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Case Report

A Challenging Case: Colorectal Cancer During Pregnancy

Caesar Ahmad Tidel[1*], Syifa Mustika[2]
[1] Department of Internal Medicine, Faculty of Medicine, University of Brawijaya/Dr.Saiful Anwar General Hospital, Malang, East Java, Indonesia
[2] Gastroenterohepatology Division, Department of Internal Medicine, Faculty of Medicine, University of Brawijaya/Dr.Saiful Anwar General Hospital, Malang, East Java, Indonesia

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CORRESPONDING AUTHOR
Caesar Ahmad Tidel
tidel.vahn@gmail.com
Department of Internal Medicine, Faculty of Medicine, University of Brawijaya/ Dr.Saiful Anwar General Hospital, Malang, East Java, Indonesia

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ABSTRACT

Introduction: Colorectal cancer (CRC) occurring in younger women can lead to an increased incidence of colorectal cancer during pregnancy. The estimated frequency of malignancy during pregnancy with colorectal cancer specifically estimated at 1 in 13,000 pregnancies. However, the exact causes of colorectal cancer during pregnancy are not yet fully understood. Diagnosing and managing colorectal cancer during pregnancy pose significant challenges because the symptoms can be masked by the normal signs and symptoms of pregnancy.

Case Pesentation: A 42-year-old pregnant patient, Mrs. L, presented with abdominal pain, a history of dark-colored bowel movements, and a lump on the left side of her neck that had been present for a year. She had also experienced a weight loss of 5 kg both before and during pregnancy, and there was no previous history of malignancy. The patient underwent various diagnostic procedures, including pregnancy ultrasound, abdominal ultrasound, and colonoscopy biopsy. Based on the comprehensive evaluation of the patient's medical history, physical examination, and supporting tests, she was diagnosed with stage IV rectal adenocarcinoma with metastases to the liver, kidney, and lymph nodes. The patient was in her second pregnancy (G2P1Ab0) at 27-29 weeks of gestation.

Conclusion: Colorectal cancer during pregnancy poses diagnostic and therapeutic challenges, as the signs and symptoms are often attributed to the normal progression of pregnancy, resulting in delayed diagnosis at an advanced stage. Early detection, evaluation, and monitoring of nonspecific symptoms are crucial, and a multidisciplinary approach is necessary for the management of colorectal cancer during pregnancy.

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INTRODUCTION

Cancers commonly diagnosed during pregnancy include breast cancer, cervical cancer, and hematologic cancers that often affect women of reproductive age [1]. Literature rarely reports on the occurrence of colorectal cancer (CRC) during pregnancy, making it limited in scope. Colorectal cancer has been diagnosed in younger women, which can also increase the incidence of colorectal cancer during pregnancy [2]. Colorectal cancer during pregnancy is a rare occurrence. The incidence of malignancy during pregnancy is estimated to be 1 in 1000 pregnancies, with an estimated incidence of colorectal cancer at 1 in 13,000 pregnancies [3]. The pathogenesis of CRC during pregnancy is still not fully understood [4].

There are many issues that present unique challenges in the diagnosis and management of colorectal cancer during pregnancy, as its symptoms can be masked by the signs and symptoms of pregnancy in general. The symptoms of colorectal cancer during pregnancy are often nonspecific, as they are commonly found in normal pregnancies, such as abdominal pain, nausea and vomiting, and changes in bowel movements. Therefore, in this case, delayed diagnosis is often encountered, and patients are already in an advanced condition. The diagnosis of colorectal cancer during pregnancy presents not only therapeutic challenges but also ethical and psychosocial considerations for the patient [1].

The management of colorectal cancer during pregnancy needs to be initiated as early as possible for the well-being of both the mother and the baby.

Generally, termination of pregnancy and curative cancer treatment are recommended in the early stages of pregnancy, around 20 weeks, to prevent cancer progression and maternal mortality. After 20 weeks of pregnancy, the management is not yet fully determined. Chemotherapy can be administered, especially in the second and third trimesters of pregnancy, as compared to the first trimester, considering the risk of intrauterine fetal growth retardation [2,5].

