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Case Report OMICS International

Stage IC Ovarian Cancer Diagnosed during Pregnancy: Personalized Management and Literature Review

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Introduction

1-4% of pregnant women were diagnosed with an adnexal mass. The most common adnexal masses during pregnancy were the mature cystic teratomas, the endometrioid cysts and the corpus luteum cysts. Ovarian cancer during pregnancy is a rare event. The risk of malignant adnexal tumor diagnosed during pregnancy is 2-3% [1]. Ovarian cancer is reported to be the second most frequent gynecological cancer during pregnancy [2].

The management of women with adnexal mass during pregnancy remained controversial [3]. It is suggested that surgery during pregnancy and histological evaluation is always necessary. A case of a pregnant woman with a large adnexal mass and large amount of ascites that underwent conservative surgery and chemotherapy during pregnancy was presented. The aim was to discuss the therapeutic dilemmas in case of pregnant women with ovarian cancer.

Case Report

A patient of 30-year-old woman, having a history of one miscarriage, was referred to the antenatal clinic at the International Peace Maternity and Child Health Hospital of China Welfare Institute (IPMCH).

At 6 gestation week, endovaginal sagittal images showing a hypovascular anechoic cystic mass (6.5×5.3×4.4 cm) in the left ovary. The patient had a history of 3 cm cystic in the left appendix for more than one year, with normal tumor markers of CA125 and without surgical intervention. Except for the patient's mother has developed breast cancer, there was no remarkable medical problem.

A routine 11 gestation weeks transabdominal ultrasound showing: A 11 weeks single fetus with NT 2.0 mm, with a large complex mass (11.1×9.2×6.6 cm) with many irregular septations with hypervascularity of the septations during color Doppler interrogation in the left appendix. Surgery intervention was advised.

After four weeks, the patient felt abdominal distention and less ingestion. Ultrasound showing: A complex hypervascular mass measuring to 15.4×13.4×8.9 cm, with large amount of ascites (Figure 1). Tumor markers: CA 125 (normal range: <35 U/ml), CA15-3 (normal range: ≤25 U/ml), CA19-9 (normal range: <35 U/ml), CEA (normal range: ≤5.2 μg/L) and AFP (normal range: ≤7.0 μg/L) levels were 550.7 U/ml, 169.2 U/ml, 1000 U/ml, 130.4 μg/L and 48.5 μg/L, respectively.

HE4 level was 126.9 pM (normal range: <150 pM). Magnetic resonance imaging examination on 18+4 weeks revealed a cyst-solidary adnexal lesion (max. diameter 15 cm) and presence of large amount of ascites, without enlarged pelvic lymph nodes.

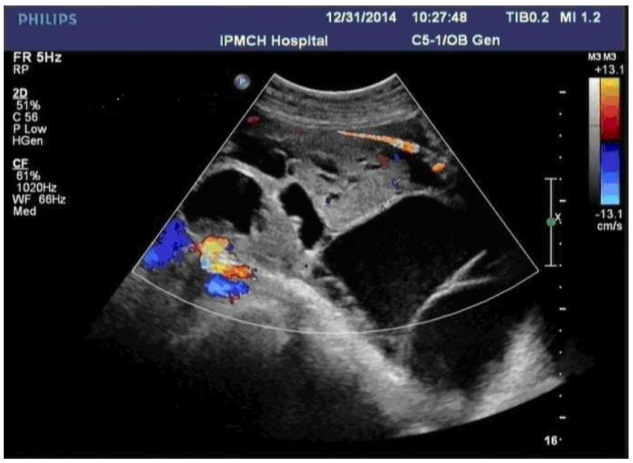

Figure 1: Ultrasonographic image of a complex hypervascular ovarian mass (max. diameter 15.4 cm) with large amount of ascites.

Multidisciplinary counseling was applied: fetal and maternal risks of surgical intervention, prospect of histological diagnosis, potential risks of chemotherapy during pregnancy and after delivery were discussed with the patient and family.

