

A Case of Second-Trimester Spontaneous Uterine Rupture Attributable to Placenta Percreta

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ABSTRACT

Background: A uterine rupture is defined as the full separation of the uterus's three layers: the endometrium, myometrium, and perimetrium. Uterine ruptures result in significant morbidity and mortality for both the woman and the newborn. The rupture of an unscarred uterus causes significantly more maternal and neonatal morbidity than the rupture of a scarred uterus. The incidence of uterine rupture in an unscarred uterus is roughly 1 rupture per 10,000 to 25,000 deliveries.

Case Report: A case of uterine rupture was presented in the Department of Obstetrics & Gynecology, Phatthalung Hospital, on 12 June 2023. An 18-week pregnant woman showed symptoms of hemodynamic instability and severe abdominal pain. Clinical signs such as peritonitis, tachycardia, pallor, shock, and loss of uterine integrity raised suspicions of uterine rupture even in the absence of conventional risk factors. Emergency surgery verified that placenta percreta was the cause of uterine rupture.

Conclusion: Early diagnosis and prompt surgical intervention are critical factors to reduce morbidity and mortality.

Keywords: Second-trimester pregnancy; Ruptured uterus; Unscarred uterus

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Spontaneous unscarred uterine rupture in the second trimester is an extremely rare but critical obstetric emergency, associated with significant maternal and fetal morbidity⁽¹⁾. This complication can be prevented through timely diagnosis and appropriate management. The estimated frequency of unscarred uterine rupture is 1 in 17,000 deliveries, which is one fortieth the rate observed among women with uterine scars. This frequency aligns with the range reported in the literature, specifically between 1 in 15,000 and 1 in 20,000 births⁽²⁾. The cause and risk factors for unscarred uterine rupture, such as uterine anomaly, placental abnormality, grand multiparity, and vascular Ehlers-Danlos syndrome^(3,4), are uncommon, and it usually occurs in the third trimester of pregnancy.

The present case report was approved by the Ethics Committee of Phatthalung Hospital (Approval No.

26/2568). The research reports a rare case of placenta accreta-induced uterine rupture in the second trimester.

CASE REPORT

A 39-year-old woman, G3P1011, received antenatal care at Prakpayoon Hospital, with the only identified risk factor for the pregnancy being advanced maternal age. She had a previous vaginal delivery and a spontaneous abortion, which did not require curettage or any other interventions. She had no history of maternal connective tissue disease, chronic steroid use, or known Müllerian malformations, and she did not have a history of smoking or alcohol consumption. During her antenatal care, she received a negative result for the diabetic screening test, and her blood tests were normal.

She visited Prakpayoon Hospital at gestational age 18 weeks because she was experiencing weakness and discomfort in her upper abdomen. She presented with hypovolemic shock (blood pressure 90/50 mmHg,

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What is already known about this topic?

Spontaneous uterine rupture without identifiable risks in the second trimester of pregnancy constitutes a concern among pregnant women with abdominal pain.

What does this study add?

Reviews of uterine rupture may reveal the actual incidence and facilitate appropriate prevention measures.

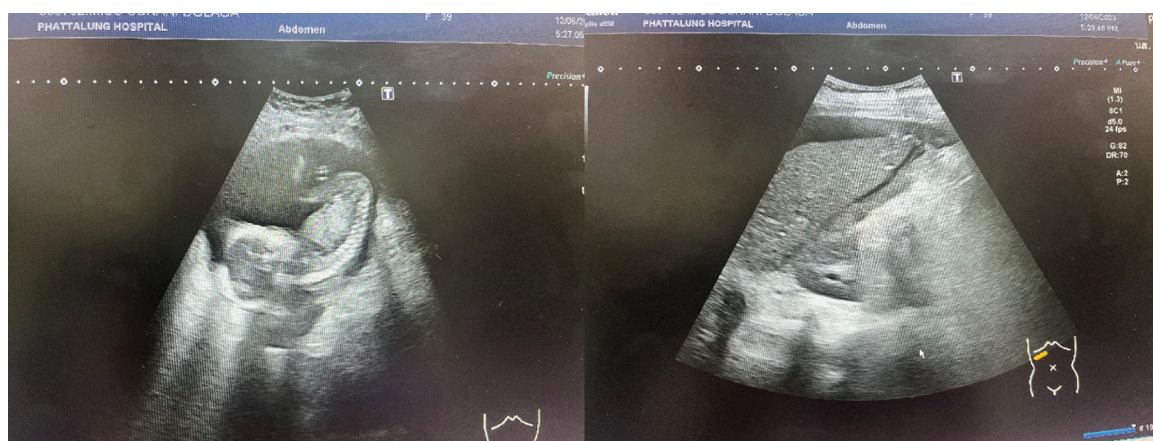


Figure 1. Initial ultrasound of the whole abdomen.

