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ORIGINAL ARTICLE

THE RESULTS OF ANTERIOR RECTAL RESECTION WITH THE FORMATION OF A HARDWARE ANASTOMOSIS IN CANCER PATIENTS

E. N. Kolesnikov[1], A. V. Snezhko[2], V. S. Trifanov[1], M. A. Kozhushko[1], U. A. Fomenko[1], T. B. Katsieva[1], R. E. Myagkov[1], S. V. Sanamyanc[1], M. A. Averkin[1], G. Yu. Egorov[1]✉

1. National Medical Research Centre for Oncology of the Ministry of Health of Russia, Rostov-on-Don, Russian Federation
2. Rostov State Medical University, Rostov-on-Don, Russian Federation
✉ Egorovgu@gmail.com

ABSTRACT

Purpose of the study. A retrospective analysis of the immediate results of performing anterior rectal resections in cancer.
Materials and methods. In the Department of Abdominal Oncology No. 1 with a group of X-ray vascular methods of diagnosis and treatment of the clinic of the National Medical Research Centre for Oncology of the Ministry of Health of Russia treatment for rectal cancer operations of anterior rectal resection were performed in 334 patients, while in 143 (42.8 %) cases they were low. As a standard, total mesenteric excision and lymphoid dissection in volume D2 were performed. Combined surgical interventions were performed in 68 (20.4 %) patients for locally spread tumors. As a rule, they were resection in nature and were performed with tumor infiltration of adjacent organs (bladder with ureters, ovaries, uterus, vagina, small intestine, abdominal wall). Colorectal anastomosis using crosslinking devices was formed in all cases, in 316 (94.6 %) cases it was a "side – to-end" junction, in 18 patients – "end-to-end". A preventive proximal intestinal stoma was formed in 73 (21.9 %) cases, where 67 cases it was an ileostomy, and 6 – a transversostomy. The preventive proximal intestinal stoma was not formed among 261 patients.
Results. After performing anterior resections for rectal cancer operations, the complications developed in 75 (22.5 %) patients. The most threatening and dangerous complication was the failure of the colorectal anastomosis, which was noted in 12 (3.5 %) cases.
This complication occurred in 8.2 % (6 patients out of 73) of preventatively stoma-treated patients, in 2.3 % of patients without a stoma (6 patients out of 261).
Conclusion. The use of a preventive proximal intestinal stoma allows you to form a colorectal anastomosis even in the presence of complicated forms of rectal cancer. The number of complications directly referred to the formation of a preventive proximal intestinal stoma is relatively small, but when planning surgery for uncomplicated rectal cancer, the probability of their possible occurrence should be taken into account.

Keywords:
rectal cancer, anastomosis, stoma, transversostoma, failure of colorectal anastomosis sutures

For correspondence:
Georgii Yu. Egorov – PhD student National Medical Research Centre for Oncology of the Ministry of Health of Russia, Rostov-on-Don, Russian Federation.
Address: 63 14 line str., Rostov-on-Don 344037, Russian Federation
E-mail: Egorovgu@gmail.com
ORCID: https://orcid.org/0000-0002-1413-6406
SPIN: 5779-2753, AuthorID: 1083055

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ОРИГИНАЛЬНАЯ СТАТЬЯ

РЕЗУЛЬТАТЫ ПЕРЕДНЕЙ РЕЗЕКЦИИ ПРЯМОЙ КИШКИ С ФОРМИРОВАНИЕМ АППАРАТНОГО АНАСТОМОЗА У ОНКОЛОГИЧЕСКИХ БОЛЬНЫХ

Е. Н. Колесников[1], А. В. Снежко[2], В. С. Трифанов[1], М. А. Кожушко[1], Ю. А. Фоменко[1], Т. Б. Кациева[1], Р. Е. Мягков[1], С. В. Санамянц[1], М. А. Аверкин[1], Г. Ю. Егоров[1]✉

1. НМИЦ онкологии, г. Ростов-на-Дону, Российская Федерация
2. РостГМУ, г. Ростов-на-Дону, Российская Федерация
✉ Egorovgu@gmail.com

РЕЗЮМЕ

Цель исследования. Ретроспективный анализ непосредственных результатов выполнения передних резекций прямой кишки при раке.

Материалы и методы. В отделении абдоминальной онкологии № 1 с группой рентгенэндоваскулярных методов диагностики и лечения (РЭМДЛ) клиники ФГБУ «НМИЦ онкологии» Минздрава России по поводу рака прямой кишки (РПК) операции передней резекции прямой кишки выполнены 334 больным, при этом в 143 (42,8 %) случаях они были низкими.

