Case Report

Spontaneous Uterine Rupture at Non-Cesarean Section Scar Site with Placenta Percreta in the Second Trimester: A Case Report□

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Background: *Uterine rupture was a common occurrence at previously cesarean-sectioned scar. Early sign of uterine rupture was a severe fetal bradycardia.*
Case Report: *A 30-year-old, 3 gravida, 1 para woman was presented with an acute abdominal pain and hypovolemic shock. Her gestational age was estimated at 18 weeks by emergency pelvic ultrasound. She had a lower segment scar from a previous caesarean section. Initially, alive intrauterine pregnancy with massive hemoperitoneum was a provisional diagnosis. During exploratory laparotomy, a ruptured of the right uterine fundus was found with placenta percreta. Hysterectomy was performed. Fetal weight was 450 grams, APGAR score 0, 0 and the fetus could not survive. The patient was discharged on the 4th day after surgery in healthy condition.*
Conclusion: *Uterine rupture is a catastrophic situation. Severe fetal bradycardia might be an early sign. This case demonstrates the importance of clinical judgment based on clinical acumen.*

Keywords: *Uterine rupture, Placenta percreata, Non-scar site*

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Uterine rupture is a life-threatening condition. Up to half of uterine rupture cases are found in unscarred uterus[1]. It also commonly occurs at previously cesarean-sectioned scars. The cases are usually found during labor.

Placenta percreta is an abnormal placental attachment that invaded through all layers of the myometrium. It usually invades cesarean section scar sites. The rupture of uterus caused by placenta percreta is a rare event in the 2nd trimester pregnant women with acute abdominal pain. The most common sign of uterine rupture is a non-reassuring fetal heart rate pattern with variable heart rate decelerations that may evolve into late decelerations, bradycardia, and death[2].

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The acute abdominal pains in pregnant women are normally managed based on clinical evaluation. The differential diagnosis usually included acute appendicitis, ovarian cysts with complications, urinary tract infection and peritonitis.

The authors report the case of a previous cesarean section woman (3 gravida, 1 para) with a rupture of uterine fundus in second trimester (18 weeks of gestational age). She presented with sudden onset of abdominal pain and shock while her fetus was still alive. During emergency laparotomy, a rupture of right side uterine fundus was identified with placenta percreta at the rupture site.

Case Report

A 30-year-old, 3 gravida and 1 para woman was seen in the second trimester of pregnancy at the emergency division of the Obstetrics and Gynecology Department, Thammasat University Hospital in year 2012. Her complaint was severe abdominal pain. The

pain started two hours prior to admission. The symptom included pain, rapid vital signs and consciousness deterioration.

The patient had previously given birth to her first child by cesarean section 12 years earlier with low midline type scar (via low midline incision). Her subsequent pregnancy two years later ended with spontaneous miscarriage in the first trimester. There was no history of uterine curettage. The date of her last period for current pregnancy was uncertain. She had a healthy medical history and there were no reports of diabetes and hypertension. She took no medication at the time of admission.

The patient was markedly pale and afebrile at her physical examination. Her blood pressure, pulse and respiration rate were 78/56 mmHg, 120 beats/min and 36 breaths/min, respectively. There were generalized tenderness and marked distension of her abdomen with guarding. An emergency ultrasonography revealed intrauterine pregnancy with a single viable fetus (fetal heart rate around 140 beats/min). The estimated gestational age was around 18 weeks. The uterus was surrounded with fluid, suspected hemoperitoneum. The provisional diagnosis was G3P1A1 18 weeks of pregnancy with shock from intra-abdominal bleeding.

