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Ovarian endometrioid adenocarcinoma diagnosed in pregnancy: a case report

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Summary

The prevalence of adnexal masses pregnancy is about 0.19-8.8%. The malignancy rate is around 1-6%, and indeed most cases are benign masses. During pregnancy adnexal masses should be accurately evaluated to identify the patients who need surgery from those who need a 'wait-and-see' strategy. The authors report a case of 36-year-old woman (gravida 2, para 2, two vaginal deliveries) referred to the Gynecologic Department with diagnosis of endometrioid ovarian adenocarcinoma. The patient underwent laparotomic surgery with left salpingo-oophorectomy, total hysterectomy, pelvic and para-aortic lymphadenectomy, and peritoneal washing for optimal surgery staging. No ascites or residual tumour in the abdominal cavity were found macroscopically. Histopathology was negative for residual ovarian cancer. Currently the treatment and the management of ovarian cancer are not well established because scientific evidence is limited.

Key works: Pregnancy; Ovarian adenocarcinoma; Endometrioid adenocarcinoma.

Introduction

The incidence of cancer during pregnancy is estimated to be 0.05-0.1 %. [1] The most common malignancies, in order of frequency, are breast cancer, leukemia, lymphomas, melanoma, gynaecologic cancers as ovarian cancer and cervical carcinoma, and bone tumours. The diagnosis of ovarian cysts or masses since the introduction of routine obstetric ultrasound examination has become more frequent than before [2]. The vast majority of these adnexal masses are benign. The malignancy rate is about 1-6% [3]. During pregnancy, adnexal masses should be accurately evaluated to identify the patients who need surgery from those who need a 'wait-and-see' strategy [2]. The treatment of ovarian cancer are not well defined because in literature scientific evidence is limited, so the management during pregnancy should be discussed in each patient and a multidisciplinary approach is necessary [4, 5].

Case Report

The authors report a case of 36-year-old woman (gravida 2, para 2, two vaginal deliveries) referred to the Gynecologic Department with diagnosis of endometrioid ovarian adenocarcinoma. Her last delivery was two month ago. Before pregnancy, in first and second trimester of pregnancy ultrasounds were negative. During the third trimester, an ultrasound showed a multilocular right ovarian cyst that was 15 cm in diameter. She had a vaginal delivery without complications. One month after delivery, she was hospitalized for a surgical operation. She underwent laparoscopy with right salpingo-oophorectomy, peritoneal biopsies, omentectomy, and appendectomy. Histopathology revealed endometrioid adenocarcinoma of the right ovary. Omentum, appendix, and peritoneal tissue were free of tumor. After diagnosis, the patient arrived at the Gynecological Outpatient Clinic. She had familiarity for breast cancer: her maternal grandmother had breast cancer in pre-menopausal age. In the present department, she had been subjected to a genetic counseling and BRCA1-2 genetic testing, which showed a negative BRCA1-2 mutation. Total body computed tomography highlighted two small pulmonary nodules, which were PET-negative. Neoplastic markers (CEA, CA 15.3, CA125, CA19,9, BhCG and alpha-fetoprotein) were negative. The patient underwent laparotomic surgery with left salpingo-oophorectomy, total hysterectomy, pelvic and para-aortic lymphadenectomy, and peritoneal washing for optimal surgery staging. No ascites or residual tumour in the abdominal cavity were found macroscopically. Histopathology was negative for residual ovarian cancer. The patient is now being followed by the oncology department with no evidence of disease.

Discussion

Most of the diagnosis of adnexal masses in pregnancy is an incidental finding of routine ultrasound during the first trimester and the incidence rate decreases with increasing gestational age (1st trimester 21.4-75.7%), 2nd trimester 10.9-44.4%, 3rd trimester 4-22%, postpartum 0-7.1%) [6-8]. About 90% of such lesions revealed during the first trimester will disappear spontaneously; the risk of malignancy for the ovarian masses is only 2-5% [3, 4]. Frequently pregnancy-associated ovarian masses are benign or functional cysts as corpus luteum, theca lutein cyst or endometroid cysts [8]. Most of these can resolve after the first 14-16 weeks of gestation but some, like the theca lutein

