Colon cancer surgery in patients operated on an emergency basis

Cirurgia do câncer de cólon em pacientes operados de emergência

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A B S T R A C T

Objective: to study the epidemiological profile of patients with colorectal cancer operated on an emergency basis at the Bonsucesso Federal Hospital. **Methods:** this is a retrospective study of patients operated between January 1999 and December 2012. We analyzed the following variables: age, gender, clinical data, TMN staging, tumor location, survival and types of surgery. **Results:** we evaluated 130 patients in the study period. The most frequent clinical picture was intestinal obstruction, in 78% of cases. Intestinal perforation was the surgical indication in 15%. The majority (39%) of the patients had advanced TNM staging, compared with 27% in the initial stage. There were 39 deaths (30%) documented in the period. The most common tumor site was the sigmoid colon (51%), followed by the ascending colon (16%). The curative intent was performed in most cases, with adjuvant treatment being performed in 40% of the patients. Distant metastases were found in 42% of the patients and 10% had documented disease recurrence. Disease-free survival at two and five years was 69% and 41%, respectively. **Conclusion:** there was a high mortality rate and a low survival rate in colorectal cancer patients operated on urgently.

Keywords: Colorectal Neoplasms. Intestinal Obstruction. Intestinal Perforation. Colorectal Surgery. Emergencies.

INTRODUCTION

Colorectal cancer (CRC) is the third most common type of cancer among men and the second among women[1]. It has a good prognosis when diagnosed in the early stages, with an overall mortality of 8.5%[1]. Mortality and morbidity are relatively low in electively operated patients, but in those operated in an emergency, there is a significant increase in these rates, as well as a reduction in survival over five years[2-4].

The most common clinical presentation in patients with CRC admitted to the emergency room is obstruction, followed by colon perforation[5]. It is estimated that approximately 10 to 19% of CRC patients will present obstruction at some point in the natural course of the disease[6]. This condition presents as a risk factor for a worse prognosis, with a mortality in the immediate postoperative period between 15 and 30% when compared with elective patients (1% to 5%)[7]. This fact is explained not only by the patients' deterioration of the clinical status due to the obstructive emergency condi-

tion, but also by the advanced stage of the tumor found in such situations[6]. Perforation can occur in 3% to 8% of cases[8], and although it is a more serious condition and presents greater postoperative morbidity and mortality than colonic obstruction[5], survival rates are similar in both situations[9].

The most commonly used surgical technique in patients with urgently operated CRC is the Hartmann's procedure, because it is a safe technique, especially in patients with a high surgical risk[9]. However, this technique causes several problems of both psychosocial and colostomy-related care. Furthermore, it demands another surgical procedure for the reconstruction of intestinal transit, which also presents considerable morbidity[10].

Although it is a cancer type with a relatively good prognosis, mainly due to the natural history, its overall mortality remains high in Brazil[11], especially in those patients operated on as an emergency[8]. This reflects the failure of CRC screening policies, with the diagnosis often made in advanced stages, with complications such as obstruction and perforation.

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The purpose of this paper is to demonstrate the reality of a reference hospital of to contribute both from the epidemiological point of view and in the promotion of protocols for tracking CRC.

METHODS

We conducted an observational, retrospective, descriptive study at the II Surgery Clinic of the Bonsucesso Federal Hospital, with medical records of patients treated between January 1999 and December 2012. We included only the patients with CRC diagnosis operated on an emergency basis. We excluded patients operated due to colon obstruction or perforation by other diseases or by tumors not confirmed by anatomopathological examination. We also excluded patients with medium and low rectum tumors because of the different treatment modalities between the colon and rectum tumors.

The variables analyzed were age, gender, clinical data, tumor location, type of surgery, whether curative or palliative, TNM staging, adjuvant treatment, presence of metastases, relapse, and type of intestinal reconstruction. The main outcomes were death and disease-free survival at two and five years. All data were collected and inserted in a specific data collection form and in MS Excel® spreadsheet and later analyzed with the Bioestat® software. We present quantitative variables as mean ± standard deviation, and qualitative ones, as frequency and percentage.

This study was approved by the Ethics in Research Committee of the Bonsucesso Federal Hospital (opinion number 1,183,590).

