ORIGINAL PAPER

The Outcome of Rectal Cancer Patients During SARS-CoV-2 Pandemic

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Abstract

Introduction: Rectal cancer is a complex pathology that requires a multidisciplinary approach according to current guidelines, and surgery is one of the main stages of treatment, the type of intervention being established in relation to the location of the tumor at the rectal level. **Material and method:** The present study aims to analyze the diagnostic features, study the evolution, treatment and complications of patients with rectal cancer in a period marked by the SARS-CoV-2 pandemic. After completing the inclusion criteria, but also the exclusion group, the remaining group consisted of 55 patients with rectal cancer. **Results:** For the 55 patients, abdominal-pelvic rectal amputation was performed in 17 cases, rectosigmoid resection with colostomy in 13 cases, and rectosigmoid resection with anastomosis in 25 cases. It was also taken into account that the access to medical services was delayed compared to the pre-pandemic period, the increase of the time interval between the treatment stages being an important aspect of the study. Complications associated with surgery have been reported in 13 patients, the most common being the pelvic abscess. **Conclusions:** The results of the study show a high incidence rate in the age group 60-69 years, with a predominance of males, a delay in making the diagnosis of certainty, an extension of the period from the beginning of neoadjuvant treatment to access to surgery, and the rate of postoperative complications is similar to that described in other studies conducted during the SARS-CoV-2 pandemic, but also outside it.

Keywords: rectal cancer, pandemic, coronavirus, SARS-CoV-2, rectal resection.

Rezumat

Introducere: Cancerul de rect este o patologie complexă ce necesită abordare multidisciplinară conform ghidurilor actuale, iar intervenția chirurgicală reprezintă una dintre principalele etape ale tratamentului, tipul intervenției fiind stabilit în raport cu localizarea tumorii la nivel rectal. **Materiale și metodă:** Studiul de față are ca scop analizarea particularităților de diagnostic, studierea evoluției, tratamentului și complicațiilor pacienților cu cancer de rect într-o perioadă marcată de pandemia cu SARS-CoV-2. După parcurgerea criteriilor de includere, dar și de excludere, lotul rămas a fost constituit din 55 pacienți cu cancer de rect. **Rezultate:** Pentru cei 55 pacienți s-au practicat: amputație de rect pe cale abdomino-pelvină în 17 cazuri, rezecție rectosigmoidiană cu colostomie în 13 cazuri, respectiv rezecție rectosigmoidiană cu anastomoză în 25 de cazuri. De asemenea, s-a ținut cont de faptul că accesul la serviciile medicale a fost întarziat comparativ cu perioada pre-pandemie, creșterea intervalului de timp dintre etapele de tratament fiind un aspect important al studiului. Complicațiile asociate intervențiilor chirurgicale au fost întalnite la un numar de 13 pacienți, cea mai des intalnită fiind abcesul pelvin. **Concluzii:** Rezultatele studiului evidențiază o rată de incidență mare în categoria de vârstă 60-69 de ani, cu predominantă sexului masculin, o întârziere a realizării diagnosticului de certitudine, o prelungire a perioadei scurse de la debutul tratamentului neoadjuvant și până la accesul la intervenția chirurgicală, iar rata de complicații postoperatorii este similară cu cea descrisă în alte studii desfășurate în perioada pandemiei cu SARS-CoV-2, dar și în afara acesteia.

Cuvinte-cheie: cancer de rect, pandemie, coronavirus, SARS-CoV-2, rezecție rect.

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INTRODUCTION

Within the frequency of neoplasms, colorectal cancer ranks 3rd in males and 2nd in females, respectively, with both a higher incidence and a higher mortality in men. In 2020 alone, it is estimated that approximately 1,000,000 new cases have occurred in men and 800,000 in women, respectively.[1]

From the histopathological point of view, most cases are adenocarcinomas, followed by mucinous carcinomas. Notably, the most aggressive type is „ring-sealed" cell adenocarcinoma, which has a fairly poor prognosis. An intensely studied topic lately has been the etiology of these types of neoplasia and related to this topic we can mention the following syndromes: Familial Adenomatous Polyposis, Lynch Syndrome (non-polyposis syndrome), inflammatory bowel disease, especially Ulcerative Colitis (less Crohn's Disease). Also, genetic mutations play a very important role in the development of these pathologies, and the most important risk factors are represented by the diet which includes the consumption of red meat, alcohol and smoking.

