



Colonic Cancer in Occlusion: The Choice Between Synchronous and Sequential Surgery

Rasataharifetra Hanta¹, Rahantasoa Finaritra Casimir Fleur Prudence²,
Razafindraibe Vanona Barijaona¹, Mahavory Marc Joel¹, Samison Luc Herve²,
Rakotoarijaona Armand Herinirina¹

¹Department of Visceral Surgery, Analankinina University Hospital, Toamasina, Madagascar

²Department of Visceral Surgery, University Hospital Joseph Ravoahangy Andrianavalona, Antananarivo, Madagascar

Email address:

drhanta.mada@gmail.com (Rasataharifetra Hanta), vanonabarijaona@gmail.com (Razafindraibe Vanona Barijaona),
drhanta.mada@gmail.com (Mahavory Marc Joel), rakotoarijaonaarmand@yahoo.fr (Rakotoarijaona Armand Herinirina),
rcasimirfleurprudence@gmail.com (Rahantasoa Finaritra Casimir Fleur Prudence), drsamison@yahoo.fr (Samison Luc Herve)

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Abstract: *Introduction:* Emergency tumor resection in monobloc is the most common. The alternative is to perform an emergency digestive bypass by a near upstream stoma if the patient's condition does not allow carcinological surgery. The objective of this study was to evaluate the results of single- versus multistage surgery in occluded colorectal cancer. *Method:* A single-center, cross-sectional study had included colonic cancers in occlusion operated on between 2015 and 2019 regardless of the evolutionary stage of the lesion. Patients operated in emergency for acute intestinal occlusion due to a colon tumor and whose histological result corresponded to a cancer were included. *Results:* The median age was 54.45 years (17 years; 78 years). The sex ratio was 0.93. The main surgical procedures were resection with immediate anastomosis in right hemicolectomies (n = 12) - left colectomy (n = 3), resection with two-stage anastomosis (segmental colectomy with colorectal anastomosis and/or colocolic anastomosis with protective ileostomy (n = 10), Hartmann procedure (n = 6)). The postoperative mortality rate was 3% (n = 1) of which one patient had an elective discharge colostomy. Mortality was more associated with the AFC score (age, urgency, nutritional and neurological status) than with the choice of surgery. *Conclusion:* One-stage surgery seems to show a slight superiority on the prognosis even in the context of occlusion. Diagnostic and therapeutic management still encounter difficulties in our context.

Keywords: Bowel Obstruction, Cancer, Colectomy, Colostomy

1. Introduction

Intestinal obstruction is the most frequent mode of revelation of colonic cancer and constitutes a therapeutic emergency [1, 2]. Apart from the difficulty of specific management, colonic cancer in occlusion exposes two problems: the presence of severe organic obstruction of the colon with repercussions and the existence of locally advanced or metastatic cancer. Colon cancers diagnosed at the complication stage have a poor prognosis.

There are several options for surgery. Emergency tumor resection in monobloc is the most common. Sometimes, in

the case of a colon of doubtful vitality or very distended following the obstacle, a colostomy is recommended. The third alternative is to perform an emergency digestive bypass by a near upstream stoma if the patient's condition does not allow carcinological surgery. The management of colonic cancer in occlusion is therefore not always consensual but multifactorial. A high morbidity and mortality rate and a high rate of stoma.

In Madagascar, practices are based on recommendations in the literature but no predefined standard protocol has been

established for the management of colonic cancers in occlusion [3].

The objective of this study was to evaluate the results of single-stage versus multistage surgery in colorectal cancers in occlusion.

2. Patients and Method

A single-center, cross-sectional study had included colonic cancers in occlusion operated on between 2015 and 2019 regardless of the evolutionary stage of the lesion. Patients operated in emergency for acute intestinal occlusion due to a colon tumor and whose histological result corresponded to a cancer were included. Pseudotumor forms (colonic endometriosis) were excluded from our study. The collected data were entered and analyzed with Word and Excel 2016®, IBM SPSS Statistics® software version 2.3. The results of the study included in chronological order: initial evaluation and characteristics of the patient, therapeutic strategy chosen, operative follow-up, histological data.

3. Results

Out of 121 cases of acute intestinal obstruction, thirty-one cases were included in the study.

3.1. Characteristics of the Population and Initial Assessment

The population consisted of 16 women (51.61%) and 15 men (48.39%) with a sex ratio of 0.93. The median age was 54.45 years (17 years; 78 years) with a predominance of patients between 45 and 60 years.

