Case Report

Rectal cancer in pregnancy: A diagnostic and therapeutic challenge

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Abstract

Introduction: The occurrence of colorectal cancer during pregnancy is rare and is associated with diagnostic and therapeutic challenges. Herein, we report such a case of rectal cancer in pregnancy and review the literature.

Case report: A 31-year-old multiparous, pregnant woman, in the 20th week of gestation, presented with rectal bleeding progressing to spasmodic abdominal pain and right flank vague pain. A flexible rectosigmoidoscopy showed a large ulcerative mass located in the rectosigmoid junction, 15 cm away from anal verge. Imaging studies and biopsy proved it to be rectal adenocarcinoma with single liver metastasis. The patient’s pregnancy was terminated and neoadjuvant therapy followed by curative surgery was performed. She is currently receiving adjuvant systemic therapy to eradicate potential micrometastatic disease.

Conclusion: This case suggests that colorectal cancer can mimic the signs and symptoms of pregnancy and tends to present at an advanced stage in pregnant women.

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Introduction

In developing countries, colorectal cancer is the fifth most common cancer in men and third in women [1]. However, the occurrence of colorectal cancer in women under 40 is uncommon and it is very rare during pregnancy [2]. The incidence of cancer in pregnancy ranges from 0.02% to 0.1%. Colorectal cancer is one of the eight most frequent malignant neoplasms in pregnancy [3]. This rare condition is associated with diagnostic and therapeutic challenges [4]. The signs and
the symptoms of the pregnancy can mask colorectal cancer in a pregnant woman and lead to late diagnosis in advanced stages and poor treatment outcome [5]. In the present study, we report such a case of advanced rectal cancer presented during pregnancy.

Case report

A 31-year-old multiparous, pregnant woman (gravid 3, para 1), in the 20th week of gestation, presented with a 4-week history of rectal bleeding progressing to spasmodic abdominal pain and right flank vague pain. The patient’s past medical and family history was negative for malignancy. An abdominal and pelvis ultrasound showed an alive single 20th week fetus, wall thickening of rectosigmoid junction and a large single hypoechoic lesion in right posterior liver lobe. A flexible rectosigmoidoscopy showed a large ulcerative lesion in rectosigmoid junction 15 cm to 22 cm away from anal verge. Transrectal biopsy of the rectal lesion revealed well differentiated adenocarcinoma of the rectum (Fig. 1). An ultrasound-guided core needle biopsy of the liver lesion confirmed metastatic rectal adenocarcinoma (Fig. 2). The patient was discussed in a multidisciplinary medical council including specialties of gynecologic oncology, perinatologist, surgical oncology, medical oncology and radiation oncology. Therefore, termination of pregnancy and neoadjuvant chemotherapy and chemoradiation were suggested for the patient’s potentially resectable stage IV rectal cancer. According to the medical council suggestion, as well as the patient’s desire for therapeutic abortion, a computed tomography (CT) scan of the chest, abdomen and pelvis was performed for precise staging. In abdominal and pelvic CT scan, there was a single fetus (Fig. 3), and a locally advanced rectal tumor as significant wall thickening of rectosigmoid junction associated with enlarged perirectal and mesenteric lymph nodes. In addition, there was a large single mass in right posterior liver lobe (Fig. 4).

Therefore, the patient’s pregnancy was terminated and 2 weeks later she was referred for neoadjuvant therapies. The patients received a cycle of neoadjuvant chemotherapy consisting of capecitabine 1000 mg/m² twice daily for 14 of every three weeks cycle, plus oxaliplatin 130 mg/m² intravenously on day 1 (CAPEOX regimen); followed by concurrent neoadjuvant chemoradiation. Concurrent chemotherapy consists of oxaliplatin 130 mg/m² intravenously on day 1, plus oral capecitabine 825 mg/m² twice daily during the whole period of radiotherapy with weekend breaks. Two weeks after

Figure 1 Rectosigmoid adenocarcinoma showing well differentiated glands containing atypical cells with high N/C ratio, hyperchromatism and stratification, H&E, ×400.

Figure 2 Trucut biopsy of the liver which shows involvement by well differentiated adenocarcinoma, H&E, ×100.