Although studies have shown that colorectal cancer occurs most often in the 7th decade of age, there has recently been an increase in the incidence in young people under the age of 50. Often, however, a significant percentage between patients occurs at a late stage, which no longer allows curative treatment at that time, and the implementation of screening programs nationwide could improve this.

The treatment of colorectal cancer has evolved a lot in recent decades and the most important thing to remember is that the patient must be treated by a multidisciplinary team, which includes surgeons, oncologists and radiotherapists. Also, the therapeutic success depends very much on the staging of the patient at the time of diagnosis, but recent advances in treatment, adaptation of surgical techniques to modern principles (complete excision of the mesorectum) lead to solving a large percentage of current cases.

In the years 2020, 2021 and the beginning of 2022, we were affected in all forms by the Covid-19 pandemic, which meant a cumulation of changes in health services, especially in terms of access to various departments, as well as delays sometimes of the stages of diagnosis and treatment in the case of cancer patients.[2,3,4]

MATERIAL AND METHOD

The study was conducted between January 2020 - March 2022, and there were enrolled 55 patients operated in the General Surgery Department of the Dr. I. Cantacuzino Clinical Hospital. Each author had an important role in writing and interpreting the study data, respectively, and each patient signed the consent before enrolling in the study.

Eligibility criteria were developed for patients who were admitted to the study, of which we mention the age between 40-80 years, the presence of a malignant tumor located at the level of the lower rectum up to the level of the recto-sigmoid junction. The definite diagnosis was made on the basis of the histopathological bulletin performed on the biopsies taken from the colonoscopy. Patients who had previous surgery on the colon, those with unresectable metastases, those with benign tumors on histopathology, and those with significant cardiovascular or pulmonary comorbidities that were or were contraindicated in the study were excluded from the study surgery.

Given the complex treatment of rectal cancer pathology, the necessary steps for the diagnosis and treatment of the disease were analyzed.[5] The period in which the study was conducted was marked by a pandemic with SARS-CoV-2, and a major problem was the access to medical services.[3,5,6] The average periods for each stage of this therapeutic algorithm were analyzed and compared with the pre-pandemic periods in order to have an overview of what actually means the delay, respectively the slowing down of the treatments of the oncological patients.[7,8]

RESULTS AND DISCUSSION

The study is based on 55 cases of rectal cancer, diagnosed by histopathological examination, between January 2020 and March 2022 in the General Surgery Clinic of the Dr. I. Cantacuzino Clinical Hospital.

Epidemiologically, 29 of the patients were vaccinated against SARS-CoV2, 9 had come in contact with COVID 19, 5 had the disease from diagnosis to surgery, 12 had not been vaccinated and had not contracted the virus.

From the point of view of gender, rectal neoplasm predominates in male patients, representing a number of 38 cases (69.09%), one of the possible explanations being a risk factor that has a high prevalence among

men, such as food consumption with high content of animal fats and proteins, alcohol, respectively smoking. The number of female cases was 17 (30.90%).

Regarding the distribution by age groups, the category 60-69 years was predominant through a number of 22 cases (40.00%), while in the category 40-59 years there is a substantial decrease (13 cases - 23.63 %), and in the 70-79 age group there are 20 cases (36.36%). (Table 1)

Table 1. Distribution by age groups

Age groups	Number of cases	Percentage
60-69	22	40.00%
40-59	13	23.63%
70-79	20	36.36%

Clinical aspects of patient presentation were also considered. Most of them presented with the transit disorders alternating constipation - diarrhea (31 cases - 56.36%), the following being in order the rectorhagy (18 cases - 32.72%), pain in the lower abdomen (10 cases - 18.18%), respectively weight loss of over 5 kg in the last 3-6 months. (7 cases - 12.72%). (Table 2)

Table 2. Signs and symptoms

Symptom	Number	Percentage
Intestinal transit disorder	31	56.36%
Rectorhagy	18	32.72%
Inferior abdominal pain	10	18.18%
Weight loss	7	12.72%

Paraclinical investigations used to diagnose rectal cancer were colonoscopy with tumor biopsy, followed by histopathological examination 3 weeks after colonoscopy. From an imaging point of view, the pelvis was investigated by MRI, and for the rest of the examined segments, chest-abdomen-pelvis CT with contrast substance was used.

Given that the study is carried out in the mentioned period (January 2020 - March 2022), dominated by the pandemic with Sars-CoV2, in the first part being in force including the complete lockdown, the time interval between the diagnostic / therapeutic stages was significantly increased. Thus, in Table 3, a comparative analysis was made between what was the number of weeks required between the diagnostic stages in the pre-pandemic period and the average obtained in our study.