В качестве стандарта выполнялась тотальная мезоректумэктомия и лимфодиссекция в объёме D2. Комбинированные хирургические вмешательства выполнены у 68 (20,4 %) пациентов по поводу местно-распространённых опухолей. Колоректальный анастомоз с использованием сшивающих аппаратов формировали во всех наблюдениях, в 316 (94,6 %) случаях это было соустье «бок в конец», у 18 пациентов – «конец в конец». Превентивную проксимальную кишечную стому формировали в 73 (21,9 %) наблюдениях, из них в 67 случаях это была илеостома, в 6 – трансверзостома. У 261 пациента превентивную проксимальную кишечную стому не формировали.

Результаты. После выполнения передних резекций по поводу РПК осложнения развились у 75 (22,5 %) больных. Самым грозным и опасным осложнением была несостоятельность колоректального анастомоза, которая отмечалась в 12 (3,5 %) наблюдениях. У превентивно стомированных пациентов это осложнение возникло у 8,2 % (6 больных из 73), у больных без стомы у 2,3 % (6 пациентов из 261).

Заключение. Использование превентивной проксимальной кишечной стомы позволяет сформировать колоректальный анастомоз даже при наличии осложнённых форм рака прямой кишки. Количество осложнений, непосредственно связанных с формированием превентивной проксимальной кишечной стомы относительно небольшое, однако, при планировании хирургического вмешательства по поводу неосложнённого рака прямой кишки, необходимо учитывать вероятность их возможного возникновения.

Ключевые слова:
рак прямой кишки, анастомоз, стома, трансверзостома, несостоятельность швов колоректального анастомоза

Для корреспонденции:
Егоров Георгий Юрьевич – аспирант ФГБУ «НМИЦ онкологии» Минздрава России, г. Ростов-на-Дону, Российская Федерация.
Адрес: 344037, Российская Федерация, г. Ростов-на-Дону, ул. 14-я линия, д. 63
E-mail: Egorovgu@gmail.com
ORCID: https://orcid.org/0000-0002-1413-6406
SPIN: 5779-2753, AuthorID: 1083055

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RELEVANCE

The basis for the treatment of rectal cancer (RC) is the performance of radical surgery. Currently, priority in the surgical treatment of RC belongs to sphincter-preserving surgical interventions, among which the most common is anterior rectal resection. Among these operations, there is a low anterior resection, used when the tumor is located 6–8 cm above the anus. Studies on the peculiarities of the spread of rectal tumors have significantly expanded the indications for low rectal resections. It has been proved that the minimum distance from the tumor to the lower border of rectal resection in cancer from the mucosa can be only 1 cm or less [1–3]. The widespread use of crosslinking devices that allow the formation of colorectal anastomoses almost at the level of the sphincter complex, as well as the use of various coloplasty techniques to replace the reservoir function of the rectum, has led to an improvement in the functional results of anterior resection operations in RPC.

However, the problem of postoperative complications is still relevant, the most formidable of which is the failure of the colorectal anastomosis sutures (FCAS). Literature data on the frequency of this complication range from 3 to 30 %. Modern studies do not include in the list of complications asymptomatically current and detectable only with a control X-ray examination of contrast agent congestion [4; 5]. Among the proposed methods of protection of the FCAS, the most common is the formation of a proximal intestinal stoma. The imposition of preventive intestinal stomas is considered as an intervention that allows avoiding not so much the occurrence of FCAS, as the severe consequences of its occurrence. The main indications for the formation of preventive intestinal stomas most often include the formation of a supraanal colorectal anastomosis and the presence of a positive air test for the tightness of the anastomosis, as well as manifestations of intestinal obstruction [1; 6–8].

At the same time, the use of preventive intestinal stomas in itself may be associated with the risk of additional complications directly related to both its formation and elimination [7; 9–11].

The purpose of the study: retrospective analysis of the immediate results of performing anterior rectal resections in cancer.