This case has been obtained informed consent and confidentiality from the patient represents a delayed diagnosis of colorectal cancer during pregnancy that has progressed to a metastatic condition, as well as delayed management while considering the fetal condition with the current therapy. It demonstrates the complexity of managing colorectal cancer during pregnancy. Treatment decisions also need to consider the patient's preferences and the possibility of a life-threatening terminal condition. The prognosis of colorectal cancer during pregnancy is still not well known.

CASE PRESENTATION

Mrs. L, a 42-year-old Javanese woman, is currently seven months pregnant and presents with complaints of abdominal pain resembling contractions since one day before admission to the hospital. One month prior, the patient had a history of dark-colored bowel movements for approximately two weeks, with soft stool consistency and a frequency of 1-2 bowel movements per day, without any complaints of vomiting blood. The patient did not previously complain of changes in bowel patterns or frequency. The patient also complains of a lump on the left side of the neck for the past year, starting small and gradually increasing in size over one year. The patient has lost 5 kg of weight in the six months before pregnancy, and during pregnancy, her weight has only increased by 3 kg. The patient does not smoke or consume alcohol. In the family medical history, there is no other family member with malignancy. The patient works as a farmer.

On physical examination, the patient appears conscious, in moderate pain, with blood pressure of 116/80 mmHg, respiratory rate of 24 breaths per minute, pulse rate of 88 beats per minute, and body temperature of 36.5°C. A mass is palpable in the patient's left neck, measuring 3 cm in diameter, with a solid and well-defined consistency, and it is fixed and non-tender upon palpation. During rectal examination, a mass measuring 3x6 cm is palpated, with a nodular surface, solid consistency, and less than 3 cc of blood on the glove. The fundal height of the uterus is 19 cm, with a cephalic presentation and fetal heart rate of 155 beats per minute.

Complete peripheral blood examination results show hemoglobin (Hb) of 9.0, leukocytes of 6510, platelets of 388,000, and differential leukocyte count: bands/segmented/lymphocytes/monocytes/eosinophils: 3.4/0.3/75.1/12.4/8.8. Other laboratory results are as follows: urea 24.7 mg/dL, creatinine 0.85 mg/dL, random blood glucose 70 mg/dL, sodium 134, potassium 4.29, lactate dehydrogenase (LDH) 631, and albumin 2.45 g/dL.

An ultrasound examination was performed, revealing an enlarged uterus with an anteflexed position, a single live intrauterine fetus, a homogenous hyperechoic lesion in the para-aortic region, oval in shape, with well-defined borders and regular edges, and

