Surgical approach of megacecum secondary to descending colon tumor

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ABSTRACT

Intestinal obstruction is the most frequent clinical manifestation of colon tumors, most of which are located in the descending and recto-sigmoid colon. Emergency bowel obstruction surgery is associated with high mortality and morbidity risks and the ideal approach remains controversial. Multi-stage procedures and the use of stents as bridges for surgery are promising options. A case of a 61-year-old patient with an acute obstructive abdomen secondary to colorectal neoplasm is presented, with emphasis on its diagnosis and treatment.

Keywords: Colectomy, Intestinal obstruction, Acute abdomen, Megacolon, Colorectal neoplasms.

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INTRODUCTION

Colorectal cancer (CRC) is the third most common type of cancer among men and the second among women. It is usually of good prognosis when the diagnosis is made in the initial stages, with global mortality of 8,5%[1]. In patients who are subjected to elective surgery, mortality and morbidity are relatively low, although, in those who undergo emergency procedures, there is a substantial increase in these indicators, as well as in the five-year survival rate[2].

The incidence of CRC varies depending on the geographical region. Growing numbers are seen in Latin America, Asia, and Western Europe[3]. The most common presentation of CRC patients admitted in and the emergency setting is the obstruction and perforation of the colon. It is estimated that between 15 and 20% of the patients with CRC will develop obstruction at some point along the natural course of the disease[4]. The most common site of CRC obstruction is the sigmoid colon, with 75% of the tumors being distal to the splenic flexure, while the abnormal dilation of the cecum, ascending colon, and transverse colon, caused by non-mechanical obstructions, and referred to as megacecum and/or megacolon, are relatively rarer conditions[5-6].

Intestinal blockage is an important cause of mortality and morbidity worldwide. It is defined in the literature as an impairment to intestinal transit, which may be caused either by mechanical obstruction of the intestines or by intestinal dysmotility, the latter being usually referred to as ileus[7]. The presence of complete obstruction, as well as signs of toxemia and bowel ischemia, indicates the need for a surgical approach[8].

The main clinical manifestations of colon obstruction are periumbilical or hypogastric pain, abdominal distention, nausea, and vomiting. It may cause diarrhea or constipation, or the patient may completely stop passing gas and feces. When caused by a malignant obstruction, symptoms may begin insidiously over approximately 3 months[9].

Although it is a type of cancer with a relatively good prognosis, management of the intestinal obstruction may be challenging in terms of its clinical severity and diagnostic and therapeutic options[1]. The objective of this work is to report a case of megacecum secondary to a colon tumor, in order to provide up-to-date evidence on the indications, surgical techniques, benefits, and risks of this treatment in the management of malignant acute colon obstruction.

In this report, data were obtained by reviewing the medical record of the patient, with authorization from the Hospital Research Ethics Committee and from the patient, through the signature of an informed consent form.

A 61 years old female patient sought medical attention at the emergency department complaining of abdominal distention for 1 day. She reported a diffuse abdominal pain which had begun 9 days before and constipation which had begun 18 days before. Furthermore, one day before she was seen at another emergency department, where she underwent an enema, with no improvement. She reported a weight loss of approximately 10 kg in the previous 4 months, along with progressive fatigue. As for her past history, the patient disclosed being a smoker, with a smoking load of 40 pack-years, as well as having high blood pressure and chronic heart failure. She denied other commodities. On examination, she was in a regular general condition, without cyanosis or fever, with a respiratory rate of 24 ipm, and blood pressure of 90 x 70 mmHg, showing dehydrated conjunctival mucous membranes, with a semi-globose abdomen, tympanic to percussion, with abolished bowel sounds and a mild metallic sound, especially on the left lumbar and inguinal regions. There was localized hypersensitivity and mild pain during profound palpation of the abdomen. Complementary exams performed at the time of admission showed a hemogram with a hematocrit of 36% and hemoglobin of 12.8 g/dL, leukocytosis (17.600 cells/μL), and positive C-reactive protein. Other exams were all within normal ranges. An abdominal and pelvis computed tomography (CT) scan revealed a liver of normal volume with a nodular and a hypodense ill-defined image of about 24mm on segment VII (Figure 1), thickening of the bowel walls between the transition of the descending and sigmoid colons (Figure 2), as well as distension of the bowel, especially the cecum and colon (Figure 3).

