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Gastric carcinoma diagnosed at the third trimester: a case report

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Abstract Gastric carcinoma associated with pregnancy appears to be an extremely rare entity. It is usually diagnosed at advanced stages of the disease and presents a grave prognosis. Since the fatal outcome shows a rapid course within months of diagnosis, prompt gastroduodenal endoscopic examination following early clinical suspicion is mandatory. A case of 29 year-old pregnant woman with 31 weeks of gestation is herein presented. The woman was diagnosed as gastric adenocarcinoma while being investigated for intractable nausea, vomiting, and a concomitant epigastric mass. She underwent radical gastric resection and received six cycles of adjuvant chemotherapy following vaginal delivery of a healthy 1950 g fetus. The patient was dead 20 weeks after the surgery due to pulmonary and hepatic metastasis.

Keywords Gastric cancer · Gastroscopy · Pregnancy

Introduction

Since the frequency of gastric carcinoma in females of childbearing age is reported to be very low, gastric carcinoma coincident with pregnancy and lactation appears

to be an unusual clinical situation with an incidence of 0.1% [1, 5, 6].

In spite of several cases found in Japan where gastric cancer is an epidemic disease, experience on this particular subject is restricted to a few case reports in other parts of the world [3].

It is usually diagnosed at advanced stages where curative therapies are impossible. Delay in diagnosis seems to be due to lack of suspicion of this rare disease at a relatively young age, misinterpretation, and ignorance of the symptoms as usual complaints of hyperemesis gravidarum. The delay is finally on account of unwillingness of the physicians to order invasive procedures such as endoscopy during pregnancy. Besides environmental and genetic etiology, factors associated with the pregnancy itself are considered in the pathogenesis [2].

Another infrequent case of gastric cancer associated with pregnancy was presented. The patient was admitted with nonspecific gastrointestinal symptoms and demonstrated a fatal clinical course.

Case report

A 29-year-old gravida 4, para 2 pregnant woman with no regular antenatal care was admitted to the clinic at the 31st week of singleton gestation due to low abdominal and back pain, nausea, and projectile vomiting. She had no hematemesis or melena. She looked cachectic and her history revealed that she had suffered from nausea and vomiting from the beginning of pregnancy, but had no further investigation and was only advised to take H₂ antagonists.

Fetal ultrasonography, Doppler analysis, and non-stress-test reported the fetus as doing well. She was diagnosed as preterm labor and intravenous tocolysis was started. Coincident gastrointestinal symptoms were considered to simulate gastric outlet obstruction. Since the clinical examination revealed a palpable epigastric mass she was referred to gastroduodenal endoscopic

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examination. Gastroscopy demonstrated a tumor originating from the greater curvature and invading all over the antrum, causing a partial outlet obstruction. Biopsy revealed an adenocarcinoma.

A nasogastric tube was inserted and total parenteral nutrition was administered through a central venous catheter. After giving corticosteroids to promote fetal lung maturity, at 33rd week, labor induction was started. A healthy male infant of 1950 g weight was delivered vaginally. The newborn was kept in the neonatal unit for 1 week due to hyperbilirubinemia.

There was no complication in the postpartum period. Abdominal ultrasonography and thoraco-abdomino-pelvic computed tomography scan showed no metastasis. Total radical gastrectomy (D3 dissection), and Roux-en-Y oesophago-jejunostomy (Hunt-Lawrance poche) were performed on the 12th postpartum day. Macroscopic examination demonstrated an ulcero-vegetating $9 \times 6 \times 2.5$ cm³ tumor extending to the pylorus. Histopathological examination revealed gastric adenocarcinoma with signet-ring features, invading the serosa and regional lymph nodes (Fig. 1). Classification of the tumor was stage IIIb (pT₃ N₂ M₀).

The patient was administered six cycles of [5-fluorouracil (450 mg/m²) + Ca leucovorin (30 mg/m²)] adjuvant chemotherapy postoperatively. She was a heavy smoker and continued smoking during chemotherapy. In the postoperative follow-up period, 18 months after the operation, lung and liver metastasis were found. The patient could receive only one cycle of palliative chemotherapy (Irinotecan). She died 20 months after the diagnosis. The baby was reported to be normal and doing well.

