

A Case of Colon Cancer During Pregnancy

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Abstract: A 37-year-old Japanese pregnant woman, gravida 3, para 2, with a history of strong tenderness in the left lower quadrant abdomen apart from the uterus, was referred to our department at 27 weeks of gestation. An ultrasound examination had shown the presence of an irregular mass measuring 70×50 mm in size. At first, we diagnosed diverticulitis after a consultation of a surgical team and this patient received an intravenous infusion of antibiotics and ritodrine hydrochloride. At 30 weeks of gestation, the levels of liver enzymes increased. The laboratory data were as follows; AST: 61 IU/ml, ALT: 57 IU/ml, LDH: 709 IU/ml, Total bilirubin: 2.0 mg/dl, Carcinoembryonic antigen: 86.7 ng/ml, CA125: 103 U/ml, CA19-9: 1,794 U/ml. We thereafter performed ultrasonography of the upper abdomen which disclosed a 10 cm solid mass in the liver. Moreover, colonoscopy and biopsy at 30 weeks of gestation showed moderately differentiated adenocarcinoma of the sigmoid colon. The patient underwent a cesarean section and sigmoidectomy at 30 weeks of gestation. The histologic findings did not show any tumor invasion of the ovaries or placenta. This case was classified as T3N0M1 (Stage IV) according to TNM classification. A 1,564 g male was delivered. The Apgar scores were 1 at one minute and 6 at five minutes.

Mechanical ventilation was started immediately after birth. Her baby is well at 16 months of age with no evidence of any neurological sequelae. The patient died 16 months after surgery due to inferior vena caval syndrome.

Key words : pregnancy, colon cancer

Introduction

Cancer is one of the leading causes of death in women of childbearing age. Cancer complicates the course of approximately 1 in 1000 pregnancies.¹⁾ The most common types of malignancies are breast cancer, genital neoplasms and melanoma.²⁾ The reported incidence of colorectal neoplasms during pregnancy has been estimated to be between 0.02 and 0.002%.¹⁾ Colorectal cancer during pregnancy is very rare because most cases of co-

lorectal cancer occur in patients 50 years of age or older.³⁾ For this reason, the occurrence of this malignancy during pregnancy is associated with an extremely poor prognosis and younger patients with colorectal cancer tend to have a higher stage of disease at the time of initial assessment than do older patients. In addition, a delayed diagnosis due to pregnancy associated gastrointestinal changes associated with pregnancy is a common feature, and metastatic spread, bowel obstruction and subsequent perforation are also more prevalent during pregnancy.⁴⁾ We

herein describe a case of sigmoid colon cancer during pregnancy.

Case Report

A 37-year-old Japanese pregnant woman, gravida 3, para 2, was admitted at 27 and 6/7 weeks of gestation to our hospital, because of left lower quadrant pain of one week duration and mild nausea. Her antenatal course had been uneventful until 26 weeks of gestation while under the care of a private obstetrician. The laboratory data were as follows on this admission; CRP: 13.2 mg/dl, hemoglobin: 9.2 g/dl, white blood cell: $10,300/\text{mm}^3$, platelet count: $305,000/\text{mm}^3$. The cardiotocogram showed fetal tachycardia and regular uterine contraction. The body temperature on admission was elevated to 39.0°C . Although we performed amniocentesis to clarify the presence of an intrauterine infection, both Grams' stain and an amniotic fluid culture were negative. No foul odor of the amniotic fluid or any uterine tenderness was observed. However, there was strong tenderness in the left lower quadrant abdomen apart from the uterus. An ultrasound examination showed an irregular mass measuring 70×50 mm in size (Fig. 1). In addition, we performed

magnetic resonance imaging (MRI) and the findings revealed a thickening of the wall in sigmoid colon. The initial assessment including a digital examination did not reveal either hemorrhoids or a tumor. At first, we diagnosed diverticulitis after consultations with a surgical team and the patient received an infusion of antibiotics for the inflammation and ritodrine hydrochloride to suppress the uterine contraction.