pulse rate 140 beats per minute), looked pale, and exhibited abdominal distension and guarding. The bedside ultrasound by her first doctor showed minimal ascitic fluid, and the fetus showed a normal heartbeat. The first diagnosis at the Prakpayoon Hospital was pregnancy with ascites and hypovolemic shock.

After resuscitation, she was transferred to Phatthalung Hospital. In the emergency room, the patient looked pale and displayed jaundice. She complained of abdominal discomfort and dizziness; the patient's blood pressure was 114/69 mmHg, and the pulse rate was 130 beats per minute. Transabdominal ultrasound showed the live fetus with marked ascites. The differential diagnosis was ruptured ovarian cyst, ruptured appendix, and spontaneous bacterial peritonitis with septic shock. Initially, uterine rupture was not suspected because she did not present any risks.

Laboratory tests relating to hepatitis and liver enzymes were negative. The abnormal blood tests included anemia (hematocrit of 21% and a mean corpuscular volume of 88 fL) and leukocytosis (white blood cell count of 25,400/ μ L, neutrophils comprising 89% and lymphocytes 6%). The author consulted radiologists for further imaging by computed tomography without contrast, and the result revealed moderate hemoperitoneum with focal blood around the uterus. Intra-abdominal hemorrhage was a concern, so abdominal exploration was set up. Pre-operation treatment for shock resuscitation and blood components were prepared (packed red cells, 2 units, and fresh frozen plasma, 500 mL).

Imaging Investigations

Ultrasound findings: Intrauterine pregnancy is shown. A single live fetus with a fetal heart rate of 100-

120 beats per minute is lying in a transverse position. Normal amniotic fluid and moderate maternal ascites are indicated (Figure 1).

Computed tomography scan report: Moderate hemoperitoneum with focal hyperdensity of blood around the uterus is revealed with limited uterine wall assessment (Figure 2).

Treatment

The operative findings are shown below.

Intra-operative findings: A dead fetus weighing 65 gm extruded through a uterine rupture at the left fundus with 1,300 mL of intra-abdominal hemorrhage. The placenta had invaded the endometrium, myometrium, and uterine serosa (Figure 3-7).

Hysterotomy was performed, and the operation time was 90 minutes. The estimated blood loss was 1,700 mL, so a massive transfusion protocol was initiated. The patient received 2 units of packed red cells and 2 units of fresh frozen plasma in the operating room.

After the operation, the patient was transferred to the intensive care unit.

On post-operative day 1, the patient was clinically stable; she was alert and attempted to communicate. The pale skin and jaundice had decreased. The blood sample showed anemia (hematocrit 20%), and the white blood cell count decreased from 25,400 to 13,200; therefore, 2 units of packed red cells were additionally transfused.

Post-operative day 2: clinical status improved, vital signs were stable, and her hematocrit increased to 25%. Ventilator weaning was successful, and the patient was transferred to the inpatient ward.

Post-operative day 3: In the inpatient ward, the patient ate and ambulated well.

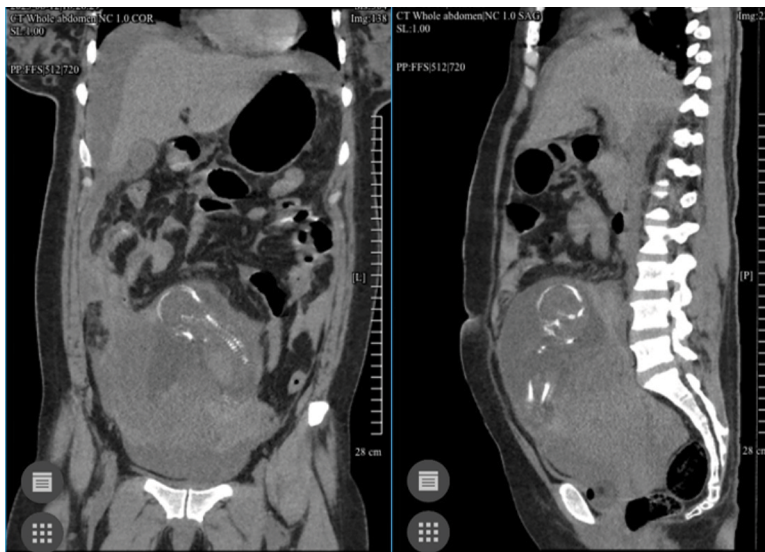


Figure 2. Initial computed tomography of the whole abdomen.

