Case Report

Intra-Abdominal Hemorrhage Induced by Medical Abortion in Mid-Trimester Pregnancy: An Unusual Presentation of Placenta Percreta

Wipada Laosooksathit MD*,
Therdkiat Trongwongsa MD**, Amarin Narkwichean MD, PhD*

** Department of Obstetrics and Gynecology, Faculty of Medicine, Srinakharinwirot University, Nakhon Nayok, Thailand*
*** Department of Pathology, Faculty of Medicine, Srinakharinwirot University, Nakhon Nayok, Thailand*

We present a case report of 36-year-old pregnant with intra-abdominal hemorrhage caused by placenta percreta without uterine rupture after medication-induced abortion. Ultrasonography revealed 20-week gestation pregnancy with anterior placenta previa and evidences of the placenta adherens. Surgical exploration was performed twice. The first operation was emergency abdominal exploration. In the second operation, a hysterotomy followed by total abdominal hysterectomy was performed. Massive blood transfusion was required due to 10,000 ml intra-operative blood loss. A review of diagnosis and management of the placenta adherens is also discussed in this report.

Keywords: *Placenta percreta, Intra-abdominal hemorrhage, Medical abortion, Mid-trimester pregnancy*

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Caesarean section (C-section) rate has been increased during the past decade, which in high risk group pregnancy may be up to 60%[1]. In the HRH Princess Maha Chakri Sirindhorn Medical Center, Faculty of Medicine, Srinakharinwirot University, the C-section rate was approximately 45% in 2015[2]. One of the major consequences of C-section is that there is an increase in the incidence of abnormal placentation especially on the previous uterine scar causing placenta adherens. The placenta percreta is the deepest invasion type that the placenta invades through uterine myometrium[3]. The incidence of placenta adherens was approximately 1 per 533 deliveries[4]. Concerning histological diagnosis of placenta adherens, 81.6%, 11.8%, and 6.6% were placenta accreta, placenta increta, and placenta percreta, respectively[3].

Abnormal placentation in second trimester is generally uncomplicated. Nevertheless, some common procedures, i.e. induced abortion from various indications, can cause fatal catastrophic complications in the patient with undiagnosed abnormal placentation. Many reports have been found in literature.

Correspondence to:
Laosooksathit W, Department of Gynecology, Faculty of Medicine, Srinakharinwirot University, 62 Moo 7 Ongkharak, Nakhon Nayok 26120, Thailand.
Phone: +66-37-395085 ext. 10803
E-mail: wipada.oh@gmail.com

Management of placental adherens requires multidisciplinary teams including perinatologist, experienced gynaecologists, anesthesiologists, interventional radiologist, hematologists and blood bank. Prenatal diagnosis and elective management are very useful to the teams in terms of equipment preparation and survival of the patients[5]. However, emergency treatment is sometimes unavoidable due to antepartum hemorrhage. In the rare occasion, uncontrolled persistent bleeding can be instantly occurred in pre-viable gestational period leads to severe morbidity as well as complicated surgical procedures as demonstrated in this case report.

Case Report

A Burmese worker, 36 years old, G3P2 pregnancy was presented at the emergency department on Friday evening at approximately 8 to 9 PM, complaining of severe abdominal pain with minimal vaginal bleeding. She was not able to communicate with Thai language and also had history of previous C-section in her second pregnancy. The patient reported an attempt to illegally performed medical abortion, unknown medication taken orally, 3 days prior due to the socioeconomic problem.

History of her last menstrual period could not be obtained. At the emergency department, the physical examination revealed a skinny woman, restless with

unstable vital signs; feeble pulse rate at 108/min, blood pressure 88/53 mmHg, and respiratory rate 24/min. The patient was markedly pale. Her abdomen was significantly distended with the palpated fundal height at umbilicus. Marked uterine tenderness and rebound abdominal tenderness were observed. The fetal heart sound was demonstrated at the rate of 140/min via electronic device. Intra-abdominal hemorrhage from uterine rupture was suspected. Rapid intravenous fluid resuscitation was given. Bed-side ultrasonography revealed a single viable fetus at 20 weeks gestation. Placenta previa totalis covering mostly anterior wall of uterus was detected. The sonolucent line between the placenta and uterine wall was absent. There was large amount of free fluid in the abdominal cavity. Emergency exploratory laparotomy was arranged after patient stabilization.

