

Case Report

Ovarian cancer during pregnancy

Aykut Barut,¹ Ilker Arikan,² Figen Barut,³ Muge Harna,⁴ Mehmet Ibrahim Harna,⁵ Burcu Payasli⁶

Department of Gynecology and Obstetrics,^{1,2,4-6} Department of Pathology,³ Faculty of Medicine, Zonguldak Karaelmas University, Zonguldak, Turkey.

Abstract

The frequency of cancer during pregnancy is approximately 1 per 1000 live births. This rate may increase as more women postpone childbirth until later in life, when cancer becomes more frequent. Pregnancy affects management of the cancer, and the cancer affects the management of pregnancy. The most common malignancies, in order of frequency, are breast cancer, leukaemia and lymphomas as a group, melanoma, gynaecologic cancers, and bone tumours. Ovarian tumours are found in about 1 in 1000 pregnancies and 3-6% of these are malignant. Thus, ovarian cancer occurs in approximately 1 in 12,500-25,000 pregnancies. Here, we report a case of ovarian mucinous carcinoma that was diagnosed at 22 weeks of gestation. After conservative surgery, she was given three cycles of carboplatin chemotherapy. She delivered at 33 weeks of gestation and after undergoing surgery she was given six cycles of paclitaxel and carboplatin chemotherapy. The patient is now being followed by the oncology department with no evidence of disease.

Keywords: Pregnancy, Cancer, Ovarian tumour.

Introduction

The reported frequency of adnexal masses in pregnant women is 1 in 81 to 1 in 2,500 live births.¹ Only 2-5% of ovarian adnexal neoplasms removed during pregnancy are considered malignant, with ovarian carcinoma occurring in about 1 in 21,500 pregnancies.² The standard optimal treatment for ovarian carcinoma is salpingo-oophorectomy and total hysterectomy. However, a hysterectomy should be avoided during pregnancy in early stage ovarian carcinoma when the patient strongly desires to give birth. In such cases, antineoplastic chemotherapy has been reported to prevent the spread of malignant cells and to kill residual cells during pregnancy after conservative surgery to remove only the ovarian malignancy. In 1986, Malone et al³ first reported the successful treatment of an

ovarian malignancy during pregnancy using multi-agent chemotherapy. Good outcomes were obtained for both the patient and neonate. The reported use of carboplatin has been increasing gradually, while paclitaxel has been avoided, due to anxiety over potential teratogenic effects on the foetus, with only two reports describing the use of paclitaxel during pregnancy.^{4,5}

Case Report

A 21-year-old woman (gravida 1, para 0) presented to the emergency service complaining of abdominal pain. She had tenderness and rebound on abdominal palpation. Her complete blood count showed leukocytosis, while her biochemistry results were all within normal limits. An ultrasound examination showed a normal intrauterine pregnancy at 22 weeks gestation, a right adnexal mass measuring 20×10 cm, and diffuse ascites. The patient was hospitalised and a right salpingo-oophorectomy surgery was performed. At surgery, 1800 mL of ascites were drained. In

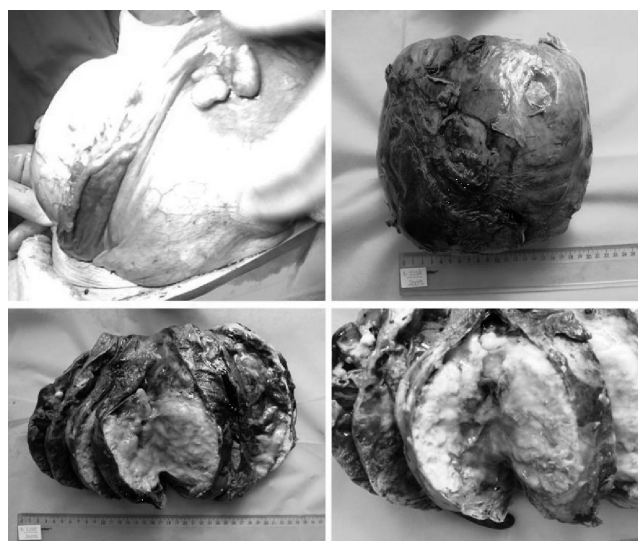


Figure-1: Macroscopic appearances of the cystic mass, which measured 21×18.5×12 cm.

