Early Second Trimester Uterine Rupture with a Viable Fetus

Shaikha AlAsam, MB* Abeer AlSada, German Board in OB/GYN and Minimal Invasive Surgery Fellowships**
Haya Khalfan, FRCSI, SBGS, BSF (surgery)***
Nayla Bushaqer, Saudi & Arab Board in OB/GYN and Infertility & IVF Fellowship****

Uterine rupture is a rare condition especially when it occurs early in pregnancy. It carries significant morbidity and mortality and is usually associated with vague signs and symptoms of acute abdomen.

We present a case of early second trimester uterine rupture and an active fetus on abdominal ultrasonography. The patient underwent emergency surgical repair of the uterus with uneventful postoperative course.

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Uterine rupture is one of the most severe complications in pregnancy. The incidence of uterine rupture is 1 in 8,000-15,000 and usually occurs with a scarred uterus[1-4]. Uterine rupture is a great risk for the mother and fetus. The risk to mother can be associated with excessive hemorrhage, disseminated intravascular coagulation (DIC), shock and need for transfusion as well as urinary bladder rupture, developing fistulas, hysterectomy, future infertility, and maternal death[5,6]. On the other hand, the risk in the first or early second trimester is a fetal loss. Moreover, in the second or third trimesters, uterine rupture is related to a high occurrence of perinatal and neonatal morbidity and mortality, prematurity, birth asphyxia and still birth[5,7,8].

The common presentation of uterine rupture is pain, vaginal bleeding, compromised fetus and expulsion of a fetus from the uterus, as well as peritoneal signs like guarding, tenderness and rigidity. Hemodynamic instability is also common[2,5,7-11]. Different presentations of uterine rupture can be vague, and many differential diagnoses should be considered, including ectopic pregnancy, molar pregnancy, placenta previa, placental abruption, cervical or vaginal tear and uterine inversion or atony[3,4,11].

The main risk factor is uterine scarring. Uterine rupture is least common in the first and early second trimester with no clear incidence[1,3,6,11,12].

The aim of this presentation is to report a rare case of an early second-trimester uterine rupture, yielding a living fetus.

THE CASE

A twenty-four-year-old woman, G4P3, reported 12 weeks of amenorrhea and a positive home pregnancy test. She presented with severe abdominal pain. The abdominal pain started one to two weeks prior but increased in severity to be intolerable on the day of the presentation. It was mainly located in the epigastrium and was associated with vomiting (once) and dizziness.

She had a history of 3 Cesarean section deliveries, with no other significant surgical history. The patient did not have any antenatal visits or early pregnancy ultrasound scans. She also denied any vaginal bleeding or trauma.

The patient was conscious, her blood pressure (BP) was 90-100/40-50 mmHg, and her heart rate (HR) was 102 bpm. On examination, her abdomen was soft and lax, with mild distention and tender epigastric and umbilical area. There was no tenderness at scar area or bilateral iliac fossa. Vaginal examination revealed no bleeding. The cervix was closed with no cervical motion tenderness. Hemoglobin (Hb) was 7.8 gm/dL with a baseline of 8-9 gm/dL prior to pregnancy, and a pregnancy test was positive.

A bedside transabdominal ultrasound scan showed a single intrauterine active fetus with active cardiac pulsation. The liquor was adequate and fetal measurements had biparietal diameter and femoral length corresponding to 14 weeks of gestation. The placenta was posterior with a small retro-placental hematoma. There were normal bilateral adnexa, and a minimal amount of free fluid was seen below the liver with a vertical depth of 1 cm.

The abdomen was increasing in distension, with evidence of increasing free fluid in the abdomen seen by the bedside ultrasound.

There was evidence of a mild to moderate amount of intraperitoneal free fluid. There was a single intrauterine viable pregnancy and evidence of irregular hypo-densities in the placenta; the uterine wall was also suggestive of placental hemorrhage. No obstetric or surgical diagnosis could be concluded. A surgical team evaluated the patient and could not rule out upper gastrointestinal bleeding.

Resuscitation with crystalloids and packed red blood cells was initiated. The patient received 1 gram of Tranexamic acid IV. Then, the patient was transferred to the operation theater for exploratory laparotomy.

* Resident
Department of Obstetrics and Gynecology
** Consultant
Department of Obstetrics and Gynecology
*** Consultant General and Laparoscopic Surgeon
**** Chief Resident OB-GYN & IVF
Bahrain Defence Force Hospital
Kingdom of Bahrain
E-mail: dr.nayla.j.b@gmail.com

Intraoperatively, a massive hemoperitoneum was found; an estimation of four liters but had no detectable source and no active bleeding from the pelvis or upper abdomen. An active bleeding source was noted from the right angle of the previous uterine scar from the uterine artery, close to the complete rupture. Hemostatic sutures were applied to the active bleeding site of the right angle then followed by manual removal of the fetus and placenta. Upon evacuation of the fetus, chest and limb movements were noted. However, the movements stopped shortly as his condition was not compatible with life due to extremely early gestation.

There was active bleeding from the placental bed on the posterior wall, which was secured by hemostatic sutures. Adnexa and other organs were normal. The uterus was closed in two layers. In addition, a bilateral salpingectomy was performed after obtaining the husband's consent. Total estimated blood loss of almost five liters was evacuated from the peritoneal cavity. A medium-sized drain was left intraperitoneal. The abdomen was closed in layers, and the skin was closed with staples. The patient received a total of eleven units of packed red blood cells, eight units of fresh frozen plasma and four units of platelets.

Postoperatively, she was transferred to an ICU overnight for observation. The patient made a good recovery and was discharged seven days later.

Histopathology reported that the placenta measured 8 cm x 6 cm x 1.5 cm and weighed 53 g with a peripheral umbilical cord attached to the fetus measuring 10-cm long. The fetus had no gross abnormalities; the crown-rump length was 90 mm, and the foot length was 14 mm, corresponding to 14 weeks of gestational age.

DISCUSSION

Uterine rupture is defined as a full-thickness separation of the uterine wall and the overlying serosa[2,3]. Risk factors are subdivided into patient factors, including Mullerian anomalies, multiparty, short interval pregnancies, placental abnormalities and ectopic pregnancy, in addition to iatrogenic factors including scarred uterus after myomectomy, cesarean section, resections and the use of misoprostol[1,5,6,11].

In our study, the patient's symptoms and findings were not conclusive since the peritoneal signs were present in the epigastric area with normal palpation of the lower abdomen and a normal intrauterine active. Other reported cases are due to either the product of conception in the abdomen outside the uterine cavity or ectopic pregnancy[1,3,13].

In our study, the most evident risk factor was the previous three Cesarean sections. With multiple scars, fibrosis and unhealthy tissue, which can form a niche. A niche is formed in the myometrium, which is described as a hypoechoic area in the lower uterine segment representing discontinuation of the myometrium at the site of previous incisions. The presence of this can affect future fertility like ectopic pregnancy, where the gestation occurs within the myometrium or surrounded by fibrous tissue of the scar. In addition, it can lead to scar ruptures and massive haemorrhage[14].

Most of the risk factors mentioned earlier would induce uterine rupture and would mainly occur during labor[3,5,15]. However, in our patient, a posteriorly implanted placenta ruled out scar ectopic or abnormalities of placental implantation. A uterine rupture is a life-threatening event, and the key treatment is early surgical intervention[1,2,5].

CONCLUSION

Uterine rupture in the first or early second trimester is a very rare condition. Early recognition and surgical intervention is required to save the patient's life with a satisfactory outcome.

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