Discussion

Gastric cancer is more frequently seen in elderly populations with the mean age of 60 years and predominates

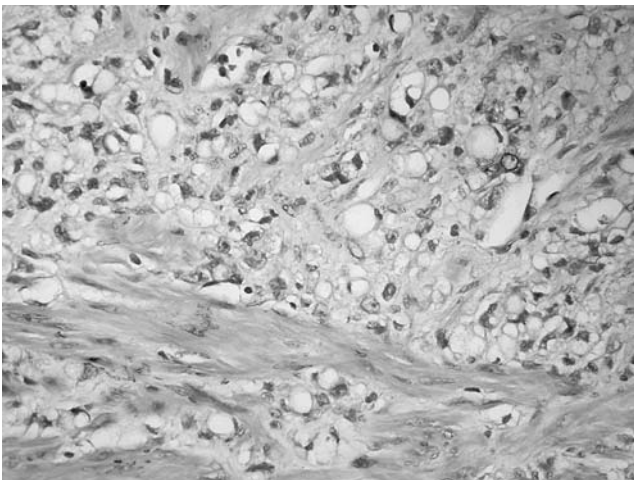


Fig. 1 Adenoid carcinoma infiltrating the lamina muscularis propria diffusely. Typical signet-ring cell morphology of carcinoma cells are seen (H&E X200)

in males presenting a male/female ratio of 1.7/1. On the other hand among patients under 40 years of age, gastric cancer is found to be more common in females with a male/female ratio of 1/1–2.5. Pregnancy associated gastric cancer patients consist of only 0.1% of all cases [8].

Young gastric cancer cases are characterized by preponderance to female sex, proximal localization of the tumor, poor nature of differentiation, and overall poorer prognosis [7]. The pathogenesis of pregnancy related gastric cancer still remains to be idiopathic. Conflicting data concerning the association of *Helicobacter pylori* infection with those cases are insufficient for a conclusion. On the other hand pregnancy itself is suggested to be an etiologic factor due to pregnancy-related hormones. The promoter effect of sex hormones on carcinogenesis that is demonstrated experimentally in rat stomach also indicates a possible enhancing action of those hormonal changes on growth of cancer during pregnancy [3]. Immunosuppressive influence of pregnancy may be an additional factor in the development of the malignant process. Some other digestive hormones implicated to have trophic effects on cancer cells may be responsible for the process although these are not shown to be produced in excess during pregnancy [2].

Furukawa et al. suggested that pregnancy itself might accelerate the tumor growth. This they observed through significantly poorer tumor stages and survival rates in 20 young females associated with pregnancy when compared to 44 young female cases without pregnancy and 57 young males [4]. On the other hand, Jaspers et al. suggested that clinical features and prognosis in pregnant gastric cancer cases were not significantly different from other young patients [6].

The literature on gastric cancer in pregnancy is limited. In 1991, Ueo et al. reviewed 61 cases of gastric cancer related with pregnancy in the period of 1968–1988 diagnosed in Japan. In 97% of the cases patients were found to be at advanced tumor stage [12].

The palpable mass above the uterus and the gastric outlet obstruction causing projectile vomiting were the factors that recommended in performing a gastroscopic examination. In this particular case, the tumor size revealed to suggest that the diagnosis could have been made earlier. The same situation is also present in other cases as well [3, 5, 6, 9, 11]. The advanced tumor stage in those cases at the time of diagnosis concludes that improvement and the acceleration of the diagnosis are required. All intentions should be concentrated on early recognition and diagnosis representing the only way of cure in each individual case. Diagnosis has been possible in the early stage only in 2% of all the cases in literature [6, 10].

Early detection of gastric cancer in pregnancy still remains to be a dilemma due to infrequency of the disease in young population and misinterpretation of the nonspecific symptoms, attributing them to usual course of pregnancy. Endoscopic examination has been reported to be safe in pregnancy and recommended for complicated cases such as atypical and severe refractory

dyspepsia continuing beyond the 16th week of gestation, nausea and vomiting that do not respond to traditional treatment remedies, or suspicious symptoms of malignancy. Additionally screening gastroscopy should be performed in the patients with the following risk factors: family history of gastric cancer, peptic ulcer history, immunosuppressive diseases, and drug usage, cigarette smoking [6].

Management of the gastric cancer in pregnant woman should be planned according to the guidelines involving the tumor stage and the gestational age [3, 12]. Before 24 weeks of gestation surgical treatment for gastric carcinoma should be performed immediately. Between the weeks of 25 and 29, if the cancer is advanced and resectable, immediate resection is recommended despite the risk to the fetus. As in this case, gastric cancer diagnosed after 30th week of gestation, the standard approach is radical operation following termination of pregnancy. In inoperable cases, chemotherapy is the first choice [5, 12].

As a conclusion, since it is known that the prognosis in gastric cancer is poor, 80% die in the first year and 3-year survival rate is 8%, early diagnosis is critical [6].

Although rare under the age of 30, gastric carcinoma always must be included in the differential diagnosis of epigastric discomfort especially in the presence of persistent nausea, vomiting, and weight loss beyond the first trimester in pregnancy.

Gastroscopic examination should not be disregarded in patients with gastric complaints during pregnancy especially after the first trimester. Additionally primary prevention regarding nutritional habits, giving up smoking, and eradication of *Helicobacter pylori* infection in high-risk patients should be provided.

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