Continuous Hyperemesis Gravidarum May be Gastric Cancer during Pregnancy

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Abstract
It is estimated that cancer occurs in 1 in 1,000 pregnancies and accounts for one-third of maternal deaths during gestation. Gastric cancer rarely presents in pregnancy. We report a rare case of gastric cancer in pregnancy. A 38-year-old woman presented at the 14th week of pregnancy complaining of continuous nausea and vomiting for four months. The patient considered the condition to be related with pregnancy, her pains persisted over the following weeks and she was hospitalized for investigation. Endoscopy demonstrated an extensive stomach tumor.

Summary
Gastric cancer is rare during pregnancy. Malignant nature of the disease and its unexpected presence lead to miserable prognosis. We report a case of gastric cancer in 38-year-old women with continuous vomiting for four months. Diagnosis was correctly made by gastroscopy and biopsy and the patients died 6 months after the birth of healthy twins and total gastrectomy.

Keywords
Gastric Cancer; Pregnancy; Maternal Death; Prognosis; Treatment

Introduction
Cancer during pregnancy is rare and often diagnosed at an advanced stage [1]. We present a case of advanced stage gastric carcinoma which was diagnosed at the third trimester of pregnancy.

Case
A 38-year-old pregnant patient was admitted for lacking of appetite, nausea, vomiting and oligohydramnios. The patient was 8 months pregnant in her admittance. However, she had not gain any weight within last 6 months despite the pregnancy. She was native to the city suffered from high morbidity of gastric cancer.

The patient suffered from nausea and vomiting four months before. At the beginning, she did not pay attention to the discomfort. With the time going, the symptom did not relieve. A month before, She was admitted for dizziness, fatigue, flustered by local hospital. The blood tests revealed anemia (hemoglobin 70 g/dl) and hypoproteinemia (albumin 23g/L). Pregnancy was dated as 30 weeks in obstetric ultrasound examination. Everything was normal with the evolutionary twins. There was no abnormal
finding. The patient accepted blood transfusion therapy and the association improved. One day before, obstetric ultrasound examination revealed oligohydramnios and the patient was admitted. The physical examination showed dehydrated. The fundal height was 25 centimeters and the abdomen circumference was 87 centimeters. The blood tests revealed electrolyte disorder (potassium iron 2.42 mmol/L, sodium 130.4 mmol/L). Ultrasonographic examination of the uterus showed two fetuses with a mean gestational age of 32 weeks and 31 weeks, respectively. The fetal movement and heart rate were normal. The amniotic fluid volume appeared less than normal limits. The patient was admitted by intensive care unit for electrolyte disorder, while the mother appeared irregular contractions. We made anesthesia and pediatric consultations. Several hours later, two male newborn were delivered with 1630g and 1730g, respectively, and good Apgar scores, being admitted in neonatal intensive care unit. After delivery, endoscopy demonstrated an extensive tumor originating from the angle of gastric and invading throughout the duodenal bulb. The histopathological diagnosis was poorly differentiated, adenocarcinoma.

An explorative laparotomy revealed an 8x6x4cm size hard tumor at the junction of corpus and gastric antrum. The tumor infiltrating the serosa. Total gastrectomy and Roux-NY eusphagojenuostomy was performed. The pathological diagnosis of the resected lymph nodes was poorly differential adenocarcinoma. Everything was normal with her post-op one month. A multidisciplinary committee comprising the departments of gynecology, general surgery, oncology, radiology and radiotherapy suggested chemotherapy therapy after operation. However, the patient did not accept the chemotherapy, and died six months later. And the twins were healthy up to now.

**Discussion**

Gastric cancer rarely presents in pregnancy. By 2010, rates of stomach cancer have declined worldwide, which was 2% of cancer death, while it is 30% and 20% of male and female cancer deaths, respectively, in the 1930s. The decline due to improved hygiene, resulting in a lower prevalence of Helicobacter pylori, and higher fresh foods intake [2]. In general, the incidence of cancer varies from region. The patient is native to the city suffer high morbidity and mortality of gastric cancer. With postponing childbearing ages, the occurrence of malignancy during pregnancy is likely to become an increasingly common phenomenon [1]. In our case, the 38-year-old patient was pregnant by the mean of in vitro fertilization and embryo transfer (IVF-ET).