RESULTS

We evaluated a total of 130 patients in the study period, 55% female and 45% male. The mean age was 59.5 years. The most frequent clinical presentation on admission was intestinal obstruction (78%), followed by pain (72%) and weight loss (41%). Anemia (25%), perforation (15%), bleeding (11%), fistula (2%) and intussusception (1%) were also observed (Figure 1). As for TNM staging, 3% had stage I, 13% stage IIA, 3% stage IIB, 11% stage IIIB, 6% stage IIIC and 22%

stage IV (Figure 2). In 42% of cases, it was not possible to establish adequate staging. More than half (51%) of the tumors were located in the sigmoid colon, 16% in the ascending colon, 10% in the descending colon, 9% in the transverse colon, 8% in the cecum and 6% in the rectum (Figure 3).
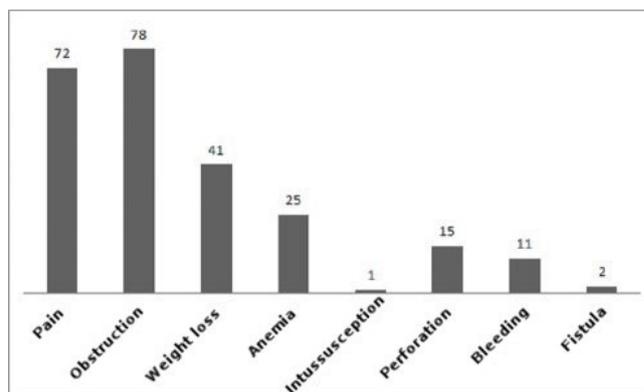

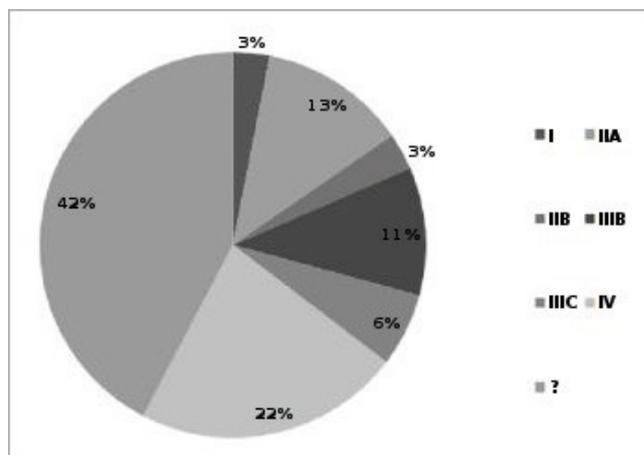**Figure 1.** *Clinical presentation at admission.*

Figure 2. *TNM Staging.*

Surgery had curative intent in 52% of the cases, whereas in 37% it was only palliative. In 11% it was not possible to determine the intention of treatment, if curative or palliative. Retrosigmoidectomy was the most performed surgery (39%), followed by right hemicolectomy (29%), left hemicolectomy (14%), derivative colostomy (8%), total colectomy (4%), transversectomy (3%) and derivative ileostomy (3%) (Figure 4). As for the method chosen for reconstruction/maintenance of intestinal transit, terminal stoma was preferred, with 34%

followed by simple primary anastomosis (26%), mucosal fistula (16%), derivative stoma (10%) and anastomosis with stoma protection (7%). In 7% of the cases, a procedure for reconstruction or maintenance of the intestinal transit was not required or possible (Figure 5). Adjuvant treatment was performed in 40% of cases. Individuals representing 25% of the series received no adjuvant treatment, and in 35% it was not possible to obtain information regarding this type of treatment.
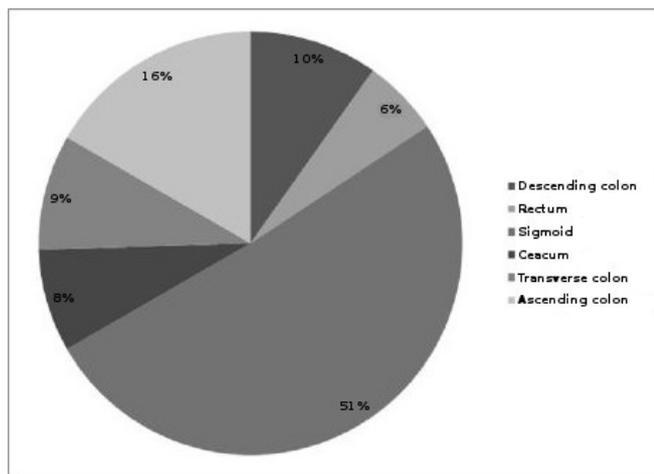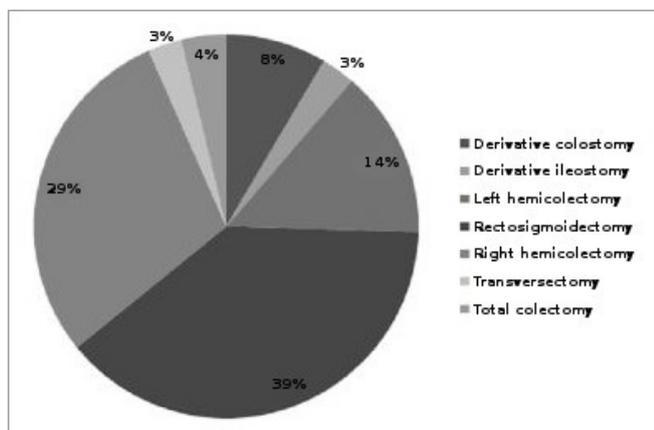

