Ultrasound Obstet Gynecol 2004; **24**: 578–580
Published online in Wiley InterScience (www.interscience.wiley.com). **DOI:** 10.1002/uog.1736

Sonographic features of decidualized ovarian endometriosis suspicious for malignancy

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KEYWORDS: decidualization; endometriosis; transvaginal ultrasound

ABSTRACT

The discovery of an ovarian mass during pregnancy is often a difficult issue because of the risk related to surgical intervention during pregnancy. Moreover, ultrasound examination is often unable to provide a definitive diagnosis. A case of decidualized ovarian endometriosis is presented to highlight the challenges in this diagnosis. We report the transvaginal ultrasound findings, including color Doppler examination, magnetic resonance characteristics and tumor marker longitudinal evaluation during the first trimester of pregnancy, as well as the final histological characteristics of the lesion. Decidualization is a rare occurrence in ovarian endometriosis and must be differentiated from malignant transformation. Copyright © 2004 ISUOG. Published by John Wiley & Sons, Ltd.

INTRODUCTION

The detection of ovarian cysts during pregnancy has increased during the last decade due to the introduction of routine transvaginal ultrasound examination in the first trimester of pregnancy. As a consequence, ovarian tumors are more frequently found in early pregnancy, but the incidence of ovarian cancer remains low with an overall malignancy rate of 1 in 5000–18 000 live births[1].

Transvaginal ultrasound examination, with a diagnostic accuracy of 89–92%[2], is primarily the technique of choice in the study of ovarian masses. During pregnancy it plays an important role in the diagnosis of adnexal lesions and in the subsequent choice of treatment. It is fundamental in the follow-up of patients undergoing conservative management.

Intracystic papillary excrescences which are vascularized on color Doppler examination are a sonographic feature associated with malignancy[3]. In this paper we describe a case of a pregnant woman with bilateral ovarian cysts exhibiting ultrasound and color Doppler characteristics suspicious for malignancy. She underwent surgical treatment at 18 weeks' gestation and had a final pathological diagnosis of decidualized ovarian endometriosis.

CASE REPORT

A 39-year-old primigravid woman, was referred to our gynecological oncology ultrasound clinic at the Catholic University of Rome at 10 gestational weeks by last menstrual period after the detection of multiple ovarian cysts during routine screening in the first trimester. The patient had no previous history of ovarian cysts.

We performed a transabdominal ultrasound examination using a commercial Technos MPX (Esaote S.p.A., Genova, Italy) ultrasound machine, which showed an intrauterine gestational sac with a single embryo with normal cardiac activity, corresponding to 10 weeks of gestation, and bilateral ovarian masses. On transvaginal ultrasound examination (Figure 1) the right ovary was enlarged by the presence of a unilocular-solid cyst with fine internal echoes ('ground glass' appearance) and with a maximum diameter of 55 mm. The internal wall of the cyst was irregular with two hyperechogenic papillary excrescences of 8 × 10 mm and 5 × 5 mm. On color Doppler the wall of the cyst demonstrated marked vascularization with no blood flow inside the projections. In the left ovary a bilocular cyst with fine internal echoes and a maximum diameter of 74 mm was observed; this cyst had a regular internal wall and there were no blood flow signals on color Doppler. The CA-125 ovarian tumor serum level at this time was 76 U/mL (normal level, 0–35 U/mL)

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Accepted: 16 May 2004

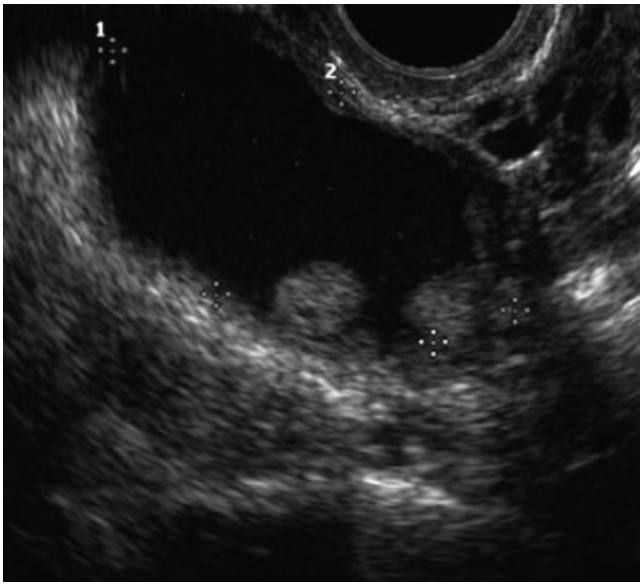

Figure 1 Transvaginal ultrasound image at 10 weeks' gestation showing two hyperechogenic papillary excrescences of the internal wall of the cyst in the right ovary.

