

## **First trimester spontaneous rupture of an unscarred uterus in a multiparous woman: a case report**

Ahmed M. Abbas,<sup>1</sup> Amera M. Sheha,<sup>2</sup> Mohamed Abdallah,<sup>1</sup> Sara Abdullah,<sup>2</sup> Mohamed Bahaa<sup>2</sup>

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### **Abstract**

*The rupture of an unscarred uterine is a rare life-threatening event that usually occurs late in pregnancy or during labor. Spontaneous uterine rupture, as in our case, is extremely uncommon and rarely diagnosed before laparotomy. Herein, we present a case of spontaneous uterine rupture in a 32 year old multiparous woman with no previous uterine surgery. The patient presented with acute abdomen at 11 weeks of gestation. Preoperative diagnosis based on clinical and ultra-sonographic findings was ruptured ectopic pregnancy. However, emergency laparotomy showed uterine rupture with extrusion of a dead fetus within intact amniotic sac in the abdomen. The defect was repaired in layers and the patient was discharged in a good condition after five days of hospital stay. Multiparity is a risk factor for spontaneous uterine rupture even in the first trimester. It should be kept in mind in any pregnant multiparous woman presenting with acute abdomen and shock. The absence of vaginal spotting and lack of history of uterine surgery give a false sense of security.*

<sup>1</sup>*Department of Obstetrics and Gynecology, Faculty of Medicine; Assiut University, Assiut, Egypt*

<sup>2</sup>*Faculty of Medicine; Assiut University, Assiut, Egypt*

### **Introduction**

The rupture of a gravid uterus is one of the life-threatening obstetrical emergencies, associated with poor fetal and maternal outcome.<sup>1,2</sup> It is fairly common in the third trimester of pregnancy ranging between 1/8000 to 1/15000 pregnancies.<sup>3</sup> There are no previous reports about the true incidence of first-trimester uterine rupture uterus with most reports being case reports or small case series.

There are many conditions associated with an increased risk of uterine rupture in the first trimester of pregnancy. Some of these risk factors include: uterine

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**Corresponding author:** Ahmed M. Abbas, MD, Department of Obstetrics and Gynecology, Faculty of Medicine; Assiut University, Assiut, Egypt; Woman's Health Hospital, 71511, Assiut, Egypt, Cellular: +20 10033851833; Tel: +20 88 2414616; email: [bmr90@hotmail.com](mailto:bmr90@hotmail.com)

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anomalies,<sup>4,5</sup> use of misoprostol,<sup>6</sup> placenta percreta, multiparity with short inter-delivery interval, previous cesarean section (CS) or other uterine surgeries and uterine curettage. However, previous CS is the most important factor,<sup>1</sup> especially in the second and third trimesters.<sup>1,7</sup>

The spontaneous rupture of an unscarred gravid uterus is extremely rare especially in the first trimester with no definite history of any associated risk factor. There are no pathognomonic features of uterine rupture in early pregnancy and it should be differentiated from other causes of acute abdominal emergencies. Here, we report a case of this catastrophic complication in a multiparous woman in the 11<sup>th</sup> week of gestation with no other risk factor that could have resulted in uterine rupture.

### **Case history**

In August 2016, a 32-year-old, gravida 6, para 5+0, presented to the emergency unit of Assiut Women's Health Hospital, Egypt at 11 weeks of gestation (based on her last menstrual period) with acute onset of severe lower abdominal pain. She had no history of previous CS, any other uterine surgery, or IUD insertion. Previously the patient had two antenatal visits with ultrasound confirmation of an intrauterine pregnancy.

On general examination, the patient was pale, her pulse 130 beats/min, blood pressure 90/60 mmHg, and temperature 37°C. An abdominal examination revealed generalized tenderness and rebounding all over her abdomen. Pelvic

examination showed a closed cervix and very tender enlarged uterus. Neither adnexa was palpable. There was no vaginal discharge or bleeding.

Transabdominal ultrasound scan revealed a bulky empty uterus with marked free intraperitoneal fluid collection, a single fetus in an intact gestational sac with absent cardiac activity measured 10.4 weeks by crown-rump length. Hematological examination showed a hemoglobin level (HB) of 7.2 g/dl.

