Ruptured cornual pregnancy: case report

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Summary

Cornual pregnancy is uncommon among ectopic pregnancies. A diagnosis of cornual pregnancy remains challenging, and rupture of a cornual pregnancy causes catastrophic consequence due to massive bleeding. We report a case of a ruptured cornual pregnancy occurring at 12 weeks of gestation. A 34-year-old woman was suspected of having a left cornual pregnancy at 11 weeks of gestation. Transabdominal ultrasound and magnetic resonance imaging revealed an eccentric localization of a gestational sac containing a viable fetus outside the uterine cavity adjacent to the left uterine cornua. The gestational sac was surrounded with a thin myometrial layer. The patient developed a rupture of the left cornual pregnancy with unstable hemodynamics. She underwent emergency laparotomy, which revealed the ruptured left cornual pregnancy with a hemoperitoneum. Cornual resection was performed. The pathological examination confirmed a ruptured cornual pregnancy.

Key words: Cornual pregnancy; Ectopic pregnancy; Magnetic resonance imaging; Ultrasonography.

Introduction

Cornual pregnancy is an uncommon ectopic pregnancy defined by implantation in the uterine cornua [1, 2]. The incidence of cornual pregnancy is approximately 3% of ectopic pregnancies [2] with a mortality rate of 2-2.5% [1]. Cornual pregnancy is sub-classified into angular or interstitial pregnancy [2]. An angular pregnancy implants medially to the insertion of the round ligament, while an interstitial pregnancy implants laterally to the round ligament [2]. Ipsilateral salpingo-oophorectomy, previous ectopic pregnancy, and in vitro fertilization are predisposing factors for interstitial pregnancy [3]. It has been believed that rupture of a cornual pregnancy occurs after 12 weeks due to the thickness of myometrial wall protecting interstitial pregnancy, leading to catastrophic hemorrhage. However, a recent study demonstrated that 14 out of 24 cases ruptured before 12 weeks [3]. A correct diagnosis of cornual pregnancy is pivotal to avoid fatal consequences. Conservative management can be adopted for the treatment of unruptured cornual pregnancy, but cornual resection or hysterectomy remains the mainstay for the treatment of a ruptured cornual pregnancy [4, 5]. Herein, we report an unusual case of ruptured cornual pregnancy occurring at 12 weeks of gestation.

Case Report

The patient was 34-year-old woman, gravida 1, para 1, with no remarkable medical history. She was referred to our hospital at 11 weeks of gestation due to a suspected ectopic pregnancy or pregnancy in the bicornuate uterus. Her vital signs were stable, and the abdomen was not tender. However, a transabdominal ultrasonography revealed an empty uterus and a gestational sac (GS) containing a viable fetus corresponding to 11 weeks located outside the uterine cavity adjacent to the left uterine cornua (Figure 1A). The GS was found to be separated from the empty uterus via the myometrium, and surrounded with a thin myometrial layer (Figure 1A). There was no ascites in the cul-de-sac. Axial T2-weighted magnetic resonance imaging (MRI) of the pelvis clearly displayed that a GS was located at the left lateral uterine cornual region and a thinning of the myometrial layer surrounding the GS (Figure 1B). On the basis of the imaging technologies, a presumptive diagnosis was a left unruptured cornual pregnancy. The patient was informed of the possibility of a cornual pregnancy, a life-threatening complication accompanied by rupture of the cornual pregnancy, the difficulty in the continuity of pregnancy, and the treatment options for cornual pregnancy. She was asymptomatic at that time and discharged home to consult her husband regarding carrying on her pregnancy. Two days later, however, she developed an acute onset of severe abdominal pain at 12 weeks of gestation. On admission, her blood pressure was 117/75 mmHg, and the pulse rate was 88 beats/min. Physical examination showed severe lower abdominal tenderness. The laboratory profile showed that red cell counts were 296×10^4/μl, hemoglobin 8.9 g/dl, hematocrit 26.6%, and platelets 20.8×10^4/μl. Transabdominal ultrasound (TVS) showed the deviation of the GS toward the caudal part compared with a previous image, and the presence of massive fluid retention in the pelvic cavity. Fetal cardiac activity could not be detected. An enhanced computed tomography of the pelvis demonstrated the presence of active bleeding and retention of massive bloody ascites in the pelvic cavity. A diagnosis of the ruptured cornual pregnancy was made. The patient underwent an emergency laparotomy, which revealed a 5×4 cm bulging at the left uterine cornua confirming a left ruptured cornual pregnancy (Figure 2) and a hemoperitoneum containing approximately 2000 ml of fresh blood. An unruptured GS was found in the abdominal cavity, partially adherent to the left cornua. Cornual resection was performed. The patient received six units of packed red blood cells due to the decrease in hemoglobin to 3.9 g/dl postoperation. Pathological examination confirmed a ruptured cornual pregnancy. The patient's postoperative course was uneventful and she was discharged home on the sixth day postoperatively.