Emergency laparotomy was performed under general anesthesia. Intra-operative findings showed a complete rupture of the right side uterine fundus measuring 4 cm in length. The amniotic sac was intact at the early period of operation and incidentally ruptured later. The ruptured site was surrounded by placenta tissue (Fig. 1, 2). A hemoperitoneum of 1,500 ml was found in corespondance with emergency ultrasonography and clinical hypovolemic shock. Uterine rupture with placenta percreta was intra-operative diagnosed. The defect of right uterine corpus was identified. Omental attachment to the defect site was also detected. The omental tissue was then excised and sent for pathological study. A repair was abandoned due to large defect and placental attachment area. Hysterectomy was performed with conceptus in situ (Fig. 3). Packed red blood cells and fresh frozen plasma transfusion of each 1,000 ml were given. The pathological study showed chroionic villi invading all layers of the myometrium through the uterine serosa. Diagnosis of placenta percreta was confirmed by pathological report (Fig. 4). The fetus weight was 450 g which confirmed 18th weeks of gestation. The patient fully recovered from surgery and was discharged from hospital on the 4th day after surgery.

Discussion

Uterine rupture ubiquitously occurred during labor processes. Its prevalence ranged from 0.12-29 per 1,000 deliveries in facility-based studies[3]. However, the prevalence of uterine rupture was estimated 1% for women with previous caesarean section[3]. Severe bleeding and invasion of adjacent organs by chorionic villi caused this life threatening condition. The spontaneous rupture of the uterus is one of the most severe complications that usually ended with emergency exploratory laparotomy and

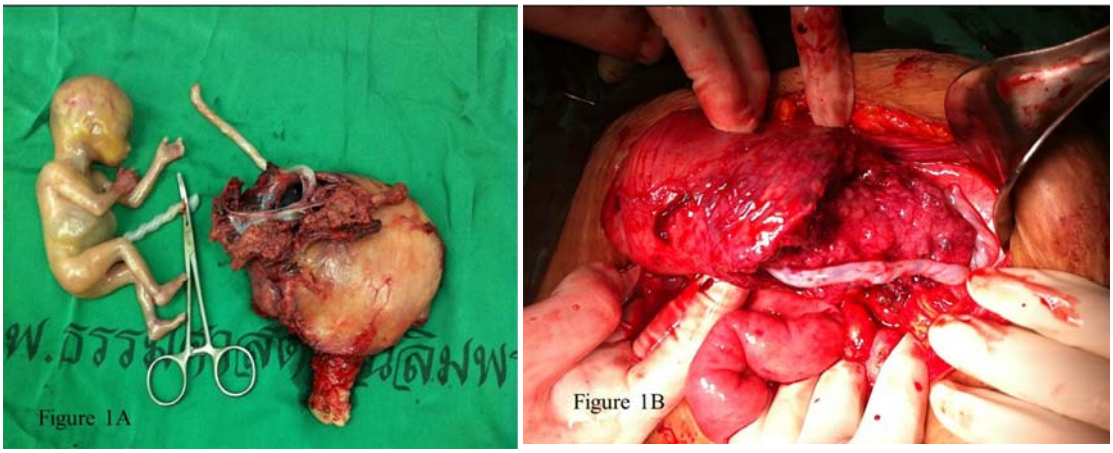

Fig. 1 A, B) Intraoperative finding. The external surface of uterus was invaded with placental tissue around ruptured site. Hemoperitoneum was also noted.

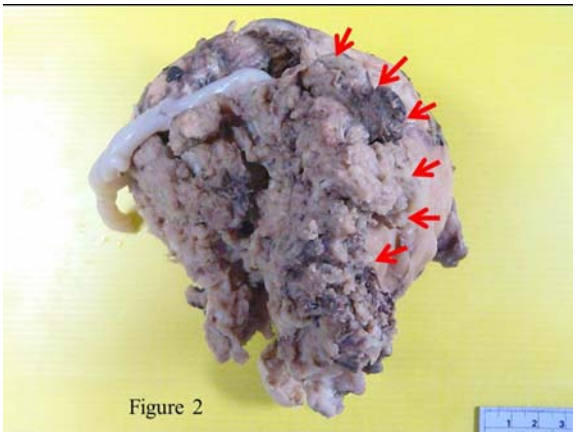

Fig. 2 External appearance of the uterus with retained placenta. The uterus was previously ruptured and revealed extrusion of placental tissue, compatible with placenta percreta (arrow head). Note the umbilical cord that also extruded beyond the uterine serosa.