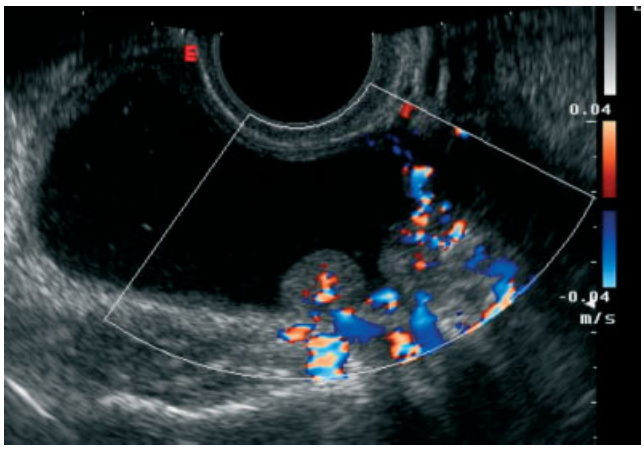

Figure 2 Transvaginal color Doppler ultrasound image at 12 weeks' gestation showing rich vascularity within the irregular hyperechogenic papillary excrescences of the right cyst.

and this showed no change in subsequent examinations. The ovarian masses had the ultrasound morphological aspects of endometriomas but the presence of an irregular wall with solid structures protruding into one of the cysts, prompted us to follow the patient's progress closely.

Two weeks later, another sonographic examination was performed. On transvaginal ultrasound examination, the morphological characteristics of the cysts remained unchanged but color Doppler revealed a rich vascularity within the irregular hyperechogenic papillary excrescences of the right cyst (Figure 2), giving rise to the suspicion of malignancy. Because of the high risk of a surgical procedure in the first trimester the patient was reassessed in the second trimester. At 17 weeks of gestation, sonography revealed a fetus appropriate-for-gestational age and showed a slight increase in size of both ovarian cysts. The internal wall of the right cyst presented

Figure 3 Magnetic resonance image showing a cystic lesion in both ovaries. Mural nodules in the right ovarian cyst are visible.

three hyperechogenic papillary excrescences 8 × 13 mm, 7 × 12 mm and 6 × 8 mm in diameter. These were highly vascularized on color Doppler examination.

It was decided to operate at 18 weeks' gestation. Magnetic resonance imaging (MRI), performed the day before surgery, showed a cystic lesion in both ovaries and the cyst in the right ovary showed mural nodules on the internal wall (Figure 3). The vascularization of the mural nodules was not assessed, since contrast agent was not used for safety reasons. Exploratory laparotomy revealed a right ovarian mass adhering to the posterior uterine wall with no evidence of irregularity on the external surface of the mass, and a left ovarian mass with gross adhesions to the peritoneal wall. The right ovarian mass was removed and the final pathology results confirmed the presence of a right ovarian cyst 6 cm in diameter whose internal wall was characterized by the presence of large solid projections with a regular surface corresponding to decidual changes of endometrial stroma with no evidence of malignancy.

The patient was discharged after 5 days without postsurgical complications and a 3000-g healthy infant was delivered at 40 weeks' gestation by Cesarean section performed due to cervical dystocia.

DISCUSSION

To our knowledge this is the second case of decidualized ovarian endometrioma reported in the literature[4]. In our patient, a bilateral ovarian mass was diagnosed as endometriosis in the first trimester. The increase in size and particularly the presence of an irregular wall with solid structures protruding into the cyst which were vascularized on color Doppler suggested a malignant

transformation of the right endometrioid cyst which led to surgical removal in the second trimester.

The malignant transformation of ovarian endometriosis, associated with an excess of endogenous and exogenous estrogens, is well documented[5,6]. Since ovarian endometriosis has been reported to display a greater malignant propensity compared with extragonadal endometriosis[7], special attention should be given to structural changes in ovarian endometriotic lesions occurring in pregnancy.

Several cases of decidual transformation of stromal endometrial cells associated with pregnancy, probably due to the high levels of progesterone[8], have been reported[9,10]. However, although ovarian endometriosis is frequent in pregnancies[11], decidualization of ovarian endometrioma during pregnancy is very rare[4]. Unfortunately, no data are available on the prevalence of decidualization versus malignant transformation of ovarian endometriosis. A collection of isolated cases provides more details about this peculiar aspect of endometriosis during pregnancy. In our experience as well as that of Miyakoshi *et al.*[4], MRI failed to provide more precise information in comparison to ultrasound. Although the CA-125 level is of very limited value in the diagnosis of pelvic masses since it is physiologically elevated during pregnancy[12], its longitudinal assessment of unchanged values in our case could be taken as predictive of the benign nature of the lesion. Finally, it is worth noting that vascularization in the papillary excrescences was not detectable at the first examination but was seen 2 weeks later. It is possible that this rather sudden appearance of papillary vascularization could be a feature of decidualization rather than malignancy; in malignancy one would expect vascularization to be present from the first examination.

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