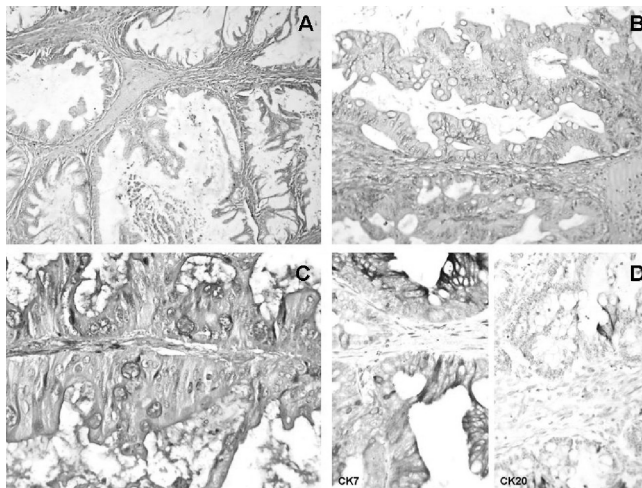


Figure-2: Histopathologic appearances of mucinous carcinoma A; A malignant neoplasia composed of glandular structures lined with atypical columnar epithelial cells (H&E, x200), B; The presence of Goblet cells supporting the intestinal type (H&E, x400), C; Mucin reaction by mucicarmine histochemical staining (Mayer's Mucicarmine, x400), D; Diffuse cytokeratin 7 and focal cytokeratin 20 immunostaining, supporting the primary ovarian tumor (B-SA, CK7; CK20; x400).

the right adnexal region, an approximately 20-cm giant solid and cystic mass was found, which was twisted twice around the proper ovarian ligament (Figure-1). The anterior abdominal wall and abdominal organs were tumour-free. Histopathology revealed mucinous cystadenocarcinoma (intestinal type) of the right ovary (Figure-2). Chemotherapy was chosen to prevent the spread and growth of residual tumour cells until birth and consisted of carboplatin at weeks 25, 28, and 31 of gestation. At 33 weeks of gestation, she was hospitalised with uterine contractions and tocolysis was performed; steroid was injected to cause lung maturation. A healthy neonate, weighing 2280 g, was delivered spontaneously by the vaginal route 2 days later, with no neonatal complication or tumour metastasis to the newborn or placenta. Seven days postpartum, staging surgery was performed, with a total abdominal hysterectomy, left salpingo-oophorectomy, appendectomy, and pelvic para-aortic lymph node dissection. At surgery, the pelvic lymph nodes were dissected, but no enlarged lymph node was identified. The para-aortic lymph nodes were also not palpable. Cytological analysis of fluid washed from the abdominal cavity and peritoneum was performed. No ascites or residual tumour in the abdominal cavity was found macroscopically. Pathology was negative for ovarian cancer. Subsequently, histopathology revealed stage 1a (FIGO) mucinous cystadenocarcinoma of the right ovary. Postoperatively, she was given six courses of paclitaxel and carboplatin combination chemotherapy. In total, she received three courses of carboplatin during her pregnancy and six courses of paclitaxel and carboplatin combination chemotherapy after the staging surgery. The patient is now being followed

by the oncology department with no evidence of disease.

Discussion

The optimal surgery for staging ovarian cancer includes a bilateral salpingo-oophorectomy, total hysterectomy, pelvic and para-aortic lymphadenectomy, and omentectomy. An analysis of studies of the medical and surgical management of ovarian carcinoma during pregnancy showed that the primary surgery at diagnosis consisted of an ovarian cystectomy, unilateral salpingo-oophorectomy (USO) only, USO plus multiple biopsies, or more radical surgery with USO, infracolic omentectomy, appendectomy, peritoneal biopsies, and even pelvic and para-aortic lymphadenectomy.^{5,6} To continue the pregnancy, anti-neoplastic chemotherapy is administered to prevent the growth of newly implanted tumours or residual ovarian cancer cells. Theoretically, all anti-neoplastic agents are cytotoxic. The transplacental passage of the agent to the foetus is a key concern. Ebert et al. reported 217 cases in whom chemotherapy was administered during pregnancy.⁷ To date, only two papers have reported the use of platinum/paclitaxel chemotherapy in advanced ovarian cancer during pregnancy, and these documented no apparent toxicity and normal growth and development of the infants.^{4,5} Platinum-based chemotherapy is generally well tolerated and not associated with toxicity in the newborn.⁶ Malformations were present in 83.3% of foetuses when chemotherapy was administered during the first trimester.⁸ Accordingly, chemotherapy should not be given during the first trimester. In contrast, malformations have not been reported in most cases in which chemotherapy was administered during the second or third trimesters.⁸ The documented malformation rate with chemotherapy performed in the second and third trimesters is 1.3%, which is also the rate for pregnant women in general without chemotherapy based on ultrasonographic screening during the third trimester.⁹ The current standard regimen for adjuvant chemotherapy to treat epithelial ovarian carcinoma is the combined use of carboplatin and paclitaxel. Patients receiving carboplatin during the second trimester have been reported with no serious effect on the foetus.^{5,8,10} Two patients were given paclitaxel during pregnancy and no effect on foetal growth or neonatal learning was reported, as in our case.^{4,5}

Conclusions

The frequency of the early diagnosis of ovarian malignancy has increased with the widespread use of ultrasonography and this has led to an improvement in the therapeutic approach to ovarian malignancies encountered during pregnancy. In addition to surgical treatment, the use of multi-agent chemotherapy during pregnancy has become widespread.

A multidisciplinary approach, consisting of perinatologists, oncologists, and neonatologists, is necessary and the management of early-stage ovarian carcinoma diagnosed during pregnancy should be started without delay.

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