

## Spontaneous Uterine Rupture due to Placenta Percreta in Second Trimester of Pregnancy: A Case Report

Gebeliğin İkinci Trimesterinde Plasenta Perkreta Nedenli Spontan Uterus Rüptürü: Olgu Sunumu

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**Short title:** Uterine rupture due to placenta percreta

### ABSTRACT

Spontaneous uterine rupture due to placenta percreta in the second trimester is extremely rare and difficult to manage. A 26-year old pregnant woman at 27 gestational weeks with a history of two previous cesarean sections admitted to our center because of abdominal pain and vaginal bleeding. Ultrasound examination revealed placenta previa with moderate amount of intraperitoneal fluid. The border between myometrium and placenta was not differentiated. Paracentesis under ultrasound guidance showed bloody fluid. On emergency laparotomy, there was 1500 ml of blood in the peritoneal cavity and placenta was protruding through a bleeding full thickness uterine defect. Hemorrhage was controlled by transfusion of blood products and conservative surgery. The patient was discharged on the 3th day after surgery without complications. Placenta percreta induced spontaneous uterine rupture should be taken into consideration in pregnant women who have abdominal pain and intraperitoneal fluid.

**Key Words:** Abdominal pain, placenta percreta, spontaneous uterine rupture

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### ÖZET

Gebeliğin ikinci trimesterinde plasenta perkreta nedenli spontan uterus rüptürü çok nadirdir ve yönetimi zordur. Yirmiyedinci gebelik haftasında iki kez geçirilmiş sezaryenle doğum öyküsü olan 26 yaşındaki gebe bir kadın merkezimize abdominal ağrı ve vajinal kanama nedeniyle başvurdu. Ultrasonografi incelemesinde periton içi sıvıyla birlikte plasenta previa belirlendi. Myometrium ve plasenta arasındaki sınır ayırt edilemedi. Ultrasonografi eşliğinde yapılan parasetezle kanlı sıvı gösterildi. Acil laparotomi ile peritoneal kavite içerisinde 1500ml kan saptandı ve plasenta kanamalı tam katlı uterus defektinden protrüze haldeydi. Kan ürünlerinin transfüzyonu ve konservatif cerrahi ile kanama kontrol altına alındı. Hasta operasyondan sonraki üçüncü günde herhangi bir komplikasyon gelişmeden taburcu edildi. Plasenta perkretanın neden olduğu spontan uterus rüptürü abdominal ağrısı ve periton içi sıvısı bulunan gebe kadınlarda göz önünde bulundurulmalıdır.

**Anahtar Sözcükler:** Abdominal ağrı, plasenta perkreta, spontan uterus rüptürü

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### INTRODUCTION

Placental invasion anomalies are life threatening complications of pregnancy, which occur when placenta does not separate from the uterine wall completely following delivery (1). The prevalence is known to be approximately 1/500 to 1/2500 pregnancies (2). Because of the worldwide increasing cesarean section rates, frequency of abnormal placentation have raised in recent years. Other predisposing factors for abnormal placentation are placenta previa, advanced maternal age and history of uterine surgery. The grade of abnormally invasive placenta is defined according to depth of invasion. Placenta percreta is the most severe form, in which placental villi penetrate through the uterine serosa and sometimes into neighbor organs such as cervix, bladder or bowel (3). Uterine rupture is one of the catastrophic complications of placenta percreta which may lead shock, peripartum hysterectomy, cystotomy, intensive care unit admission, infection and prolonged hospitalization. Uterine rupture due to placenta percreta mainly occurs during the third trimester at the time of labor-type uterine contractility. Based on our review of medical literature, there are only a few isolated case reports in the second trimester.

Here, we presented an unusual case of massive intraperitoneal hemorrhage in the second trimester of pregnancy owing to uterine rupture secondary to placenta percreta.

### CASE REPORT

A 26-year old (gravida 5, parity 2, abortus 2) woman was referred to our center at 27 weeks gestation for vaginal bleeding and abdominal pain. The symptoms were started approximately 3-4 hours before admission. On her obstetric history, she had two cesarean sections 9 and 7 years ago. The patient had no relevant medical history and antenatal course of the present pregnancy was uneventful. On physical examination, mild abdominal tenderness was detected in the umbilical region, but guarding and rigidity was not observed. Vaginal examination showed a normal closed cervix and minimal uterine bleeding. Her blood pressure was 110/80 mmHg, heart rate was 90/minute and body temperature was 36.5°C. There were no uterine contractions and the fetal heart tones were regular at 120–140/min. Laboratory analysis showed a hemoglobin level of 10 g/dL, a hematocrit level of 30.6%, a white blood cell count of 15200/mm<sup>3</sup> and a platelet level of 271,000/mm<sup>3</sup>. Serum creatinine, urea, aminotransferases and coagulation profile were within normal limits. Ultrasound examination revealed a normally grown fetus with positive heart activity and placenta previa lying through the anterior uterine wall. The border between myometrium and placenta was not differentiated in lower segment. There was moderate amount of free fluid in the peritoneal cavity.

