Chemotherapy for ovarian mucinous cystadenocarcinoma during pregnancy: A case report

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Summary

There is limited experience in the treatment of epithelial ovarian malignancy with chemotherapy during pregnancy. We present the case of a 36-year-old women with ovarian mucinous cystadenocarcinoma during pregnancy, on whom exploratory laparotomy was performed at the gestational age of 16 weeks. Afterwards chemotherapy with cyclophosphamide (500 mg/m^2) and cisplatin (50 mg/m^2) was administered beginning at the second trimester of pregnancy due to surgical Stage Ic. Although preterm labor and a prematurely ruptured membrane occurred at the gestational age of 29 weeks before the fourth course of chemotherapy, there was still a satisfactory outcome for mother and fetus after an emergency cesarean section due to breech presentation at the gestational age of 30 weeks.

Key words: Ovarian malignancy; Chemotherapy; Pregnancy.

Introduction

There is limited clinical experience in the treatment of epithelial ovarian cancer with chemotherapy during pregnancy.

We believe that our case of ovarian mucinous cystadenocarcinoma during pregnancy is interesting for its clinical management.

Case Report

This is the case of a 36-year-old woman, gravida 1 para 0, with a history of non-insulin dependent diabetes mellitus (NIDDM), who came to our outpatient department during the seventh week of gestation for plasma sugar control, wherein a left ovarian cyst (about 75 x 78 x 105 mm in size) was noted.

During admission, the tumor markers of CA19-9 and CA125 appeared to be within normal limits. Magnetic resonance imaging (MRI) then revealed a huge left adnexal tumor with multi-locular, solid and cystic components, without ascites and pelvic lymphadenopathy. Cystadenoma or borderline cystadenocarcinoma was suspected at the 16th week of gestation.

An elective exploratory laparotomy was arranged at the gestational age of 16 weeks. A left, intact-capsulated adnexal mass (about 16 cm in size), mixed with solid tissue and cystic components was noted during the operation, with no other pelvic abnormality. A left salpingo-oophorectomy with washing cytology and paraaortic lymph node sampling were performed. Unfortunately, a tumor rupture occurred during surgery. The final pathological report showed ovarian mucinous cystadenocarcinoma, well differentiated without paraaortic lymph node metastasis, defined as Stage Ic by FIGO criteria.

Chemotherapy was to be given with cyclophosphamide 1000 mg (500 mg/m^2) and cisplatin 100 mg (50 mg/m^2) at 3-week intervals. However, before the 4th course of chemotherapy at the 29th week preterm labor with premature rupture of the membrane occurred. A tocolytic agent and corticosteroid were administered. An emergency cesarean section was performed due to the footling breech presentation of the fetus. An active female newborn, 1,816 gm in weight, Apgar score 6 and 8 at one and five minutes postpartum, respectively, was delivered and admitted to the neonatal intensive care unit for further evaluation and supportive treatment.

After her delivery, the mother completed the final three courses of chemotherapy, followed by second-look laparotomy, as well as pelvic lymph node dissection. Negative findings in all pathological specimens were noted. She then went through a regular follow-up with our outpatient department, undergoing normal tumor markers of CA125 and an ultrasound. There has been no evidence of disease up to this point, and the baby is demonstrating normal growth patterns, as well as normal neurological and mental development.

Discussion

The incidence of ovarian tumor complicated with pregnancy is about 1/1,000. Around 2-6% of ovarian tumors diagnosed during pregnancy are malignant. Ovarian cancer has been reported to occur in about one in 21,500 pregnancies [1].

The standard approach to an adnexal mass (without clinical symptoms) during pregnancy is to have elective laparotomy after a complete preoperative workup around 16 to 24 weeks of gestation because the physiologic adnexal cysts will be resolved and the risk of miscarriage is greatly reduced.

Epithelial ovarian malignancies diagnosed during gestation have a similar prognosis as those diagnosed in non-pregnant patients at an equally corresponding stage. Surgical staging should be performed in all apparent early-stage disease, including (if possible) a unilateral oophorectomy or a unilateral salpingo-oophorectomy with the appropriate staging procedures. Rarely is the removal of the gravid uterus necessary except in advanced cases. Surgical planning depends on preoperational staging, gestational age, and the patient's future reproductive desires.

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Administration of chemotherapy during pregnancy raises concerns about the transplacental passage of cytotoxic agents to the fetus. Chemotherapy should be routinely avoided during the first trimester as spontaneous abortion or severe malformations of the fetus may occur [2]. Ebert *et al.* summarized 217 cases of pregnant patients treated for malignancy with chemotherapy. The study noted that 83.3% of malformed live births involved the use of chemotherapy in the first trimester during the period of organogenesis [3]. During the second and third trimesters of pregnancy, exposure to cytotoxic agents does not cause significant malformations, however, it could possibly result in impaired fetal growth and development. Doll and colleagues documented that the malformation rate with chemotherapy in the second and third trimesters was 1.3% [2].

The combination of chemotherapy with platinum-based regimen was administered without adverse fetal effects to pregnant advanced ovarian carcinoma patients. Various reports on cisplatin with cyclophosphamide for epithelial ovarian cancer during pregnancy have proven fetal safety. Poor data has been presented concerning the usage of paclitaxel during pregnancy. Preliminary studies evaluating paclitaxel-induced teratogenesis in animals have been reported. Kai *et al.* administered paclitaxel to pregnant rats from day 7 to day 17 of gestation. Paclitaxel did not alter the prenatal development or cause malformations, but fetal deaths were reported [5]. Reviewing previous documents, there is only one case report about the use of paclitaxel during pregnancy. It involves a woman with ovarian papillary serous adenocarcinoma Stage IIIc after surgery, who received three cycles of paclitaxel and cisplatin during pregnancy. The infant had normal growth and development at 30 months of age after a cesarean section had been performed at the gestational age of 37 weeks [6].

This relative infrequency of occurrence limits our understanding of the optimal management of many therapeutic dilemmas. It is very difficult to make a decision on time and dosage to initiate cytotoxic treatment for a pregnant woman because the prognosis of a malignancy, the gestational period, and the patient's wishes concerning future family planning must be taken into account. When gynecological malignancy is diagnosed during pregnancy, appropriate decision-making requires extensive patient counseling with a multidisciplinary approach involving gynecologists, oncologists, perinatologists and neonatologists.

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