MATERIALS AND METHODS

Studies concerning the choice of surgery methods, optimal methods for the formation of colorectal anastomoses using crosslinking devices, an approach to the formation of preventive proximal intestinal stomas, drainage of the lumen of the rectum and abdominal cavity, tactics for the treatment of postoperative complications in the surgical treatment of colorectal cancer were conducted at the Rostov Research Institute in the period from 2007 to 2012 [1]. In the Department of abdominal Oncology No. 1 with a group of X-ray vascular methods of diagnosis and treatment clinic, National Medical Research Centre for Oncology of the Ministry of Health of Russia for RC anterior rectal resection surgery was performed in 334 patients, while in 143 (42.8 %) cases they were low. Of the operated patients, 178 were women and 156 were men (ratio 1:1.1). The average age of patients was 61.3 ± 3.4 years, 23 % were over 70 years old. The majority of patients (208 or 62.3 %) were operated in stage III of the disease, 87 (26.0 %) patients had stages I and II. In 39 (11.7 %) cases, distant metastases occurred, and patients were assigned to stage IV. Histological examination revealed adenocarcinoma in 98 % of patients, neuroendocrine cancer in 5 (1.5 %) patients, squamous cell carcinoma in 2 (0.6 %) patients. The degree of differentiation of adenocarcinoma G1 was noted in 38 (11.6 %) patients, G2, including with a mucus-forming component, in 243 (74.3 %), in 46 (14.1 %) adenocarcinoma G3 was detected.

Mainly in the lower third of the rectal ampoule, the tumor was localized in 110 (32.9 %) patients, in the middle third – in 94 (28.1 %), in the upper third with a spread to the rectosigmoid section – in 130 (38.9 %) patients.

More than half of the patients had concomitant diseases, mainly it was pathology of the cardiovascular system.

The preoperative preparation of patients included orthograde and retrograde colon cleansing, drug decontamination, prevention of thromboembolic complications, and, if necessary, correction of corresponding disorders on the part of organs and systems.

As a standard, total mesorectumectomy and lymphodissection in volume D2 were performed. Combined surgical interventions were performed in 68 (20.4 %) patients for locally spread tumors. As a rule, they were resection in nature and were performed with tumor infiltration of adjacent organs

(bladder with ureters, ovaries, uterus, vagina, small intestine, abdominal wall). Colorectal anastomosis using crosslinking devices was formed in all cases, in 316 (94.6 %) cases it was a side-to-end junction, in 18 patients it was an end-to-end junction. Preventive proximal intestinal stoma was formed in 73 (21.9 %) cases, of which in 67 cases it was ileostomy, in 6 – transversostomy. The main indication for the formation of a proximal intestinal stoma was the presence of manifestations of intestinal obstruction, due to which it was impossible to fully prepare the colon for anastomosis. Another common cause of the formation of a preventive intestinal stoma, especially with locally common tumors, was pronounced inflammatory infiltration in the pelvic cavity and pararectal adipose tissue, resulting from the occurrence of pararectal ulcers, urinary and vaginal fistulas. No preventive proximal intestinal stoma was formed in 261 patients.

RESEARCH RESULTS AND DISCUSSION

After performing anterior resections for RC, complications developed in 75 (22.5 %) patients (table 1).

The most formidable and dangerous complication was the failure of the colorectal anastomosis. It was understood as the excretion of intestinal contents through drains, through the vagina or with urine, or the excretion of urine through the rectum. Colorectal anastomosis failure was noted in 12 (3.5 %) cases. In 6 cases, a preventive proximal intestinal stoma was not superimposed, in 6 it was formed. Conservative therapy was performed in 11 patients, relaparotomy, resection of the anastomosis area and removal of a single-stem colostomy were required in 1 patient. In 4 cases, fistulas eventually formed between the rectum, the vagina (in 3 cases) and the bladder in 1 patient. All patients were operated on within 3 to 6 months, 2 of them underwent abdominal-perineal

Table 1. Complications after RC surgical treatment

Complication type	Absolute quantity (% of completed operations)
Complications after anterior rectal resections (*n* = 334)	
Failure of the colorectal anastomosis	12 (3.6 %)
Bleeding from the anastomosis area	3 (0.9 %)
Adhesive intestinal obstruction	5 (1.5 %)
Abdominal cavity abscesses	4 (1.2 %)
Perforation of the bladder, injury of the ureter	2 (0.6 %)
Rectal-vaginal and rectal-urinary fistulas	4 (1.2 %)
Suppuration of a laparotomic wound	12 (3.6 %)
Dysuric disorders (neurogenic bladder)	10 (3.0 %)
Anastomosis stricture	4 (1.2 %)
Thromboembolic complications	5 (1.5 %)
Pneumonia	8 (2.4 %)
Acute heart failure	6 (1.8 %)
Total	75 (22.5 %)
Complications after operations to eliminate preventive intestinal stomas (*n* = 68)	
Bleeding from the anastomosis area	1 (1.5 %)
Adhesive intestinal obstruction	2 (2.9 %)
Suppurations of a wound	3 (4.4 %)
Total	6 (8.8 %)

extirpation of the rectal stump in combination with vaginal resection, 1 had bladder resection, 1 managed to limit himself to fistula plastic surgery.