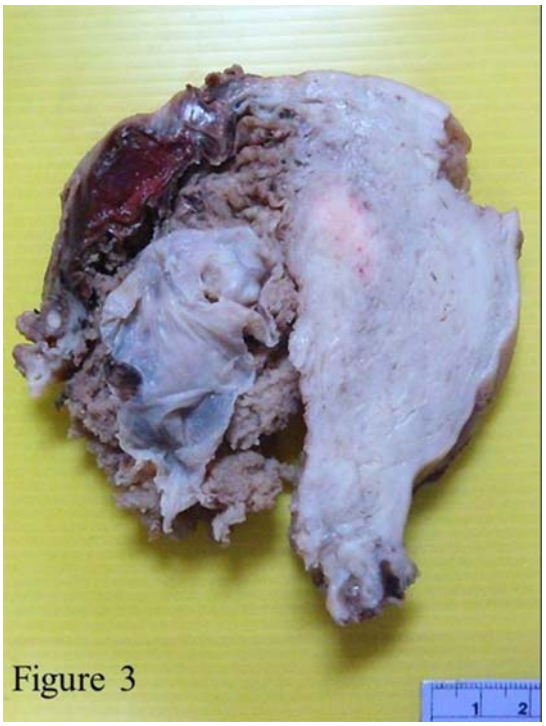

Fig. 3 Cut surface of the uterus with retained placenta. The cut surface at the rupture site demonstrates full-thickness placental tissue invasion into the myometrium without serosal coverage (left lower corner of the specimen). The left upper corner shows subserosal/subplacental hematoma. The grey white membrane on the center is the chorioamnionic membrane.

hysterectomy[4]. The most common early sign of uterine rupture is a non-reassuring fetal heart rate pattern. Intrapartum fetal monitoring presents from late decelerations, bradycardia and death[2].

After the era of cesarean section, the most common cause of uterine rupture is separation of previous cesarean section scar. Surprisingly recent data from Porrecco et al showed that half of uterine rupture occurred in unscarred uterus[1]. This may be a result from decreasing interest in trial labor after cesarean section.

Treatment of uterine rupture consists of conservative surgery and hysterectomy. Conservative treatment is composed of conceptus removal and uterine reconstruction. Hysterectomy is usually performed in severely lacerated uterus with unstable hemodynamic condition, and patients with no further childbearing desire. However, pregnancy after conservative surgery usually resulted in either repeated uterine rupture or a successful delivery from cesarean section[5].

Placenta percreta is the serious type of abnormal placentation. It is caused by the invasion of the placenta through all layers of the myometrium. Maternal morbidity and mortality of placenta percreta is known to increase with increasing number of cesarean section[4]. Placenta percreta constitutes only 5% of cases[6]. Traditional treatment of placenta percreta is immediate hysterectomy. Nowadays, conservative treatment is an alternative but careful patient selection and individualization is needed[7].

Spontaneous uterine rupture in an early pregnancy at non-cesarean section scar site is extremely rare and life-threatening condition[8]. This report presents a case of spontaneous uterine rupture in an early pregnancy at non-cesarean section scar site caused by placenta percreta. When the extremely rare condition occurs, the attendant physician may miss the correct diagnosis because of the combination of complicated signs and symptoms. Kinoshita et al reported a case of spontaneous uterine rupture due to placenta percreta at 25-weeks' gestation in primigravidarum[9]. This report presents uterine rupture at non-cesarean section scars at 18-weeks' pregnancy. Severe fetal bradycardia might be a strong indicator for uterine rupture especially with maternal hypovolemic shock. This report presents the condition of maternal hypovolemic shock while fetal heart rate was still in normal limit (fetal heart rate around 140 beats/min). This conditions initially led to the provisional diagnosis to the intraperitoneal hemorrhage without consideration

