

# Quality of care and follow-up of patients operated on for colorectal cancer at the Paysandú Hospital, Uruguay

Alfonso Rossi, Jonatan Marchetti, Raúl Perdomo, Pablo Ramade, Valentina Da Rosa, Carolina Sorbara

Hospital Escuela del Litoral Galán y Rocha, Paysandú, Uruguay

## ABSTRACT

**Introduction:** colorectal cancer (CRC) is the second cause of death among neoplastic diseases. The individual prognosis is determined by the stage of the disease at the time of diagnosis and the possibility of curative treatment. This also depends on the postsurgical stratification and the appearance of subsequent complications. The goal of follow-up is to diagnose recurrence at a potentially curable stage and detect other primary cancers.

**Objective:** to carry out an evaluation of the quality of colorectal surgery and the follow-up of patients operated on for CRC in our hospital.

**Design:** descriptive, retrospective observational study.

**Material and methods:** all patients with CRC operated on in the surgery service of the Paysandú Hospital between January 2017 and December 2020 were analyzed. Variables that influence surgical quality are described and those related to postoperative follow-up are analyzed by dividing patients in 3 groups, complete follow-up, lost to follow-up and without follow-up data.

**Results:** Thirty-nine patients were included, with a mean age of 68 years. Twenty-eight percent were diagnosed in stage IV, with low percentages in early stages. There were 57% emergency procedures and 43% elective procedures. The most common cause of emergency was intestinal obstruction (36.6%). The anastomotic dehiscence rate was 16.6% and the mortality rate was 15.3%. Only 39.4% of patients had complete follow-up.

**Conclusion:** there is a deficit in the care and follow-up of patients undergoing CRC surgery in our hospital. The creation of a specific team in the area of coloproctology is required, as well as a unified follow-up protocol to improve these results.

**Keywords:** colorectal cancer, follow-up, morbidity, mortality.

## INTRODUCTION

Colorectal cancer (CRC) is the second cause of death in terms of neoplastic diseases in the United States.<sup>1</sup> In Uruguay, during the five-year period 2009-2013, an annual average of 1,833 cases were diagnosed and 1,024 deaths were recorded, with almost equal distribution by sex. In women it is the second cause of cancer mortality (after breast cancer) and in men it is the third cause (after lung and prostate cancer). The average age of diagnosis is 70 years.<sup>2</sup>

The individual prognosis of patients with CRC is usually marked by the stage of the disease at the time of diagnosis and the possibility of curative treatment, as occurs in stages I and II. Treatment of primary CRC achieves cure in approximately 50% of patients.<sup>2</sup>

For the treatment of stages I, II and III, surgery is necessary, requiring oncologic colectomy of the affected segment with margins of 5 cm or more. The lymphadenectomy must be up to the origin of the supplying vessel, obtaining a minimum of 12 lymph nodes.<sup>3</sup>

The prognosis of these patients is linked to the initial stratification, post-surgical stratification and the appearance of subsequent complications.

The goal of follow-up is to diagnose recurrence at a potentially curable stage and detect other primary cancers. For follow-up, there is no completely established guideline, although a series of diagnostic tests can be proposed, seek-

ing a balance between performance, cost and acceptance by the patient.<sup>4</sup>

A study from the Cochrane database on the follow-up of patients treated for non-metastatic CRC concludes that intensified follow-up after curative surgery achieves an overall survival benefit.<sup>5</sup> CRC follow-up programs should be based on anatomical and temporal patterns of tumor recurrence. The most important follow-up phase is the first 2-3 years after removal of the primary tumor, since most recurrences occur during that time. Five percent of these patients will have liver metastases amenable to surgical removal.

There are no precise data on the follow-up of patients undergoing CRC surgery in our country. This is particularly noticeable in our patients since in low-complexity hospitals, follow-up is usually even more difficult.

The objective of this study is to assess the quality of colorectal surgery and the follow-up of patients undergoing CRC surgery in our hospital.

## MATERIAL AND METHODS

All patients operated on for CRC in the surgery service of the Hospital Escuela del Litoral Galán y Rocha, in Paysandú, from January 1, 2017 to December 31, 2020, were included. The medical records were retrospectively reviewed, and the data were recorded in a Microsoft Excel® 2013 spreadsheet (Microsoft Corporation, Redmond, Washington, United States).