3.2. Tumor Location

Cancers of the cecum, right colon, right colonic angle, and right transverse colon were combined in the right colon cancer group. Cancers of the left transverse colon, left colonic angle, left colon, sigmoid colon were combined into the left colon cancer group. The proportions of right colon and left colon cancers were 52% (n = 16) and 48.38% (n = 15) respectively.

3.3. Initial Clinical Presentation

Occlusion revealed the cancer for the totality of our series of patients. Apart from the occlusive syndrome (abdominal pain, cessation of matter and gas, abdominal meteorism), eight patients presented complications including: peritonitis by tumor perforation for 3 patients (9%) and a hemorrhage with hypovolemic shock for 5 patients (16.13%).

The tumor was palpable on physical examination of the patient despite the occlusive syndrome in 13 patients (42%).

3.4. Imagery

Abdominal and pelvic CT scans confirmed an advanced stage in three patients (Table 1).

Table 1. Initial scan data.

	Number	Rate
Visible occlusive tumor	5	16.13
Intra-abdominal effusion	2	6.45
Pneumoperitoneum	3	9.68
Suspicious satellite adenopathy	3	9.68
Synchronous liver metastases	2	6.45
Reaching other organs	1	3.23

3.5. Therapeutic Strategies

The therapeutic orientations depended on the tumor location, the complications and the patient's condition. The tumor was locally advanced (T3 on intraoperative macroscopic data) perforated in the free peritoneum in 3 patients (9%). Visceral metastases were visualized intraoperatively: hepatic (6%) and peritoneal carcinosis (3%).

The types of surgery were mainly resection with single-stage anastomosis in 48% (n = 15), resection with multi-stage anastomosis in 39% (n = 12), and decompression stoma in 13% (n = 4).

Resection with single-stage anastomosis consisted of right hemicolectomy in 80% (n = 12), left colectomy 20% (n = 3). Resection with multistage anastomosis included decompression stomas followed by resection and restoration of continuity 17% (n = 2) or resection followed by restoration of continuity in 83% (n = 10).

3.6. Postoperative Results

The postoperative mortality rate was 3% (n = 1), including one patient who underwent elective discharge colostomy. The cause of death was related to cardiogenic shock. The overall morbidity rate was 19% (n=6) with specifically surgical complications such as parietal suppuration (n=4) and prolonged ileus (n=2) for patients who had a tumor resection associated with a near upstream stoma. The patients who received a first discharge stoma had presented hydroelectrolytic disorders (n=4). The median length of hospitalization was 16 days with extremes ranging from 7 to 29 days. Mortality was more related to AFC score (age, urgency, nutritional and neurological status) than the type of surgery.

3.7. Histological Results

The histological type of the colon tumors in occlusion operated in emergency was in 87.10% (n = 27) a Lieberkühnian adenocarcinoma and non-Hodgkin's malignant lymphomas in 12.90% (n = 4).

4. Discussion

The age of the patients is a prognostic factor for the occurrence of complications or postoperative mortality. In most of the published series, there was no significant difference in the predominance of gender in the complications of colorectal cancers. As for age, a younger mean age is observed in developing countries [3] compared to developed countries [4, 5]. There is no apparent

explanation for these variations that could be attributed to chance, but this relatively young average age and slight female predominance could be related to the familial, youthful and sexual nature of the general population.

In our series, cancers of the right colon in occlusion represented 51.62%. However, in the literature left colon is known like the most common colon tumor because left colon is smaller, and cause frequently obstructive phenomena [6].

The X-ray here only provides information on the site of the obstruction, colic by the hydroaerobic levels. On the other hand, the usefulness of ultrasound in the diagnosis is controversial given its low specificity in the diagnosis of obstruction intestinal. Abdominal CT remains the gold standard exam for intestinal obstructions [7].

The surgical management of right colonic cancer in occlusion is easier because there is a gold standard: right hemicolectomy more or less enlarged according to the localization with ileo-colonic anastomosis in a single step [8]. The so-called right colonic cancer occlusion includes all occlusions developed at the expense of any colonic cancer located between the cecum and the left colonic angle. However, this indication will vary according to the terrain, the hemodynamic impact of the occlusion and the curative or palliative context.