At 30 weeks of gestation, the levels of liver enzymes increased. The laboratory data were as follows; AST: 61 IU/ml, ALT: 57 IU/ml, LDH: 709 IU/ml, Total bilirubin: 2.0 mg/dl, Carcinoembryonic antigen: 86.7 ng/ml, CA125: 103 U/ml, CA19-9: 1,794 U/ml. We thus performed ultrasonography of upper abdomen and a 10 cm solid tumor was revealed in the liver. MRI also showed a mass located on the left liver. Colonoscopy showed a circumferential tumor with surface bleeding at a point 35 cm from the anal verge (Fig. 2). A wedge biopsy was taken from the colon lesion and the histologic findings showed moderately differentiated adenocarcinoma of the sigmoid colon.

At 30 and 6/7 weeks of gestation, we performed a lower segment cesarean section, with a left salpingo-oophorectomy and

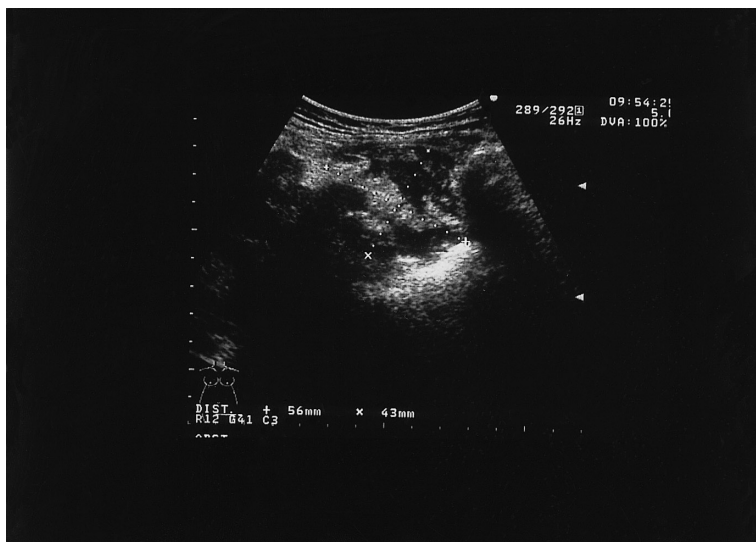


Fig. 1. An ultrasound examination demonstrating the presence of an irregular mass measuring 70×50 mm in size

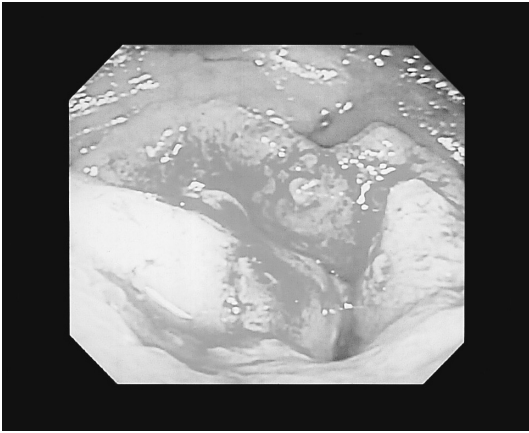


Fig. 2. Colonoscopy showing a circumferential tumor with surface bleeding at a point 35 cm from the anal verge

sigmoidectomy. The 1,564 g male infant delivered and the Apgar scores were 1 at one time and 6 at five times. According to TNM classification, this case was classified to be T3N0M1 (Stage IV). A pathological examination showed a well differentiated adenocarcinoma of the colon and no metastases to the regional lymph node in the adjacent fatty tissue. A macroscopic and microscopic examination of the placenta and ovaries showed no abnormalities or signs of metastatic spread. The baby is doing well at 16 months of age with no evidence of neurological sequelae. However, the mother died 16 months after surgery due to inferior vena caval syndrome.