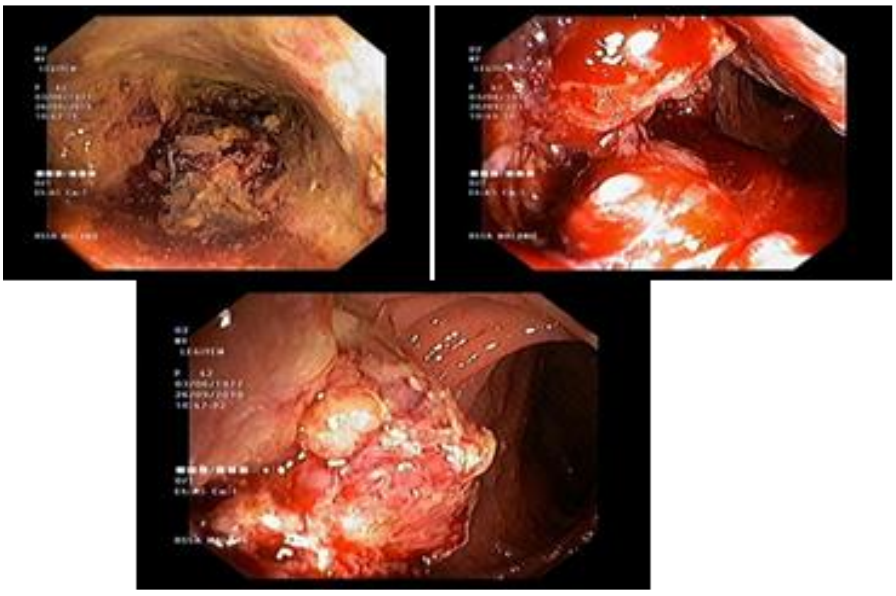


Fig. 1. Result of Colonoscopy of The Patient

Investigation

Ultrasound Abdomen	
Case	Theory
1. Enlarged uterus with anteflexed position 2. Homogenous hyperechoic lesion in para-aortic region, oval in shape, well defined borders and regular edges and compressing the abdominal aorta towards the posterior side 3. In conclusion we found that para-aortic lymphadenopathy suspect lymphoma and intrauterine pregnancy	Endorectal ultrasound is frequently employed to determine the extent of rectal cancer and aid in treatment planning, specifically to assess its depth of infiltration. However, this procedure is not highly effective in identifying cancer that has metastasized to neighboring lymph nodes or areas outside the pelvic region. Additionally, ultrasound can be utilized to examine the liver.
Ultrasound Rectal	
Case	Theory
1. Malignant mass in the rectosigmoid with extension into cervix 2. Heterogeneous mass suspect malignancy in the epigastric region infiltrating to abdominal aorta, right and left lobes of the liver	Colorectal cancer can manifest in pathological forms such as a protruding mass, either located within the intestinal lumen or externally. Alternatively, it may appear as a localized thickening of the colon wall, either in the form of a substantial mass or segmental thickening. When examined through sonography, a colon mass can range in size from small to relatively large, measuring up to 10 cm or even larger.
Colonoscopy	
Case	Theory
1. Revealing hyperemic eruptions 2. Positive bleeding, ulcers measuring 5 cm to 18 cm 3. A nodular mass covering 40% of the lumen, easily bleeding and fragile, 4. Suspicious mass with a differential diagnosis of ulcerative colitis.	For Benign: These do not become cancerous and include "hyperplastic" and "inflammatory" polyps that usually. Neoplastic Benign: These include adenocarcinoma (colon cancer) and adenomas, which are precancerous. The more adenomas you have and the larger they are, the higher the risk that one or more of them contains cancerous tissue or will develop into colon cancer

the lesion appeared to be compressing the abdominal aorta towards the posterior side. The conclusion is para-aortic lymphadenopathy, suggestive of lymphoma, and intrauterine pregnancy is also detected. Abdominal ultrasound shows a suspicious malignant mass in the rectosigmoid with extension into the cervix, a heterogeneous mass suspicious of malignancy in the epigastric region, infiltrating the abdominal aorta, right and left lobes of the liver, and ascites is present.

Colonoscopy was performed on the patient, revealing hyperemic eruptions, positive bleeding, ulcers measuring 5 cm to 18 cm, a nodular mass covering 40% of the lumen, easily bleeding and fragile, and a suspicious mass with a differential diagnosis of ulcerative colitis. A sample of the mass found during colonoscopy was taken for biopsy, and a histopathological examination revealed well-differentiated adenocarcinoma.

Based on the overall results of the anamnesis, physical examination, and supporting investigations, a diagnosis can be established in the patient as stage IV rectal adenocarcinoma with liver, kidney, and neck metastases, in a G2P1Ab0 patient at 27-29 weeks of gestation.

DISCUSSION

Colorectal carcinoma during pregnancy is a rare condition, with an incidence ranging from 0.008% to 0.008% [5]. There is an average 2% increase in the incidence of colorectal cancer in individuals aged 20-34 years. By 2030, the incidence of colorectal cancer in this age group is predicted to increase by 90%-124% [1,6]. The increased incidence is not only seen in the general population but also due to the delay in pregnancy until the third or fourth decade of life [7,8]. The patient is a 42-year-old woman in her second pregnancy. Approximately 20-30% of colorectal cancers have identifiable predisposing factors, including a family history of colorectal cancer, genetic history of cancer, and inflammatory bowel disease. The patient does not have any known risk factors for colorectal cancer [9,10].

Compared to the general population, colorectal cancer during pregnancy is usually diagnosed at an advanced stage with perforation or obstruction. It is postulated that physiological changes in a normal pregnancy, such as immunological tolerance and increased growth factors, are exploited by malignant cells, accelerating tumor growth [11,12]. Several factors,

including hormones during pregnancy and tumor suppressor protein p53, are associated with tumor suppression. The majority of colorectal cancers have been found to be positive for estrogen (20-54%) and progesterone receptors (10-100%) [1,11]. Increased levels of estrogen and progesterone stimulate the growth of tumor cells. The COX-2 enzyme is believed to play a vital role during pregnancy and its levels are found to be increased in colorectal tumor cells [3,5].

