90 patients aged 48 years and over (both sexes) with AMBO, who underwent surgical treatment in Ulyanovsk Regional Clinical Center for Specialized Types of Medical Aid in the period from 2010 to 2017.

The study was conducted in accordance with ethical principles of the Declaration of Helsinki and approved by the by Ethics Committees at our institutions. All patients underwent general clinical and laboratory, radiographic, endoscopic, ultrasound, histological methods of investigation; whenever required, echocardiographic study was carried out.

Table 1 demonstrates that the sigmoid colon was the most frequent location of occlusive tumors in both men (59.6%) and women (69.8%). Patients were operated on at stages III and IV of the tumor process (74.4% and 25.6%, respectively). The average age of the studied patients was 65.3±9.8 years. In all patients, histological examination revealed adenocarcinoma of different degrees of differentiation. Regional metastases were detected in 30% of patients, distant metastases in 12.2%. Complicated diseases were revealed in 87 (96.7%) patients: multifocal atherosclerosis, ischemic heart disease, critical limb ischemia, chronic obstructive pulmonary disease, chronic hepatitis, cirrhosis of the liver, gallstone disease, urolithiasis, chronic pyelonephritis.

Table 1.

Characteristics of colorectal cancer

	Men (n=47)		Women (n=43)		Total (n=90)	
	n	%	n	%	n	%
Tumor location						
-transverse colon	5	10.6	1	2.3	6	6.7
-the left side of the transverse colon	7	14.9	7	16.3	14	15.6
-sigmoid colon	28	59.6	30	69.8	58	64.4
-rectum	7	14.9	5	11.6	12	13.3
Stage						
III	34	72.3	33	76.7	67	74.4
IV	13	27.7	10	23.3	23	25.6

All patients underwent radical and palliative surgery for appropriate indications, with the imposition of colostomy. In the postoperative period, anesthesia, infusion therapy, antibiotic therapy, ligation, nonspecific and specific prevention of thromboembolic complications (bandaging of the lower limbs, early activation, fraxiparin) were performed.

Statistical analysis was performed using the statistical software «Statistica». (v6.0, StatSoft, USA). All values are presented as mean±SEM). The inter-group comparisons were performed using Student's t-test. A probability value of $P<0.05$ was considered statistically significant.

Results and Discussion

The results of the study showed that 30 (33.3%) of the 90 patients studied had postoperative complications (Table 2),

of which 6 (6.7%) had two or more combined complications; the mortality rate was 3.3%. The most frequent complications were postoperative suppuration (15.6%) and suppuration of the paracolostomy wound (18.9%). Five to six days after surgery, patients experienced failed anastomosis, peritonitis, abscess of the abdominal cavity, and necrosis of the colostomy. All patients with these postoperative complications underwent repeated operations (obstructive resections of the large intestine, rehabilitation, and drainage of the abdominal cavity). The average length of hospital stay was 22±4.1 days.

Table 2.

Early postoperative complications

Complications	Number of patients (n=90)	
	n (%)	death, n (%)
Failed anastomosis	3 (3.3%)	1 (1.1%)
Peritonitis	3 (3.3%)	1 (1.1%)
Abdominal abscess	4 (4.4%)	-
Colostomy necrosis	1 (1.1%)	1 (1.1%)
Postoperative suppuration	14 (15.6%)	-
Suppuration of the paracolostomy wound	17 (18.9%)	-

In our opinion, a significant number of postoperative complications are associated with the advanced age of patients (mean age of 65.3±9.8 years), comorbidity in 96.7% of patients, and late diagnosis of colon cancer (stage IV in 25.6% of patients).

Development and implementation of more advanced methods of colostomy formation, algorithms for predicting and preventing postoperative complications in patients with AMBO will help reduce the occurrence of complications.

Conclusion

In patients with colon cancer complicated by AMBO, the most frequent complications are postoperative suppuration (15.6%) and suppuration of the paracolostomy wound (18.9%), which require implementation of more advanced methods of colostomy formation, algorithms for predicting and preventing postoperative complications.

Competing Interests

The authors declare that they have no competing interests.

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