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Case report

Intestinal Obstruction Due to Colorectal Cancer in a Pregnant Patient: A Case Report

Lía Jazmín Jiménez-Ramírez,[1*] Ricardo Mendoza,[2] Lina M. García,[3] Blanca V. Fajardo.[4]

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[1] Specialist Physician in General Surgery, Universidad del Cauca. Popayán, Colombia.
[2] Specialist Physician in General Surgery, Universidad Metropolitana. Barranquilla, Colombia.
[3] General Practitioner, Universidad del Cauca. Popayán, Colombia.
[4] Specialist Physician in Pathology, Universidad del Cauca. Popayán, Colombia.

***Correspondence:** Lía Jazmín Jiménez-Ramírez.
liajimenez@unicauca.edu.co

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Abstract

Introduction: Digestive cancer during pregnancy is defined as cancer diagnosed during gestation or within the first postpartum year, with an incidence of 1 in 13,000. Diagnosis is challenging due to symptoms that mimic normal pregnancy and limitations in performing imaging studies. **Case:** A 33-year-old female, G2A1, at 32.2 weeks of gestation, presented with one week of epigastric pain associated with vomiting. She was initially discharged after symptomatic improvement, but was readmitted 96 hours later with abdominal distension, persistent pain, and vomiting. MRI revealed intestinal obstruction due to a sigmoid tumor. Gynecology diagnosed hypertensive disorder and initiated vasodilators, prompting a cesarean section complicated by uterine atony, requiring a B-Lynch suture to control bleeding. Surgery subsequently performed a left hemicolectomy with side-to-side anastomosis, which required re-intervention. The patient was discharged seven days later. **Discussion:** Colorectal cancer is the fifth most common malignancy among women, yet data in pregnant patients are limited, making such cases atypical. Given the nonspecific symptoms, a thorough physical examination is essential, along with investigation of potential predisposing factors. Considering the lack of established management guidelines, screening may be recommended for women over 35 years with risk factors or a family history, to allow treatment prior to pregnancy or close monitoring during gestation.

Keywords

Colorectal cancer, pregnancy, intestinal obstruction.

INTRODUCTION

Gastrointestinal cancer in pregnancy is defined as a neoplasm diagnosed during pregnancy or within the first year postpartum[1,2]. The most common cancers during pregnancy are considered to be cervical and breast cancer[3], associated with variations in hormonal flow. Colorectal cancer at this stage of life is rare, but its incidence has been rising since 1950 from about 1 per 100,000 pregnancies to 1 per 13,000 pregnant women, with an average age at diagnosis of 32 years (fertile age range between 17-46 years)[4]. This increase is possibly related to the rise in advanced maternal age pregnancies in women who have a significant burden of risk factors[2].

Part of the challenges of this neoplasm during gestation is the difficulty in diagnosis because many symptoms mimic those of pregnancy, such as headache, nausea, vomiting, constipation, and abdominal distension[5], in addition to the limitation in performing early imaging studies, such as computed tomography (CT) scans, due to their association with and risk of teratogenicity[4,6].

The diagnosis of colorectal cancer in a pregnant woman presents a therapeutic challenge, not to mention the

psychological impact on the patient. Therefore, we present a case of colon adenocarcinoma in a pregnant woman that required emergency management and posed a diagnostic challenge for the treating team.

CASE DESCRIPTION

The patient is a 33-year-old female, in her second pregnancy with one prior abortion, at 32.2 weeks of gestation by ultrasound performed on 19/04/2023, who presented to the emergency department with a one-week history of epigastric pain associated with emesis and abdominal pain, poor oral intake, constipation, and present flatus, in the absence of other symptoms. She was admitted to the observation unit, where blood tests were performed within normal limits, showing no leukocytosis or neutrophilia, in addition to negative amylase and normal liver and renal function. She was evaluated by Gynecology and managed with analgesics and proton pump inhibitors, subsequently showing symptomatic improvement, and was discharged.

However, she returned 96 hours later due to the persistence of symptoms, now with increased emesis and abdominal pain. The admission physical examination revealed a patient with stable vital signs, a gravid uterus, adequate fetal well-being and positive fetal heart tones, with no signs of peritoneal irritation or abdominal pain on palpation. Admission was decided due to the persistence of symptoms and, given the suspicion of acid-peptic disease, blood chemistry studies were repeated showing no changes, and a total abdominal ultrasound was performed showing evidence of biliary microlithiasis without cholecystitis and no biliary duct dilation. For this reason, expectant management was decided upon due to suspicion of symptomatic cholelithiasis.

