

# Ovarian Carcinoma During Pregnancy: Report of Two Cases

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Ovarian tumors during pregnancy are rare events. Although the majority of ovarian tumors complicating pregnancy are benign, they are still important because of the difficulty in differentiating between benign and malign tumors. In most cases, tumors are detected accidentally during routine examination, ultrasound or a caesarean section at term. An ovarian malignancy occurring in association with pregnancy is rare accounting for only 2-5% of ovarian tumors discovered during pregnancy. Histologic subtypes and prognosis do not differ from tumors not associated with pregnancy, it seems however, that there are more lesions of borderline malignancy and of low grade. Two cases of pregnancy associated malignant ovarian tumors, one mucinous cystadenocarcinoma and one endometrioid carcinoma are reported. Patient with mucinous cystadenocarcinoma had a history of persistent ovarian tumors during her two pregnancy.

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Ovarian cancer occurs in all age groups. Ovarian cancer is the most lethal primary genital neoplasm; it is usually diagnosed at an advanced stage since most ovarian tumors grow silently in the abdominal cavity and symptoms develop when the tumor has spread beyond the ovary.<sup>1</sup>

Ovarian tumor do not often occur during pregnancy, but incidental discovery of an ovarian tumor during pregnancy can lead to anxiety on the part of both patient and obstetrician and their management may be of crucial importance. The incidence of gynecologic malignancies during pregnancy is expected as more women delay childbearing into their late reproductive years; and maternal age is the most powerful predictor of cancer risk.<sup>2</sup>

It is reported that malignancy rate of ovarian masses during pregnancy is 2-5%, which is lower than the 18-20% incidence of malignancy in all ovarian masses in non-pregnant patients.<sup>3</sup> The lower risk of ovarian malignancy during pregnancy is considered to be due to the age difference. The pregnant patients are much younger than non-pregnant patients who have ovarian cancer.<sup>4</sup>

In this report, we presented two malignant ovarian tumors associated with pregnancy, one of which showed interesting clinical courses and found during gestation.

## Case Report 1

M.K. a 28 years old women, G2P1, had her first pregnancy at the age of 26. After her first pregnancy, left salpingo-oophorectomy was performed on August 2000. Postoperative

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pathological examination revealed mucinous cystadenocarcinoma of the ovary (Figure 1). She received six courses of combination chemotherapy consisting of Anzatax and Carboplatin, until February, 2001. She was found to have sixth week of gestation at her first prenatal exam, on August 28, 2001. On January 8, 2002, at her twenty-sixth week of gestation she was diagnosed to have a right ovarian tumor and on January 10, 2002, she underwent right salpingo-oophorectomy because the mass had been growing longer by ultrasonography. According to the operation note, there was no ascites or adhesions. The pathological report of excised ovary was mucinous cystadenocarcinoma, stage I. Postoperatively, the patient had an uneventful charge and did not receive any adjuvant therapy. She delivered a normal, male fetus weighting 2120 gr at 36 weeks of gestation. After delivery, she underwent total abdominal hysterectomy, appendectomy, omentectomy, pelvic and paraaortic lymph node biopsy. Postoperative chemotherapy was started with combination of taxol and carboplatin.

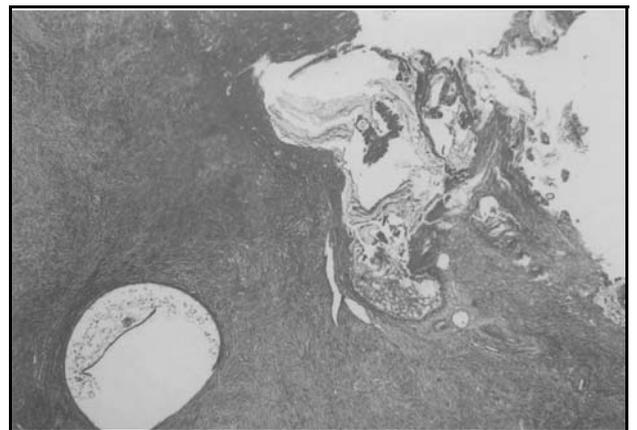


Figure 1. Mucinous cyst adenocarcinoma of the ovary

## Case Report 2

H.K., a 40 years old women, G7P3, was diagnosed to have bilateral ovarian tumors by ultrasonography at her seventh gestational week, on January 11, 2002. On January 17, 2002, at her eight week of gestation, she underwent total abdominal hysterectomy and left salpingo-oophorectomy, splenectomy,

appendectomy, omentectomy and excision of the paraaortic, right obturator, left obturator, right hypogastric, left hypogastric and inguinal lymph nodes. The pathologic report of the ovary was endometrioid carcinoma (Figure 2). Her diagnosis was malignant ovarian tumor of stage I B grade 3. No further operation was performed. She was started on adjuvant chemotherapy with carboplatin and cyclophosphamide combination.