Following the diagnosis of intestinal obstruction, the patient was subjected to an emergency exploratory laparotomy. The surgical investigation of the cavity confirmed the presence of severely distended bowel loops, cecum with a diameter larger than 9 cm, with points of tissue necrosis near the ileocecal valve (Figures 4 and 5). A suggestive tumoral mass in the descending colon, distal to the splenic flexure, was identified during the procedure.

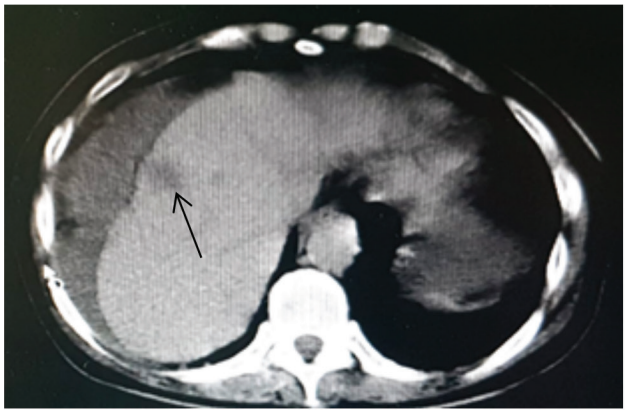

Figure 1. Axial cut. Hypodense nodulation in segment VII. (arrow)

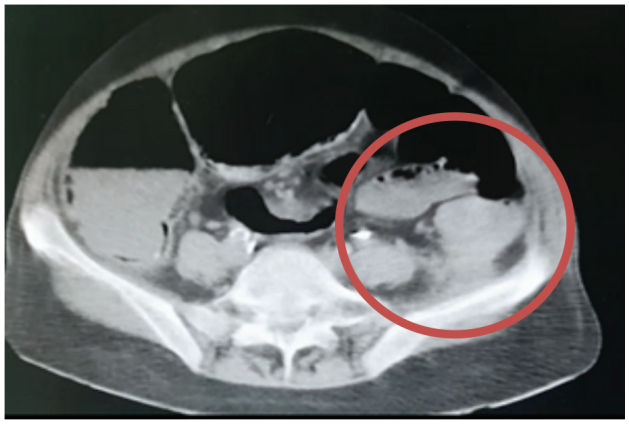

Figure 2. Axial cut. Parietal thickening of the descending colon/sigmoid transition.

Figure 3. Frontal, showing distention of intestinal loops, mainly of the cecum and colon.

Figure 4. Severe bowel distention.

Figure 5. Right colectomy showing large cecal dilatation.

Fragments of the hepatic nodule were removed for further analysis, which showed an adenocarcinoma metastasis, with mucus-producing areas within a fibroesclerotic stroma. It was chosen to perform a right colectomy without resection of the tumor, along with a terminal ileostomy and mucous fistula, aiming to stabilize the patient before other interventions and oncological treatment.

DISCUSSION

Acute intestinal obstruction is defined as the impairment to the intestinal transit, with no gas or bowel movement for a period greater than or equal to 24 hours, which may be caused by mechanical obstruction or by bowel dysmotility. The average age in studies is 59.8 years, with a slight predominance of individuals older than 60 years. Regarding the variables age and sex, only age was statistically relevant for the risk of death, a fact that has been attributed to the lower prevalence of comorbidities in younger patients[10].

Computed tomography scan is recommended when an acute intestinal obstruction is suspected, with a sensitivity of 96%, specificity of 93%, and accuracy of 95%, being capable of confirming and establishing the level of the restriction, as well as identifying the etiology of the obstruction, showing better results when compared to abdominal ultrasonography[11].

The most common site of obstructions secondary to CRC is the sigmoid colon, with 75% of the tumors being located distally to the splenic flexure[4], followed by the descending colon, ascending colon, transverse colon, cecum, and rectum. Adenocarcinoma is the most common histologic type, followed by intestinal lymphoma[10]. Studies have shown that more than half the patients with acute intestinal obstruction have remote metastases, with the liver being the most common dissemination site, mainly on account of its vascularization[4,10].