In our opinion, the data on the incidence of clinically pronounced insolvency in the group of patients without preventive proximal intestinal stoma and in those to whom it was formed are of interest. This severe complication occurred in 8.2 % (6 out of 73 patients) of preventatively stoma-treated patients, and 2.3 % (6 out of 261 patients) of patients without a stoma. It should be emphasized that almost all patients who received preventive intestinal stoma had complicated forms of colorectal cancer, the most frequent of which were signs of intestinal patency disorders. Thus, a preventive proximal intestinal stoma cannot completely remove the increased likelihood of developing colorectal anastomosis in the presence of complications, and, probably, in some cases, an extremely high risk of developing colorectal anastomosis, it is advisable to abandon its formation in favor of performing obstructive resections.

Bleeding from the anastomosis zone was noted in 3 patients, while in 2 cases it was stopped transanally, in 1 case a relaparotomy and additional stitching of the anastomosis zone were required.

Adhesive intestinal obstruction was diagnosed in 5 (1.5 %) patients, all of them were operated on. In 4 out of 5 patients, extensive combined operations were initially performed.

Abdominal abscesses were detected in 4 patients, in 2 of them they were an additional complication of the colorectal anastomosis failure, in 2 they were the result of anterior resection surgery on the background of a locally advanced perforating tumor. In 1 observation, spontaneous drainage of the abscess occurred through anastomosis into the intestinal lumen, in 3 cases, drainage of the purulent cavity was performed under ultrasound control.

Traumatic perforation of the bladder in 1 patient and the ureter in another, manifested in the early stages after surgery by urine excretion through drainage tubes and caused relaparotomy in both patients. In 1 case, the bladder was sutured, in the second – ureteral resection with the formation of ureterocystoanastomosis.

Patients with neurogenic bladder included patients who did not restore normal urination 7 to 10 days after surgery. Dysuric disorders were usually clinically manifested by acute urinary retention. In 7 patients, this required an increase in the time of catheterization of the bladder to 14–18 days, 3 patients were discharged with a urinary catheter, and normal urination was restored in 4 to 6 weeks and they needed an additional course of conservative therapy under the supervision of a neurologist.

The cause of strictures of colorectal anastomosis during the period from 6 to 14 weeks after surgery, in our opinion, was a "hidden" failure of the anastomosis, especially considering that 3 out of 4 patients had preventive proximal intestinal stomas. In 2 cases, effective stricture augmentation was performed, followed by closure of the ileostomy, in 2 patients, resection of the anastomosis zone was performed.

Thromboembolic complications were noted in 5 patients. 1 patient had acute arterial thrombosis of the right lower limb, and he underwent thrombintimectomy. 2 patients developed superficial phlebothrombosis of the lower limb, 1 patient underwent a crossectomy, the other underwent conservative therapy. 2 patients developed pulmonary embolism, both patients died.

Complications from the cardiovascular system in 6 patients were manifested by increased manifestations of angina pectoris, arrhythmogenic disorders and hemodynamic disorders, which were treated conservatively.

After resection operations for rectal cancer, 2 patients died, both from pulmonary embolism. Postoperative mortality was 0.6 %.

Reconstruction of the gastrointestinal tract after the formation of intestinal stomas was performed in 68 patients, from which 62 patients had ileostomy and 6 had transversostomy. These surgical interventions were performed either 5 to 6 weeks after the first operation, or, in most patients, after the completion of multi-course adjuvant chemotherapy, usually after 6 to 7 months. Refusal to perform intestinal reconstruction was associated with tumor progression in 4 patients and refusal of surgery in 1 patient. Preoperative examination necessarily included performing irrigoscopy to identify possible stricture of colorectal anastomosis. Reconstructive surgery in almost all patients was carried out from restricted access, the stoma was circularly excised, the bowel loop with the stoma was removed into the wound and later resected. In all patients, anastomosis was formed "side to side" with a nodular suture. Complications after

reconstructive operations were noted in 6 (8.8 %) patients who did not die (see table). Repeated operations were required in 3 patients, all laparotomies were performed. A patient with bleeding from the anastomosis underwent resection of the small intestine together with the anastomosis, patients with acute adhesive intestinal obstruction underwent viscerolysis.