Table 3. Comparison between the time interval between the diagnostic / therapeutic stages in pre-pandemic (Standard) and the study period

Stage of the therapeutic plan	**Standard –** Number of weeks	**Study –** Number of weeks
Symptom –> colonoscopy / biopsy	2	4
Colonoscopy / biopsy -> Histopathology result	3	2-3
Histopathological examination -> Neoadjuvant therapy (RT)	1-2	3-4
Neoadjuvant therapy (RT) –> Surgical Intervention	Short Course - 2 Long Course - 6	Short Course – 2-3 Long Course – 7-8

According to the guidelines in force, we studied patients who received neoadjuvant radiotherapy, 34 cases (61.81%), with long-course or short-course, being even 3 cases of total remission after radiotherapy.[9, 10] (Table 4)

Table 4. Neoadjuvant treatment

Neoadjuvant therapy	Number	Percentage
YES	34	61.81 %
NO	21	38.18 %

Of note, most cases were tumors located in the upper rectum (26 cases - 47.27%), followed by tumors of the middle rectum (19 cases - 34.54%) and lower rectal tumors (10 cases - 18.18%). Similarly, there are selected cases of complete post-RT remission (2 cases

of middle rectal tumor, 1 case of lower rectal tumor), but patients still voluntarily opted for curative surgery.[11] (Table 5)

Table 5. Location of tumors at the rectal level and cases of post-radiotherapy remission

Tumor	Number	Percentage	Post-radiotherapy remission
Upper rectum	26	47.27%	
Middle rectum	19	34.54%	2 cases
Lower rectum	10	18.18%	1 case

Three types of surgery were performed in the study, Hartmann-type resection, Dixon-type resection, and Miles-type abdominal-pelvic rectal amputation. The most common practice in our department was Dixon resection (25 cases - 45.45%), being allowed to perform anastomosis in cases of upper rectal tumors and in selected cases of medium rectal tumors. Of these, the protection of anastomosis was chosen in 7 cases of ileostomy of protection, in 12 cases the installation of a transanal discharge tube, and for 2 cases a protection of anastomosis was not considered necessary (the 2 cases being from the category of upper rectal tumors).[12,13] Rectal amputation (17 cases - 30.90%) was reserved for tumors located at the lower level and for cases of medium rectal tumors that did not allow resection with adequate safety margins (dissection difficult to perform in post-remodeling conditions radiotherapy, resection limit that does not comply with safety conditions, patient choice, biological status),[14] while Hartmann resection was required in 13 cases (23.63%). (Table 6)

Table 6. Type of surgical intervention

Surgical Intervention	Number	Percentage
Hartmann Resection	13	23.63%
Dixon Resection	25	45.45%
Abdominal-pelvic rectal amputation	17	30.90%

Among the complications, the pelvic abscess was found in 4 cases, and in order of frequency it was followed by wound infection (3 cases), anastomosis fistula (3 cases), postoperative bowel obstruction (2 cases), respectively Clostridium Difficile infection (1 case). [15] It should be noted that in patients who developed anastomosis fistula, one of the cases was treated conservatively, and in the other 2 reintervention was necessary. [16] (Table 7)

Table 7. Postoperative complications

Complication	Number	Conservative Management	Surgical Management
Pelvic abscess	4	2	2
Wound infection	3	3	0
Bowel obstruction	2	0	2
Anastomotic fistula	3	1	2
Clostridium Difficile infection	1	1	0

CONCLUSIONS

Rectal cancer is an extremely complex pathology, so treatment depends on many factors, such as rectal location, staging of the disease, or the biological status of the patient. In this study we tried to look at how the period of the Sars-Cov2 pandemic influenced the treatment of these patients.

The age range with the highest incidence of the disease is 60-69 years with the predominance of males, associated with the risk factors mentioned above, which confirms the literature.

In the diagnosis of rectal cancer, colonoscopy with biopsy remains of choice, followed by imaging investigations of the pelvis by MRI and computer tomography of the chest and abdomen for staging.

The difficult access to the medical services that characterized the period of the study was translated by an increase of the average interval for each stage of diagnosis, respectively of the treatment of the patients with rectal neoplasm. Both neoadjuvant treatment and access to curative intervention have been delayed, leading to the inevitable progression of the disease.

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