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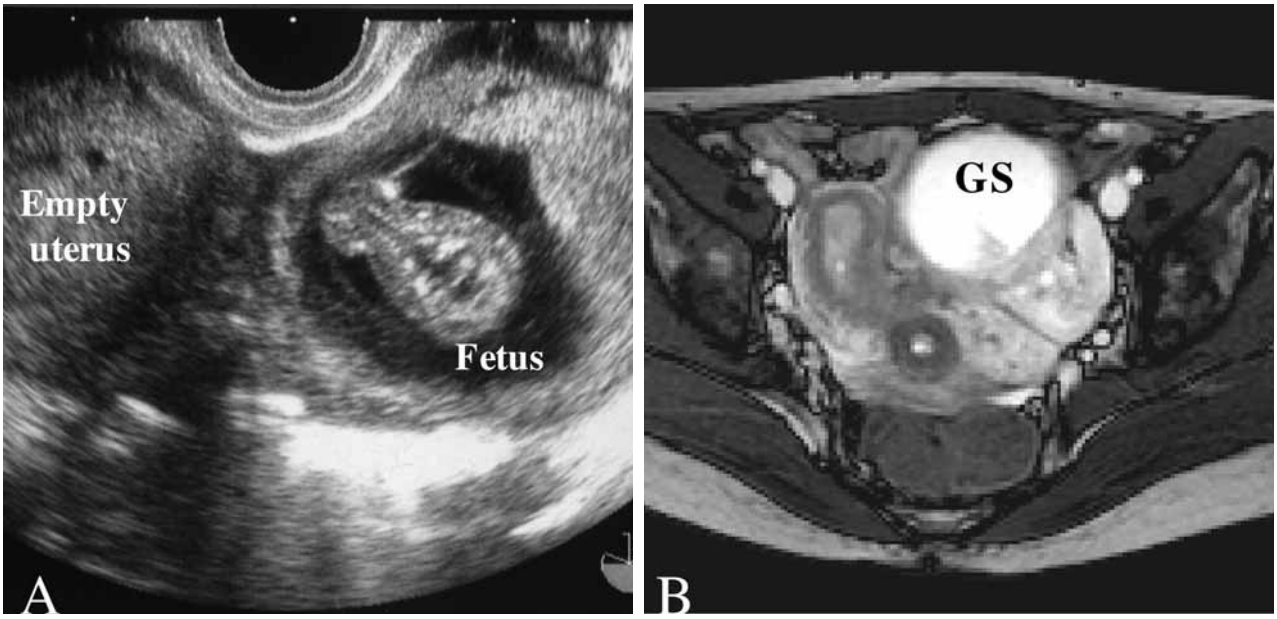

Figure 1. — Transabdominal ultrasonographic view of a left cornual pregnancy (A), and magnetic resonance imaging finding of a left cornual pregnancy on axial T2-weighted images (B).

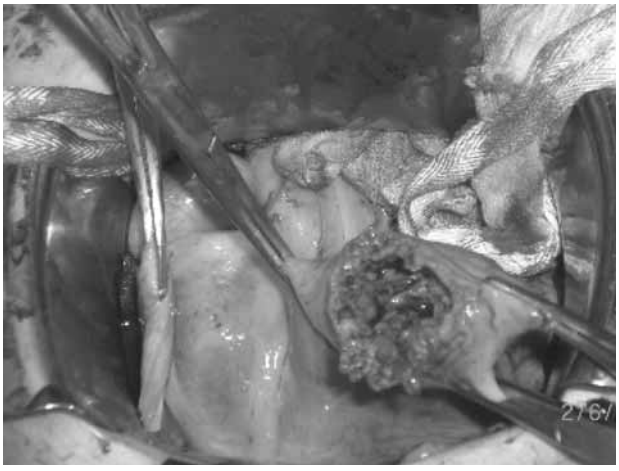

Figure 2. — Ruptured left cornual pregnancy.

Discussion

Cornual pregnancy is a life-threatening disease potentially leading to hypovolemic shock when ruptured as in our case. However, a diagnosis of cornual pregnancy remains clinically challenging. A correct diagnostic rate of cornual pregnancy has been reported to be 55.6% by TVS [6]. Timor-Tritsh *et al.* [7] proposed three ultrasonographic criteria for the diagnosis of interstitial pregnancy: (1) an empty uterine cavity, (2) a gestational sac seen separately and > 1 cm from the most lateral edge of the uterine cavity, and (3) a thin myometrial layer surrounding the gestational sac. The ultrasonographic findings in our case met the above criteria, and a cornual pregnancy was strongly suspected. Furthermore, 4-dimentional transvaginal volume contrast imaging in coronal-plane technology was shown to demonstrate the exact anatomic location of an eccentric gestational sac, thereby improving diagnostic confidence and enabling the differentiation between interstitial pregnancy and unusual forms of intrauterine pregnancy as an angular pregnancy or a pregnancy in the anomalous uterus [8]. We employed MRI as a complementary tool for the diagnosis of cornual pregnancy in addition to the ultrasonography. MRI was found to be useful in evaluating the location of the GS and thickness of the myometrial layer surrounding it. The thinning of the myometrial layer surrounding the GS in our case suggested an impending risk of rupture of the cornual pregnancy, and in fact rupture developed two days later after making a presumptive diagnosis. In the present case, the rupture occurred during the patient's stay at home. Despite her asymptomatic condition at that time, the patient should have been kept in admission with close medical care in order to cope with an emergent situation caused by rupture of the cornual pregnancy.

Treatment for cornual pregnancy includes conservative and surgical management. Several conservative treatment options have been clinically applied, including systemic methotrexate (MTX) [6, 9], transvaginal sonography-guided KCL injection to the amniotic sac [6, 10], hysteroscopic-guided MTX injection to the amniotic sac [6], hysteroscopic suction and evacuation in combination with laparoscopic injection of vasopressin [1], suction and curettage and hysteroscopic resection of the cornual pregnancy [11], and laparoscopic resection of the cornua [6].

In most cases of ruptured cornual pregnancy, laparotomy is undertaken and cornual resection or hysterectomy is necessitated. However, two cases that were successfully treated by laparoscopy in ruptured cornual pregnancies have recently been reported [12, 13].

Although rare, an awareness of cornual pregnancy is

important to prevent delayed diagnosis and determine prompt and adequate treatment options, particularly when the gestational weeks are proceeding to the second trimester.

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