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cysts, can remain after delivery. The more considerable elements for persistence are largest diameter of 5 cm and the morphostructural features of mass. Also with advancing pregnancy, the persistence of a lesions, associated with the increase in size of the uterus, can lead to mass incarceration with impossibility of a correct positioning of the presenting fetal part [8]. Furthermore endometriomas can appear different during pregnancy because of decidualized walls correlated to high levels of progesterone [4]. Conversely during pregnancy, the incidence of ovarian cancer is 1:10,000 and 1:50,000 pregnancies and the frequency of epithelial ovarian cancer (EOC) is about 1:1,000 live births [4 ,5]. Borderline ovarian cancer are estimated to be around over 50% of malignant tumors [8, 9]. Before the introduction of obstetrical ultrasound or MRI into clinical practice, the adnexal masses during pregnancy were mainly diagnosed by physical examination when women presented abdominal/pelvic pains or in presence of a palpable mass [3]. However during pregnancy, the majority of patients presented unspecific symptoms that were common in normal pregnant patients, such as abdominal distension or pain, urinary frequency, and food intolerance. Furthermore the increase of tumour markers are often associated with the normal physiologic changes in pregnancy and in presence of obstetric complications as preeclampsia or HELLP [2]. Clinical approach must aim at the evaluation of the mass characteristics, the risk of malignancy, and possible complications [8]. Ultrasonography is considered to be the first choice diagnostic tool in order to identify and to differentiate between benign and malignant masses or to stratify the risk of malignancy using elements such as tumour size, morphology and color Doppler. The International Ovarian Tumor Analysis (IOTA) studies are determined to develop rules and models to characterize ovarian pathology. Also several studies show that the ultrasonographic findings of the adnexal masses can be useful to establish which women have an increased risk for malignancy versus those who can be followed up expectantly [2, 10, 11]. Other elements that guide to a malignant mass include a growth rate greater than 0.35 cm/week [8]. The most common features associated with an increased risk for malignancy are the presence of solid and multiloculated areas, internal septa, papillary projections, bilateral masses, exuberant blood flow, and ascites. However, after 20 weeks of gestation with the increased size of uterus, the diagnostic capability of ultrasound evaluation is reduced [2, 8]. In presence of suspicion of a malignant mass, an abdominal ultrasound may additionally help to identify metastatic lesions; in case of diagnostic and clinical uncertainty, MRI can be safely be used in addition after 12 weeks of gestation [4]. MRI is especially useful in cases of malignant tumor for evaluation of retroperitoneum, lymph nodes and abdominal cavity [8]. A CT scan should be utilized after 15 weeks of gestation in selected patients considering potential risks of fetal irradiation and benefits. PET-TC is not recommended [4,8]. Tumor markers as CA 125, CEA, CA 19.9, LDH, HE4, alpha-fetoprotein, and BhCG should be used with caution during pregnancy, because they can be physiologically altered in some stages of pregnancy or in presence of fetal and placental anomalies [8]. CA 125 is produced by decidua and amnion cells and it is can be physiologically increased during the first trimester of pregnancy up to 65 U/ml; it typically returns to normal values within or after 15 weeks of gestation [2]. This tumor marker is not really helpful during pregnancy, but serial measurements can be useful postoperative follow-up. The scientific evidence regarding a definite management of ovarian cancer in pregnancy are limited to small case reports or case series; for this reason it has not yet been established. The diagnosis and treatment strategies are not well established, but maternal and fetal outcome need to be respected.The key factors to define an individual treatment strategy for each case include gestational age at diagnosis, FIGO stage, patient's preferences, and the possibility of initial surgical procedure [3, 4]. Considering the possible consequences to the health of mother and fetus, three main options should be analyzed. The first approach is to wait for the end of pregnancy and then begin a standard treatment. A second scenario is to wait for the surgical investigation until complete fetal maturity of lung. The third approach is to begin neoadjuvant chemotherapy during pregnancy, until fetal lung maturity is reached. Few studies have reported the use of platinum/paclitaxel chemotherapy in advanced ovarian cancer and these suggested no toxicity and physiological growth and development of the infants [5]. Although knowledge about the toxicity of chemotherapy during pregnancy is limited, platinum and taxanes seem safe if they are given after 14 weeks of gestation [3]. In the literature, the safety of surgical practices ad general procedures during pregnancy are confirmed. Already in 1963 Munndell had proposed the importance of removing an ovarian mass during pregnancy on the basis of three indications: elimination of a potential cause of dystocia, risk of torsion, rupture, or hemorrhage, and danger of malignancy [3]. The surgery for staging ovarian cancer involves a bilateral salpingo-oophorectomy, total hysterectomy, pelvic and para-aortic lymphadenectomy, and omentectomy. Several studies suggested that the primary surgery at diagnosis includes 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 [3]. Treatment should be discussed individually and the clinical management to decide conservative or radical surgery depends on patient's age, desire for fertility preservation, and the extension of tumor. To continue the pregnancy, chemotherapy is used to prevent the diffusion of malignant cells and to kill remaining cells. In case of critical medical conditions, it is necessary to proceed with urgency and in presence of complications, such as torsion or rupture, emer-

gency laparoscopy or laparotomy is indicated. During the management of patients with pelvic mass in pregnancy, and above all in the case of suspected malignancy, a general assessment of maternal-fetal health and of birth timing is recommended, while considering short- and long-term complications of prematurity, before establishing the gestational age for delivery [3].

Conclusion

During pregnancy the diagnosis of adnexal mass has become more common after the introduction of routine obstetrical ultrasound. For this reason the evaluation of the ovaries, mostly in the first trimester, should be part of pregnancy ultrasound protocols in order to achieve early diagnosis of ovarian cancer and to improve the clinical approach of ovarian tumors. In literature, scientific evidence on the clinical management and the course of treatment of ovarian malignancies in pregnancy is limited, based on few case reports or retrospective series and they are not well defined. The decision-making process, including chemotherapeutic and surgical options, to establish the best strategy should be discussed in each individual case. According to the tumour diameter, gestational age and surgical expertise open surgery and laparoscopy can be considered. Chemotherapy with platinum/taxanes could be safe after 14 weeks of gestation. In conclusion, in the presence of a pelvic mass in pregnancy, and especially in case of suspicion of malignancy, a multi-disciplinary team discussion and specific approach for each patient are recommended for better clinical management.

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