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Case Report
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Newly Diagnosed High-Grade Ovarian Carcinoma During Pregnancy

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Abstract

Ovarian cancer during pregnancy is rare but presents significant diagnostic and management challenges. Adnexal masses are detected in 0.15–5.7% of pregnancies, with only a small fraction being malignant. Risk factors such as BRCA1 and BRCA2 mutations significantly increase the likelihood of developing ovarian cancer. Early-stage ovarian cancer is often asymptomatic, and most cases are diagnosed at advanced stages, leading to poor prognosis. Screening methods are inadequate, and timely diagnosis remains challenging. We present a case of a 27-week pregnant woman diagnosed with late-stage high-grade ovarian carcinoma. Despite pregnancy often facilitating early incidental detection of adnexal masses, this case underscores the importance of vigilance and multidisciplinary management in rare presentations of advanced ovarian malignancy during gestation.

Keywords: Ovarian Cancer, Pregnancy, Adnexal Mass, High-grade Carcinoma, BRCA mutation, Late-stage Diagnosis, Case Report.

Introduction

Adnexal masses during pregnancy are found in 0.15–5.7% of cases, with only a minority being malignant. Ovarian cancer is one of the leading causes of death among women with gynaecological cancers [1]. Many risk factors can lead to ovarian cancer, including BRCA1 and BRCA2 mutations. Women with BRCA1 mutations have a 39–65% risk of developing ovarian cancer, while those with BRCA2 mutations have an 11–37% risk.

The early stages of ovarian cancer are typically asymptomatic, followed by non-specific symptoms, making timely diagnosis difficult [2]. Most cases are detected at stage III or IV, when the disease has already spread throughout the body. Unfortunately, there are no adequate screening tests for ovarian cancer [3,4]. The prognosis for epithelial ovarian cancer is better if diagnosed early. The five-year survival rate for localised epithelial ovarian cancer is over 90%, but for distant-stage disease, it is about 30%. During pregnancy, the majority of ovarian cancers are diagnosed at early stages when the disease is more localised, as many adnexal masses are incidental findings during ultrasound screening [5]. This is a case of a pregnant woman with late-stage high-grade ovarian carcinoma diagnosed at 27 weeks of gestation.

Case Report

A 37-year-old patient, in her first pregnancy, at 27 weeks' gestation, was urgently hospitalised with complaints of increased abdominal size, diffuse abdominal pain, and leg swelling for approximately two weeks. An ultrasound was performed, which showed a progressing pregnancy, ascites, polyhydramnios, and a massive multilocular tumour—an ovarian neoplasm measuring 7 × 15 × 18 cm (Figure 1.). No fetal anomalies were detected on ultrasound examination. Tumour markers were elevated: CA125 – 9891.2 U/ml, CA19-9 – 1446.6 U/ml.

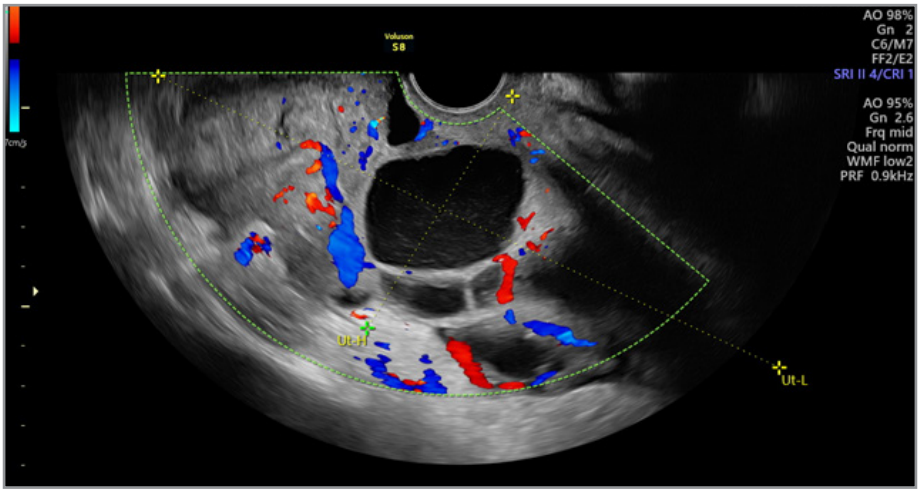

Figure 1: Ultrasound finding - a massive, multilocular tumor - ovarian neoplasm 7x15x18cm.

Afterwards, abdominal and pelvic magnetic resonance imaging (MRI) was performed, revealing massive ascites, peritoneal and omental dissemination, and tumorous changes in the pelvis originating from the ovaries. Chest computed tomography (CT) identified bilateral hydrothorax and a possible spread of the malignant process to the pleura (Figure 2.). Paracentesis and thoracocentesis were performed, revealing a metastatic process.