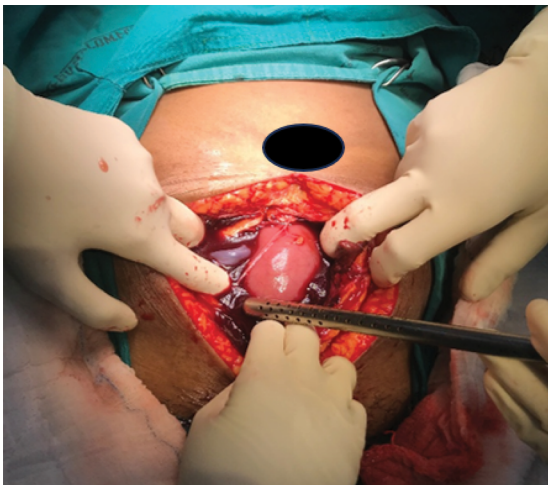


Figure 3. First finding after opening the abdominal wall.



Figure 4. Fetus extruded through the uterine site.



Figures 5. Anterior view of the ruptured uterus.

The patient was discharged without any complications on post-operative day 5. No complications were reported at 1-month follow-up, and clinical symptoms improved.

Pathology Report

Figure 8 shows the placental villi invading the entire myometrial thickness. Serosal invasion is present, with the perforation site (blue arrows). Placental tissue with a perforated lesion is noted at the uterine fundus, measuring 9.5×7×5.5 cm.

The final pathologic examination revealed that placenta percreta, associated with uterine rupture, second-trimester placenta, a three-vessel umbilical

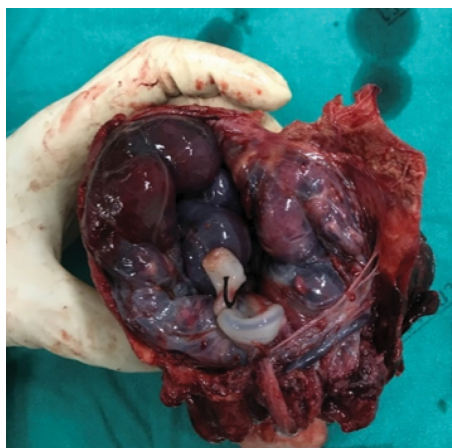


Figure 6. Site of placenta precreta.



Figures 7. Cross-sectional view of uterine rupture at the left fundus.

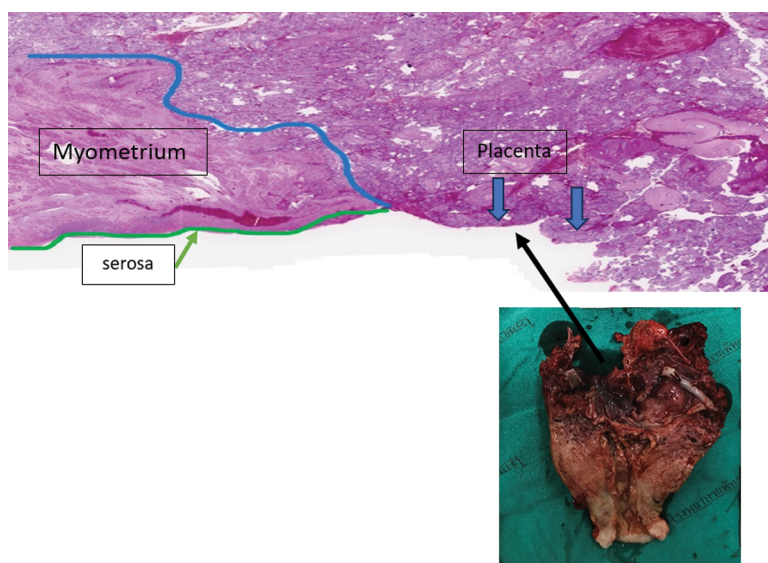


Figure 8. Pathological findings of the ruptured uterus compared with the gross appearance of the uterus.

cord, and decidualized endometrium were present. The cervix was unremarkable.

