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Successful term delivery following second-trimester excision of a massive hydrosalpinx presenting as an adnexal mass in pregnancy: management and considerations

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Summary

To the best of the authors' knowledge, a massive hydrosalpinx presenting as an adnexal mass complicating pregnancy has never been reported. They report the case of a 26-year-old female diagnosed with a persistent right adnexal cyst in a pregnancy resulting from spontaneous conception, confirmed to be a 30-cm. hydrosalpinx at the time of surgery. Though laparoscopy was envisioned, due to the size of the mass, a right salpingectomy was performed during the second trimester by laparotomy, and the patient had an uncomplicated course of her pregnancy following the intervention, delivering a healthy infant at term. Herein, the authors explore the potential etiologies and different considerations when faced with an adnexal mass in pregnancy. They emphasize that, though rare and uncommon, a hydrosalpinx should be included in the differential diagnosis of persistent adnexal cysts in pregnancy.

Key words: Adnexal mass in pregnancy; Persistent ovarian cyst; Hydrosalpinx; Laparoscopy; Surgery in pregnancy.

Introduction

A hydrosalpinx is characterized by a dilated fallopian tube filled with serous or clear fluid, leading to tubal occlusion. This finding is a direct consequence of infectious salpingitis, and is often associated with tubal disease and tubal factor infertility. A hydrosalpinx is a well-known cause of a persistent adnexal mass.

Case Report

A 26-year-old woman, gravida 1, para 0 following spontaneous conception, was referred to the present tertiary care institution at 13 weeks' gestation because of sonographic evidence of a 25-cm right ovarian cyst. The adnexal mass was diagnosed at 11 weeks of gestation during an initial screening ultrasonography for measurement of nuchal translucency. The patient was completely asymptomatic, and physical exam was unremarkable except for an increased abdominal girth, which was inconsistent with her gestational age. On physical examination, the mass was non-tender, non-mobile, and easily palpable, reaching the abdominal upper right quadrant near the epigastrium.

Repeat transabdominal ultrasound in the present antenatal imaging center at 13 and 15 weeks revealed a right ovarian cyst measuring 24-cm in its longest axis. A viable intrauterine singleton pregnancy was confirmed at that time. The patient was counseled that the size and the persistence of the ovarian cyst through the second trimester warranted surgical exploration and intervention, to prevent gestational complications, as well as to obtain a pathologic diagnosis which may alter the management of her pregnancy.

Though given the trimester in question, the option of laparoscopic excision was envisioned, the size of the mass in question precluded this approach. Laparotomy was performed at 17 weeks' gestation. With the patient under general anesthesia, a midline vertical incision was undertaken. Pelvic washings were collected and the entire abdomen and pelvis were explored. No ascites or suspicious lesions were identified. Given the localization of the cyst, a right ovarian-sparing salpingectomy via laparotomy was performed with no complications. The right adnexal cyst was found to be a large hydrosalpinx, measuring 25-cm in diameter. The right ovary and the left adnexa were inspected and determined to be disease-free. The final pathologic report confirmed the diagnosis of right hydrosalpinx, the mass weighing 2,437 g and measuring 30 x 26 x 10 cm. The patient received perioperative prophylactic indomethacin. She developed no fever, no preterm premature rupture of membranes, and no preterm labor along the course of her pregnancy.

At 41 weeks of gestation, she was admitted to the present labor and delivery unit in spontaneous, active labor. She had an uncomplicated vaginal delivery of a 3,990-g female infant with APGAR scores of 9 - 9 - 9 at one, five, and ten minutes of life, respectively.

Discussion

Adnexal masses during pregnancy are a rare occurrence. Observational studies evaluating adnexal pathology during pregnancy estimate a 1% - 4% incidence of sonographically detectable adnexal masses, with the majority of masses resolving spontaneously with increasing gestational age [1].

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Given that the overwhelming majority of adnexal masses in pregnancy are benign and a good percentage will spontaneously resolve, an appropriate option for management of adnexal pathology in pregnancy is serial observation with ultrasound performed each trimester [1-3]. However, the active management of large, persistent, or complex adnexal masses is often warranted and may even require surgical intervention in the second trimester, where the risks of both first-trimester loss and preterm labor can be avoided. This approach is indicated for two major reasons. First, dangers of obstetrical and surgical complications from the adnexal pathology such as torsion, rupture, hemorrhage, ascites, among others, may complicate the course of the pregnancy, and jeopardize both the maternal and fetal stability. Secondly, given the size and often-complex appearance of these cysts, the suspicion of malignancy is raised, in which case further evaluation would be indicated. Indeed, the incidence of malignant tumors in pregnant patients with adnexal masses is reported to be between 1% to 6% [4]. With the increasing use of routine obstetrical ultrasonography, a more conservative approach has been proposed as a potential option [5]. A study comparing diagnostic imaging to surgico-pathological analysis showed that diagnostic ultrasonography was able to correctly identify 95% of dermoid tumors, 80% of endometriomas, and 71% of simple cysts based solely on their sonographic appearance [6]. Moreover, MRI can be helpful in differentiating leiomyomas and complex cysts [7]. According to several reviews, the best predictors of persistence of the masses are ultrasound appearance (complex cyst, septations) and size [5, 8]. The Risk Malignancy Index (RMI) [9], an algorithm utilized to determine the suspicion of adnexal malignancy, takes into account the maternal menopausal status, the serum level of CA-125, as well as the sonographic appearance of the mass in question. Though limited by the screening inaccuracy of CA-125 markers during the gestational period, and more generally due to its poor specificity in the premenopausal patient, the RMI can guide further management based on ultrasound findings. Characteristic sonographic findings that warrant further investigation include multilocular cysts, the presence of solid areas, metastases, ascites, and bilateral lesions [9].

The most common ovarian neoplasms associated with pregnancy are mature cystic teratomas and benign cystadenomas. Less frequently encountered tumors are functional cysts, endometriomas, paraovarian cysts, leiomyomas, malignant neoplasms, and others. Women diagnosed with ovarian malignancy during pregnancy are typically diagnosed with early stage disease making them ideal candidates for fertility sparing surgery. The present patient had sonographic appearance of a simple cyst with two thin septations, compatible with a benign ovarian cystadenoma. Because of its 25-cm size, surgical exploration by laparotomy was indicated. A large hydrosalpinx was found and a right salpingectomy was performed. This is, to the best of the authors' knowledge, the first reported massive hydrosalpinx presenting as a persistent adnexal mass in pregnancy.

Hydrosalpinx is known to reduce fertility and impair IVF outcome. Though the reason is unclear, salpingectomy is effective in improving birth rates after IVF. It is theorized that embryotoxic properties of the hydrosalpinx fluid may be detrimental to the growth of the embryo and fetus, so that in its absence, normal embryonic development and placentation can occur [10]. This is mainly true when hydrosalpinx is bilateral and visible by ultrasonography.

It is essential to keep in mind that a hydrosalpinx may be unilateral, with sonographic appearance of a simple ovarian cysts or cystadenomas. Despite its association with infertility, a hydrosalpinx may be co-existing with an intrauterine viable pregnancy. Therefore, it should be considered in the differential diagnosis of persistent adnexal cysts complicating pregnancy. The present authors emphasize that because complications of abdominal surgery are increased in pregnancy, surgical management of adnexal masses in pregnancy, including hydrosalpinx, may need to be evaluated on a case-by-case basis.

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