The material given earlier presents the results of treatment of RC patients in a specialized surgical department. The presented results of practical work, consistently low indicators of the number of postoperative complications and mortality fully confirmed the correctness of the developed approaches to the surgical treatment of rectal cancer.

CONCLUSION

Surgical treatment of patients with rectal cancer in specialized departments within large medical centers allows to obtain good immediate outcomes of surgical procedures, relatively low rates of the number of postoperative complications and mortality. The use of a preventive proximal intestinal stoma makes it possible to form a colorectal anastomosis even in the presence of complicated forms of rectal cancer. The number of complications directly related to the formation of a preventive proximal intestinal stoma is relatively small, however, when planning surgery for uncomplicated rectal cancer, the probability of their possible occurrence must be taken into account.

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Information about the authors:

Evgenii N. Kolesnikov – Dr. Sci. (Med.), senior research fellow, head of the Department of abdominal Oncology No. 1 with a group of X-ray vascular methods of diagnosis and treatment, National Medical Research Centre for Oncology of the Ministry of Health of Russia, Rostov-on-Don, Russian Federation. ORCID: https://orcid.org/0000-0002-8436-7250, SPIN: 8434-6494, AuthorID: 347457

Aleksandr V. Snezhko – Dr. Sci. (Med.), Associate Professor of Oncology Department Rostov State Medical University, Rostov-on-Don, Russian Federation. ORCID: https://orcid.org/0000-0003-3998-8004, SPIN: 2913-3744, AuthorID: 439135, Scopus Author ID: 6701854863

Vladimir S. Trifanov – Cand. Sci. (Med.), MD, surgeon, senior research fellow National Medical Research Centre for Oncology of the Ministry of Health of Russia, Rostov-on-Don, Russian Federation. SPIN: 3710-8052, AuthorID: 453981

Mikhail A. Kozhushko – Cand. Sci. (Med.), MD, surgeon, research fellow National Medical Research Centre for Oncology of the Ministry of Health of Russia, Rostov-on-Don, Russian Federation. SPIN: 9067-6410, AuthorID: 346250

Yurii A. Fomenko – Cand. Sci. (Med.), Deputy General Director for Clinical and Expert Work National Medical Research Centre for Oncology of the Ministry of Health of Russia, Rostov-on-Don, Russian Federation. SPIN: 8204-5275, AuthorID: 462430

Tanzila B. Katsieva – Cand. Sci. (Med.), MD, surgeon, senior research fellow National Medical Research Centre for Oncology of the Ministry of Health of Russia, Rostov-on-Don, Russian Federation. SPIN: 2069-9778, AuthorID: 735754

Roman E. Myagkov – Cand. Sci. (Med.), MD, surgeon National Medical Research Centre for Oncology of the Ministry of Health of Russia, Rostov-on-Don, Russian Federation. SPIN: 6109-7094, AuthorID: 737500

Sergei V. Sanamyanc – Cand. Sci. (Med.), oncologist National Medical Research Centre for Oncology of the Ministry of Health of Russia, Rostov-on-Don, Russian Federation.

Mikhail A. Averkin – Cand. Sci. (Med.), MD, surgeon National Medical Research Centre for Oncology of the Ministry of Health of Russia, Rostov-on-Don, Russian Federation. SPIN: 6106-3997, AuthorID: 734378

Georgii Yu. Egorov✉ – PhD student National Medical Research Centre for Oncology of the Ministry of Health of Russia, Rostov-on-Don, Russian Federation. ORCID: https://orcid.org/0000-0002-1413-6406, SPIN: 5779-2753, AuthorID: 1083055

Contribution of the authors:

Kolesnikov E. N. – research concept and design, text writing, scientific editing, material processing, technical editing, data analysis and interpretation, article preparation, operations execution;
Snezhko A. V. – text writing, scientific editing, material processing, technical editing, data analysis and interpretation, article preparation, performing surgeries;
Trifanov V. S. – writing text, processing material, performing surgeries, assisting the surgeries;
Kozhushko M. A. – writing text, processing material, performing operations, assisting the surgeries;
Fomenko U. A. – writing text, processing material, performing surgeries, assisting the surgeries;
Katsieva T. B. – performing surgeries, assisting the surgeries;
Myagkov R. E. – performing surgeries, assisting the surgeries;
Sanamyanc S. V. – performing surgeries, assisting the surgeries;
Averkin M. A. – performing surgeries, assisting the surgeries;
Egorov G. Yu. – assisting the surgeries; article preparation.