DISCUSSION

Unscarred uterine rupture presents a challenging diagnosis, particularly during the second trimester. The clinical presentation of peritonitis without trauma may lead to misdiagnosis of prevalent conditions such as ruptured ovarian tumors, ruptured appendicitis, and acute hepatitis infection. In Thailand, Ramathibodi Hospital recorded the incidence of 1 per 9,908 deliveries or 1.009 per 10,000 deliveries⁽⁵⁾. All were related to the augmentation and induction of labor.

Between 2017 and 2025, Phatthalung Hospital experienced an incidence of 1 per 3,708 deliveries (6

cases of uterine rupture/22,245 deliveries); 5 cases included term pregnancies with a prior cesarean section, and one case is documented in this paper. The uterine rupture usually happens in the third trimester, whereas this case report occurred as early as 18 weeks of pregnancy in a woman without previous uterine surgery. In addition, the most common symptoms are fetal distress, vaginal bleeding, and abdominal pain, differing from this patient presenting icteric sclera, anemic shock, and a normal fetal heart rate.

A history of uterine scar and use of uterotonic drugs are the most common risks. The clinical signs of unscarred uterine rupture in a second-trimester pregnancy are nonspecific and can mimic other acute abdominal emergencies such as hemorrhagic

Table 1. Case reports of unscarred uterine rupture

Author	Year	Gestation	GA (weeks)	Treatment	Result
LeMaire, et al. ⁽⁷⁾	2001	G3P2	17	Subtotal hysterectomy	d/c day3
Baruah, et al. ⁽⁸⁾	2004	G2P1	15	Subtotal hysterectomy	d/c day4
Huang, et al. ⁽⁹⁾	2005	G3P2	16	Emergency laparotomy	Death on arrival
Pierzynski, et al. ⁽¹⁰⁾	2012	G5P4	15	Subtotal hysterectomy	d/c day5
Nakayama, et al. ⁽¹¹⁾	2012	G2P1	26	Total hysterectomy	d/c day7

GA=gestational age; d/c=discharge from the hospital

ovarian cysts. The unknown cause and risk make diagnosis challenging. Two cases of unscarred uterine rupture in a third-trimester pregnancy with placenta accreta spectrum have also been well documented in Vietnam⁽⁶⁾, and 5 cases of unscarred uterine rupture in the second trimester caused by placenta percreta are summarized in Table 1⁽⁷⁻¹¹⁾.

These documents indicate that an unscarred ruptured uterus due to placenta accreta is an exceptionally rare occurrence, with the incidence of this abnormality reported to be approximately 1 in 1,000 deliveries⁽¹²⁾. Uterine ruptures during delivery predominantly occur in the lower uterine segment. Conversely, in the instance of uterine rupture during the second trimester, the fundus is typically the affected site. Similarly, the placental location and perforated site are also in the fundal area, as in this case. As the patient's condition was unstable, a subtotal hysterectomy became the most common management, but was not performed in the case of Huang et al.⁽⁹⁾. Instead, a laparotomy via a lower abdominal midline incision was undertaken, as this approach provided better control of the surgical field and intra-operative circumstances.

Abdominal ultrasonography is a straightforward and accessible method to investigate uterine rupture. Daskalakis et al. reported that the typical observation included disruption of the uterine wall, communication between the fetus and the abdominal cavity, and the presence of free fluid or hematoma⁽¹³⁾. In this case, ultrasound scanning illustrated that the live fetus was located intrauterine, but the uterine wall was difficult to discern, resulting in a difficult diagnosis. Thus, computed tomography was further required to identify this rare form of uterine rupture. The limitation of computed tomography to diagnose placental adherence in this case is possibly due to the non-contrast technique, making it difficult to clearly visualize the margins of both the uterus and the placenta.

This report aimed to highlight unspecified presentations and ultrasound examination findings that subsequently result in complicated diagnostic and

decision-making difficulties. The author recommend that the placenta location and adherence should be meticulously examined during routine second-trimester ultrasound scanning.

Differential diagnosis among pregnant women with acute abdomen whose ultrasound scanning illustrates fluid collection in the peritoneal cavity should include appendicitis, ruptured ovarian cyst, and uterine rupture.

