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Bowel Obstruction Due to Stenotic Sigmoid Colon Cancer in a 32-Year-Old Patient Presenting in the Third Trimester of Pregnancy: A Case Report of an Interval Surgical Approach

Authors' Contribution:
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Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
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Patient: Female, 32-year-old
Final Diagnosis: Colon adenocarcinoma
Symptoms: Ileus
Medication: —
Clinical Procedure: —
Specialty: Obstetrics and Gynecology • Surgery

Objective: Unusual clinical course

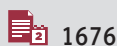
Background: Colorectal cancer among pregnant women is a rare entity. If colon cancer is suspected during pregnancy, the diagnosis is a therapeutic challenge that should be managed by a multidisciplinary team of specialists. Standardized therapeutic models do not exist. In this article we present a case of a pregnant patient with stenotic sigmoid colon adenocarcinoma. We describe the interdisciplinary treatment and the 2-step surgical approach used during pregnancy.

Case Report: A 32-year-old women in week 28.8 of pregnancy was admitted to the Department of Gynecology and Obstetrics, meeting the standard pregnancy criteria of constipation. After a week of unsuccessful conservative treatment, the patient underwent magnetic resonance imaging (MRI), which disclosed a stenosed segment in the sigmoid colon. After an emergency colonoscopy with biopsy sampling, histological analysis confirmed sigmoid adenocarcinoma. In a multidisciplinary consultation of specialists, in which neonatological and oncological aspects were considered, a 2-step surgical plan was established. In the first step (gestational week 29.8), a loop transverse colostomy with intestinal decompression was performed. In the second step (gestational week 32.8), an elective primary caesarean section followed by open oncological sigmoid resection was performed. No postoperative complications occurred in either step. The neonate was healthy and had a birth weight appropriate for the gestational age.

Conclusions: In cases of colorectal cancer during pregnancy, staged surgical approaches should be considered to reduce maternal and fetal morbidity.

Keywords: Colorectal Surgery • Pregnancy, Abdominal • Colorectal Neoplasms • Intestinal Obstruction

Full-text PDF: <https://www.amjcaserep.com/abstract/index/idArt/935920>



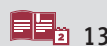
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Background

Colorectal carcinoma is among the most prevalent types of cancer worldwide. However, this cancer occurs infrequently in pregnant women, with an estimated incidence between 0.002% and 0.008% [1].

The problems that occur in cases of colorectal cancer during pregnancy are 3-fold. First, common pregnancy symptoms aggravate the immediate cancer diagnosis. Second, in addition to the mother's genesis, the primary concern of treatment outcomes should be the child's survival. Third, conventional management options are limited during pregnancy in these types of settings.

In Western countries, colorectal cancer is often detected in older patients during colorectal cancer screenings. However, at a young age, diagnosis is likely to be delayed owing to common presenting symptoms and the physician's lack of awareness of the possibility of this entity. Moreover, in pregnancy, the differentiation between common pregnancy signs and cancer symptoms is a major diagnostic challenge for obstetricians [2]. If colorectal cancer is suspected during pregnancy, the common symptoms, such as obstruction, meteorism, and abdominal pain, should be identified, and a differential diagnosis of pregnancy obstruction considered. Thus, the diagnosis of colorectal cancer during pregnancy represents a therapeutic challenge that should be managed by a multidisciplinary team of specialists.

The second key issue in colorectal cancer during pregnancy is the safety of the fetus, avoiding the risk of fetal damage or abortion. The genesis of the mother and the survival of the fetus must be in focus when considering treatment modalities and anticipatory outcomes.

Unfortunately, in those cases, the treatment options are limited. Owing to scarce data availability, no standardized therapeutic models exist and only a few case studies have reported a small number of cases and treatment options. The implementation of the adequate therapy is based on different factors. Depending on the type of cancer, chemotherapy can be necessary. In addition, if surgery is urgently needed, the fetus and the tumor must be considered in order to establish the appropriate surgical treatment [1,3]. Robotic surgical management can also be performed successfully if the tumor is primary and resectable [4]. We present a novel approach to treat colon cancer with bowel obstruction during pregnancy using a 2-stage surgical approach and reference the available literature.

Case Report

A 32-year-old woman (gravida III para II) with no family history of cancer was admitted to our Emergency Department at



Figure 1. Coronal magnetic resonance image with stenotic process in the region of the sigmoid colon (arrow). Note the extreme pre-stenotic distension of the colon dilated up to 10 cm. Caudally, we observe the head of the fetus.

