Colon cancer presenting as pseudo-obstruction during pregnancy – A case report

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Abstract

The incidence of colorectal cancer in pregnancy is between 0.002 and 0.008%. Diagnosis is often delayed as symptoms of colorectal cancer can mimic as common complaints of pregnancy. We present the case of a 29-year-old with a history of chronic constipation who presented in the second trimester with abdominal pain, inability to tolerate anything orally and no bowel movement in more than three weeks. Non-contrast MRI at presentation failed to show an obstructing mass. Patient was treated conservatively for presumed pseudo-obstruction secondary to worsening constipation from chronic ondansetron use and pregnancy. After four days without clinical improvement, she had a colonoscopy that revealed a completely obstructing sigmoid mass, which biopsies confirmed was a primary colorectal adenocarcinoma. The patient underwent a total abdominal colectomy. She was referred to medical oncology and began adjuvant chemotherapy consisting of 5-fluorouracil, leucovorin and oxaloplatin four weeks post-operatively.

Keywords

Oncology, gastroenterology, general medicine

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Introduction

Colorectal cancer (CRC) is exceedingly rare in pregnancy. This case reviews the presentation, diagnosis and treatment of CRC in pregnancy as well as some the general management principles for malignancies in pregnancy.

Case report

A 29-year-old G2P1001 at 17 weeks and 4 days gestation presented to our emergency room with abdominal pain, nausea and vomiting. She had a history of chronic constipation, which had worsened during pregnancy. Prior to pregnancy, she was using daily polyethylene glycol. She typically had weekly bowel movements. Although she still took polyethylene glycol daily, she had not had a bowel movement in over three weeks. The patient had an MRI enterography 18 days prior to presentation that did not reveal any lesions, obstruction, or inflammatory bowel disease. She was prescribed an outpatient bowel regimen for constipation, but could not tolerate it due to nausea and vomiting. She admitted to daily ondansetron use for nausea of early pregnancy.

In the emergency room, her vital signs were normal and her abdomen was mildly tender diffusely. Radiographs showed dilated loops of small and large bowel with marked ascending and descending colonic fecal loading. Her labs were remarkable only for a mild anemia with hemoglobin of 10.9 g/dL.

Gastroenterology was consulted given concern for pseudo-obstruction. They recommended repeating an MRI, which showed progression of severe constipation with significant stool throughout the colon. The report also commented on interval development of dilated small bowel loops measuring 4 cm. Cecal diameter was 7 cm. No underlying obstructive mass or inflammatory process was identified. Given these findings, they recommended hospital admission, intravenous promotility agents and placing a nasogastric tube for colonic decompression for presumed pseudo-obstruction due to severe constipation exacerbated by chronic ondansetron use and pregnancy.

By hospital day 4, the patient had not shown clinical improvement; she was scheduled for colonoscopy. Colonoscopy revealed a nodular stricture completely obstructing the sigmoid lumen, which was highly suspicious for a malignancy. Biopsies were taken, promotility agents

were discontinued and colorectal surgery was consulted. CEA was elevated at 24.2 µg/L. Repeat KUB revealed a stable cecal diameter, but showed that the transverse colon was 12 cm dilated. On day 5, the patient went to the operating room. The mass was found and the colon was excised 5 cm distal to the lesion. The transverse colon measured approximately 20 cm in diameter. Given the risk of perforation, a total colectomy was performed with creation of diverting end ileostomy. Postoperative course was unremarkable and ileostomy had output on POD#1. CT scan of the abdomen and pelvis was negative for metastatic disease. The patient was discharged home on POD#5 with referrals to maternal fetal medicine and medical oncology. Surgical pathology demonstrated a pathologic stage T4aN1 adenocarcinoma of the colon. After an extensive discussion regarding the risks and benefits of treatment, the patient began adjuvant chemotherapy with 5-fluorouracil, leucovorin and oxaloplatin (FOLFOX) four weeks postoperatively.

Discussion

Cancer in pregnancy is rare, occurring in 1 in 1000 to 1500 pregnancies.¹ The incidence of CRC in pregnancy is reported between 0.002 and 0.008%.^{2,3} Although CRC is the third most common cancer diagnosed in women, it is most likely to occur in the fourth through sixth decades of life.⁴ Thus, the age of our patient alone made the diagnosis extremely uncommon. Our case provides the opportunity to discuss the diagnosis and management of CRC in pregnancy as well as the general management of malignancies in pregnancy.

