

ORIGINAL PAPER

Personalized Treatment in Rectal Cancer – a Single Center Study

Florin BOBIRCA^{1,2}, Lidia BELEGA-MURSOI², Dan DUMITRESCU^{1,2}, Anca BOBIRCA^{1,3}, Ioan ANCUTA^{1,3}, Traian PATRASCU^{1,2}

Abstract

The study aims to evaluate the incidence, characteristics of diagnosis and treatment for patients with rectal cancer, but also the evolution of patients diagnosed with this neoplasia, so that a personalized treatment can be applied and followed, adapted to the patient's clinical-imaging picture. The study included 127 patients operated on between January 2018 and November 2021. Dixon resection was performed in 63 patients, rectal amputation (Miles) in 42 patients, and Hartmann resection in 22 patients. For the Miles-type intervention, the patients in a more advanced stage were selected, which represented a percentage of 33.07% of the total. This type of intervention involves a permanent colostomy and has a strong impact on the patient's life. Of the total of 127 patients, the presence of complications was relatively rare, occurring in only 14 patients. Of the 14 patients, the most common complication was abscess, which occurred in 6 patients, while peritonitis and occlusion occurred in only 4 patients. After analyzing the data obtained, it can be seen that the results coincide with world statistics, the highest incidence of rectal cancer occurring in the age range 60-69 years, with an increased incidence among male patients.

Keywords: rectal neoplasia, personalized treatment, rectal resection, anastomosis, neoadjuvant treatment.

Rezumat

Lucrarea are ca scop studierea incidenței, particularităților de diagnostic și tratament pentru pacienții cu cancer rectal, dar și evoluția pacienților diagnosticați cu această boală neoplazică, astfel încât să poată fi aplicat și urmărit un tratament personalizat, adaptat tabloului clinico-imagistic al pacientului. Studiul a inclus 127 de pacienți operați în perioada ianuarie 2018–noiembrie 2021. S-a practicat rezecție Dixon la un număr de 63 de pacienți, amputație de rect (Miles) la 42 de pacienți, respectiv operația Hartmann la 22 de pacienți. Pentru intervenția tip Miles au fost selectați pacienții într-un stadiu mai avansat care au reprezentat un procent de 33,07% din total. Acest tip de intervenție implică efectuarea unei colostome definitive și are un impact puternic asupra vieții pacientului. Din totalul celor 127 de pacienți, prezența complicațiilor a fost relativ rar întâlnită, apărând doar la 14 pacienți. Din cei 14 pacienți cea mai des întâlnită complicație a fost abcesul, acesta apărând la 6 pacienți, în timp ce peritonita și ocluziile au apărut doar la 4 pacienți. În urma analizei datelor obținute se poate observa că rezultatele coincid cu statisticile mondiale, cea mai mare incidență a neoplasmului rectal întâlnindu-se în intervalul de vârstă 60-69 de ani, cu o incidență sporită în rândul pacienților de sex masculin.

Cuvinte cheie: neoplasm rectal, tratament personalizat, rezecție rectală, anastomoză, tratament neoadjuvant.

¹ „Carol Davila” University of Medicine and Pharmacy, Bucharest, Romania

² “I. Juvara” General Surgery Clinic, “Dr. Ion Cantacuzino” Clinical Hospital, Bucharest, Romania

³ Clinic of Internal Medicine and Rheumatology, “Dr. Ion Cantacuzino” Clinical Hospital, Bucharest, Romania

Corresponding author:

Anca BOBIRCA, 5-7 Ion Movila Street, 2nd District, Bucharest, Romania.

E-mail: anca.bobirca@umfcd.ro

INTRODUCTION

Globally, colorectal cancer is the third most commonly diagnosed cancer in men and second in women, and the incidence and mortality rates are substantially higher in men than in women.

The most common neoplasms of the pelvic rectum are adenocarcinomas, and the most common neoplasms of the anal canal are squamous cell carcinomas. The malignancies present at this level are accessible to the clinical examination, helping to establish the diagnosis. Despite this, the diagnosis is not always made early, because the symptoms are initially diminished or associated with other pathologies such as hemorrhoids or anal fissure.