The variables analyzed were age, sex, topography and tumor stage, type of surgery (elective or urgent and cause of emergency), type of procedure, surgical approach and operative time, complications and mortality.

The histological type, degree of differentiation, resection margins, number of lymph nodes removed and tumor stage (according to the TNM classification of the American Joint Committee on Cancer) were analyzed.

Regarding follow-up, given that in our hospital we do not have a formal protocol, we use that of the American Society of Clinical Oncology (ASCO) as a reference (Table 1).<sup>6</sup> We analyzed whether there was a first control, the frequency of controls, request for carcinoembryonic antigen (CEA), abdominal and thoracic computed tomography scan (CT) at six months and then annually, and colonoscopy at six months and then annually. In addition, the rate of local and distant tumor relapse within the first two years of follow-up was analyzed.

According to follow-up, patients were divided into 3 groups: patients with complete follow-up, patients lost to follow-up, and no follow-up data. The complete follow-up group was defined as the one in which patients complied with all controls. In the group lost to follow-up, patients only had the first controls.

The authors declare no conflicts of interest. **Alfonso Rossi: a.rossiper@gmail.com**  
Received: February 2023. Accepted: March 2023

Alfonso Rossi: <https://orcid.org/0000-0002-2946-3397>, Jonatan Marchetti: <https://orcid.org/0000-0001-7995-0727>, Raúl Perdomo: <https://orcid.org/0000-0001-9463-9355>, Pablo Ramade: <https://orcid.org/0000-0001-9169-4519>, Valentina Da Rosa: <https://orcid.org/0000-0002-0145-3015>, Carolina Sorbara: <https://orcid.org/0009-0007-7600-7777>.

**Table 1.** Colorectal cancer follow-up protocol adapted from the American Society of Clinical Oncology (ASCO).

<b>First year after treatment</b>
- Physical examination and carcinoembryonic antigen (CEA) test every 3 to 6 months. - Computed tomography (CT) of the abdomen and chest every year (every 6 to 12 months for people at high risk of recurrence). - For people with rectal cancer, pelvic CT scan every 6 to 12 months. - Colonoscopy 1 year after surgery (the results of this colonoscopy will guide if or when future colonoscopy will be needed). - Rigid rectoscopy/sigmoidoscopy every 6 months for people with rectal cancer who did not receive radiation therapy to the pelvis.
<b>Second year after treatment</b>
- Physical examination and CEA every 3 to 6 months. - CT scan every year (every 6 to 12 months for people at high risk of recurrence). - For people with rectal cancer, pelvic CT scan every 6 to 12 months. - Rigid rectoscopy/sigmoidoscopy every 6 months for people with rectal cancer who did not receive radiotherapy to the pelvis.
<b>Third year after treatment</b>
- Physical exam and CEA every 3 to 6 months. - CT scan every year (every 6 to 12 months for people at high risk of recurrence). - For people with rectal cancer, pelvic CT scan every 6 to 12 months. - Rigid rectoscopy/sigmoidoscopy every 6 months for people with rectal cancer who did not receive radiotherapy in the pelvis.
<b>Fourth year after treatment</b>
- Physical exam and CEA every 3 to 6 months. - For people with rectal cancer, pelvic CT scan every year - Rigid rectoscopy/sigmoidoscopy every 6 months for people with rectal cancer who did not receive radiation therapy in the pelvis.
<b>Fifth year after treatment</b>
- Physical exam and CEA every 3 to 6 months. - For people with rectal cancer, pelvic CT scan every year. - Rigid rectoscopy/sigmoidoscopy every 6 months for people with rectal cancer who did not receive radiotherapy to the pelvis.

## RESULTS

Thirty-nine patients met the inclusion criteria, 22 (54%) were men and 17 (46%) women, with a mean age of 68 (28-90) years. During the 4-year study period, 16 patients underwent surgery in 2017, 9 in 2018, 6 in 2019 and 8 in 2020.