Emergency abdominal exploration revealed a total of approximately 1,800 ml hemoperitoneum consisting of both old blood and clots. Placenta was identified at serosa of the anterior lower uterine segment without a gross disruption of the uterine wall. There was no visible source of active bleeding. The dome of urinary bladder invasion was suspected, but it was not possible to identify the border of the bladder reflection (Fig. 1). Due to a shortage of packed red cells and other blood components, the operation was temporarily postponed after non-bleeding had been confirmed. The subsequent plan was to i) acquire more blood components, ii) notify urology surgeon, and iii) closely monitor patient's vital signs, abdominal signs and hematocrit. Tocolytic medication was prescribed after the operation. Re-exploration with hysterectomy would then be performed as soon as appropriate preparation was achieved.

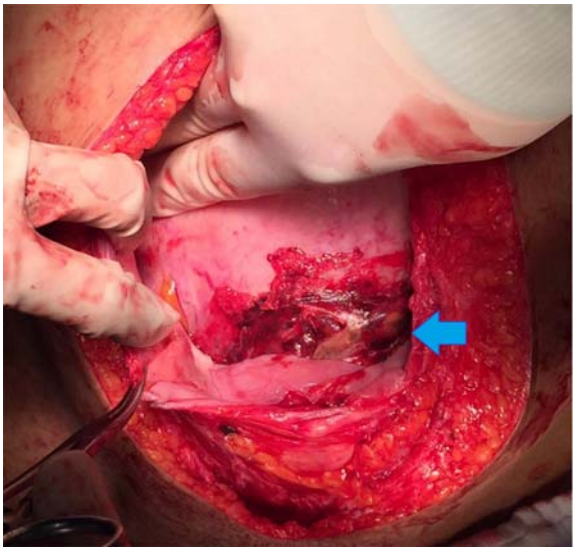

Fig. 1 Operative finding in the first operation demonstrating a large placental area (arrowed) protruded through uterine serosa at the lower uterine segment.

The second operation was done on the next day. One hundred mililiters of hemoperitoneum, was observed. Hysterotomy to remove fetus was performed first, followed by the total abdominal hysterectomy. The placental edge was extended anteriorly towards the dome of bladder and laterally to the left uterine artery. However, there is no evidence of placental invasion to the urinary bladder. Difficulty to access and control the left uterine artery was encountered during operation resulting in a total of approximately 10,000 ml intra-operative blood loss. Massive transfusion with 13 unit packs of red cells, 6 units fresh frozen plasma and 2 units leucocyte poor platelet concentrate (LPPC) were given intra-operatively and post-operatively.

The patient was transferred to the intensive care unit for 2 days after the operation. The patient was able to be transferred to the obstetric ward after 2 days of the operation. She was able to ambulate on the third day after operation and was discharged from the hospital on day 10. There was no post-operative complication detected. Pathological report confirmed visible placenta perforation 12x6x5 cm at anterior aspect of uterine serosa (Fig. 2). The microscopic examination showed chorionic villi invasion into the myometrium (Fig. 3).

Discussion

Number of C-sections and presence of the placenta previa determined the risk of placenta adherens in the current pregnancy. For example, primary C-section without placenta previa has a 0.03% probability of placenta adherens while there is more than 60% chance of the placenta adherens in women with 4 or more C-sections with placenta previa. The present case had 11% likelihood to have the placenta adherens because she had previous history of C-section and placenta previa[3]. The risk was significant and care providers should be aware for complicated placenta delivery and massive intra-operative hemorrhage.

The most common clinical manifestation of undiagnosed placenta adherens is vaginal bleeding which happens concomitantly from the placenta previa[6]. Other presentation includes severe abdominal

Fig. 2 Gross pathology showing the placental tissue invaded through uterine serosa (indicated).

