



Colorectal Cancers in Occlusions: Diagnostic and Therapeutic Aspects About 32 Cases Recorded at the CHU de l'Amitié Sino Centrafricaine in Bangui, Central African Republic

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Abstract

Objective: To describe the results of the treatment of colon cancers in occlusion and to draw the resulting conclusions.

Patients and Methods: This was a descriptive retrospective study carried out at the general surgery department of the Sino-Central African Friendship University Hospital in Bangui. The records of patients operated on for colon or rectal cancer between January 2015 and December 2021 were analyzed and those with the histological result were retained for analysis.

Results: Colorectal cancers in occlusion accounted for 40% of colorectal cancers recorded (N = 80). Men represented 62.5% of the workforce. The average age of the patients was 47.9 years (extremes: 20 and 77 years). Abdominal CT had confirmed the colon tumor in 12.5% of cases but in 87.5% of cases, the tumor was only discovered at laparotomy.

The laparotomy was performed under general anesthesia with oro tracheal intubation. It made it possible to specify the seat of the tumors: right colon (31%), transverse colon (15.6%), left colon (46.9%) and rectum (6.2%). The procedures performed were Hartmann's intervention (37.5%), right segmental colectomy (31.2%) followed by ileocolic anastomosis and discharge colostomy (21.9%).

In 12.5% of cases, neoadjuvant chemotherapy was instituted based on the FUFOL protocol (5 Fluorouracil + folic acid).

In 90.6% of cases it was a Liberkhün adenocarcinoma and the tumors were classified as stage IV (46.9%). Metastases were present in 59.7% of cases. The mortality rate was 37.5% and the survival 3% at 3 years.

Conclusion: The prognosis of colorectal cancers in occlusion could be improved by a screening program. Patient care requires a multidisciplinary team and mastery of surgical strategies by operators.

Keywords: Surgery; Intestinal Obstruction; Colorectal Cancers; Colectomy; Central African Republic

Introduction

Colorectal cancers include all primary malignant tumors developed at the expense of the wall of one of these two parts of the body. Intestinal obstruction is a factor of poor immediate prognosis [1] and represents the most common progressive complication of colorectal cancer. Indeed, the management of patients with colonic cancer in occlusion raises both the problem of severe organic obstruction of the colon with all the potential repercussions, particularly of a general or upstream intestinal nature, and the problem of a cancer that is often locally advanced and frequently already metastatic. In Europe, nearly 20% of colorectal cancers are diagnosed at the occlusion stage [2], unlike in African countries where almost all of these cancers are diagnosed at the occlusion stage [3]. In Bangui in the Central African Republic, Ngarhio, *et al.* [4] noted that colon cancer represented 21.4% of obstruction causes in 2011.

The consequences of colonic occlusion are multiple, including abdominal distension, intracolonic microbial proliferation, hemodynamic and hydro electrolyte disorders related to the formation of a third sector and sometimes vomiting [5,6]. In the presence of acute intestinal obstruction, the goals of treatment are to remove the obstacle, to correct the hydroelectrolyte disorders generated and to remove the cause of the obstruction. When it is colon or rectal cancer, emergency surgery is associated with a high risk of postoperative morbidity and mortality [7].

The objective of this study was to describe the results of the treatment of colon cancers in occlusion and to draw the resulting conclusions.

Patients and Methods

This was a descriptive retrospective study carried out at the general and digestive surgery department of the Sino-Central African Friendship University Hospital in Bangui. This study covers the period from January 2015 to December 2021, i.e. 7 years.

The study population consisted of patients operated on at the service level for acute intestinal obstruction. The target population was represented by patients in the cause of the occlusion were colon or rectal cancer.

We included all patients of both sexes, adults operated on urgently for intestinal obstruction in whom the diagnosis of

colon or rectal cancer was suspected on surgical exploration and confirmed on anatomopathological examination.

Patients with bowel obstruction due to other causes, or not operated on and those lost to follow-up were not included. The data sources were hospitalization registers, surgical reports, patient records and the results of pathology examinations.