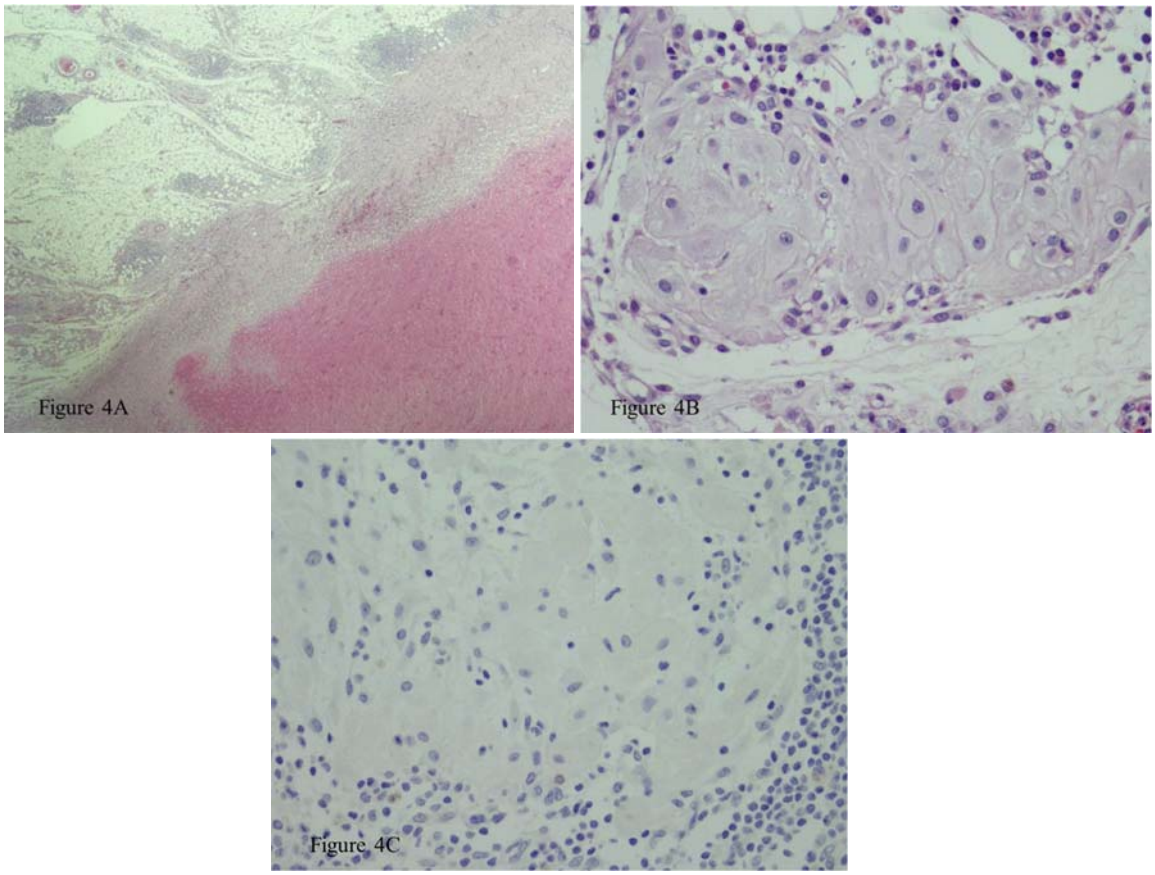

Fig. 4 A) Showing omental tissue with scattered lymphoid aggregates on the left upper and hematoma on the right lower (H&E, 20x). B) Showing decidual-like cells embedded in omental fat with associated chronic inflammatory cells (H&E, 400x). C) Immunohistochemical study for calretinin showing negative result in the decudual-like cells (calretinin, 400x).

of uterine rupture. This report is similar to Esmans' report of uterine rupture occurring in previously curettaged uterus at 11 weeks' gestation with maternal hypovolemic shock and lifeless fetal before laparotomy[10].