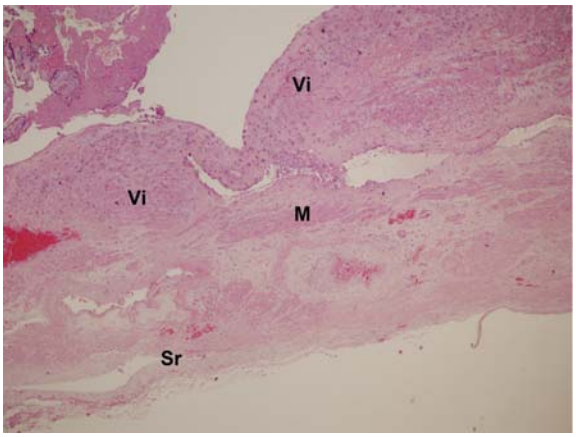

Fig. 3 Histopathology demonstrating the chorionic villi (Vi) invaded into myometrium (M) while there was a presence of the villi adjacent to the serosal surface (Sr) on the left side of picture.

pain with or without intra-abdominal hemorrhage from the placenta percreta induced uterine rupture as shown in some case reports[7,8]. Severe abdominal pain with intra-abdominal hemorrhage mimics clinical signs of the uterine rupture. Nonetheless, abdominal pain is not necessarily caused by the hemorrhage; either uterine contraction or peritoneal irritations is an example. A forementioned clinical presentations warrant physician to consider the placenta adherens in a patient with previous history of C-section (s) and recently diagnosed with placenta previa. The normal fetal heart rate is useful for a diagnosis of hemorrhage from placenta percreta and to differentiate with a uterine rupture.

The present case had both previous uterine scar and abnormal placentation; hence, medical abortion is very harmful. We hypothesize that detachment of placenta from loosen anchored tissue (uterine serosa and retrovesical space) occurred as a results of repetitive strong uterine contractions causing intra-abdominal hemorrhage mimicking uterine rupture.

In either a primary care unit or limited-diagnostic resource center, it is highly difficult to diagnose placenta adherens. If a patient presents with similar conditions; sudden abdominal pain and vaginal bleeding with previous uterine scar and recently found placenta previa from scan, as in our case report, the placenta percreta is instinctively concerned following the differential diagnosis of the uterine rupture. Adequate resuscitation and prompted refer to a tertiary center with sufficient resources is suggested. The condition is life-threatening and other surgical procedures such as uterine curettage are forbidden. Surgical exploration should be performed only by experienced obstetricians with adequate supports from multi-disciplinary departments.

Many reports of mid-trimester abortion in pregnancies complicated by placenta previa and/or placenta adherens were found during the literature review[9-11]. We conclude that the most effective way to reduce morbidity and mortality from massive blood loss is the prophylactic uterine artery embolization following by hysterectomy. The post-abortion uterine embolization and pre-induction feticide had also been reported, but the effectiveness of the method was inconclusive[12,13]. There were limitations in our case. The patient turned up at the emergency room on a weekend, adequate preparation regarding blood components and team was limited. In addition, prophylactic uterine artery embolization was unfeasible. Therefore, we decided to perform the emergency abdominal exploration.

Surgical management of the placenta percreta is complicated and needs a multidisciplinary team. In an accidental encounter during surgical exploration, manipulation of the placenta site can cause a massive blood loss. The surgeon should temporarily stop and re-evaluate all resources (blood, personels, etc) before continuing operative procedures. Multiple modalities can be chosen in an elective scenario, for instance, elective hysterectomy, conservative management by leaving the placenta *in situ*, various choices of uterine and internal iliac arteries occlusion[14]. Hysterectomy with fetus *in situ* is the preferred option in pre-viable fetal period to prevent massive hemorrhage. Nonetheless, in some complicated scenarios, for

example the present case where the left uterine vessels had been inaccessible, hysterotomy was performed aiming to reduce size of the uterus and thus may be more mobilised. Consequently, prompt vascular (internal iliac and/or uterine artery) control is the first prioritized management following hysterotomy operation.