The variables studied were: age, sex, clinical signs, paraclinical signs, American Society of Anesthesiologists (ASA) score, and existence of comorbidities, type of treatment, length of hospital stay, morbidity, mortality and survival. The data collected was entered into an Excel workbook and then imported into Epi Info software version 7.1 for analysis. Pearson's Chi2 test was used to compare proportions with a significance level set at 0.05.

From an ethical point of view, the data were collected while respecting patient confidentiality. The database was anonymous and kept secret after the exploitation.

Results

Sociodemographic aspects

During the study period, we recorded 80 cases of operated colorectal cancers, of which 32 cases were revealed by an occlusion, i.e. a frequency of 40%. The average age of the patients was 47.9 years (extremes: 20 and 77 years. Subjects aged 50 and over represented 43.75% of the workforce. The workforce included 21 men (62.5%) and 11 women (34.4%) The sex ratio is 1.7.

Age groups	Sex		Total
	Male	Female	
[20-29]	02 (6, 25%)	06 (18, 75%)	08 (25%)
[30-39]	06 (18, 75%)	0 (0, 00%)	06 (18, 75%)
[40-49]	02 (6, 25%)	02 (6, 25%)	04 (12, 5%)
[50-et plus]	11 (34, 37%)	03 (9,38) %	14 (43, 75%)
Total	21 (65, 63%)	11 (34, 37%)	32 (100%)

Table 1: Distribution of patients in the series according to age and gender.

Clinical aspects

All the patients included had presented an occlusive syndrome on admission. Abdominal X-rays without preparation were

performed in all cases and revealed images of air fluid levels higher than wide with peripheral topography suggesting colonic occlusion. Abdominal CT was performed in 12.5% of cases confirming the tumoral origin of the colonic obstruction. In 87.5% of cases, the colon tumor was only discovered on surgical exploration during laparotomy.

The analysis of the files made it possible to note that 40.6% of the patients were classified ASA III and 37.5%, ASA II. In 50% of cases, the patients had a comorbidity represented by heart disease (6 cases), diabetes (5 cases), chronic renal failure (3 cases), one case of pneumonia and one case of undernutrition.

Therapeutic aspects

The operations were all performed under general anesthesia with orotracheal intubation. The approach was a midline xyphopubic laparotomy.

On exploration we noted that the tumor was located on the right colon in 31% of cases, the transverse colon in 15.6%, the left colon in 46.9 and the rectum in 6.2% of cases.

The surgical procedures performed were the Hartmann procedure (37.5%), a discharge colostomy (21.9%), a segmental colectomy followed by ileocolic anastomosis immediately (31.2%). In 6.3% of cases, a left hemicolectomy was performed followed by a colorectal anastomosis from the outset. The surgical procedures performed are detailed in table below.

Complementary treatment

In 12.5% of cases, patients had received neoadjuvant chemotherapy. The established protocol includes the combination of 5 fluorouracil and folic acid (FUFOL) with an objective response in 30% of cases.

Location	Colon			Rectum	Total
	Right	Transverse	Left		
Surgical gestures					
Segmental colectomy and anastomosis	8	2	0	0	10
Hartman intervention	2	2	8	0	12
Subtotal colectomy	0	1			1
Left hemicolectomy and anstomosis	0	0	2	0	2
Discharge colostomy	0	0	5	2	7
Total	10	5	15	2	32

Table 2: Surgical procedures performed according to the location of the tumor.

Histological types and TNM classification

The main histological form consisted of Lieberkühnian type adenocarcinoma in 90.6% of cases. The other histological forms (9.4%) were mucinous adenocarcinomas. According to the TNM classification, 16 cases were at stage III, i.e. 50%, 15 cases (46.9%) at stage IV and 1 case (3.1%) at stage II.

We observed that 19 patients (59.7%) already had a metastasis, including 7 in the lungs, 8 in the liver and 4 in the left supraclavicular lymph nodes.