Despite the advances made by medicine in recent years and the introduction of new diagnostic techniques, rectal cancer is diagnosed late, already in an advanced stage, about 30% of patients already having tumor metastases at the time of presentation to the doctor. Due to late diagnosis, the prognosis of the disease is often reserved, with an average 5-year survival rate of only 10-15%. The latter is a consequence of the accumulation of risk factors, such as: high-protein diets, fats (especially saturated ones), alcohol and tobacco, obesity and, last but not least, the deficit of screening programs, which would be high. help in diagnosing this disease as early as possible.

Despite the latest research on the origin of malignancies and the knowledge of the role played by genetic defects, it is not possible to say with certainty what the etiology of rectal cancer is. Numerous statistical studies try to delimit the protective and favoring factors in the appearance of the rectal neoplasm.

The highest incidence of rectal cancer is in the seventh decade of life, but cases have also been reported in children, which is why it is necessary to carefully check the personal and family medical history, noting the existing risk factors.

Most cases of rectal cancer are sporadic, but can also occur in some syndromes, such as Lynch syndrome and familial adenomatous polyposis, but only 3-5% of cases of rectal cancer.

The main symptoms presented by patients with rectal neoplasm are: rectal bleeding, rectal tenesmus, pain, intestinal transit disorders, stool stools, sphincter incontinence. Pain is a late symptom of rectal cancer, appearing with a considerable increase in tumor size, radiating mainly dorsal, sacral and perineal.

Surgical treatment has been and remains, from the beginning of the twentieth century when Miles first described rectosigmoid amputation, until today, when surgical technique has evolved and allows oncological resections and reconstructions, the basic therapeutic strategy, accompanied by chemotherapy and radiotherapy.

The treatment of rectal adenocarcinoma depends on many factors, among which the location at different level of the rectum and the local spread of the disease are the most important.

MATERIAL AND METHOD

This study was conducted between January 2018 and November 2021, and enrolled 127 patients in section I of „Dr. I. Cantacuzino” Clinical Hospital in Bucharest. All authors played important roles in analyzing and interpreting the results of the study, respectively each patient signed a final informed consent prior to enrollment in the study.

The parameters that were analyzed in this study are: age and sex of patients, symptoms present at hospitalization, associated pathologies, investigations performed, colonoscopic appearance, tumor location, disease stage and degree of tumor differentiation, neoadjuvant therapy, presence of metastases, chosen surgical treatment, the presence of complications, the type of complications, death.

In collaboration with the oncologist and radiotherapist, the emphasis was on the treatment adapted to each case, being exactly followed the recommendations of the oncology commission.

In the following we will present the surgical interventions approached within our Surgery department.

Rectosigmoid resection (Dixon) performed on the abdomen involves extensive excision of the upper rectum and sigmoid along with the lymph node tissue of this segment, with partial preservation of the rectal ampulla and sphincter apparatus in its entirety, followed by colorectal anastomosis. The anastomotic apparatus is an accumulation of procedures with functional results clearly superior to low columnar resections with damage to the anal mucosa, resulting from the degree of continence of patients, the frequency and number of stools. After colorectal resection, columnar anastomosis can be performed by sutured columnar anastomosis or sutured columnar anastomosis by intubation. A more particular case is attributed to the descending colon,

which, if it is insufficiently large, a „J” tank can be made to allow faster recovery of the storage function. The distal end of the colon will be closed with separate threads or mechanical suture TA.

Rectal amputation (Miles) is performed by completely removing the rectum, including the anorectal sphincter, and the distal sigmoid, and performing a definitive terminal abdominal sigmoidostomy.