Either uterine or internal iliac arteries identification should be the initial procedure. Hysterotomy with uterine incision on the uterine wall away from the placental site should be considered if vascular approach is extremely difficult. Prompt vessels control can be performed either by surgical ligations or catheter embolization depending on availability of experienced gynecologist or interventional radiologist, respectively[15]. In Thailand, internal iliac artery ligation is not routinely performed by obstetricians or general gynecologists. We encourage the training system to ensure confidence on performing the procedure in an emergency situation.

Anesthesiologists, urologist, and blood bank are vital for intra-operative emergency management. Risks of severe hemorrhage and massive blood transfusion should be discussed with the team prior to operation. Internist or hematologist consultation should be done as early as possible for postoperative intensive care especially in massive blood transfusion, electrolyte imbalance and infectious complications.

Conclusion

Patients with placenta percreta often presents with antepartum hemorrhage, but intra-abdominal hemorrhage occasionally occurs which can be misleading as a diagnosis of uterine rupture. In patients with suspected placenta adherens who undergo induced abortion, carefully-planned elective management can significantly reduced severe morbidity and mortality. Conversely, undiagnosed placenta percreta, which leads to unprepared emergency management, can result in numerous consequences. The final decision for operative option should be done by the best exploitation of available resources. Multidisciplinary approach is the most important and the team should be consulted as immediately as possible.

What is already known on this topic?

Previous uterine scar and placenta previa are the primary risk factors of placenta adherens.

Placenta adherens can cause severe maternal morbidity and mortality.

Placenta percreta is the life-threatening condition and surgical uterine procedures such as uterine curettage are forbidden.

What this study adds?

A patient with previous uterine scar who decides to undergo induced medical abortion and demonstrates signs and symptoms of intra-abdominal hemorrhage, uterine ruptured together with placenta percreta should be the primary concerns especially in one with hemodynamically unstable.

Diagnosis of the placenta percreta is vital in terms of careful preparation prior to an elective treatment.

Emergency operative procedure of placenta percreta places enormous risks on the patient. Prompted vessels (uterine or internal iliac arteries) control should be done prior to hysterectomy or trial removal of placenta.

Potential conflict of interest

None.

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ภาวะตกเลือดในช่องท้องจากการใช้ยาทำแท้งในช่วงอายุครรภ์ 20 สัปดาห์: อาการนำที่พบน้อยในภาวะรกเกาะแน่นทะลุชั้นกล้ามเนื้อมดลูก

วิภาดา เหล่าสุขสถิตย์, เทอดเกียรติ ตรงวงศา, อมรินทร์ นาควิเชียร

ผู้นิพนธ์นำเสนอกรณีศึกษาของหญิงตั้งครรภ์อายุ 36 ปี มาโรงพยาบาลด้วยภาวะตกเลือดในช่องท้องจากการที่รกเกาะแน่นทะลุชั้นกล้ามเนื้อมดลูกโดยที่ไม่มีมดลูกแตกภายหลังจากการใช้ยาทำแท้ง การตรวจคลื่นเสียง ความถี่สูงพบครรภ์เดี่ยว 20 สัปดาห์ มีภาวะรกเกาะต่ำและสงสัยรกติดแน่นทางด้านหน้าของมดลูกได้ผ่าตัดสองครั้ง ครั้งแรกผ่าตัดเปิดหน้าท้องฉุกเฉินและในครั้งที่สองได้ผ่าเอาทารกออกก่อนตามด้วยการตัดมดลูก เสียเลือด 10,000 มิลลิลิตร ในระหว่างผ่าตัดโดยมีการให้เลือดและส่วนประกอบของเลือดจำนวนมาก ในรายงานฉบับนี้ยังได้อภิปรายแนวทางการวินิจฉัยและการรักษาภาวะรกเกาะแน่นทะลุชั้นกล้ามเนื้อมดลูกไว้ด้วย