Post-operative follow-up

The morbidity rate was 25%. The complications recorded consisted of anastomotic leak in 5 patients, surgical site infections in 3 patients.

The overall mortality rate was 37.5%. In 12.5% of cases, deaths occurred after 2- or 3-stage surgery and in 25% of cases after 1-stage surgery. Survival was 25% at 1 year, 12.5% at 2 years and 3% at 3 years.

Discussion

The objective of our study was to analyze the different types of treatment for colon cancer in occlusion in Bangui. In this series, the frequency of colon cancers in occlusion was 40%. This frequency is very high compared to that observed in developed countries [2]. As reported by Djeme and Col [8] Occlusion is one of the main complications that can occur during the evolution of a CRC [4]. The estimated incidence is 8 to 29% of CRC cases [4,5].

In our serial occlusive forms represented 11% of all CRCs diagnosed during the period. Raveloson., *et al.* in Madagascar [3] found a frequency of around 49%. The high frequency of occlusive forms of colon and rectal cancer is partly explained by the lack of a systematic screening program for these cancers in developing countries, whereas screening is usual in developed countries. On the other hand, and especially in Africa, patients arrive at the hospital at an advanced stage of their illness.

The average age of our patients was 47.9 years. The 50-year-old subjects were more numerous with a frequency of 43.75%. This average age confirms the youth of African patients reported by some authors, namely 44.53 years for SANO in Burkina Faso [9], 56.4 years for KOFFI., *et al.* in Ivory Coast [10]. On the other hand, in Western countries, colon cancers in occlusion remain a pathology of elderly subjects [7,11-13]. This finding reflects the early onset of colorectal cancer in African populations. This situation may be related to the age pyramid which is made up mostly of young people in Africa. But according to Djeme and Coll [8], the early onset of colorectal cancers in African populations also suggests the existence of genetic and/or environmental factors, most often unknown, to which African populations are exposed [8].

In our study, bowel obstruction was indicative of cancer in 87.5% of cases. It was during surgery that the tumor was discovered, as reported by other authors [11,12]. According to the work of Djeme [8], the warning signs of colorectal cancers such as intestinal transit disorders are usually trivialized, rectal bleeding is attributed to hemorrhoidal disease and diarrhea considered to be of infectious origin. Patients often first resort to self-medication or even traditional medicine before consulting in a health facility where the costs of care are often inaccessible, which delays the diagnostic time.

The plain abdominal X-ray (ASP) and the abdominal CT scan are two essential examinations to confirm the occlusion. In addition, the CT scan is effective in determining the etiology of the occlusion [14].

In our series, PSA was performed in all patients, whereas CT scan was performed in only 12.5% of cases. The rate at which these morphological examinations are performed varies from one study to another [6,8,11]. Indeed, the ASP is often the only examination accessible in first intention it remains insufficient

to determine the etiology of an acute intestinal occlusion. The CT scan is the gold standard for the positive diagnosis of colorectal tumor occlusion with a sensitivity and specificity of 96% and 93% respectively [15-17]. It also makes it possible to precisely locate the cancer on the colonic frame, to assess its extension and to look for signs of severity [17-19]. The low rate of realization of the abdominal scanner in our series (12.5%) is related to its cost and its availability in emergency. The Central African Republic has only one imaging center with a scanner.

Therapeutically, according to specialists [8,17,20] the optimal surgical treatment of colon cancer in occlusion remains a subject of controversy. Emergency surgery is associated with significant morbidity and mortality as well as a high stoma rate. To this end, the strategies vary according to the location of the tumour.

When the cancer is located in the right hemi-colon (between the left colic angle and the cecum), oncological segmental resection (segmental right ileo-colectomy, right hemicolectomy, extended right hemicolectomy) with ileo-colonic anastomosis (rarely protected by an ileostomy) is consensual [7,20]. This attitude achieves at the same time the treatment of the occlusion and the surgical part of the carcinological management. Exploration should extend to the colon downstream of the tumoral obstacle in order to eliminate synchronous lesions or an underlying pathology [8,15,18,20].