Hartmann's surgery is the operation to resect the lower part of the sigmoid and the upper tumor rectum, with the closure of the lower pelvic stump and the externalization of the proximal portion in the permanent left iliac colostomy. In short, Hartmann's surgery is a Dixon rectal resection that will no longer be followed by an anastomosis. It is quite rarely used as an elective operation or with a radical visa, being reserved for palliation, or as a stage intervention for emergency cases. An example of palliation is the situation in which a previous resection is desired, but intraoperative there are peritoneal or distant metastases, respectively an extension of the tumor to the pelvic walls that contraindicates anastomosis due to local recurrence, and removal of the primary tumor and terminal colostomy is the optimal solution.

RESULTS AND DISCUSSION

The study was conducted on 127 patients, most of the cases were male, so the number of women was 44, compared to that of men which was 83, being able to observe the percentage of the number of patients, 35% women, respectively 64% men. Most of the patients were aged between 60-69 years, being the most exposed period representing 40.94% of the total patients, in the extremes of age a low incidence of rectal cancer can be observed age group <40 years representing only 3, 15%, and the group ≥80 representing 3.94%.

Table 1. Study eligibility criteria

Criteria	Number of pati	%
Men	83	65%
Women	44	35%
Age 60-69 ani	52	40.94%
Healthy weight range	90	70.87%
Anemia	134	121
Presence of metastases	23	18%
Neoadjuvant therapy	100	79%
Without neoajuvant therapy	27	21%
Dixon resection	63	50%
Miles amputation	42	33%
Hartmann's operation	22	17%

From the point of view of symptoms, the majority of patients (59.84%) presented for rectorages, and the following symptoms according to frequency were: transit disorders (43.31%), weight loss (40.94%) and abdominal pain (37.80%).

The most used investigation was colonoscopy performed by 88.14% of patients, the rest of the group being in a situation of complications. CT and MRI were performed on the whole batch.

In most patients examined colonoscopically, associated tumors were identified, most tumors were bleeding at the passage of the colonoscope with a percentage of 30.71%, similar characteristics in terms of frequency were ulceration and stenosis with percentages of 29.13% and 28, 35%. The rarest tumor type was circumferential with a percentage of 20.47%.

Table 2. Location and staging of the tumor

Location tumor	Number of patients	Staging	Number of patients
Upper rectum	32	T1	7
Middle rectum	44	T2	37
Lower rectum	51	T3	77
		T4	6

We emphasize that the highest incidence of rectal tumors was in the lower rectum with a percentage of 40%, followed by the middle with a percentage of 35% and the last location as a frequency was that of the upper rectum representing 25% of patients.

Of the 127 patients operated on for 71, a temporary colostomy was preferred, while a permanent colostomy was performed for the remaining 56. The majority of patients (59.06) benefited from the termino-terminal anastomosis, and the rarest anastomosis was the latero-lateral one, used only in 6 patients from the group of 127.

79% of all patients analyzed underwent radio and preoperative chemotherapy, thus complying with national and international recommendations for the treatment of rectal cancer.

Out of a total of 127 patients, the presence of complications was relatively rare, occurring in only 14 patients. Of the 14 patients, the most common complication was abscess, which occurred in 6 patients, while peritonitis and occlusions occurred in only 4 patients.

Table 3. Postoperative complications

Complications	Number of patients
Abscess	6
Eventration	4
Occlusion	2
Peritonitis	2

From an epidemiological point of view, a higher incidence of rectal cancer can be observed in male patients, 63% of the total number of patients who presented with rectal neoplasm and were treated in the General Surgery Department „I. Juvara” of „Dr. Ion Cantacuzino” Clinical Hospital, in the time interval studied, being male and representing a total of 83 of the 127 patients included in this study. The remaining 35%, 44 patients, are females. One possible explanation is the increased prevalence of risk factors in men, especially the consumption of foods rich in dietary fats and proteins, but without forgetting the role of alcohol and cigarette consumption.

In the distribution of patients according to age, it was observed that the data obtained coincide with the

literature, the highest incidence occurring in the range of 60-69 years (7th decade). In the case of extreme categories, a very low incidence can be observed in patients under <40 years and ≥ 80 years respectively.