The patient was counseled concerning the possibility of a ruptured ectopic pregnancy, and informed consent for abdominal exploration was obtained. Exploratory laparotomy through a Pfannenstiel's incision was performed under general anesthesia. Surprisingly, on opening the peritoneal cavity, free blood collection was noted with a defect in the fundus about 2x2 cm and the gestational sac with the dead fetus outside the uterus (Figure 1).

The fetus was removed from the abdomen and the defect was repaired in two layers by non-absorbable sutures (Figure 2). The abdomen was closed in layers after normal saline lavage. The patient received 2 L of whole cross-matched blood during the operation. The estimated intraoperative blood loss was 1500 cc. The patient had a smooth recovery from anesthesia and then she was transferred to the postoperative care room. She passed flatus 12 hours after surgery and defecated the next morning. Postoperative HB level was 10.0 gm/dl. The postoperative course was uneventful and the patient was discharged on the 5th day.



**Figure 1: Rupture uterus; the uterus shows a fundal defect with intact gestational sac outside it contains an 11 weeks fetus**

### **Discussion**

Spontaneous uterine rupture is a rare dangerous obstetric complication that is associated with maternal mortality and morbidity rates between 20.8% and 64.6%.<sup>8</sup> The most important factor implicated in uterine rupture is previous uterine scarring.<sup>9</sup> Rupture of an unscarred uterus is associated with various factors such as high parity,<sup>10</sup> abnormal placentation, uterine anomalies, malpresentation, obstetric maneuvers and injudicious use of oxytocics<sup>11</sup> or it may be of unknown cause.<sup>12</sup> Most of these causes occur in the third trimester of pregnancy or during labor.

Spontaneous uterine rupture in the first trimester is a rarity especially in the absence of associated risk factors. The incidence of uterine rupture in unscarred uterus is 0.7 per 100,000 deliveries and 5.1 per 100,000 deliveries in scarred uterus<sup>13</sup>. In our case past obstetric history was not significant and there were no known risk factors for uterine rupture except for being multiparous with previous five vaginal deliveries.

Although abdominal pain, vaginal spotting and vomiting are the classic findings in cases of uterine rupture, it is difficult to diagnose early uterine rupture depending on these non-specific findings as which also occur in other

conditions such as molar pregnancy with invasion and ectopic pregnancy.<sup>9</sup> Furthermore, symptoms and signs of intra-abdominal bleeding with uterine rupture, especially in unscarred uterus, are subtle.<sup>14</sup>

The lower uterine segment, which is the

weakest part, is a common site of unscarred third trimester uterine rupture,<sup>15</sup> while fundal rupture occasionally occurs with first trimester rupture<sup>16</sup> and is associated with late diagnosis due to free blood collection in the intra-peritoneal space.<sup>15</sup>



**Figure 2: Repair of the fundal rupture in two-layers.**

In our case, an important point to note is the occurrence of uterine rupture in the first trimester in a woman with no history of uterine surgery or any other risk factor except for multiparity. Uterine rupture in multiparous women may be due to repeated stretching and thus weakening of the myometrium which makes it more prone to rupture. By searching in the literature we found few reported cases of spontaneous uterine rupture in early pregnancy with no

previous risk factor.<sup>9,16-19</sup> In our case rupture occurred in 11<sup>th</sup> week of gestation in a multiparous woman with an unscarred uterus.

Early uterine rupture and ectopic pregnancy are confusing for the obstetricians<sup>18</sup> and usually not differentiated till laparotomy. Ultrasound may help in diagnosis but any other preoperative evaluation wastes precious surgical time. Early surgical intervention

is required to prevent the catastrophic events of uterine rupture. Surgical options include suturing of the defect with or without tubal ligation, subtotal and total hysterectomy. Extent of the lesion, desire to preserve future fertility, condition of the patient and surgeon's experience are determining factors for the nature of surgery. In the case of uterine repair without tubal ligation, the patient should be counseled about the risk of rupture in subsequent pregnancies which is estimated between 4% & 19%.<sup>20</sup>

This case highlights multiparity as a risk factor for spontaneous first trimester uterine rupture. It is associated with poor fetal and maternal outcome due to difficult prediction by obstetricians in the absence of risk factors and due to rapid bleeding. Obstetricians must keep it in mind when a pregnant woman presents with acute abdomen in early pregnancy even with the absence of any risk factors.

## Conclusions

High parity is a major risk factor for unscarred uterine rupture. Clinical signs and symptoms are non-specific in early pregnancy. Immediate laparotomy is the key for successful treatment.

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