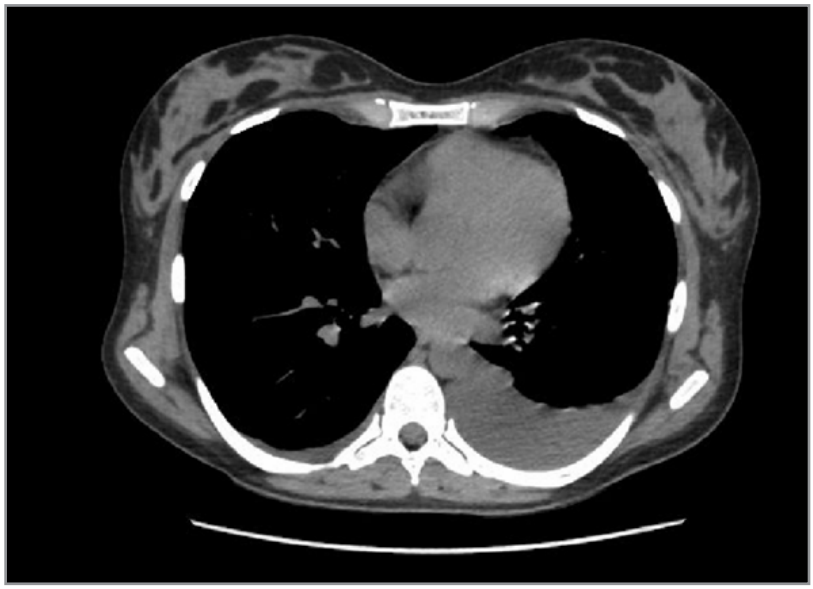

Figure 2: Chest computed tomography - bilateral hydrothorax and a possible spread of the malignant process to the pleura.

A diagnosis of stage IV ovarian carcinoma with peritoneal and omental dissemination was made, and chemotherapy with paclitaxel and carboplatin was initiated at 29 weeks of gestation. After the first chemotherapy cycle, spontaneous preterm labour occurred at 32 weeks of gestation, resulting in the birth of a girl with a weight of 1640 g and an Apgar score of 7/8. Complications such as retained placenta and uterine atony were observed. Haemotransfusion, as well as manual and instrumental extraction of the placenta, were performed. Thirteen days after childbirth, chemotherapy was continued. The patient received seven cycles of chemotherapy and one cycle of targeted therapy with bevacizumab. CT scan and tumour markers showed positive dynamics during treatment. Five months after the start of chemotherapy, cytoreductive surgery—total hysterectomy with bilateral adnexectomy, peritonectomy, omentectomy, and appendicectomy—was performed. A final diagnosis of high-grade serous carcinoma of the ovary, stage IVA (pT3c N0M1), was made. Adjuvant chemotherapy with paclitaxel and carboplatin and targeted therapy with bevacizumab were initiated. The patient underwent genetic testing, and a BRCA2 mutation was found. Subsequently, targeted therapy with olaparib was initiated.

Discussion

According to GLOBOCAN, 324,398 new cases of ovarian cancer were diagnosed in 2022, with the second-highest mortality rate among gynecological cancers. The Surveillance, Epidemiology, and End Results (SEER) programme reports that only 20% are diagnosed at the local stage, while 55% are diagnosed at advanced stages, when distant metastasis has already occurred [6].

Ovarian cancer is a rare finding in pregnancy. It is the fifth most common cancer diagnosed during pregnancy. This case is unique

in several aspects, such as the young age of the patient and the advanced stage of the disease [7]. Ovarian cancer is more common in older women and is associated with a worse prognosis, as these patients do not receive treatment as aggressive as that given to younger patients [8]. The highest incidence of ovarian cancer occurs between the ages of 50 and 80.

Most ovarian cancers are diagnosed at early stages during pregnancy because, after a positive pregnancy test, women visit a gynecologist who performs an ultrasound and visualizes not only the progression of pregnancy but also gynecological pathologies, such as adnexal masses [9].

Imaging studies are essential to diagnose the cause of the complaints presented by this patient. Pelvic ultrasound is the primary and most readily available diagnostic tool. If ultrasound reveals suspicious changes, MRI of the abdomen and pelvis should be performed for further evaluation. These imaging studies do not involve ionising radiation and are not harmful to the fetus. We also performed a chest CT to assess possible spread of the malignant process [10]. A low-dose chest CT scan is permitted if indicated, and the risk of childhood cancer is low. In this case, it was important to interpret the results of this investigation for appropriate further management of the disease. We also measured tumour markers [11]. In the first trimester, CA125 may be increased, but in this case the patient had a significant elevation in tumour markers, such as CA125 and CA19-9, which indicated a pathological process [12].

When the diagnosis of ovarian cancer is confirmed, it is important to start treatment immediately. Cytoreductive surgery is not recommended during pregnancy; however, according to the European Society for Medical Oncology (ESMO), it is permissible to begin systemic treatment with standard therapy Carboplatin and Paclitaxel in the second and third trimesters without terminating the pregnancy, as the risk of congenital diseases is lower when treatment is initiated after the first trimester. However, the initiation of chemotherapy is associated with premature labour, as observed in our case. It is important to note that the baby has normal cognitive abilities and physical development [13].

This is not the first oncological disease in the patient's family history. From the patient's account, we learned that her mother had uterine cancer, and her grandmother also had an oncological disease of unknown origin. In cases of ovarian cancer, genetic testing plays a significant role in further management. As one of the risks for ovarian cancer is a mutation in the BRCA gene, it is important to determine the mutation status.2 If a patient has a BRCA1 or BRCA2 mutation, it is recommended to continue treatment with targeted therapy, such as PARP inhibitors, as was done for our patient. PARP inhibitors are a significant treatment option for patients with BRCA mutations because they lead to substantial improvement in progression-free survival and overall survival.

It is important to note that such patients should be treated in tertiary care centers where advanced management with a multidisciplinary approach is possible [14, 15].

Conclusion

Ovarian cancer is a challenging diagnosis in gynecology, particularly during pregnancy and in advanced stages. A multidisciplinary approach and timely management for pregnant women are very important. Examination of the ovaries during prenatal ultrasound screening is essential.

Conflicts of Interest

The authors have no conflicts of interest to declare.

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