When analyzing the data of the symptoms, it was found that the symptoms were mainly caused by local tumor growth and local invasion, so 76 of the total number of patients had rectorage, the transit disorders were the following in frequency, followed by statistically: weight loss, abdominal pain asthenia, rectal tenesmus, loss of appetite, flatulence.

The presence of anemia is an important aspect given that 59.84% of patients presented with rectorage. Out of the total number of patients, a percentage of 57.48%, 73 patients, did not show anemic syndrome. For the remaining 42.52%, the presence of anemic syndrome could be divided into mild anemia and moderate anemia. Mild anemia was present in 39 patients, while moderate anemia occurred in 15 patients, none of the patients examined had severe anemia.

For most tumors discovered on colonoscopic examination, an association of macroscopic features could be found, the most common tumor features being represented by: bleeding to the touch, vegetative tumor, stenotic tumor, ulceration and circumferential damage.

The location of the rectal tumor on imaging examination is important for establishing the prognosis and the treatment applied. In the case of the included patients, the majority was the inferior rectal location.

In the evidence of the type of surgery to which the patients underwent, a predominance of Dixon-type intervention can be observed for this intervention, the patients who were in less advanced stages were selected and allowed to save the anal sphincter.

For the Miles-type intervention, patients were selected at a more advanced stage, representing 33.07% of the total. This type of intervention involves performing a definitive colostomy and has a strong impact on the patient's life.

The Hartmann operation was performed only in 17.32% of patients, this type of intervention allowing the restoration of the digestive reinstatement at a later time.

It was observed that in the case of the upper rectum, Dixon-type intervention was preferred in all patients who had a neoplasm of the upper rectum and didn't present intestinal occlusion.

In the case of the middle rectum, the most used intervention was also the Dixon type, the Hartman

type intervention having a higher percentage than in the case of the upper rectum, and the Miles type intervention being used at a very small percentage.

For the lower rectum, the most preferred intervention was considered the Miles type, followed by the Dixon type intervention.

The rate of anastomosis fistula in patients with Dixon surgery was relatively low, 4 patients had this type of complication, but only 2 of them required reoperation.

CONCLUSIONS

After analyzing the data obtained, it can be seen that the results coincide with world statistics, the highest incidence of rectal cancer occurring in the age range 60-69 years, with an increased incidence among male patients.

The strongest negative prognostic factor is the late presentation of patients to the doctor due to the detection of neoplasms in advanced stages. An important reason for late detection is the lack of a current national screening program.

The main symptoms presented by patients were: rectorage, transit disorders, weight loss, abdominal pain, asthenia, loss of appetite.

The most used imaging technique for diagnosis was colonoscopy, presenting the advantage of the possibility of performing a biopsy for histopathological examination, CT and MRI remain standard for the systemic evaluation of the spread of the disease.

In the case of patients with the majority of metastases, they appeared at the hepatic level, which indicates the need for detailed investigations on the liver at the time of diagnosis of rectal neoplasm, but also as a follow-up in dynamics.

The role of neoadjuvant treatment (radiotherapy and chemotherapy) is emphasized in the literature. Neoadjuvant treatment is currently recommended for extensive local cancer and to reduce local recurrence.

Post-surgical follow-up is very important for the detection of recurrences and complications. The postoperative evolution could not be documented in large part, due to the lack of presence at controls but also due to the fact that the follow-up of patients is done in an oncology center.

For a higher prognosis and survival, surgery is recommended in combination with neo / adjuvant treatment, there are no major differences between the different surgical techniques, it is important to comply with cancer safety criteria.

Personalized treatment for rectal cancer makes the results, both the success of surgery and the minimization of the risk of recurrence, better and better.

Compliance with ethics requirements: The authors declare no conflict of interest regarding this article. The authors declare that all the procedures and experiments of this study respect the ethical standards in the Helsinki Declaration of 1975, as revised in 2008(5), as well as the national law. Informed consent was obtained from all the patients included in the study.

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