The patient was evaluated by Gynecology, where further workup was requested due to suspicion of a hypertensive disorder in pregnancy because of premonitory symptoms with blood pressure readings in the normal range (headache and epigastric pain), and positive proteinuria was found. Consequently, fetal lung maturation was initiated, and an abdominal magnetic resonance imaging (MRI) was requested by the surgery team due to abdominal distension.

During the hospital stay, she persisted with abdominal pain, absence of bowel movements despite multiple laxatives and enemas, no flatus, recurrent emesis, and abdominal distension despite management with a nasogastric tube and enteral rest. General Surgery reviewed an abdominal MRI (**Figure 1**), which revealed stair-step air-fluid levels, stacked coin signs, and distension of the large bowel up to the descending colon, without pneumoperitoneum and an absence of distal gas with an area of complete luminal occlusion in the sigmoid colon. In addition, a new complete blood count reported leukocytosis and neutrophilia.

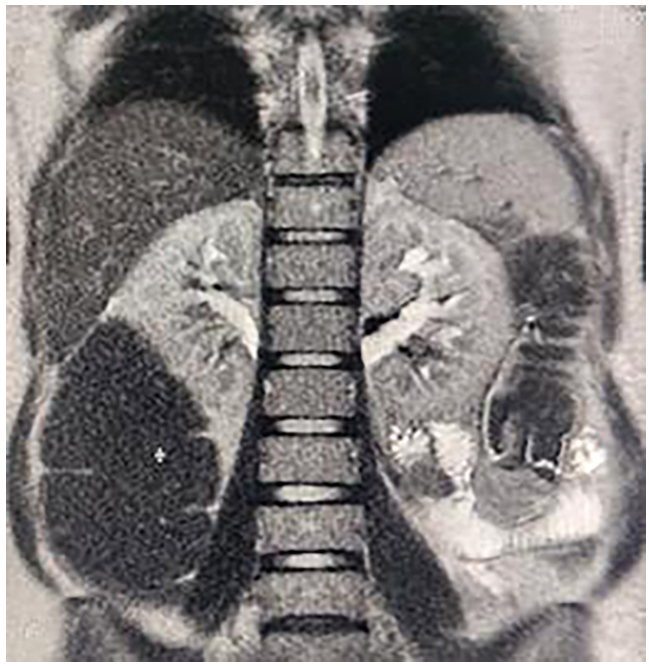

Figure 1. Magnetic resonance image showing the area of occlusion in the descending colon. Image property of the authors.

Furthermore, elevated blood pressure readings were documented with a mean arterial pressure of up to 100-120 mm Hg, so intravenous vasodilator management was initiated without improvement. It was then decided to take her for exploratory laparotomy due to suspected intestinal obstruction plus emergency cesarean section due to preeclampsia with severe features. During the surgical intervention, a live female product was obtained, depressed, with an Apgar score less than 7, not vigorous, with hypotonia and generalized cyanosis; she was resuscitated and taken to the Neonatal Intensive Care Unit (NICU). In the mother, uterine atony was observed, activating the code red protocol, with an indication for blood transfusion and a B-Lynch suture to control bleeding. In the subsequent intervention by General Surgery, a circumferential, stenosing tumor lesion obstructing 100% of the colonic lumen was identified at the junction of the descending and sigmoid colon, measuring approximately ± 7 cm (**Figure 2**), with lymphadenopathy in the mesocolon. A left hemicolectomy and latero-lateral anastomosis were performed, which were well tolerated. She was subsequently transferred to the Intensive Care Unit (ICU) to continue management and monitoring under sedation and with vasopressor requirements.

Forty-eight hours later, the patient experienced clinical deterioration, abdominal distension, and elevated acute-phase reactants, leading to the decision to perform a surgical re-exploration. This revealed a non-patent anastomosis due to edema and obstruction from the enlarged uterus.

Consequently, the anastomosis was resected, and the ends were closed with tied colonic stumps for a future reintervention. Two days later, a new anastomosis was performed and definitively closed.

The patient remained in the ICU during the postoperative period, managed with fasting, parenteral nutrition, broad-spectrum antibiotic therapy, and a rectal drainage tube. She had a successful recovery and was transferred to the general ward after seven days, tolerating oral intake and with controlled pain.