Figure 3. *Tumor location.*

Figure 4. *Type of procedure.*

There were twenty-six deaths (20% of the total sample) directly related to CRC during the postoperative follow-up. Thirteen deaths occurred for reasons not directly related to CRC in the postoperative

period, even during hospital admission, totaling 39 deaths (30% of the total). We could not assess deaths due to reasons not related to CRC in the postoperative outpatient follow-up. There was a documented disease recurrence in 10% of patients, whereas in 29% of cases it was not possible to document disease recurrence. The presence of distant metastasis was documented in 42% of patients, either at the time of diagnosis or during follow-up. The most common site of distant metastases was the liver (20%), followed by peritoneum (11%), uterus and attachments (4%), abdominal wall (2%) and lung (1%). Other sites with less than 1% frequency accounted for 4% of metastases occurrences, whereas in 21% of cases it was not possible to determine the presence or absence of distant metastases. We could assess the disease-free survival at two years in 72 patients, being 69%. The five-year disease-free survival was 41%.
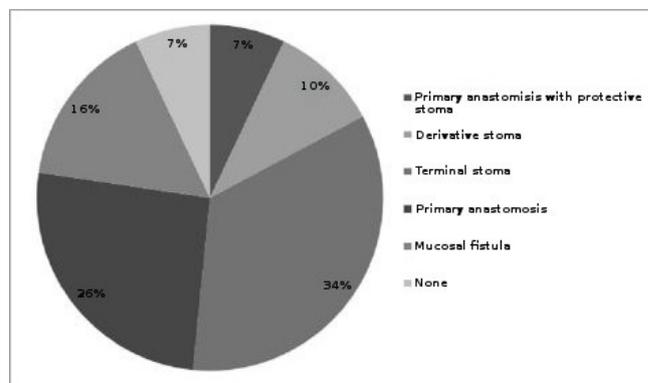

Figure 5. *Type of intestinal reconstruction.*

DISCUSSION

The estimate for 2016 is 16,660 new cases of colon and rectum cancer in men and 17,620 in women in Brazil[11]. Because of its high incidence in our country, CRC is one of the three malignant tumors that have screening policies advocated by the Ministry of Health, along with neoplasms of the breast and cervix. Despite this, screening for colon cancer is not routinely applied, due to the lack of access to health services by the general population. Some studies have already demonstrated the relationship between the effectiveness of screening po-

licies with staging of the colorectal tumor at the time of diagnosis, and consequently the impact on complications such as obstruction, perforation, and on mortality[12,13].

According to the literature, 7% to 40% of CRCs will undergo emergency surgery, mainly due to obstruction or perforation[14]. Mortality is high in these patients, ranging from 16% to 38%[14], being two to four times greater than in electively managed individuals[15]. However, there is controversy in these data, since most of these studies do not define the degree of obstruction, whether partial or total, reflecting the discrepancy in the percentage of mortality in the various articles. The high mortality in emergency surgeries is multifactorial6. A multivariate analysis revealed, as independent risk factors for mortality, besides surgical urgency, advanced CRC, age greater than 70 years, presence of important comorbidities, presence of sepsis and blood transfusion in the perioperative period5. However, among these factors, undoubtedly the one that has the greatest impact on mortality is staging. Biondo *et al.*[16] observed that in patients submitted to elective surgery with curative intent, about 13% had stage I, 58% stage II and 29% stage III. In patients submitted to emergency surgery, 5% had stage I, 44% stage II and 51% stage III. For stage II patients, there was no statistically significant difference in survival between elective and urgent procedures. In patients with stage III, there was a higher mortality in the emergency surgery subgroup. In our study, perioperative mortality was 10% (13 patients). In agreement with literature data, we believe that this high mortality is more related to the disease advanced staging than to the clinical conditions related to the urgency of the surgery, since all had advanced disease (stage III or IV). In the postoperative follow-up, there were 26 deaths (20%) related to CRC, with a two-year survival of 69%, and 17% survival in five years. These results, however, should be viewed with great caution due to the great loss of follow-up of the patients, inherent in studies of this nature, and to the small sample of those who completed the follow-up periods. Likewise, there was loss of access to patients who died for reasons other than CRC, since many seek other medical care units other than the Oncology Surgery Outpatient Clinic or our Hospital's Emergency Room. Another study with longer follow-up may provide better scientific evidence on these variables.