In our series 12 (75%) patients out of 16 with right colonic cancer in occlusion benefited from a right hemicolectomy with transverse ileo or left ileo colic anastomosis in a single stage without protective ileostomy. This is the gold standard according to the European Society of Gastrointestinal Endoscopy ESGE [9] for the treatment of colon cancer in occlusion except for perforated forms. The main risks for this technique were the occurrence of anastomotic fistula, but according to the analysis and comparative studies the frequency of occurrence of ileocolic fistulas was less for procedures performed by a surgeon specialized in colorectal surgery than by a general surgeon (5.8 versus 21%; $p = 0.007$) [10]. The use of a protective ileostomy was recommended in case of unfavorable local conditions. Three patients (19%) among the patients with right colonic cancer in occlusion had benefited from palliative surgery because of the advanced tumor extension and the age of the patient. One patient out of 16 had recourse to a right hemicolectomy with transverse ileo-anastomosis and a protective ileostomy when tumor perforation with peritonitis exposed to anastomotic leakage.

The surgical treatment of left colonic cancer in occlusion offers several therapeutic options, two types of intervention are opposed: two or three-stage surgery and single-stage surgery. Single-stage surgery is defined as a segmental colectomy with colorectal anastomosis, thus avoiding the need for a stoma.

In our series of 15 patients with occluded left colic cancer, two patients (13%) had a single-stage colorectal or colorectal anastomosis following segmental colectomy. The requirements were that the proximal colon be well vascularized, emptied of gas and material with a caliber that was fairly congruent with the downstream one. According to the literature, to obtain a clean and flat colon, two methods

are feasible: intraoperative colonic lavage and manual decompression [11]. These two methods would lengthen the operative time and would expose to the risks of leaks and septic contamination of the peritoneal cavity but would allow a one step surgery with a colonic sparing, a fistula rate and a morbidity close to those of the regulated colonic surgery [12]. In our practice, manual decompression for emptying the bowel contents has been the most commonly used technique by surgeons.

A meta-analysis published in 2007 compared the treatment of left colon cancers in one-stage versus two or more stages of occlusion, showed that there was no significant difference in morbidity [13].

Unlike the management of right colon cancers in occlusion, which is well codified, the management of left colon cancers in occlusion remains a controversial issue. The two objectives are: to treat the occlusion and to treat the cancerous pathology according to the rules of carcinological surgery.

In our series, we performed on 10 patients a segmental colectomy with colocolic or colorectal anastomosis protected by an ileostomy. The reintegration of the ileostomy in our series was mainly a function of the patient's clinical recovery which varied between 3 to 6 months. Ileostomy was preferred over colostomy.

Colostomy or Hartmann procedure are mostly performed in non-specialized centers and for patients with risk factors such as: age greater than 75 years or an ASA score greater than 2, in front of high-risk patients, advanced tumor stage in case of inexperience of the operator. We performed a definitive stoma for 3 patients (19%) including one patient older than 75 years with peritoneal carcinosis and two patients with tumor perforation. Near upstream colostomy or Hartmann procedure have their place in emergency surgery. Colostomy was often poorly accepted by the patients because of certain socio-cultural beliefs, and by the family because of the difficulties to find an ostomy appliance kit.

The first colostomy followed by tumor removal in a second step is the treatment of choice for left colonic cancers in occlusion without perforation. We did not apply this method in our series. Endoscopic stenting is also used in developed countries but is not yet available in our country.

The hospital stay in our series was 15.82 days, a figure which is close to that of African authors, such as the study carried out in Antananarivo [3] and in Senegal [14], of which respectively: 16 days and 18 days. This period includes the stay in the postoperative intensive care unit following emergency surgery.

The occurrence of postoperative complications may be multifactorial, such as the surgical technique, the experience of the surgeon, the duration of the operation, and the comorbidities. As postoperative consequences, we noted: one case of parietal suppuration and one case of prolonged ileus, which represented a 6% morbidity rate. One patient died one year after his palliative intervention with a definitive colostomy. The postoperative follow-ups over a period of two years were difficult because many patients were lost to

follow-up. The survival rate is difficult to evaluate because of the loss of sight of the patients.

The longitudinal surgical margins must be specified as healthy or affected by the tumor in the histological reports. The SFCD and ACHBT recommend a resection margin of 5 to 10 cm for a better prognosis.

5. Conclusion

One-stage surgery seems to show a slight superiority on the prognosis even in the context of occlusion. Multidisciplinary collaboration and standardization of surgical and pathological practices will contribute to improve the therapeutic follow-up, especially the adjuvant treatment. Accessibility to stomatherapy would have a major impact on therapeutic continuity.

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