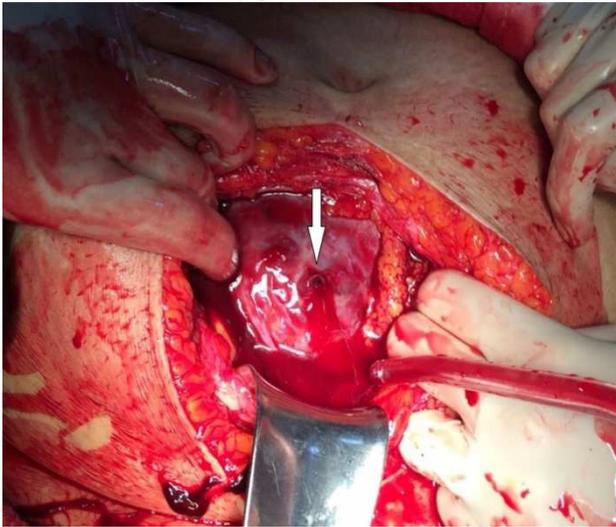
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A paracentesis under ultrasound guidance was performed in the right upper quadrant and yielded heavily blood stained fluid, suggestive of a possible intraperitoneal active bleeding. A general surgeon could not have made a clear diagnosis. An urgent laparotomy was performed by median incision due to suspected uterine rupture. Following drainage of approximately 1500 ml of free blood from the peritoneal cavity, placental tissue was seen protruding from a 1.5 cm full-thickness defect on the anterior wall of the uterus (Figure 1).



**Figure 1.** Intraoperative view of uterine rupture caused by placenta percreta (arrow)

Blood was oozing from the defect. A male fetus with Apgar scores of 6 and 9 at 1 and 5 min, respectively, weighing 1370 g was delivered by vertical fundal incision. The placenta was found to be densely adherent to the anterior uterine wall. The patient became hemodynamically stable and thus, it was decided to continue conservative management. The placenta was removed completely by piecemeal excision as close as possible to the uterine lining. Interrupted figure of eight sutures were placed in the placental bed. The defect in the uterus closed rapidly and hemorrhage was controlled. Both uterine arteries were ligated. All other abdominal organs were observed as normal. During the operation, intravenous 40 IU of oxytocin in 500 mL Ringer lactate and 600 µg of rectal misoprostol were administered. Intraoperative hemoglobin level dropped down to 7.9 g/dL. A total of 3 U erythrocyte suspension and 2 U of fresh frozen plasma were transfused. After the surgery, the hemoglobin level was 9.4 g/dL. The patient remained stable postoperatively and was discharged from hospital on the third postoperative day.

## DISCUSSION

Placenta percreta is the severest form of placental invasion anomalies with an average incidence of 1 in 7000 pregnancies (4). Although there are many hints for identifying placental invasion during routine ultrasound examination, most of the cases were missed before delivery and presented as an emergency. Several predisposing factors for placenta percreta have been reported, including placenta previa, submucous myoma, endometritis, Asherman's syndrome, previous cesarean section, uterine curettage, multiparity and increased maternal age (5). The incidence of placenta percreta is increased with increasing number of cesarean sections (6). Association of previous cesarean section and placenta previa was found to be the most significant risk factors for placenta percreta as in the presented case.

Spontaneous uterine rupture due to placenta percreta is a rare complication that can be life threatening for both mother and fetus. Hemorrhage and disseminated intravascular coagulation is the main cause of death in such cases. However, the clinical spectrum of disease ranges from mild abdominal pain to hemoperitoneum and shock. In their review of the literature, Jang et al. observed that the affected site of uterine rupture is uterine fundus during first trimester, but the site commonly affected is lower uterine segment in late gestation (7). In our patient, lower uterine segment was ruptured due to thinning of myometrium by placental trophoblastic tissue.

Intraabdominal bleeding due to placenta percreta can mimic many conditions. Other diseases involved in differential diagnosis include hepatic or splenic rupture, ovarian torsion or cyst rupture, acute appendicitis and heterotopic pregnancy.

Antenatal diagnosis is possible with use of ultrasonography, color Doppler and magnetic resonance imaging. The differential diagnosis constitutes a particular challenge for clinician as massive blood loss can be life threatening to patient. In the current case, as she was at high risk for placental invasion, antenatal diagnosis of placenta percreta was suspected. In this case, the patient had a history of previous cesarean delivery and placenta previa, which enables us to make accurate preoperative diagnosis.