The family ultimately decided to continue pregnancy. Exploratory laparotomy was carried out at 19 weeks gestation. A cystic solid mass was found on left ovary with maximum diameter of 15 cm, as well as 4500 ml of ascetic fluid (Figure 2).

The left adnexa was resected, and ascetic fluid was sent for cytological examination The frozen section diagnosis for ovarian mass showed as "mucinous borderline tumor, suspicious focal mucinous adenocarcinoma". The cytology confirmed the presence of malignant

cells in ascetic fluid. The family refused further intervention after counseling during the surgery.

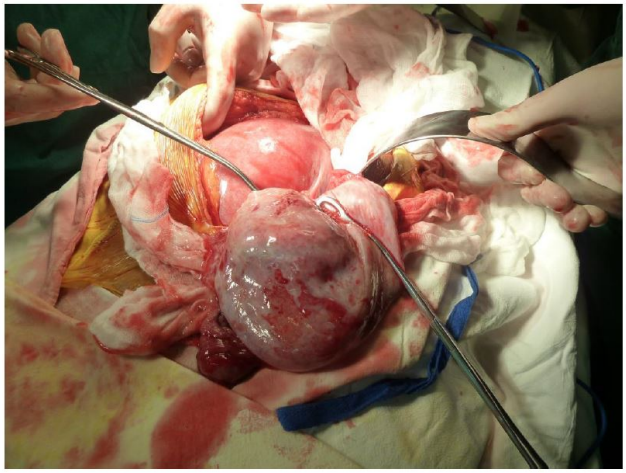

Figure 2: Unilateral ovarian tumor and 19 weeks pregnant uterus.

The patient had an unremarkable postoperative course. Final histological examination showed "mucinous borderline papillary cystadenoma of the left ovary, with local mucinous adenocarcinoma (Figure 3). Informed consent was obtained and chemotherapy with preservation of pregnancy was initiated. The patient received adjuvant chemotherapy with paclitaxel (135 mg/m^2 intravenously on day one every four weeks for 4 cycles) and cisplatin (75 mg/m^2 intravenously on day one every four weeks for 4 cycles). The chemotherapy started from the 7th postoperative day and onwards. The 4th cycles of chemotherapy started at 30+4 weeks gestation. The patient showed good tolerance and no obvious toxicity of chemotherapy. CA125 levels dropped to normal levels (<35 U/ml) following the third course of chemotherapy. Pregnancy proceeded. Malformation screening and serial ultrasound examination for prenatal monitoring revealed normal fetal growth.

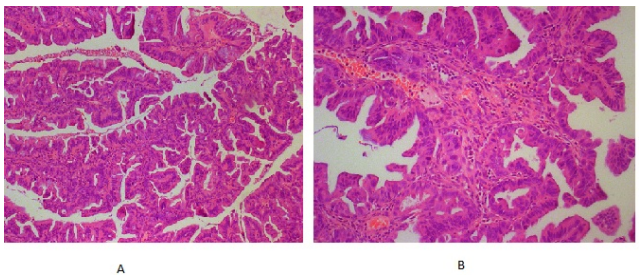

Figure 3: Histological section of ovarian mass showing mucinous boarder line papillary cystadenoma with local mucinous adenocarcinoma (A: H-E ×100) (B: H-E ×200).

Six weeks after the 4th cycle of chemotherapy, cesarean section followed by total hysterectomy, right salpingo-oophorectomy, total omentectomy, appendectomy and pelvic/para-aortic lymphadenectomy were performed at 36+4 weeks gestation. A 2900 gm male healthy infant was born. Apgar scores were 10 and 10 at 1 and 5 min respectively. The gross appearance of placenta was normal at the time of delivery. A cyst mass with maximum diameter of 5 cm was noticed arising from the right ovary. Thorough exploration for organs and lymph nodes in the pelvic or upper abdomen revealed no abnormal. The patient recovered well without postoperative complications. Final histological examination showed "mucinous cystadenoma of the right ovary. The right fallopian tube, uterus omentum and appendix showed no involvement of malignancy. The total 21 removed pelvic/para-aortic lymph nodes were negative for metastasis. The patient was clinically diagnosed as International Federation of Gynecology and Obstetrics (FIGO) stage IC ovarian mucinous adenocarcinoma. The patient had an unremarkable postoperative course, and another four cycles of adjuvant chemotherapy of paclitaxel and cisplatin were received.