Figure 3 Contrast enhanced CT image of the abdomen and pelvis showing a single intrauterine fetus.
completion of chemoradiation, she received the 3rd cycle of neoadjuvant chemotherapy. Before surgical intervention, a new abdominal and pelvic CT scan showed marked regression of the rectal tumor; however, liver metastasis showed some-what progression. The patient subsequently underwent staged curative surgical resection of the primary rectal tumor and liver metastasis. Adjuvant chemotherapy combined with targeted therapy using bevacizumab has been considered for the patients to eradicate potential micrometastatic disease.

Discussion

There are many challenging issues regarding the diagnosis and management of colorectal cancer in pregnancy [6]. Colorectal cancer can be masked by the signs and the symptoms of the pregnancy. Spasmodic abdominal pain secondary to the partial large bowel obstruction may be considered as normal uterine cramps. As well, anorectal bleeding and pain may be misdiagnosed as a sequence of engorged hemorrhoid or anal fissure [2]. In our patient, occasional rectal bleeding and cram-py abdominal pain was misdiagnosed as the signs and the symptoms of normal pregnancy by the patient for a few weeks.

There are many limitations and contraindications for using diagnostic tools during pregnancy [7,8]. Colonoscopy and biopsy are golden standard tests for diagnosing colorectal cancer; however, this diagnostic test may complicate pregnancy...
and compromise the fetus. A gentle flexible rectosigmoidoscopy may be preferred in a suspicious pregnant women having rectosigmoid cancer [4]. Ultrasound, a safe diagnostic modality in pregnancy, has limited accuracy in detecting colon and rectal masses. Likewise, magnetic resonance imaging (MRI) is relatively safe in pregnancy; however, the safety of contrast agents used with this imaging has not been approved for the fetus [8–10].

CT scan is the standard imaging study used for determining the locoregional and distant disease in colorectal cancer. It plays an important role for defining the surgical and radiation plans. However, X-ray imaging studies particularly the CT scan is contraindicated during pregnancy due their teratogenic and carcinogenic effects on the fetus. Therefore, there is a paucity of CT imaging findings in pregnancy in the literature [8,10]. In our patient, CT scan was performed after definite decision for terminating the pregnancy.

Treatment of colorectal cancer in pregnancy is another challenging issue. As a rule, pregnant women should be offered optimal management as non-pregnant patients. Therefore, cancer treatment should be started as early as possible for the mother. Likewise, pregnancy termination should be performed as early as possible for saving the fetus. Accurate information should be provided by the oncologist for the patient. A treatment decision varies widely depending on the legal, ethical, personal, religious or emotional concepts [6,7,11]. Generally, in the first 20 weeks of pregnancy, treatment delay can lead to disease progression and compromise the mother’s life; therefore, pregnancy would be terminated and early cancer treatment should be started. In the second 20 weeks of pregnancy, surgery can be delayed for saving the fetus [3,7].

Most cases (64–86%) of colorectal cancer in pregnancy tend to involve the rectum and mainly (60%) present at stage III [12]. Therefore, a large portion of these patients need to receive neoadjuvant chemoradiation before rectal surgical resection [13,14]. However, pelvic radiation in pregnancy is associated with lethal damage to the fetus. Radiation exposure, particularly during organogenesis is contraindicated, because it is associated with embryonic or fetal death, malformation, and growth retardation [15]. In the literature, most rectal cancers in pregnancy occurred in the second or the third trimesters. These patients tend to present in stage III or IV and to have poor outcome [5,11,16–28] (Table 1). Most evidences indicate that neoadjuvant chemotherapy in pregnant women with metastatic rectal cancer spare the fetus; although it is not curative for mothers [5,16,19–21]. In this report, our patient had a locally advanced disease in the pelvis associated with resectable single liver metastasis; therefore, according to the patient’s desire termination of pregnancy followed by combined neoadjuvant chemotherapy and chemoradiation before surgical intervention was offered to the patient. Subsequent curative surgery and adjuvant systemic therapy was offered to her.

**Conflict of interest**

The authors have no commercial or other associations that might pose a conflict of interest in connection with the manuscript.

**References**