CONCLUSION

Spontaneous uterine rupture due to placenta percreta in the second trimester is extremely rare, with an incidence of 1 in 5,000 pregnant women⁽¹²⁾ and a difficult diagnosis. Uterine rupture should be considered in the differential diagnosis among all pregnant women presenting with an acute abdomen or having a fluid collection in the peritoneal cavity. In addition, morbidity and mortality of uterine rupture are prevented by early diagnosis and proper management.

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Author Contributions

The author confirms sole responsibility for the following: abstract, introduction, patient information, clinical findings, diagnostic assessment, therapeutic intervention, discussion, and conclusion.

Clinical Trial Registration

Not applicable. This study was a case report that was not registered as a clinical trial.

Conflicts of Interest

The authors declare no conflict of interest.

Data Availability Statement

The information presented in this study can be verified and made available from the author on reasonable request.

Ethics Approval and Consent to Participate

The present case report was approved by the Ethics Committee of Phatthalung Hospital (Approval No. 26/2568). The research reports a rare case of placenta accreta-induced uterine rupture in the second trimester, and written informed consent was obtained.

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Use of Artificial Intelligence

The author used Artificial intelligence (ChatGPT and QuillBot) to improve grammatical accuracy.

REFERENCES

- Gibbins KJ, Weber T, Holmgren CM, Porter TF, Varner MW, Manuck TA. Maternal and fetal morbidity associated with uterine rupture of the unscarred uterus. *Am J Obstet Gynecol* 2015;213:382.e1-6.
- Guiliano M, Closset E, Therby D, LeGoueff F, Deruelle P, Subtil D. Signs, symptoms and complications of complete and partial uterine ruptures during pregnancy and delivery. *Eur J Obstet Gynecol Reprod Biol* 2014;179:130-4.
- Gardeil F, Daly S, Turner MJ. Uterine rupture in pregnancy reviewed. *Eur J Obstet Gynecol Reprod Biol* 1994;56:107-10.
- Pepin M, Schwarze U, Superti-Furga A, Byers PH. Clinical and genetic features of Ehlers-Danlos syndrome type IV, the vascular type. *N Engl J Med* 2000;342:673-80.
- Roungsipragarn R, Chaturachinda K. Rupture of the pregnant uterus: Ramathibodi's experience 1981-1990. *J Med Assoc Thai* 1993;76 Suppl 1:48-51.
- Vuong ADB, Nguyen XT, Nguyen PN. Placenta accreta spectrum on an unscarred uterus in the third-trimester pregnancy: Two rare cases at Tu Du Hospital in Vietnam. *Int J Surg Case Rep* 2022;99:107603. doi: 10.1016/j.ijscr.2022.107603.
- LeMaire WJ, Louisy C, Dalessandri K, Muschenheim F. Placenta percreta with spontaneous rupture of an unscarred uterus in the second trimester. *Obstet Gynecol* 2001;98:927-9.
- Baruah S, Gangopadhyay P, Labib MM. Spontaneous rupture of unscarred uterus at early mid-trimester due to placenta percreta. *J Obstet Gynaecol* 2004;24:705.
- Huang WC, Hung FY, Chen CP, Lin CJ. Spontaneous rupture of an unscarred uterus caused by near-cornual pregnancy with placenta accreta at 4 months of pregnancy. *Taiwan J Obstet Gynecol* 2005;44:362-4.
- Pierzynski P, Laudanski P, Lemancewicz A, Sulkowski S, Laudanski T. Spontaneous rupture of unscarred uterus in the early second trimester: A case report of placenta percreta. *Ginekol Pol* 2012;83:626-9.
- Nakayama S, Kawami T, Kasai K, Sato M, Kaji T, Maeda K, et al. P33.18: Spontaneous rupture of an unscarred uterus in second trimester: a case report. *Ultrasound Obstet Gynecol* 2012;40 (Suppl 1):310.
- Hudon L, Belfort MA, Broome DR. Diagnosis and management of placenta percreta: A review. *Obstet Gynecol Surv* 1998;53:509-17.
- Daskalakis G, Papantoniou N, Mesogitis S, Papageorgiou J, Antsaklis A. Sonographic findings and surgical management of a uterine rupture associated with the use of misoprostol during second-trimester abortion. *J Ultrasound Med* 2005;24:1565-8.