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Colon cancer does not present differently in pregnant patients. However, the diagnosis in pregnancy is often delayed because presenting symptoms may mimic common pregnancy complaints, including abdominal pain, constipation, nausea, vomiting and rectal bleeding.¹ Our patient had a life long history of chronic constipation and presented with worsening constipation and nausea. It has been theorized that chronic constipation can increase one's risk of colorectal cancer due to the increased colonic transit time allowing for absorption of carcinogenic materials from the stool. Studies have shown mixed results. One study found that after adjusting for rectal bleeding, the presence of constipation showed a positive association with the presence of a distally located CRC. This study demonstrated the median duration of constipation, from onset to tissue diagnosis, was 10 weeks (range 3–20 weeks).⁵ However, other studies have shown no such association.⁶ While no firm cut offs exist on what duration of symptoms should trigger further workup, change in bowel habit, certainly lasting three weeks, is a common symptom of CRC and should prompt further investigation as in our patient.⁷

Choosing the appropriate imaging modality also poses a challenge in pregnancy. MRI and ultrasound are the preferred forms of imaging in pregnancy, as they do not expose the fetus to ionizing radiation. Our patient had two MRIs that did not show the obstructing mass. Colonoscopy remains the gold standard for the diagnosis of CRC and more recently CT has been offered as a reasonable alternative. There is less data supporting MRI for this purpose, but studies have shown that MRI can reliably detect T3 tumors.⁸ However, their ability to detect these masses often relies on gadolinium providing contrast between the colonic lumen and potential lesions. Gadolinium was not administered in our patient and is generally not recommended in pregnancy because it can cross the placenta and its effects on the developing fetus are not known. ACOG states that gadolinium use should be limited in pregnancy, but may be used if it significantly improves diagnostic performance and is expected to improve fetal or maternal outcome.⁹ Furthermore, low exposure to radiation (<50 mGY) is not associated with deleterious fetal effects. CT of the abdomen can expose the fetus to up to 35 mGY of radiation, which is still in the safe range, but this exposure can be significantly limited by low exposure techniques. Therefore, in this case, choosing the imaging modality that was most likely to lead to the diagnosis may have outweighed the risk of potential fetal harm.

After failing to show clinical improvement after four days of conservative treatment for a presumed pseudo-obstruction, the patient had a colonoscopy. Pregnancy is considered a relative contraindication to colonoscopy due to risks of placental abruption from mechanical pressure, exposure to possible teratogenic medications and fetal injury resulting from maternal hypoxia or hypotension during the procedure.⁴ However, in the setting of failed conservative management and the increasing risk of bowel perforation, colonoscopy may be pursued after appropriate counseling and efforts made to reduce fetal risks. Colonoscopy led to the diagnosis of CRC in our patient.

Once the diagnosis was made, the patient underwent surgery for treatment and staging. Open and laparoscopic surgery in pregnancy can be performed safely by experienced surgeons.¹ The decision to perform surgery for CRC in pregnancy depends on gestational age at time of diagnosis, tumor characteristics and the need for emergent versus elective surgery. While no accepted guidelines exist for the treatment of CRC in pregnancy, the general consensus is that if the tumor is resectable and the gestational age is <20 weeks, surgery should be performed as soon as possible. If the diagnosis is made later and no emergent indication exists, one might consider delaying surgery until fetal lung maturity is reached or after delivery.⁴ However, waiting may worsen the patient's prognosis and she should be counseled regarding these risks. The KUB performed after our patient's colonoscopy revealed her transverse colon to be 12cm in diameter, placing her at high risk for large bowel perforation. Given the high risk of mortality associated with this complication, it was not prudent to delay surgery.

Lastly is the issue of adjuvant chemotherapy. Three options were recommended to the patient: terminating pregnancy, administering

chemotherapy during pregnancy or delaying chemotherapy until after delivery. Our patient wanted to continue her pregnancy. General guidelines state that systemic chemotherapy should be avoided in the first trimester, but most agents are safe in the second and third trimesters.¹ For CRC, adjuvant chemotherapy for advanced stages improves overall survival when started within six to eight weeks of surgery. This survival benefit declines significantly if adjuvant chemotherapy is delayed beyond three months.¹⁰ The most commonly used agent for CRC is 5-fluorouracil with irinotecan or oxaloplatin. More recently, oral capecitabine has been used in place of 5-FU as it has shown similar efficacy.¹¹ However, more data exist for 5-FU during pregnancy. While the data are still limited for the use of FOLFOX in pregnancy,^{9,11} case reports have shown its safe use.^{12–14} In one study of neonates who had been exposed to chemotherapy in utero, the mean gestational age at delivery was 35.8 ± 2.8 weeks and the mean birth weight was 2647 g ± 713 g. In this study, they found that the risk of growth restriction, congenital anomalies and preterm delivery was not increased compared to the general population.¹⁵ More studies are needed to confirm these observations. In the end, decisions regarding diagnosis and treatment must weigh benefit and risks to both mother and fetus. The patient should be counseled about the risks, benefits and limited data available before deciding to initiate treatment.

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Ethical approval

The patient's written consent was obtained for publication of this case.

Guarantor

MF.

Contributorship

Makhijani and Bhagat co-wrote this manuscript under the supervision of Fayek. All three were directly involved in the care of the patient described in this case report.

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