Discussion

Since the earliest reports by Cruveilhier and Lever in the mid-nineteenth century, more than 250 cases of colorectal cancer during pregnancy have been reported in the English-literature.⁵⁾ In the Japanese literature, a total of 48 cases have been treated from 1970 through 1996, and the calculated incidence of Japanese pregnant women with colorectal cancer has been estimated to be 1:502,316 births.⁶⁾ This figure is one tenth of the previously reported rate in Western countries.⁶⁾ Patients under 40-years old accounted for from 4.7% to 19.4% of the total

number of patients with carcinoma of the colon and rectum.⁶⁾ On the other hand, the incidence of colorectal carcinoma in patients 40 years old and younger in Japan is less than 3%.⁷⁾ Younger patients with colorectal cancer tend to have a higher stage of disease at the time of initial assessment than do older patients.³⁾

The keys to an early diagnosis of colorectal cancer include a complete history and through physical examination, including rectal examination.⁸⁾⁹⁾ However, the symptoms of colorectal cancer are nonspecific, including abdominal pain, nausea, vomiting, constipation and rectal bleeding, can be confused with the symptoms of normal pregnancy.⁸⁾¹⁰⁾ As for our case there was no rectal bleeding and a digital examination would miss any lesions above the peritoneal reflection. For example, only four patients had rectal bleeding in a literature review of 32 cases of colon cancer above the peritoneal reflection in pregnancy.⁵⁾

The common symptoms in these 32 cases were abdominal pain in 20, nausea and vomiting in 13, and abdominal distention in 9.⁵⁾ For this reason, the diagnosis of colorectal cancer during pregnancy might be often delayed. In our case, the patient was 37 years old and was classified to have Stage IV disease. However, the physicians should be alert to the rare possibility of colorectal cancer in pregnancy and must rule it out from the cases of persistent abdominal discomfort associated with vomiting and constipation.¹⁰⁾

The poor prognosis of colorectal cancer during pregnancy might be partly attributable to the relatively young age of such patients.

Serum the carcinoembryonic antigen (CEA) assay levels are normal or marginally elevated in a normal pregnancy.⁵⁾¹¹⁾⁻¹³⁾ The CEA levels should, therefore, be measured and used in the same way as in non-pregnant patients.⁵⁾ Although the CEA level is not useful as a screening test for colon cancer because its low sensitivity and low specificity, preoperative testing is useful in determining the prognosis and for providing a baseline for comparisons with postoperative levels.¹²⁾ After an apparently complete colon cancer resection, the serum CEA level almost

always returns to normal; a failure for this level to normalize after surgery indicates a probable incomplete resection.¹²⁾ In our patient complicated with hepatic metastasis, the serum CEA level was 86.7 ng/ml before surgery and was 195.4 ng/ml one month after the initial surgery.

The choice of therapy of colon cancer during pregnancy is influenced to a large extent by the tumor operability and the timing of delivery or termination. One has to balance the risk of prematurity and that of tumor progression. Therefore, a multidisciplinary approach, including obstetricians, colorectal surgeons, anesthesiologists, and neonatologist, is necessary. Some authors have outlined guidelines for surgical management based on the gestational age of the fetus at the time of tumor diagnosis.¹⁴⁾ In the review of colon cancer diagnosed during pregnancy, the gestational age at the time of cancer diagnosis was less than 20 weeks in 3, between 20 and 30 weeks in 15, between 31 and 37 weeks in 4, and full-term in 10.⁵⁾ If the diagnosis is made before 20 weeks of gestation, the cancer should be treated, and if possible, a definitive cancer operation should be performed.⁵⁾¹⁴⁾ McLean et al. demonstrated that resection of low-lying tumors, particularly abdominoperineal resection, is feasible up to 20 weeks "without emptying or removing the gravid uterus".¹⁴⁾ Between 24 and 32 weeks of gestation, if the diagnosis is made, the gravida uterus may interfere with a colon resection.⁸⁾ After 32 weeks of gestation, delivery should be induced as soon as possible to facilitate colon resection.⁸⁾

In conclusion, patients with colon cancer during pregnancy usually have a very poor prognosis. The most appropriate treatment should be performed as soon as possible whenever a diagnosis of colon cancer during pregnancy is suspected or established.

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