A carcinoembryonic antigen test was ordered, which was negative, and staging studies identified no locoregional or distant metastases. The pathology report described an infiltrating adenocarcinoma, histological grade 1, well-differentiated, with extensive involvement to the serosa, lymphovascular and perineural invasion, four regional lymph nodes all with metastatic tumor involvement, and surgical resection margins free of tumor. Immunohistochemistry showed no microsatellite instability with a Ki67 of 60%, intact MSH2, MSH6, MLH1, and PMS2, and absent HER2 (**Figure 3**).

Figure 2. Surgical specimens from the clinical case. **A.** Left hemicolectomy. **B.** Segment with the tumor mass that occluded 100% of the colonic lumen. Images property of the authors.

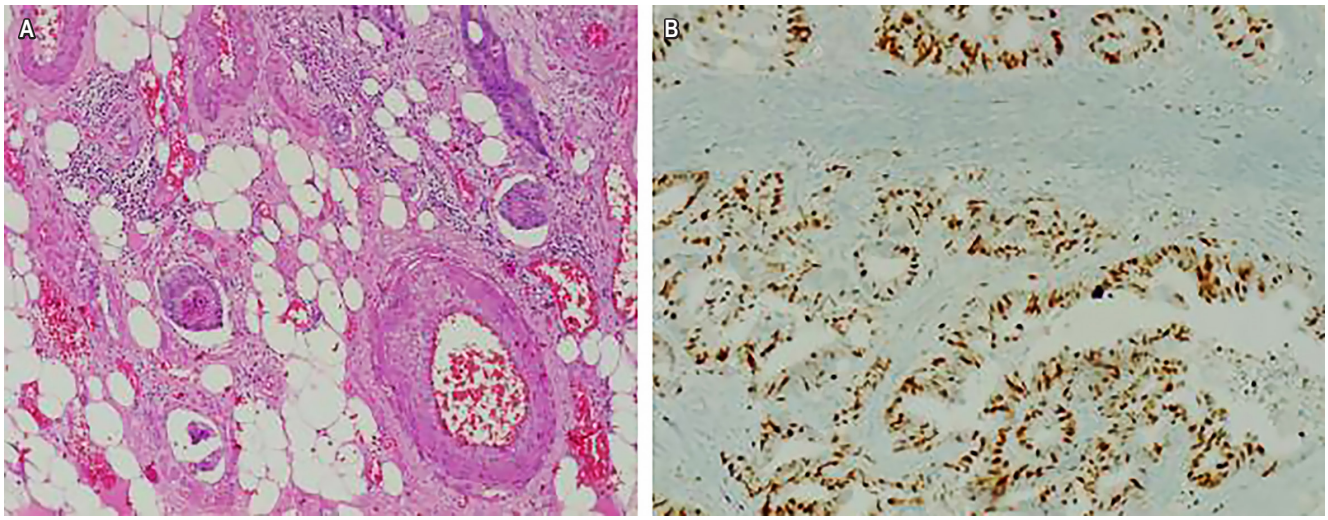

Figure 3. Examination results from the clinical case. **A.** Well-differentiated infiltrating adenocarcinoma with serosal and lymphovascular involvement. **B.** Ki67 at 60%. Images property of the authors.

The patient was discharged after 24 days of hospitalization. Outpatient placement of a permanent chemotherapy port was performed, and she initiated adjuvant chemotherapy with a FOLFOX regimen for six months, based on the tumor classification: sigmoid colon adenocarcinoma T3 N2a M0 G1, Stage IIIB. The patient is currently receiving oncological treatment with adequate tolerance.

DISCUSSION

The first reported case of colon cancer in the literature was in 1842, when a 32-year-old woman died four days after a breech delivery and was diagnosed with rectal carcinoma upon autopsy[7]. Since then, its incidence has been increasing, possibly associated with the observation of this trend in different types of individuals under 50 years of age[2], especially in low-resource countries[8]. Additionally, the average age at diagnosis of colon cancer in pregnant women is around 32 years[4], ranging between 30 and 39 years of age, the stage of highest fertility and case reporting[1], which also explains the increased number of publications on the topic in the last decade[9].

In Colombia, for 2021, colon cancer represented 4% of new cases and was the fifth cause for women, without mention of cases in pregnant women[10]. The presented case correlates with the age reported in the literature, with lymphatic involvement but without extension to the feto-placental unit. While vertical transmission of neoplasms during gestation occurs in some patients, it is not described for colorectal cancer cases in the literature[11,12].