Regarding treatment, resection, for curative or palliative purposes, was the most adopted option (89%). In those patients in whom derivative stoma was performed (11%), the reason was tumor unresectability or lack of clinical conditions for resection. The achievement of a temporary derivative stoma for subsequent elective tumor resection (two-stage surgery) is not adopted in our service, nor is it recommended by most authors in the literature. When the tumor is resected at the first moment, there is lower postoperative mortality, shorter hospitalization time and greater disease-free survival in five years, demonstrating that the main factor related to tumor recurrence is the adoption of the basic oncological principles, not the emergency situation itself, when compared with two-time surgery[17].

While in the right colon tumors the primary anastomosis was the procedure of choice for reconstruction of the intestinal transit, in the tumors of the left colon and high rectum, the Hartmann's procedure was the most adopted. In fact, it is well established in the literature that the primary ileo-transverse anastomosis is safe, even under conditions of fecal peritonitis[18], with low dehiscence rates, ranging from 0.5% to 4.6%[19]. In the tumors of the left colon, there is still some controversy about the best surgical procedure to be adopted. While it is common sense that the Hartmann's surgery is the procedure of choice in critically ill patients or patients with generalized fecal peritonitis, this is not the case in stable, low-risk patients. Some authors[20] advocate that, in these patients, primary anastomosis with or without stoma protection is the procedure of choice, in view of the need for a second surgery for reconstruction of the transit and that about 40 to 60% of patients will not have the possibility of performing it, for several reasons, thus affecting quality of life[21,22]. Others, however, share the idea that Hartmann's surgery is the safest in emergency surgery for CRC, since as well as providing R0 resections, does not have the potential for anastomotic dehiscence[9].

Like a third group of authors[23], we believe that primary anastomosis resection and Hartmann's surgery are not competing procedures, but two proposals that should be used according to the clinical situation. We understand that in our country, where a great part of such surgeries is performed by surgeons still in formation

and in places with few resources, the Hartmann's surgery should be the option in the great majority of cases, the resection with primary anastomosis being restricted to very specific situations.

The placement of transtumoral endoscopic prostheses as a measure of palliation or temporary colonic clearance has the advantage of being a less morbid procedure than the Hartmann's surgery or a derivative colostomy[6,16], but we do not have such resources in our Service.

Our study allowed us to verify that the mortality in patients with CRC operated on an emergency basis is still quite high, with the disease presenting in advanced stages. These data reflect flaws in CRC screening policies that would make early diagnosis and treatment of this disease possible.

R E S U M O

Objetivos: estudar o perfil epidemiológico de pacientes com câncer colorretal operados em caráter de urgência no Hospital Federal de Bonsucesso. **Métodos:** estudo retrospectivo de pacientes operados entre janeiro de 1999 e dezembro de 2012. Foram analisadas as seguintes variáveis: idade, sexo, dados clínicos, estadiamento TMN, localização do tumor, sobrevida e tipos de cirurgia. **Resultados:** foram avaliados 130 pacientes no período do estudo. O quadro clínico mais observado foi a obstrução intestinal, em 78% dos casos. Perfuração intestinal foi a indicação cirúrgica em 15%. A maior parte (39%) dos pacientes apresentava estadiamento TNM avançado da doença, contra 27% em estágio inicial. Houve 39 óbitos (30%) documentados no período. A localização mais comum da doença foi no cólon sigmoide (51%), seguido do cólon ascendente (16%). A intenção curativa foi realizada na maioria dos casos, sendo o tratamento adjuvante realizado em 40% dos pacientes. Metástases à distância foram encontradas em 42% dos pacientes e 10% apresentaram recidiva documentada da doença. A sobrevida livre de doença em dois e cinco anos foi de 69% e 41% respectivamente. **Conclusão:** houve alta mortalidade e baixa sobrevida em pacientes com câncer colorretal operados de urgência.

Descritores: Neoplasias Colorretais. Obstrução Intestinal. Perfuração Intestinal. Cirurgia Colorretal. Emergências.

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