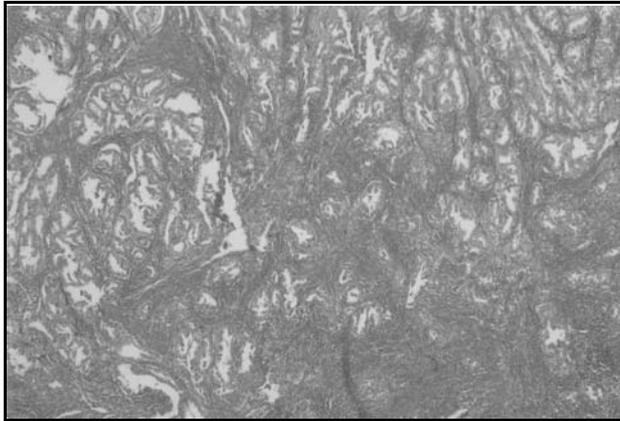


Figure 2. Endometrioid carcinoma of the ovary

## Discussion

The most serious complication of a coexisting ovarian tumor and pregnancy is malignancy, which is a significant possibility in any pregnant patient with an ovarian tumor large enough to require laparotomy. The best outcome for both mother and child depends on early diagnosis and excision of the ovarian tumor.

Many articles in the literature deal with ovarian tumors in pregnancy, but the majority of the papers on ovarian malignancies in pregnancy have described isolated cases only.<sup>5,6</sup> Several authors have reported the incidence and clinical characteristics of ovarian disease during pregnancy. Borderline ovarian tumors make up about 10-15% of all epithelial ovarian tumors.<sup>7</sup> In these reports the frequency of ovarian tumor associated with pregnancy ranges from 1:80 to 1:2200, and for malignant ovarian tumors from 1:805 to 1:52800 deliveries.<sup>8</sup>

There are few studies that have enough cases for thorough discussion. The largest reported series by Novak et al.<sup>9</sup> describes about 60 malignant cases and Dgani et al.<sup>10</sup> describes about 23 cases of ovarian cancer in pregnancy. Munnell reported only three primary ovarian cancers associated with pregnancy, an incidence of 1 in 180006. Chung and Birnbaum found an of one malignant ovarian tumor for 25000 pregnancies. In our hospital, the incidence was in 1 in 15000 (2 in 30000) deliveries. Considering the rarity of such events, more information is needed.

Detection of an ovarian tumor during gestation is difficult and are not rarely encountered especially in the first trimester of pregnancy. Most of the masses, however, are physiologically enlarged ovaries or corpus luteum cysts. The growing uterus interferes with adequate abdominal or pelvic examination. In mucinous cystadenomas with maternal viri-

lization during pregnancy, the stromal cells are responsible for the hormone secretion resemble lutein or leydig cells and have been referred to as luteinized stromal cells.<sup>11</sup> In our cases, one of which was diagnosed in the first trimester of pregnancy and one in the second trimester, all of patients were symptomatic. Early gestation and the puerperium may enable easier diagnosis of the tumors. It is conceivable that lately more ovarian masses in pregnancy are being detected by the routine use of ultrasonography.

There still remain unsolved problems concerning conservative management before and after termination for early-stage ovarian malignancy associated with pregnancy. Therapy depends mostly on the age of gestation and tumor stage. Although surgery for ovarian tumors in pregnancy is delayed until the onset of symptoms, adverse pregnancy outcome is not worsened when compared with that after elective surgery. Conservative management would be used in optimal conditions for pregnant women with ovarian tumors.<sup>12</sup> Conservative surgery is recommended only in stage IA disease. Radical surgery and if necessary adjuvant therapy is recommended during the first trimester. In the third trimester a caesarean section can be followed by radical surgery. In the second trimester this regimen is possible only as an exception which includes a critical maternal risk benefit assessment.

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