28.8 weeks of pregnancy reporting symptoms of nausea, vomiting, and constipation for the past 4 days. The clinical examination revealed a distended abdomen with no pain and considerable meteorism. The general physical examination showed no abnormalities. All laboratory values were within the reference range. The patient was admitted to the Department of Gynecology and Obstetrics because pregnancy-related obstipation was suspected. After the patient received a week of conservative medical treatment, we conducted further investigations because of her persistent constipation and abdominal distention. Owing to acute fetal deterioration and threatened prematurity, lung maturation was induced with betamethasone at gestational week 29.4. Owing to the progression of ileus symptoms, ineffective symptomatic therapy, and detection of a distended large intestine by sonography, we performed magnetic resonance imaging (MRI), which showed a massively distended large intestine with a stenotic process in the sigmoid colon (**Figure 1**). We performed an emergency recto-sigmoidoscopy and detected a stenotic cancerous structure in the sigmoid colon 20 cm from the anus (**Figure 2**). The histological results of the biopsy confirmed sigmoid adenocarcinoma.

A multidisciplinary team of specialists, consisting of obstetricians, neonatologists, colorectal surgeons, and oncologists, was consulted. The team considered the neonatological aspects, including a high risk of premature complications, such as cerebral hemorrhage, pulmonary hypoplasia, and necrotizing enterocolitis,

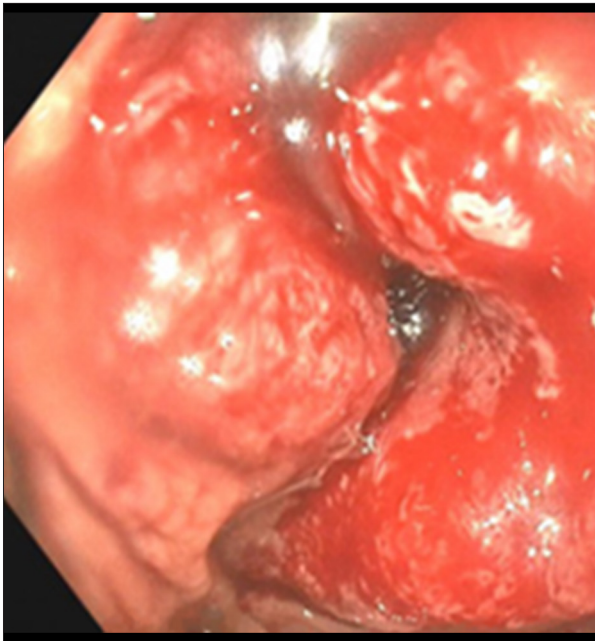


Figure 2. Colonoscopic picture of stenotic colon carcinoma, located in the sigmoid colon (20 cm from the anus).



Figure 3. Coronal magnetic resonance image with locally metastatic lymph nodes (arrows).

and the high comorbidity of an oncological resection of the sigmoid colon cancer in an acute mechanical ileus situation and defined an interval surgical approach based on 2 steps.

In the first step, a loop transverse colostomy with intestinal decompression was urgently performed at the same day of diagnosis (gestational week 29.8). Intraoperative fetal monitoring

showed no abnormalities. The postoperative recovery progressed rapidly and without complications, and the patient was discharged 1 week after surgery. The sonographic weight estimation (fetometry) at discharge showed an AGA-fetus (adequate for gestational age) with growth at the 49th percentile (approximately 1817 g). A staging MRI performed after surgery showed locally metastatic lymph nodes (Figure 3). According to the German guidelines for colorectal cancer, a chest X-ray was performed, and pulmonary metastases were excluded. At gestational week 32.8, the patient was admitted for the second surgical step. A preoperative colonoscopy showed no evidence of malignancies in the other remaining parts of the colon. An elective primary cesarean delivery was performed by medial laparotomy, followed by open oncological sigmoid resection with complete mesocolic excision and end-to-end descendrectostomy. After delivery of the baby (APGAR score 4/9/10) [5], a standard dose of oxytocin (3 IU intravenous bolus plus 10 IU in 500 mL NaCl) was administered, with sufficient uterine contraction facilitating the surgical field for colon resection. Thus, the surgical approach for oncological resection could be performed without further difficulties after adequate contraction of the uterus. During surgery, a palpable tumor mass with locally metastatic lymph nodes at the sigmoid colon was identified. Further surgical exploration and ultrasound of the liver did not reveal any metastatic lesions. A loop transverse colostomy was left for anastomosis protection.