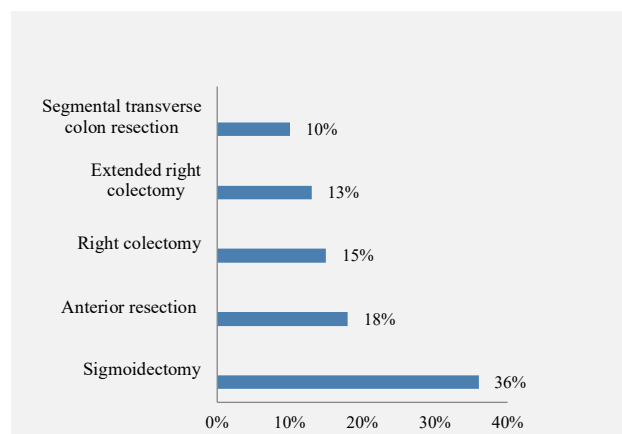
Fifty-seven percent of the procedures were performed in the emergency setting, while forty-three percent were performed electively. Among emergency surgeries, the most common cause of presentation was intestinal obstruction (36%). The most frequent reason for consultation in elective procedures was anemia.

The most frequent topography was the sigmoid colon with 36% of the cases, with the rectum, transverse colon and right colon being the next most affected areas, with 25%, 21% and 15%, respectively (Table 2).

**Table 2.** Location of colorectal neoplasms.

Site	N = 39
Sigmoid colon	14
Transverse colon	8
Ascending colon	7
Upper rectum	5
Middle rectum	3
Descending colon	1
Lower rectum	1

The most frequently performed procedure was sigmoidectomy in 36% of cases, followed by anterior resection (18%) (Fig. 1).

**Figure 1.** Surgical resections performed.

The average operative time was 116 minutes, 36 procedures were performed by laparotomy and 3 by laparoscopic approach, without conversion.

The percentage of anastomotic dehiscence was 16.6% (6 patients). Six out of 39 patients (15.3%) died during hospitalization due to some complication, 5 due to anastomotic dehiscence and 1 due to refractory shock in the con-

text of intestinal obstruction.

Ninety-seven percent of the tumors were adenocarcinomas; 48% well and moderately differentiated, 24% mucinous, 4% tubulopapillary and the rest non-reported.

Ninety-six percent of the resections were with free margins. There was only one tumor with a compromised margin and another middle rectum tumor with complete pathologi-

cal response. The average number of lymph nodes removed was 12 and 40% of patients had lymph node involvement in the resection specimen. Regarding the staging of the tumors, 28% were stage IV, 32% were stage III and 32% were stage II. There were no patients with stage I (Table 3).

Thirty-three patients were followed up, as 6 died during the initial hospitalization. In the complete follow-up group there were 13 patients (39.3%), in 3 of whom recurrences were detected. Two presented lung metastases in the first two years. One underwent surgery and continues to be monitored. Another patient presented with a new primary stomach tumor two years later, for which we do not have outcome data.

The group lost to follow-up included 2 patients (6%). Finally, the group of patients without follow-up was the largest, including a total of 18 patients (54.4%) (Fig. 2).

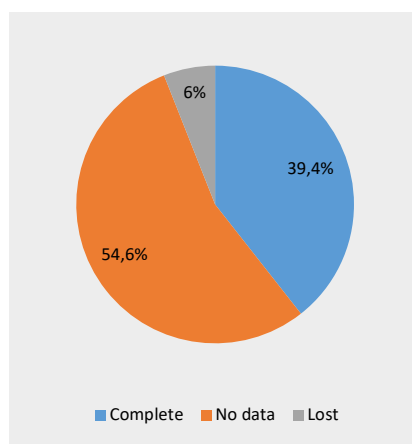


Figure 2. Follow-up groups.

## DISCUSSION

We serve a population with an age similar to that usually reported, which is 70 years<sup>2</sup>, and with a clear predominance of men, as expected. We noticed a decrease in the number of surgical procedures during the 2019-2020 period, surely due to the pandemic context that our country went through, which also explains the parity between elective and emergency surgeries. The most frequent cause of emergency was intestinal obstruction (36%), coinciding with other international series that report an incidence between 15 and 29%.<sup>7</sup> It is normally caused by tumors of the descending or sigmoid colon, the most frequent in our series. The predominance of emergency surgery and the lack of experience of the surgical team surely explain the clear asymmetry of the approach towards laparotomy.