A few isolated cases of placenta percreta with early uterine rupture that presented as an acute obstetrical emergency were also reported in previous studies (8-11). Hanif et al. presented a case of placenta percreta in which placental tissue was protruding through a bleeding previous cesarean scar at 12 weeks gestation. They performed hysterectomy due to torrential bleeding after a failed attempt to evacuate uterus (8). Medel et al. described a patient who died due to hypovolemic shock with coagulopathy in the 18th week of gestation after fertility treatment (9). Roeters et al. presented a pregnancy complicated by massive intra-abdominal bleeding due to placenta percreta at gestational week 14. They performed a pregnancy preserving surgery and delivered the fetus via cesarean operation followed by the hysterectomy in the 35th week of gestation (10). Pal et al. reported that placenta percreta might cause uterine rupture in second trimester without any associated high risk factors (11).

Optimal treatment for placenta percreta that is obviously without risk has not been defined clearly so far. Clinical management of uterine rupture due to placenta percreta may vary from conservative surgery to hysterectomy. The conservative options include leaving the placenta in situ, localized resection of the placental implantation site, over sewing of the placental vascular bed, uterine compression sutures, uterine artery embolization, uterine or hypogastric artery ligation and methotrexate administration. Success rate in arresting hemorrhage with those techniques is limited and seems to be the appropriate therapy for women who wish to continue their fertility. In addition, secondary hysterectomy is required in up to 31% of cases with placenta percreta who managed conservatively (12). Hysterectomy is considered to be the gold standard approach in a hemodynamically unstable patient with massive intraperitoneal bleeding (13). In our case, due to the desire for future fertility, we managed this patient urgently by conservative treatment. The patient was in a stable condition without complications after this operation.

In conclusion, placenta percreta induced spontaneous uterine rupture is difficult to diagnose in second trimester of pregnancy. The possibility of uterine rupture should always be kept in mind when a patient with a suspicion of adherent placenta admitted with signs of abdominal pain and free fluid in the peritoneal cavity. A state of alertness for prenatal diagnosis of cases at risk and prompt surgical management is essential to reduce perinatal mortality and morbidity

## Conflict of interest

No conflict of interest was declared by the authors

## REFERENCES

- Silver RM. Abnormal placentation: placenta previa, vasa previa, and placenta accreta. *Obstet Gynecol* 2015; 126: 654-68.
- Wu S, Kocherginsky M, Hibbard JU. Abnormal placentation: twenty-year analysis. *Am J Obstet Gynecol* 2005; 192: 1458-61.
- Silver RM, Barbour KD. Placenta accreta spectrum: accrete, increta, and percreta. *Obstet Gynecol Clin North Am* 2015; 42: 381-402.
- Hornemann A, Bohlmann MK, Diedrich K, Kavallaris A, Kehl S, Kelling K, et al. Spontaneous uterine rupture at the 21<sup>st</sup> week of gestation caused by placenta percreta. *Arch Gynecol Obstet* 2011; 284: 875-8.
- Oyelese Y, Smulian JC. Placenta previa, placenta accreta, and vasa previa. *Obstet Gynecol* 2006; 107: 927-41.
- Clark SL, Koonings PP, Phelan JP. Placenta previa/accrete and prior cesarean section. *Obstet Gynecol* 1985; 66: 89-92.
- Jang DG, Lee GS, Yoon JH, Lee SJ. Placenta percreta-induced uterine rupture diagnosed by laparoscopy in the first trimester. *Int J Med Sci* 2011; 8: 424-7.
- Hanif S, Hanif H, Sharif S. Acute abdomen at 12 weeks secondary to placenta percreta. *J Coll Physicians Surg Pak* 2011; 21: 572-3.
- Medel JM, Mateo SC, Conde CR, Cabistany Esque AC, Rios Mitchell MJ. Spontaneous uterine rupture caused by placenta percreta at 18 weeks' gestation after in vitro fertilization. *J Obstet Gynaecol Res* 2010; 36: 170-3.
- Roeters AE, Oudijk MA, Heydanus R, Bruinse HW. Pregnancy outcome after intra-abdominal bleeding due to placenta percreta at 14 weeks of gestation. *Obstet Gynecol* 2007; 109: 574-6.
- Pal R, Prasad D, Jain S. Placenta percreta causing rupture of uterus in second trimester of pregnancy in non scarred uterus with an unusual presentation: a case report and review of literature. *OJOG* 2014; 4: 695-8.
- Salman MC, Calis P, Deren O. Uterine rupture with massive late postpartum hemorrhage due to placenta percreta left partially in situ. *Case Rep Obstet Gynecol* 2013; 2013: 906351
- Sparic R, Mirkovic L, Ravilic U, Janjic T. Obstetric complications of placenta previa percreta. *Vojnosanit Pregl* 2014; 71: 1163-6.