CASE REPORT

Diagnosis of Uterine Rupture with Ultrasound: An Unusual Presentation with Extrusion of Fetus into the Broad Ligament at Second Trimester

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We describe an unusual case of uterine rupture caused by intra-amniotic ethacridine used for second trimester pregnancy termination. Ultrasound revealed no amniotic sac or fetal parts in the uterine cavity; instead, major parts of the dead fetus enclosed by membranous demarcation were found expelled to the left side of the uterus. This membranous structure enclosing products of conception on one side of the uterus was detected by ultrasound and turned out to be the broad ligament. Uterine rupture was confirmed at surgery, and the fetus was expelled into the broad ligament through the lateral wall. The ultrasound findings may help to confirm this rare type of uterine rupture.

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Introduction

Medical termination of pregnancy (MTP) during second trimester still exists in modern obstetrics. Although outdated and rarely conducted in developed countries, intra-amniotic instillation of ethacridine lactate (Rivonal) is still commonly practiced in second trimester MTP in many Asian countries, especially in remote rural areas, because of its convenience and low cost. Uterine rupture rarely occurs in second trimester MTP, even with risk factors including previous uterine scar and use of oxytocic agents during second trimester. Here we report a case of rupture of an unscarred uterus with extrusion of fetus into the broad ligament during intra-amniotic use of ethacridine for second trimester MTP.

Case report

A 24-year-old woman, gravid 4 para 3, with 20 weeks of gestation, was referred to our hospital from a remote local...
clinic for failure of MTP. She had had three normal unassisted vaginal deliveries and no history of uterine surgery. She had been admitted to a local hospital for MTP using intra-amniotic Rivanol 4 days previously. On arriving at the emergency room (ER), her vital signs were: body temperature $38^\circ C$, pulse 118/min, respiratory rate 20/min, and blood pressure 109/78 mmHg, with a complaint of mild pain over left lower abdomen. On examination, abdomen was soft with slight tenderness, and guarding was elicited in the left adnexal region. There was only minimal blood stained over the vulva. Vaginal examination revealed only necrotic placental tissues and umbilical cord without fetal parts present in the vagina. The cervical os was multiparous without active bloody oozing. The fundal height was three finger-breadths below the umbilicus. Hemoglobin was 11.0 gm/dl, white cell count $13.3 \times 10^9$ cells/L, and platelets $262 \times 10^9$ of blood. Transabdominal and transvaginal ultrasound revealed a mass in the lower part of the uterine cavity. The patient was then admitted to the Department of Family Planning with the diagnosis of ‘incomplete abortion’. After admission, repeat ultrasound was performed by a senior staff member and demonstrated an empty central uterine cavity (Fig. 1). The demised and disfigured fetal head and trunk were expelled out to the left side of the uterus, enclosed by a membranous structure mimicking the peritoneo-myometrio-serosal lining of the uterus (Fig. 2). Placental tissue was not seen. No free intraperitoneal fluid or amniotic fluid surrounding the fetus was present. All these findings led to the diagnosis of suspected incomplete uterine rupture. Emergency laparotomy under general anesthesia was performed. A large mass (10 cm $\times$ 8 cm $\times$ 7 cm) was found bulging from the left side of the uterine wall and left broad ligament. The broad ligament was opened and decomposed fetal head and upper trunk with pus were found between two leaves of the broad ligament. The lower trunk was stuck in isthmus with one lower limb footling into cervical canal. The fetus was then removed, and a ruptured defect of 6 cm by dimension was found in the left lateral uterine wall with extension to the isthmical portion (Fig. 3). The left broad ligament was distended and displaced to left pelvic sidewall with purulent content coated over this potential cavity. No hemoperitoneum was found. A total abdominal hysterectomy was then performed because intrauterine infection was suspected. The postoperative period was uneventful.

**Discussion**

Uterine rupture is an uncommon complication of second trimester MTP. Several cases of uterine rupture during second trimester have been reported, and most of them are related to prior caesarean section or to the use of oxytocic drugs [1–5]. However, reports on uterine rupture following intra-amniotic use of ethacridine are rare, and the only two such cases reported were associated with the extra-
Amniotic use of ethacridine [6,7]. To our knowledge, this is the first case of the rupture of an unscarred uterus with extrusion of fetus into broad ligament associated with intra-amniotic use of ethacridine for second trimester MTP.

The typical ultrasound manifestations of uterine rupture include uterine wall defect with an empty uterus and fetus outside the uterine cavity. Sometimes placenta previa, placenta percreta, bulging fetal membrane, and free fluid in the peritoneal cavity can also been seen [8–10]. However, none of these findings were seen in this patient, leading to tentative ultrasound diagnosis of incomplete abortion by our ER staff. The repeated judicious ultrasound scan revealed a membranous structure enclosing the expelled fetal parts. This key finding inferred that probably the myometrium of the left lateral uterine wall was dehiscent and led to the impression of suspected uterine rupture. The operative findings confirmed the diagnosis of uterine rupture. The thin membrane enclosing the expelled fetal parts shown by ultrasound correlated with the leaves of the broad ligament. The delayed diagnosis of uterine rupture was mainly due to unusual clinical manifestations and ultrasound findings, which highlights the importance of careful ultrasound scans. Had this correct differential diagnosis been made from the incomplete abortion, the subsequent intervention and management could have minimized the associated morbidity and improved the clinical outcome.

References