Diagnosing colorectal cancer is complex and presents its own challenges, often leading to delays in diagnosis. Symptoms of colorectal cancer include abdominal pain, constipation, anemia, fatigue, rectal bleeding, nausea, vomiting, and weight loss [13,14]. The patient presented with abdominal pain resembling contractions and a history of dark-colored bowel movements, indicating possible rectal bleeding. The two-week-long bleeding resulted in anemia with a hemoglobin level of 9 mg/dL. Significant weight loss or the absence of weight gain with or without associated symptoms is a red flag that requires further evaluation. The presence of enlarged lymph nodes raises suspicion of malignancy with metastasis [15,16].

Diagnostic investigations for colorectal cancer, such as CT scans with limited contrast, pose a threat to fetal survival. Ultrasonography is the preferred modality due to its safety, although it has limited sensitivity. Magnetic Resonance Imaging (MRI) is considered safer during pregnancy, but the safety of contrast agents and their availability need to be considered. Flexible sigmoidoscopy is preferred for screening rectosigmoid cancer during pregnancy, especially in the second trimester. Complementary investigations may include colonoscopy and endoscopic ultrasonography [17,18]. Carcinoembryonic antigen and liver ultrasonography may be necessary in advanced-stage cancer. In this case, colonoscopy and abdominal and pregnancy ultrasound were performed.

Colonoscopy is the gold standard for diagnosing colorectal cancer. Pregnancy is a relative contraindication due to potential complications such as fetal exposure to medication, uteroplacental insufficiency due to maternal hypoxia or hypotension, and placental abruption due to mechanical pressure [17]. In this patient, colonoscopy was performed, revealing hyperemic eruptions with bleeding, ulcers measuring 5 cm to 18 cm, a nodular mass covering 40% of the lumen, and fragile mucosa prone to bleeding. Biopsy results confirmed well-differentiated stage IV rectal adenocarcinoma. The histopathological classification of colorectal cancer according to the World Health Organization (WHO) and recommended by the College of American Pathologists (CAP) indicates that the majority of colorectal cancers are adenocarcinomas of no special type.

The management of colorectal carcinoma during pregnancy should involve a multidisciplinary team, considering the maternal and fetal risks as well as the psychosocial aspects of the mother. Fluoropyrimidines, 5-fluorouracil, and capecitabine are the mainstay regimens for colorectal cancer therapy, either as monotherapy or in combination with additional chemotherapy [19]. The safety profile of cytotoxic agents used is still debated, but long-term effects of 5-fluorouracil (5-FU) significantly do not cause disabilities. A study of 231 patients who received chemotherapy after the first trimester showed no increased risk of congenital anomalies, premature birth, or growth retardation after a 13-year follow-up [19]. Oxaliplatin is also considered safe. The FOLFOX regimen (5-fluorouracil, leucovorin, and oxaliplatin) is the preferred chemotherapy for colorectal cancer. The administration of FOLFOX was mentioned in five studies, all of which resulted in successful deliveries without congenital malformations, although one baby required thyroid hormone therapy [19].

The 5-year survival rate for stage 1 colorectal cancer is 93.2%. For cancers that have spread to surrounding tissues or regional lymph nodes, the 5-year survival rate is 64.1%. If the cancer has spread to distant parts of the body, the 5-year survival rate is 8.1% [3,19]. In patients with metastasis, palliative therapy is an option [20]. In this patient, metastasis was found in the lymph nodes, liver, and kidneys, warranting a focus on palliative chemotherapy.

Limitation

In this situation, only colonoscopy and ultrasound (USG) can be performed on the patient, which is theoretically suboptimal. Furthermore, the patient has not received any intervention or treatment because they have been out of contact since the time of diagnosis

CONCLUSION

Colorectal cancer (CCR) during pregnancy is associated with diagnostic and therapeutic challenges. Signs and symptoms such as abdominal pain, distension, vomiting, and constipation can easily be attributed to normal pregnancy, leading to delayed diagnosis at an advanced stage. Furthermore, colorectal cancer during pregnancy requires the use of diagnostic tools for prompt and accurate diagnosis, which is expected to prevent the progression of cancer. Therefore, the need for evaluation and monitoring of nonspecific symptoms, early diagnosis, and active multidisciplinary-based management form the basis for managing colorectal cancer during pregnancy.

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CONFLICT OF INTEREST

There is no conflict of interest.

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