According to the surgical procedures followed, segmental colectomy with ileocolic anastomosis from the outset was performed in 10 patients, i.e. 31.2% for tumors located on the right colon. The morbidity rate following this procedure was around 41.6% and the mortality rate 30%. According to A. RAULT., *et al.* [6], the one-stage procedure is high-risk and requires preoperative colonic preparation with the corollary of extending the duration of the procedure, which is dependent on high morbidity and mortality. In Mali, Traore., *et al.* [11] opted for single-stage surgery without preoperative colonic preparation in 70% of occluded cancers on the right colon. The postoperative morbidity and mortality rates recorded were 18% and 11% respectively. Deen., *et al.* [14] also reported that mortality (12.5%) and morbidity (11%) were significant after colonic resection followed by single-stage anastomosis with or without intraoperative colonic lavage.

On the other hand, when the cancer is located on the left half of the colon, the surgical management is more complex. The options that can be considered in this context are multiple [8,11] namely, subtotal colectomy with ileorectal anastomosis with often poor functional results [11].

A strategy in 2, or 3 steps. Indeed, in the majority of cases due to the poor state of the colonic wall and/or the poor general state of the patient, the Hartmann procedure is performed associated with a discharge stoma (colostomy where ileostomy if the ileo-caecal valve is incontinent) and subsequent resection or – resection anastomosis protected by a stoma.

In our series, when the tumor was located on the left portion of the colon or the rectum ileostomy, Hartmann's intervention was performed in 37.5% of cases and bypass colostomy in 21.9% of cases. The first stage of the Hartmann operation consists of a rectosigmoid resection associated with a terminal colostomy and the abandonment of the rectal stump sutured in the abdomen. The second step is the restoration of continuity by abdominal reoperation.

The Hartmann procedure is commonly performed because it is quick and without risk of anastomotic leak. According to the conclusions of the 2010 French consensus conference [14], a 2-stage treatment (bypass colostomy or the Hartmann procedure) requires less initial expertise in colorectal surgery than a 1-stage resection anastomosis. However, the morbidity and mortality of restoring continuity is substantial. Kronborg, *et al.* [16] demonstrated that bypass colostomy followed by subsequent resection with anastomosis was associated with a significant reduction in the rate of permanent colostomy, blood transfusions and parietal complications compared to Hartmann's procedure followed by a restoration of digestive continuity.

For our series, we noted that at the time of the intervention, 59.7% of patients already had distant metastases. In other studies [6,7] the frequency of distant metastases was around 25% to 32%, this reflects the advanced state of the disease.

The overall mortality rate in our study was 37.5%, almost identical to those reported by other authors [9,16-23]. But the postoperative mortality rate recorded in our study remains higher than the rates reported by Deen, *et al.* [14] which is 12.5%,

ARNAUD, *et al.* [19] which is 6.6% respectively. The high mortality rate in our series would be related to the advanced stage of the cancer and the fact that the patients do not have access to adjuvant treatment such as chemotherapy and radiotherapy. The severity of colon cancers in occlusion is such that survival at 1 year was 25%, at 1 year, 12.5% at 2 years and 3% at 3 years in our series. The survival of patients with colon cancer in low occlusion compared to that reported by Traoré [11] in Mali, which was 33% at 3 years.

Conclusion

Our study revealed a high mortality in cases of colorectal cancer revealed by acute intestinal obstruction. Early detection by blood culture is a preventive measure that helps prevent the progression of colorectal cancers to serious forms. However, in the presence of a colonic tumor in occlusion, management must be multidisciplinary with the collaboration of the surgeon, the anesthesiologist and the oncologist. It is recommended that surgeons master the different surgical strategies to adopt in the presence of colon cancer revealed by intestinal obstruction. All these measures will improve the prognosis of these serious conditions.

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