Postpartum follow up of the patient was uneventful. The clinical examinations and serum tumor markers CA125 have been within normal limits. The patient is currently without evidence of disease for 13 months. The baby now 14-month-old, is in good health condition and growing normally.

Discussion

We report a rare case of stage IC ovarian mucinous adenocarcinoma during second trimester pregnancy that underwent unilateral salpingo-oophorectomy at 19 weeks followed by chemotherapy. Cesarean section and adequate staging surgery at 36+4 weeks were carried out followed by adjuvant chemotherapy. The aim is to emphasize that the strategy to manage ovarian cancer during pregnancy is individualized. The priority is the prognosis of maternal and fetus, as well as the quality of patient's life.

Ovarian cancer among pregnant women with adnexal masses is a rare event. The incidence ranges from 2.15% to 15.6% [3,4], which increased in older pregnant women [5]. Therefore, there are limited number of researches guiding obstetrician and gynecological oncologist. It is reported that pregnancy has no deleterious effects on the prognosis of ovarian cancer [6]. In contrast, the prognosis for pregnant women with ovarian cancer is generally favorable because of the early diagnosis by serial ultrasound examination for prenatal monitoring [7,8]. Consequently, some reports suggested that pregnancy should be preserved whenever possible and that the prognosis and treatment success depend on the individual patient. This patient is a para 0, 30-year-old young pregnant woman eager to preserve fertility. Stage IC ovarian mucinous adenocarcinoma was diagnosed during the first exploratory laparotomy at 19 weeks gestation. The family refused further intervention but unilateral salpingo-oophorectomy. Fortunately, after 4 cycles of chemotherapy, final histological examination of adequate staging surgery showed mucinous cystadenoma of the right ovary, no involvement of malignancy and none of lymph nodes for metastasis. Up to now, 14-month-follow-up showed satisfactory prognosis of fetus and maternal. It is emphasized that surgical intervention with adequate staging remains the foundation of ovarian cancer treatment, even during pregnancy. However, the decision to perform conservative or radical surgery for pregnant women relies on histology, degree of invasion and metastasis, patient's reproductive history and desire for fertility preservation. Under certain circumstances, the adequate staging of primary surgery is personalized.

It is well known that a persistent asymptomatic adnexal lesion during non-pregnancy deserves exploratory laparoscopy or laparotomy. However, there is no optimal management to adnexal

lesion diagnosed during pregnancy. The significance of tumor markers for diagnose of malignant ovarian tumor during pregnancy is not as satisfactory as non-pregnant period. High levels of CA125 are common during the first trimester and return to normal ranges thereafter. It is suggested that serial measurements of tumor marker CA125 especially combined with ultrasound, increase the sensitivity of ovarian cancer diagnosis [9]. Some studies suggested removal of ovarian mass during pregnancy for three reasons: 1. elimination of a potential dystocia cause, 2. risk of rupture, torsion and hemorrhage and 3. potential risk of malignancy [10,11]. Considering the risk of miscarriages after surgery and the differential diagnosis of Doppler approach, other studies suggested that exploratory laparotomy only for persistent masses with suspicious for malignancy sonographic characteristics [3]. It is suggested that pregnant women with ultrasound of small, simple ovarian cysts, without solid components or vascularization, could undergo conservative management with close follow-up of serial ultrasound. Ovarian cystectomy should be performed at the same time of cesarean section for obstetrical indications. If there is suspicion of malignancy or clinical symptoms, exploratory surgery should be done without hesitation. Emergency surgery is indicated for complications of rupture, torsion and hemorrhage. Except for the situation above, elective surgery is recommended during 16-18 gestational weeks [7].

Conclusion

Ovarian cancer during pregnancy requires individualized management. Pregnancy has no deleterious effects on the prognosis of ovarian cancer. Fertility is suggested to be preserved whenever possible.

Conflict of Interest

All authors declare no conflicts of interest.

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