The final pathological staging according to the UICC classification (eight edition, 2020) was adenocarcinoma, high grade (G2-3), pT3, pN2b (9/17), L1, V1, Pn1, and R0. The carcinoembryonic antigen level was within the reference range. According to the international guidelines by stage grouping of colon cancer IIIc, initiation of an adjuvant chemotherapy with FOLFOX (fluorouracil, leucovorin, and oxaliplatin) was recommended. Due to the high urgency of adjuvant treatment in UICC stage IIIc in a young patient, we recommended performing a stoma reversal after the completion of chemotherapy.

Owing to the prematurity of the baby, the patient remained in the hospital until postoperative day 12. Despite the treatment of the mother and the resulting prematurity, the baby was healthy and had a birth weight appropriate to the gestational age. It was admitted to the neonatal clinic for observation for the first 6 days. No postoperative complications occurred, and the mother and baby were discharged in good health. Outpatient genetic counseling was provided. Data acquisition and processing were carried out with the signed approval of the patient.

Discussion

In this report, we describe a case of colon cancer during pregnancy. Without causing a relevant delay in cancer therapy, we

were able to treat the tumor using a 2-stage surgical approach without compromising the safety of the mother and child. In the first step, we urgently treated the acute bowel obstruction with a loop transverse colostomy and intestinal decompression. This allowed us to wait until the fetus was sufficiently developed to reduce the risk of prematurity before performing an elective cesarean delivery, followed by resection of the tumor in the second step.

With this case report, we would like to contribute to the scarce literature dealing with these rare cases. We report on the 2-stage management method we used, which met the main premises of our therapeutic goal. On the one hand, we were able to effectively remove the colorectal carcinoma, and on the other, we were able to ensure the safety of both mother and fetus.

Nevertheless, there are no internationally standardized treatment guidelines. Saif et al suggested that the treatment of colorectal carcinoma during pregnancy is based on the gestational age of the fetus, tumor stage, and the need for urgent or elective surgery [6].

To accomplish the best possible oncological outcome and prevent fetal complications, the implementation of a multidisciplinary approach is necessary. Oncological tests must be performed in order to establish an intervention plan [7], but with the focus on avoiding tests that can lead to teratogenic alterations of the fetus [8]. If colon cancer is suspected, a colonoscopy can be performed without risking any harm to the fetus. In this context, MRI is recommended for staging [9]. Approximately 10% to 29% of colon cancer cases are indicated by bowel obstruction, for which emergency surgery must be performed [10]. In pregnant patients, a differential diagnosis has to be made with pregnancy obstipation, which can be a diagnostic and therapeutic challenge.

However, emergency resection of a colon tumor with acute bowel obstruction is related to high morbidity and mortality for the patients [11,12]. In cases of stenotic colon cancer with ileus, there are various possible types of emergency interventions described. Owing to the high morbidity of a primary

oncological colon resection, bridging techniques must be evaluated [13]. Patients with left-sided obstructive colon cancer are traditionally treated with a decompressing stoma or stent implantation. The timing of cesarean delivery should be determined by interdisciplinary consensus. In our case, late prematurity was accepted in the presence of advanced tumor disease and necessity of timely oncologic therapy.

In conclusion, the treatment of colon or colorectal cancer during pregnancy raises profound ethical and medicolegal questions because of the disparate and often conflicting interests of mother and fetus. The management depends on the patient's age, desire for future pregnancy, gestational age, cancer stage, and religious principles. It also depends on operative and technical difficulties and the need for elective or emergency surgery. Thus, it is inevitable that management should be individualized. An international database managed by a multidisciplinary team of specialists for the implementation of guidelines should be considered.

Conclusions

Vomiting in late pregnancy with persistent constipation, abdominal pain, and distension, even after medical measures, can be a sign of underlying mechanical obstruction due to malignancy. Gastrointestinal malignancy should be kept as a differential diagnosis.

In cases of colorectal cancer during pregnancy, an individual therapy concept has to be addressed by a multidisciplinary team. The balance between early oncological resection and leaving time for fetal development is a complex medical challenge. Staged surgical approaches should be considered in order to reduce morbidity for the patient and the fetus.

Declaration of Figures' Authenticity

All figures submitted have been created by the authors who confirm that the images are original with no duplication and have not been previously published in whole or in part.

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