Colonic obstruction is an emergency whose treatment is initially supportive. A laparotomy becomes necessary when perforation or ischemia are suspected, as well as in the absence of clinical improvement, or when faced with an increasing cecum diameter despite conservative management[12]. Nonetheless, emergency surgery, in these scenarios, is associated with a 15 to 20% mortality and 40 to 50% morbidity, both significantly higher when compared to elective procedures[13]. Therefore, a large number of patients will be subjected to a colostomy, with or without an associated ileostomy, which may be temporary or permanent, having a direct impact on their quality of life. The choice of procedure will mostly on the characteristics of the CRC, such as the site and size of the lesion, the clinical condition of the intestine, the patient's general condition, and the surgeon's expertise.

There is consensus in the literature regarding the best surgical approach for right colon obstruction, where the procedure of choice is a right hemicolectomy followed by a primary anastomosis, which treats the obstruction while preserving the continuity of the gastrointestinal tract. Moreover, a terminal ileostomy with a colonic fistula is a valid alternative when a primary anastomosis is considered risky[11]. In a French randomized trial, the incidence of anastomotic leakage following ileocolic anastomosis made using a stapler during elective resections was estimated at 2.8%. Nevertheless, when this is done during an emergency surgery the risk of anastomotic dehiscence is higher (from 0.5 to 5.2%). All patients who had dehiscence had to undergo surgery again to fix the anastomosis and clean possible intraperitoneal contaminations[14].

However, the same cannot be said of left colon obstructions, where the surgical approach is still controversial. In order to elucidate this problem, the World Society of Emergency Surgery concluded, in 2017, that the procedure of choice for left colon obstructions is also a resection, followed by a primary anastomosis[11]. In recent years, there has been an increasing trend towards single-stage resection for left side obstructions. The first major report on resection with primary anastomosis comes from the *"Large Bowel Cancer Project",* where authors reported a mortality of 35% for resections performed with more than one surgical stage, and 14% for primary resections, a fact that corroborates the choice of this procedure as the preferred one in the guidelines[15]. Nonetheless, patients with a high surgical risk benefit from the Hartmann procedure, where the resection with a terminal colostomy and the closing of the rectal stump is performed without an anastomosis, and the continuity of the gastrointestinal tract is restored in a posterior elective surgery once the patient's condition is stable. Moreover, studies have shown that the Hartmann procedure must be considered instead of a loop colostomy, as this type of colostomy is associated with a longer hospitalization time and the need for multiple subsequent operations[11]. However, it is known that the stoma provides colonic decompression, reduces the risk for contamination from the inadequately prepared bowel, and allows for intensive patient recovery and better staging for future treatments. On the other hand, a randomized study found similar impacts on mortality and hospitalization among the two surgical techniques, as well as that only 60% of the patients subjected to an operation without primary anastomosis will have their transit restored[16].

The use of self-expandable metallic stents offers an alternative to surgery, both in palliative and curative care settings, because it is able to change an emergency procedure into an elective one. This way, it works as a "bridge to surgery", minimizing perioperative complications, as well as the need for stoma construction[17]. For patients who present with an acute left side colonic obstruction secondary to operable cancer, stent placement may allow for colonic decompression, bowel preparation, and a future colonoscopy to evaluate the presence of synchronous tumors[18]. Stents are contraindicated in patients with signs of systemic toxicity or septic shock, given the possibility of colonic ischemia and perforation.

Furthermore, they cannot be considered alternatives to patients with intra-abdominal abscesses or a cecum excessively enlarged (> 9 cm). Nevertheless, studies have shown this method is associated with some complications, such as bleeding (5%) and perforation (4%)[19]. When applied to patients with a malignant obstruction in the left colon, stents do not reduce mortality 60 days after the procedure (p = 0.97), although morbidity after this period is 33.9%, compared to 51.4% in the emergency surgery group (p < 0.001). As well as 22.3% of patients will have the outcome of a permanent stoma, against 51.4% in the emergency surgery group (p = 0.003). Primary anastomosis is successful in 70% of patients subjected to stent therapy and in 54.1% of patients who undergo emergency surgery (p = 0.43)[18]. Thus, stent placement offers a promising alternative in the treatment of malignant colorectal obstruction.

CONCLUSION

It is up to the surgeon to carry out an individual evaluation comparing the benefits and risks of each approach. Furthermore, we reiterate that international guidelines offer limited and divergent recommendations regarding the management of left colon obstruction. Therefore, future studies are necessary to clarify the best procedure in the long term for these patients.

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