Case Report

Epithelial Ovarian Cancer in Pregnancy: Report of Two Cases

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Abstract

Ovarian cancer is the second most frequent gynecological cancer complicating pregnancy after cervical carcinoma. In dealing with a pregnant woman with ovarian cancer, the effects of the malignancy on the woman and the fetus should be considered and how pregnancy can make diagnosis and management increasingly challenging. Here we present a report of two cases. In one case a 35-year-old female, para 3 living 3 was incidentally detected to have an ovarian mass during her 3rd large scale climate simulator (LSCS). Intra-operatively, she was found to have cauliflower-like growth in the left ovary and she underwent left oophorectomy elsewhere and in another case a female, 32-year-old, primigravida, presented at 34 weeks and 5 days gestational age with complaints of leaking per vaginum and she subsequently underwent LSCS for failed induction.

Keywords: Chemotherapy, Interval debulking, Pregnancy, Serous cystadenocarcinoma

INTRODUCTION

The incidence of ovarian tumors in pregnancy is approximately 1 in 1000, of which 2-5% tumors are malignant (1 in 12,500-25,000 pregnancies). Ultrasound scanning in pregnancy has lately become a routine. It has led to more frequent findings of the relatively asymptomatic adnexal masses.[1-4] It is difficult to know how best to manage these patients, due to the absence of large prospective randomized trials and cohort studies.[5]

Ovarian cancer is classified according to the histology of the tumor. The diagnostic modalities, clinical treatment, management, and prognosis are based on the histopathological findings. Surface epithelial-stromal tumor is the most common type of ovarian cancer, and they are also known as epithelial ovarian carcinoma.[1] Infertile women are at a very high risk of ovarian cancer as they ovulate more. Smoking, obesity, fertility medications and hormone replacement therapy after menopause are other common risk factors. Hormonal birth control, tubal ligation and breast feeding are few factors that decrease the risk of ovarian cancer.[3] About 10% of cases run in families and approximately 50% of the risk of ovarian cancer is present in individuals with the gene mutations $BRCA_1$ or $BRCA_2$.[4]

CASE REPORTS

Case 1

A 35-year old female from Jharkhand, India, para 3 living 3 was incidentally detected to have an ovarian mass during her 3rd large scale climate simulator (LSCS) done elsewhere for previous 2 LSCS with central placenta previa in December 2008. Intra-operatively she was found to have cauliflower-like growth in the left ovary and underwent left oophorectomy. The histopathology of the surgical specimen was reported as serous papillary cystadenocarcinoma, and she was referred to Christian Medical College and Hospital, Vellore, South India for further management in January 2009.

Serum tumor markers were done and were found to be normal. Her slides were reviewed and was reported as high-grade serous carcinoma, left ovarian mass; no lymphovascular invasion; capsular breach could not be

assessed (Figure 1). Computed tomography (CT)-scan was done and it was reported as normal right ovary, uterus had a small anterior wall fibroid, few nodules were seen in the omentum and lymphadenopathy was seen in the diaphragmatic, para-iliac and para-aortic areas. She was planned for completion staging laparotomy with the diagnosis of carcinoma ovary-improperly staged. Intra-operatively, there was no free fluid in the abdomen, cut surface of the uterus and ovary was normal, there were no palpable nodes and no areas of metastasis elsewhere in the abdominal cavity or pelvis (Figure 2). Her post-operative period was uneventful, and she was discharged on the 7th post-operative day. Her histopathology was reported as borderline serous cystadenoma of the right ovary, with no tumor anywhere else.

She was planned for chemotherapy for 6 cycles and then for hormone replacement therapy. She has received 6 cycles of chemotherapy. She is planned for hormone replacement therapy till 45 years of age and also asked to follow-up regularly.

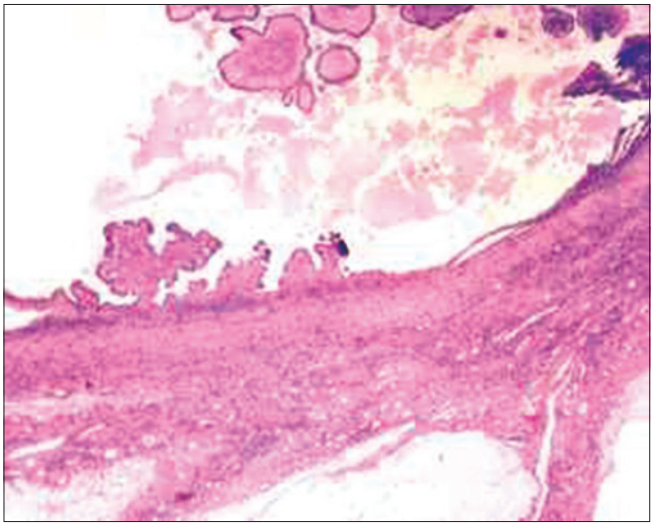

Figure 1: Serous cystadenocarcinoma (H and E, ×5)