It is worth highlighting the high mortality in this series (16%) compared to the international standard (2-3%), which increases in patients with comorbidities and need for urgent surgery.<sup>2</sup> The percentage of anastomotic dehiscence is also high compared to that reported in the literature, which ranges between 5 and 10%.<sup>2</sup> Furthermore, in our series it is the main cause of death. Ninety-six percent of the resections were R0 and forty percent of the patients had positive nodes in the surgical specimen. It should be noted that most resection procedures were performed in patients with advanced stages of the disease, where surgery usually has palliative criteria. This denotes a deficiency in the CRC screening strategy in our patients, which leads to a late diagnosis of the disease and a greater need for urgent surgery.

Regarding postoperative follow-up, we must highlight that the fact of not having a unified protocol in our center generates the greatest difficulties when collecting data on the postoperative outcome of the patients and is the main

Table 3. Tumor staging according to the AJCC TNM classification.

Tumor stage	N (%)
I	0
IIA	9 (24)
IIB	3 (8)
IIIA	0
IIIB	10 (20)
IIIC	5 (12)
IV	11 (28)
Unknown data	1 (3)

limitation of the study. In our series, the majority of patients do not have adequate follow-up and therefore we do not have their data. Monitoring depends exclusively on each professional and makes the data collected very heterogeneous.

Of the patients with complete follow-up, 3 recurrences of the disease were detected, 2 at the lung level. One underwent surgery and continues without evidence of metastatic disease.

As for the rest of the patients, 61.1% did not present a recurrence in the first two years.

## CONCLUSIONS

This study allowed us to obtain a status of the quality of care and follow-up of patients undergoing CRC surgery in our service. In addition, it allowed us to create the protocols and tools to follow prospectively, as well as the variables to improve to ensure better quality of care, knowing where we are starting from.

The epidemiological profile of the studied population coincides with the international ones in terms of sex, age, topography and most frequent tumor variants. Our results show high rates of morbidity and mortality, with a high percentage of anastomotic dehiscence, this being the main cause of death. However, in our population there is a high percentage of advanced tumors operated on as an emergency, coupled with a surgical team not specialized in coloproctology.

There was a significant quality deficit in the follow-up, as well as in the clinical records. The need arises to create a follow-up protocol in order to centralize patients and unify criteria.

## REFERENCES

1. Xue L, Williamson A, Gaines S, Andolfi C, Paul-Olson T, Neerukonda A et al. An update on colorectal cancer. *Curr Probl Surg.* 2018; 55: 76-116.
2. Bonilla F, Canessa C. Cancer colorrectal. *Clin Quir Fac Med Univ Republica Uruguay.* 2018.
3. Granados-Romero J, Valderrama-Treviño A, Contreras Flores E, Barrera-Mera B, Herrera M, Uriarte-Ruiz K, et al. Colorectal cancer: a review. *Int J Res Med Sci.* 2017; 5: 4667.
4. Kumar V, Abbas AK, Fausto N, Mitchell RN. Carcinoma colorrectal. OncoSur Group. Trabajo oncológico centros Hosp del Sur, Madrid, 2008; 634-9.
5. Jeerym JM, Hickeybe H. Cochrane Library Cochrane Database of Systematic Reviews Follow-up strategies for patients treated for non-metastatic colorectal cancer (Review). 2019. [www.cochranelibrary.com](http://www.cochranelibrary.com) (consulta, marzo de 2023).
6. Meyerhardt JA, Mangu PB, Flynn PJ, Korde L, Loprinzi CL, Minsky BD, Petrelli NJ, Ryan K, Schrag DH, Wong SL, Benson AB 3rd; American Society of Clinical Oncology. Follow-up care, surveillance protocol, and secondary prevention measures for survivors of colorectal cancer: American Society of Clinical Oncology clinical practice guideline endorsement. *J Clin Oncol.* 2013 Dec 10;31(35):4465-70.
7. Baer C, Menon R, Bastawrous S, Bastawrous A. Emergency presentations of colorectal cancer. *Surg Clin North Am.* 2017; 97: 529-45.