Conclusion

Spontaneous uterine rupture should be considered in pregnant women who had hypovolemic shock despite the lack of fetal bradycardia, unscarred uterus, vaginal bleeding and trauma history. Prompt surgical intervention should be obtained when uterine rupture is suspected or questionably diagnosed. Early intervention with appropriate counseling before operation could be the best way to determine the choice of operation between uterus reconstruction and hysterectomy. In an unstable hemodynamic status, hysterectomy could be the only lifesaving procedure.

What is already known on this topic?

Uterine rupture is a life-threatening condition. Up to half of uterine rupture cases are found in unscarred uterus[1]. It also commonly occurs at previously cesarean- sectioned scar. The cases are usually found during labor. Placenta percreta is an abnormal placental attachment that invaded through all layer of myometrium. It usually invaded in cesarean section scar site. The rupture of uterus caused by placenta percreta is a rare event in the 2nd trimester pregnant women with acute abdominal pain. The most common sign of uterine rupture is a non-reassuring fetal heart rate pattern with variable heart rate decelerations that may evolve into late decelerations, bradycardia, and death[2].

What this study adds?

Spontaneous uterine rupture should be

considered in pregnant women who had hypovolemic shock despite the lack of fetal bradycardia, unscarred uterus, vaginal bleeding and trauma history. Prompt surgical intervention should be obtained when uterine rupture is suspected or questionably diagnosed. Early intervention with appropriate counseling before operation could be the best way to determine the choice of operation between uterus reconstruction and hysterectomy. In an unstable hemodynamic status, hysterectomy could be only lifesaving procedure.

Potential conflicts of interest

None.

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มดลูกแตกเองบริเวณนอกแผลเป็นที่มดลูกจากการผ่าตัดคลอดเนื่องจากภาวะรกเกาะทะลุมดลูกในการตั้งครรภ์ไตรมาสสอง: รายงานผู้ป่วย

คมสันติ์ สุวรรณฤกษ์, เด่นศักดิ์ พงศ์โรจน์เผ่า, สกล มนูสุข, วรภพ สุทธิวาทนฤพุฒิ, กรณ์กาญจน์ ภมรประวัติธนะ

ภูมิหลัง: *มดลูกแตกเป็นภาวะที่เกิดขึ้นในบ่อยในบริเวณแผลเป็นที่มดลูกจากการผ่าตัดคลอดบุตร อาการแสดงเบื้องต้นคือภาวะหัวใจทารกเต้นช้าลงอย่างรุนแรง*

รายงานผู้ป่วย: *สตรีตั้งครรภ์อายุ 30 ปีตั้งครรภ์ที่ 3 มีบุตร 1 คน มาพบแพทย์ด้วยอาการปวดท้องอย่างรุนแรงร่วมกับภาวะเสียเลือดในช่องท้อง อายุครรภ์ 18 สัปดาห์จากการตรวจด้วยคลื่นเสียงความถี่สูงที่ห้องฉุกเฉิน ครรภ์ครั้งก่อนได้รับการผ่าตัดคลอดบุตร การตรวจเบื้องต้นพบว่ามีทารกที่มีชีวิตในมดลูกร่วมกับภาวะเลือดออกในช่องท้องจำนวนมาก ระหว่างการผ่าตัดช่องท้องฉุกเฉินพบรอยแตกบริเวณยอดมดลูกด้านขวาร่วมกับมีรกเกาะทะลุมดลูก ผู้ป่วยได้รับการตัดมดลูก ทารกน้ำหนัก 450 กรัม เสียชีวิต ผู้ป่วยสามารถจำหน่ายจากโรงพยาบาลได้ในวันที่ 4 ภายหลังการผ่าตัด*

สรุป: *มดลูกแตกเป็นภาวะที่เลวร้ายทางการแพทย์ ภาวะหัวใจทารกเต้นช้าอย่างรุนแรงเป็นอาการแสดงเบื้องต้น ผู้ป่วยรายนี้แสดงให้เห็นถึงความสำคัญของการตัดสินใจทางคลินิกด้วยความแม่นยำและรวดเร็ว*