Regarding etiology, the development of colorectal cancer has been associated with environmental or genetic factors, or usually a combination of both. Up to 30% to 34% of pregnant women with this neoplasm have predisposing risk factors such as family history, inflammatory bowel disease, or genetic neoplastic syndromes[13]; however, none were described in the patient's history or upon questioning her and her family. This makes such a finding during pregnancy even more complicated, as there is no established pathophysiological link between hormonal effects and the immunosuppressive state in gestation leading to the development of colorectal cancer. Nonetheless, results are contradictory, as some authors have reported elevated receptor levels while others have reported the opposite, without observing an increased risk in patients on hormone replacement therapy during menopause[4]. Further studies specifying the mechanisms of hormones in this type of cancer are required.

The diagnostic challenge arose from the similarity of the symptoms with those typical of pregnancy-related pathologies, initially confused with a case of hyperemesis gravidarum. However, the increasing distension and absence of bowel movements prompted the use of magnetic resonance imaging to better understand the clinical picture, which helped suspect a possible intestinal obstruction. A case series from Belgium reported that the acute diagnosis of the pathology is 24.4%, and among these, the predominant symptom was intestinal obstruction (9.8%), followed by intestinal perforation (7.3%); while the rest of the patients received a late diagnosis due to ambiguous symptoms that created confusion with other pathologies and suggested differential diagnoses. Symptoms such as rectal bleeding (46.3%), abdominal pain (17.1%), change in bowel habits (4.9%), and less frequently, weight loss, right shoulder pain, or abdominal mass (<3%); with the gestational trimester of presentation often being the second trimester, very possibly due to the compressive effect of the gravid uterus combined with the intestinal lumen obstruction seen in colorectal cancer[13]; this relates to the gestational age of our patient at the time of surgical intervention.

In addition to the symptoms, the available diagnostic tools are limited for use in pregnant women, not only due to teratogenic risk in early pregnancies (X-rays and CT scans) but also due to anatomical limitations from the occupying uterine cavity (ultrasounds). Reports show that pregnant women with nonspecific symptoms underwent various medical aids for diagnosis; among them, the most common was endoscopy (65.9%), followed by procedures like exploratory surgery (24.4%), and to a lesser extent, diagnostic imaging itself (MRI and ultrasounds) (9.8%); the first two are invasive and have direct effects on the gestational product, while the other imaging modalities are limited for the reasons already mentioned[13].

CONCLUSIONS

Although colorectal cancer is not a common pathology during gestation, it is necessary to perform a thorough physical examination of mothers with persistent gastrointestinal symptoms, in addition to inquiring about environmental risk factors and family history of cancer that might suggest or rule out this pathology. This is because, in the vast majority of cases, it goes unnoticed and is diagnosed incidentally through exploratory surgery, which increases the risk of complications during gestation, such as maternal-fetal death, abortion, preterm delivery, among others.

Even if diagnostic suspicion is considered, the physician remains limited by the difficulty with available diagnostic aids, both due to invasive effects (surgeries and endoscopies) and teratogenic effects (CT scans and X-rays), which increase potential obstetric and perinatal complications.

Currently, there is no standard recommendation or management guideline on how to diagnose and treat colorectal

cancer during pregnancy. Given the symptom overlap, this leads to the challenge of recognizing differential diagnoses and prioritizing non-invasive tests (such as MRI), until digestive tract cancer can be ruled out as the cause of gastrointestinal symptoms during the gestational stage.

Since the risk of developing cancer in different systems and organs increases with age, it is necessary to recommend pre-conception cancer screening for women of advanced maternal age (>35 years), with risk factors and a family history of cancer, conditions that predispose them to developing this pathology; providing treatment prior to gestation or implementing stricter control during pregnancy reduces complications in the gestational, delivery, and postpartum periods.

Informed Consent

We have the signed informed consent from the patient of the clinical case.

Conflicts of Interest

The authors declare no conflicts of interest.

Funding Source

This research was self-funded and did not receive any external financial assistance.

Use of Artificial Intelligence

The authors declare that they did not use artificial intelligence in any phase of the process.

Author Contributions

All authors collaborated in the execution of the study.

This study has not been presented in another journal, congress, or any other form of publication.

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