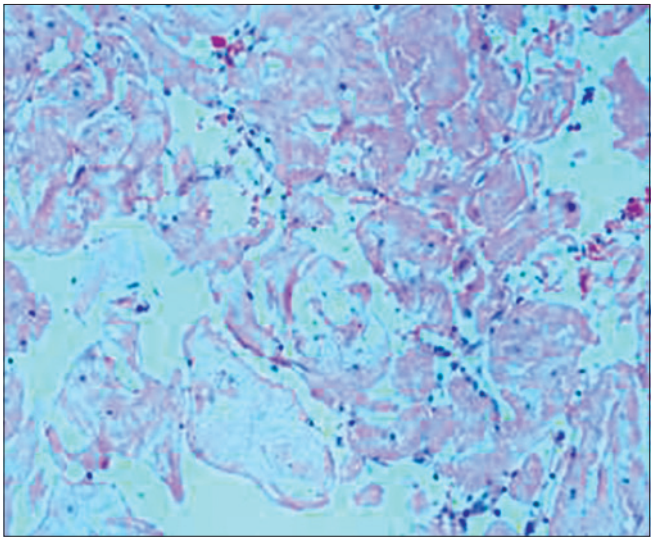

Figure 2: Post-operative changes in the uterus (H and E, ×20)

Case 2

A 32-years-old female, primigravida, from Andhra Pradesh, South India, presented to us in July 2006, at 34 weeks and 5 days gestational age with the complaints of leaking per vaginum for more than 10 h. She had her regular ante-natal check-ups at a hospital in her hometown. She did not have any ante-natal ultrasonograms. She underwent LSCS for failed induction. Intra-operatively, she was found to have bilateral ovarian tumor with metastasis (Féderation Internationale de Gynécologie et d'Obstétrique-Stage III or higher) to uterus, peritoneum and omentum. Bilateral oophorectomy was done, and the biopsy of the surgical specimen was reported as serous papillary carcinoma of both ovaries. She was planned for chemotherapy. She received 6 cycles of platinum-based chemotherapy in 2006. She again presented in 2007 with complaints of abdominal pain and distension. CT scan done at that point of time showed recurrence of disease and she was planned for 3 more cycles of chemotherapy with carboplatin and placitaxel. Subsequently, she underwent interval debulking in May 2008. The surgical specimen was sent for histopathology, and it was reported as omentum with residual microscopic foci of viable adenocarcinoma deposits, uterus and fallopian tubes with no lesion. She was planned for chemotherapy for 3 more cycles.

She was then lost to follow-up. She again presented to us in July 2009 with complaints of abdominal pain and distension. Her serum tumor markers were sent to the laboratory. Ca-125 was elevated. Ultrasonography of the abdomen showed pelvic recurrence with bilateral masses with solid and cystic components measuring 6.3 cm × 3.4 cm on the left side and 4.2 cm × 3.6 cm on the right side; new lesions were seen in the liver; left hydroureteronephrosis was present; and there were multiple omental deposits with minimal ascites.

Poor prognosis was explained to her, and she was planned for 2nd line chemotherapy but due to financial constraints she opted for 3 more cycles of chemotherapy with carboplatin and placitaxel.

DISCUSSION

Primary ovarian carcinoma occurs more commonly in nulliparous women in the latter half of their reproductive life. Women with maternal ovarian cancers are found to be significantly older than those with benign or borderline ovarian tumors.

The distribution of different histologic types of ovarian cancers in pregnant, as well as non-pregnant women, is similar in the corresponding reproductive-age group.[2] In premenopausal women, the occurrence and detection of epithelial ovarian cancer are <20%. However, the detection of adnexal masses in pregnant women is relatively common lately as ultrasound monitoring is routinely used during pregnancy.[1-3]

Ovarian cysts that are unilateral, <5 cm in diameter and usually detected in the first trimester are often functional in nature. Surgical intervention is required in the case of an adnexal mass exceeding 6 cm in diameter with complex structure or ascites or persisting beyond 16 gestational weeks to obtain a final histologic diagnosis and rule out malignancy.[6] Elective surgery for tumors with low suspicion of malignancy should be delayed until the second trimester (17-19 weeks of gestation) so that the risk of spontaneous abortion is considerably reduced and also to watch for spontaneous resolution of functional cysts as seen in a vast majority of cases.[7]

The spontaneous abortion rate after surgery in the first trimester is documented as 10%. 76.3% patients continued with their pregnancy and subsequently delivered at term.[8] Hysterectomy during pregnancy is rarely indicated, unless it significantly contributes to improving the prognosis of the patient and if wide tumor debulking is performed due to extensive disease.[4]

There are reports about the rapid growth and recurrence of ovarian germ cell tumors during pregnancy.[4] Surgery followed by chemotherapy gave satisfactory results in most of these reported cases. Mooney *et al.*[9] described multiple areas of microinvasion in eight of 10 reported serous tumors diagnosed during pregnancy. However, termination of the pregnancy remarkably improved their prognosis and all the ten cases got regression of the aggressive features. Poor prognostic factors include advanced stage of disease and special histologic type, especially invasive epithelial cancer.[10]