It is estimated that cancer occurs in 1 in 1,000 pregnancies and accounts for one-third of maternal deaths during gestation. The most common cancers in pregnancy are cancer of the breast and cervix, melanomas, lymphomas, and leukemia. As the trend for delaying pregnancy into the later reproductive years continues, this rare association is likely to become more common [1]. So it is necessary to present the rare case.

The early symptoms of gastric cancer are indigestion, nausea or vomiting, dysphagia, postprandial fullness, loss of appetite. Gadsby et al reported the incidence of nausea and vomiting of pregnancy (NVP) in normal singleton pregnancies is reported to occur in 73.4% of 39,710 pregnant women [3]. The symptoms are usually deemed as events related to pregnancy. Therefore, the symptoms tend to be ignored by both patients and doctors. As a result, pregnant patients may present with advanced gastric cancer and poor prognosis. Gadsby et al also found 90% of women who will get NVP start before day 56 from last menopause period (LMP). 91% of women’s symptoms ceased by the end of the 16th week from LMP [3]. Obviously, patients and physicians must pay attention to the situation, when the symptom is continuous.

The pathogen of gastric cancer is H. pylori infection and various environmental factors contribute to its development. Low socio-economic status and poor hygienic conditions, smoking habits, heavy alcohol consumption, high salt and low intake of vegetables and fruits are important external factors for the occurrence of gastric cancer [4]. On one hand, Lanciers et al revealed that an increased incidence of H. pylori infection during pregnancy [5]. On the other hand, Gastric cancer predominates in males with a male: female ratio of 1.6: 1 [2]. Why is there gender disparity? Qin et al indicated that estrogen can reduce cell viability and promote apoptosis in gastric cancer cells directly; ERs expression level is associated with gastric cancer [6]. Animal studies also indicate that oestrogen may offer protection against the development of this cancer as for example ovariectomised mice are at an increased risk, whilst administration of female sex hormones decreases the incidence of gastric cancer [7]. In conclusion, the oestrogen is extremely high, but the occurrence of cancer is multidisciplinary.

Prognosis of gastric cancer is poor. If gastric cancer is suspected, early detection is essential. The most effective method is endoscopic and incision biopsy.
for histopathology. However, most pregnant women cannot accept the examination because of the fetus. Quan and workmates showed that endoscopic procedures in pregnancy are safe for both mother and fetus. However, these procedures should be restricted to cases with definite. Indications and radiation exposure should be minimized with additional safety precautions such as minimal radiation exposure and the use of lead shield when applicable [8]. Muller reported a rare case of adenocarcinoma of the stomach in pregnancy by ultrasonographic [9].

Depending on the site and extent of cancer, surgery is the only potentially curative treatment for all T1b-T4 gastric cancers, and extended lymphadenectomy (D2) should be recommended as standard of care in resectable gastric cancer. Surgical treatment of liver-limited metastases and hyperthermic intraperitoneal chemotherapy for peritoneal carcinosis are fascinating frontiers [10]. Terzi et al performed total gastrectomy to the 23-week patient before the termination of pregnancy. There was no problem either in the mother or in the fetus at post-op stage. After 3 months, the patient gave birth to a healthy child in term. There was no recurrence or metastasis in post-op 9th month control [11].

A pregnant woman with cancer is capable of giving birth to a healthy baby because cancer rarely affects the fetus directly [1]. Lanciers et al also found the children, who born to mothers with active H. pylori infection from parturition to twelve months of age, do not appear to have an increased risk of developing H. pylori infection during their first year of life[5]. In addition, Kitagawa et al considered that vertical infection during pregnancy or at delivery is unlikely as a route of mother-to-child H. pylori antibody infection. However, horizontal infection through breast-feeding may occur [12]. As for cancer metastases, metastatic disease involving the placenta is rare. There have been only 5 previous single case reports of gastric carcinoma metastatic to the placenta [13].

**Conclusion**

Gastric cancer during pregnancy is rare and the prognosis is general poor. The patients often were diagnosed with advanced cancer, due to the asymptomatic or atypical symptom. The most effective treatment is gastrectomy. However, the fetus may be evolutionary, and have a good outcome.

**References**