Sonographic diagnosis of a uterine defect in a pregnancy at 6 weeks’ gestation with a history of curettage

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ABSTRACT
We present the early diagnosis and successful surgical treatment of uterine perforation. This was a rare case of cystic change of a uterine perforation, which was diagnosed by sonography during the first trimester of pregnancy. Surgical closure of the uterine wall defect was successful. Copyright © 2003 ISUOG. Published by John Wiley & Sons, Ltd.

INTRODUCTION
Uterine perforation or uterine wall defect is an uncommon but serious complication of elective abortion or the evacuation of placental parts retained in the uterine cavity during the puerperium. The most hazardous problem of uterine perforation is uterine rupture during a subsequent pregnancy, which can be fatal for both fetus and mother. Reported cases have used ultrasound to diagnose uterine dehiscence or rupture, which can be identified during the second and third trimesters of pregnancy. In this report, we describe a rare case of cystic change of the uterine perforation following previous curettage, which was diagnosed by sonography during the first trimester of pregnancy and managed successfully by surgical closure of the uterine wall defect.

CASE REPORT
A 32-year-old multiparous woman at 6 weeks’ gestation was referred to our hospital for evaluation of a multiple cyst-like lesion within the uterine wall. Two years prior to this admission, she had experienced a pre-term delivery of twins due to the premature rupture of membranes, which resulted in the intrauterine death of both fetuses at 19 weeks’ gestation. After an evacuation of the placental remains she developed occasional low abdominal pain, dysmenorrhea, and irregular menstruation. The patient conceived again in June 2000 and she developed symptoms of uterine cramping which became progressively worse. She was referred to our unit for further evaluation and therapy. The findings on physical examination, including of the pelvis, were unremarkable. The uterus was large for gestational size, and the adnexa were free. Sonographic evaluation revealed a normal intrauterine pregnancy although there was a defect of the wall of the uterine fundus.

The defect extended through the whole uterine layer from the endometrial cavity to the serosa and a multiple cystic lesion extruding into the peritoneal cavity was noted. At 8 weeks’ gestation, real-time ultrasound examination revealed a wider discontinuity of the myometrium. A week later, a laparotomy under epidural anesthesia was performed. There was a uterine wall defect 3 cm in diameter on the left side of the uterine fundus with an extruded cystic membrane. We enucleated the inflammatory cysts within the uterine defect and excised the scar tissue surrounding the edges of the defect. We then approximated the myometrium and serosa in two layers with 2-0 catgut sutures. Sonographic follow-up examinations were performed at regular intervals, and no defects within the uterine wall were noted. The patient continued her prenatal care at our high-risk pregnancy center.

At 32 weeks’ gestation, the patient was admitted with complaints of intermittent sharp and stabbing epigastric pain, intensified by fetal movement and contractions. The patient was apyrexic with normal pulse and blood pressure. Her abdomen was generally tender with a fundal height measurement of 42 cm. The cervix was closed and was not effaced and no fluid had come through the os. The fetus was lying longitudinally with a cephalic presentation. A non-stress test showed a reactive fetal heart rate with a baseline of 140 bpm and regular uterine contractions.
Figure 1 Transvaginal ultrasound image of a uterine scar in a pregnancy at 6 weeks' gestation. Note the multiple cystic defect extruding from the endometrial cavity (arrows) into the peritoneal cavity.

Figure 2 Photograph of the uterine wall defect, measuring 3 cm in diameter and covered with cystic membrane, which was found on the left side of the uterine fundus.

Figure 3 Photograph during surgery, when the inflammatory cysts within the uterine defect and the scar tissue of the uterine defect margin were removed.

Figure 4 Ultrasound image of the normally developing 8-week gestational sac. No cystic structure of the uterine defect is visible.

contractions. The placenta was located at the fundus and there was no ultrasound evidence of abruptio placentae. The woman was treated with an intravenous β-mimetic agent and magnesium sulfate tocolysis. Three days after admission, an emergency lower-segment Cesarean section was performed as a result of intense uterine contractions and signs of preterm labor. A healthy male newborn weighing 2232 g with Apgar scores of 8 at 1 min and 9 at 5 min was delivered. The scar on the surface of the uterus was smooth and free of adhesions. A bilateral tubal ligation was performed during the procedure. The postoperative period was uneventful, and the infant was discharged home with his mother 6 days after delivery.

DISCUSSION

Although uncommon, uterine perforation is a potentially serious complication of elective abortion. The incidence of uterine perforation associated with abortion by suction curettage is reportedly around 0.08–0.17%.\textsuperscript{1,2} It has been argued that intrauterine manipulation during the puerperium may be associated with a higher risk of uterine perforation than is first-trimester abortion because the walls are thinner and the cavity is larger in a postpartum uterus. Perforation of the uterine fundus in these cases may be symptom free and, in fact, most uterine perforations following curettage may be neither suggested nor detected. Rupture of the uterus in a subsequent pregnancy is the most hazardous problem of uterine perforation that often results when there is scarring.

To the best of our knowledge, only two cases have been reported in the English literature of sonographic diagnosis dealing with this uterine defect as a late complication of curettage for incomplete abortion. Markos et al.\textsuperscript{3} reported a case of a uterine rent diagnosed using ultrasound at 33 weeks' gestation in a woman with a history of an uncomplicated curettage for incomplete abortion. Laparotomy revealed a right cornual uterine rent with
an hourglass amniotic sac and fluid. A healthy infant was delivered by Cesarean section in this case. Fujii et al. successfully diagnosed a silent uterine wall defect using sonography, after the evacuation of placental parts from the patient’s first delivery. At 20 weeks’ gestation, the patient underwent an emergency operation to repair the uterine wall defect. At 36 weeks’ gestation, elective Cesarean section was performed and a healthy female neonate weighing 2674 g was delivered. Our case report describes a uterine cyst after curettage, resulting from an unrecognized uterine perforation. With the aid of sonographic imaging, the diagnosis was suggested based on the visualization of the uterine discontinuity and multiple cystic masses within the myometrium.

It should be borne in mind that uterine rupture often occurs late in gestation in those cases with a history of uterine perforation. Fedorkow et al. reported two cases of complete uterine rupture during pregnancies with a history of dilatation and curettage during the third trimester. Howe reported a case of uterine rupture at 33 weeks’ gestation after hysteroscopic septum resection complicated by fundal puncture. Similarly, Yaron et al. reported a pregnancy with uterine rupture at 33 weeks’ gestation after hysteroscopic uterine perforation. In this case, uterine rupture in the ensuing pregnancy was unavoidable despite the fact that the repair of the uterine defect was performed after hysteroscopy. In the cases reported by Markos et al. and Fujii et al., the silent uterine rupture occurred at 33 and 20 weeks’ gestation, respectively. A significant number of uterine Cesarean sections have shown that scar rupture occurs without labor several weeks before a pregnancy reaches full term.

In order to prevent uterine rupture and intraperitoneal rupture of the fetal membrane, clinicians should be aware of the potentially serious complications associated with uterine perforation during the early stages of pregnancy. Routine sonographic follow-up examinations are recommended during pregnancy when there is a history of curettage or intrauterine manipulation during the puerperal period. With the aid of sonographic examinations, we successfully identified a silent uterine defect with cystic change arising from a uterine perforation during the first stage of pregnancy, before the onset of uterine rupture.

REFERENCES