Invasive epithelial cancer has the worst prognosis in all types of ovarian cancers. For these type of cancers, timely cyto-reductive surgeries followed by post-operative adjuvant chemotherapy is indicated, except for well-differentiated stage IA tumours.[11] Chemotherapy is generally contraindicated during the first trimester of pregnancy because of the high rate of abortion[12] and abnormal fetal development. However, in the second or third trimester of pregnancy chemotherapy can be comparatively safely administered as the risk of congenital malformation for the fetus is very low.[7]

The non-teratogenic effects of chemotherapy such as intrauterine growth restriction (low birth weight) or effects on the central nervous system as it develops throughout pregnancy should always be considered.[7] Until now, no studies have evaluated the long-term consequences for children exposed to intrauterine chemotherapy. Breastfeeding during cytotoxic chemotherapy should be avoided.[13] There is no convincing evidence that multi-agent chemotherapeutic regimens have a significant increase in congenital malformations of the fetus opposed to single cytotoxic agent.[14] There are numerous reports in the literature of bleomycin, cisplatin and etoposide used in pregnancy with no untoward effects on the foetus.[13]

Several reported cases in the literature have described the use of adjuvant chemotherapy with good response using cisplatin and cyclophosphamide initiated in the second trimester of pregnancy and subsequent delivery of healthy foetus.[13] Few case also reports describe the administration of a combination of paclitaxel and carboplatin during the second or third trimester of pregnancy with no significant fetal toxicity.[15]

CONCLUSION

Most of the patients are clinically asymptomatic at the time of presentation. Early detection and timely management hold the key to a better prognosis. The widespread use of routine prenatal ultrasound and the incidental finding of an adnexal mass in pregnancy has become an increasingly common occurrence lately. Prognosis and quality of the patient's life should be given primary importance, and pregnancy should be terminated if required.

REFERENCES

1. Sayedur Rahman M, Al-Sibai MH, Rahman J, Al-Suleiman SA, El-Yahia AR, Al-Mulhim AA, *et al.* Ovarian carcinoma associated with pregnancy. A review of 9 cases. Acta Obstet Gynecol Scand 2002;81:260-4.
2. Oehler MK, Wain GV, Brand A. Gynaecological malignancies in pregnancy: A review. Aust N Z J Obstet Gynaecol 2003;43:414-20.
3. Zhao XY, Huang HF, Lian LJ, Lang JH. Ovarian cancer in pregnancy: A clinicopathologic analysis of 22 cases and review of the literature. Int J Gynecol Cancer 2006;16:8-15.
4. Zanotti KM, Belinson JL, Kennedy AW. Treatment of gynecologic cancers in pregnancy. Semin Oncol 2000;27:686-98.
5. Goff BA, Paley PJ, Koh WJ. Cancer in the pregnant patient. In: Hoskins WJ, Perez CA, Young RC, editors. Principles and Practice of Gynecologic Oncology. 3rd ed. Philadelphia: Lippincott Williams & Wilkins; 2000. p. 501-28.
6. Dudkiewicz J, Kowalski T, Grzonka D, Czarnecki M. [Ovarian tumors in pregnancy]. Ginekol Pol 2002;73:342-5.
7. Zemlickis D, Lishner M, Degendorfer P, Panzarella T, Sutcliffe SB, Koren G. Fetal outcome after in utero exposure to cancer chemotherapy. Arch Intern Med 1992;152:573-6.
8. Tewari K, Cappuccini F, Disaia PJ, Berman ML, Manetta A, Kohler MF. Malignant germ cell tumors of the ovary. Obstet Gynecol 2000;95:128-33.
9. Mooney J, Silva E, Tornos C, Gershenson D. Unusual features of serous neoplasms of low malignant potential during pregnancy. Gynecol Oncol 1997;65:30-5.

10. Agarwal N, Kriplani A, Bhatla N, Gupta A. Management and outcome of pregnancies complicated with adnexal masses. Arch Gynecol Obstet 2003;267:148-52.
11. Ueda M, Ueki M. Ovarian tumors associated with pregnancy. Int J Gynaecol Obstet 1996;55:59-65.
12. Karlen JR, Akbari A, Cook WA. Dysgerminoma associated with pregnancy. Obstet Gynecol 1979;53:330-5.
13. Karimi Zarchi M, Behtash N, Modares Gilani M. Good pregnancy outcome after prenatal exposure to bleomycin, etoposide and cisplatin for ovarian immature teratoma: A case report and literature review. Arch Gynecol Obstet 2008;277:75-8.
14. Doll DC, Ringenberg QS, Yarbro JW. Antineoplastic agents and pregnancy. Semin Oncol 1989;16:337-46.
15. Sood AK, Shahin MS, Sorosky JI. Paclitaxel and platinum chemotherapy for ovarian carcinoma during pregnancy. Gynecol Oncol 2001;83: 599-600.

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