รายงานผู้ป่วย (Case Report)

# Placenta percreta occurring in second trimester of pregnancy causing rupture of myomectomy scarred uterus: A case report and review literature

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## Abstract

Spontaneous uterine rupture due to placenta percreta in the second trimester is extremely rare. The author reports a case of non-specific symptoms of placenta percreta causing rupture of myomectomy scarred uterus at 27-week pregnancy. The case described of an elderly woman with the unconsciousness and impending hypovolemic shock, and followed by cardiac arrested. After successful cardiopulmonary support, the exploratory laparotomy revealed a hemoperitoneum, dead fetus in utero, fundal uterine rupture site, and trophoblastic tissue infiltration through three layers of the uterus. The patient had been performed emergency hysterectomy and bilateral salpingectomy.

**Keywords:** Placenta percreta, spontaneous uterine rupture, impending hypovolemic shock, cardiac arrest

## Introduction

Abnormal placentation, placental adherence, or abnormally invasive placenta (AIP) during pregnancy is a board term, and categorized into accrete, increta, and percreta. To draw a line between these entities in the clinical situation is not easy; where in invasiveness of the placenta is not always known in advance. So, the use of a clinical definition of AIP: a placenta that cannot be removed spontaneously or manually, without causing severe bleeding [1]. The strong association between a previous cesarean section delivery and AIP means that with the rise in cesarean section rate, seen in an almost world-wide-context [2], and the more case of AIP will be encountered in the future [3,4]. Lack of longitudinal studies and variation in use of the diagnosis of AIP, still the frequency of severe AIP seems to have risen may be 10 times over the last 50 years, and approximately 1 per 500 to 1 per 2500 deliveries is complicated with AIP [5,6].

Delivery of women with prior myomectomy has followed the trend of uterine rupture with a prior classical cesarean section, because the myomectomy scar is functionally equivalent to the scar from a classical cesarean section [7,8]. In practice there is a little data on uterine rupture risk in women with prior myomectomy [9-11], as well as AIP. Although it is an uncommon condition, it should be considered clinically significant because of life-threatening morbidity and mortality due to severe hemorrhage. Here, an unusual case of spontaneous uterine rupture due to placenta percreta with prior myomectomy scarred uterus was presented.

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## Case Report

A 38 years-old woman, gravida 1 parity 0 at gestational age (GA) of 27 weeks and 4 days (by ultrasound) presented with unconsciousness at the emergency department, respiratory rate of 24 breaths per minute with air hunger, blood pressure of 30/10 mm Hg, and pulse rate of 47 beats per minute. On per abdominal examination, the abdomen was markedly distended, the uterus was 28-week size, no guarding and rigidity, no uterine contraction, and absence of fetal heart sound. The pelvic examination showed no uterine bleeding with normal closed cervix.

Around one minute later, she had run down to the state of shock; undetectable pulse rate and blood pressure. After the 7-minute cardiopulmonary support was provided including endotracheal intubation, adrenaline injection, intravenous administration, and blood transfusion, the patient was recovered. The diagnosis of intra-abdominal hemorrhage was made, and the emergency exploratory laparotomy was performed. The laboratory analysis revealed the hemoglobin of 5.1 gram per deciliter, hematocrit of 15.1 volume percentages, and platelet count of 176,000 cells per milliliter. The coagulation profile showed the prothrombin time (PT) of 20.8 seconds, activated partial thromboplastin time (APTT) of 71.9 seconds, and international normalized ratio (INR) of 1.78, respectively.

On the review, two hours before admission at a private hospital, she had epigastric pain, drowsiness, and several vomiting 2 hours ago with stable vital sign, whereas the abdominal ultrasound revealed fetal heart bradycardia of 60 to 80 beats per minute with an amount of intra-abdominal free fluid. She had been performed laparoscopic myomectomy two years and a half ago. She had no any medical comorbidity.

Intra-operatively, hemoperitoneum of 5 liters was obtained. The uterus was ruptured at fundal area about 5.0 centimeters in length, with infiltration of trophoblastic tissue infiltration through three layers of the uterus, and multiple fibroids were found, as shown in **Fig 1 and 2**. The fetus was demised.

**Fig 2** Site of uterine rupture (white arrow) of 5.0 centimeters at the fundus, and coexisted with multiple fibroids. The vertical uterine incision was demonstrate at the lower uterine segment

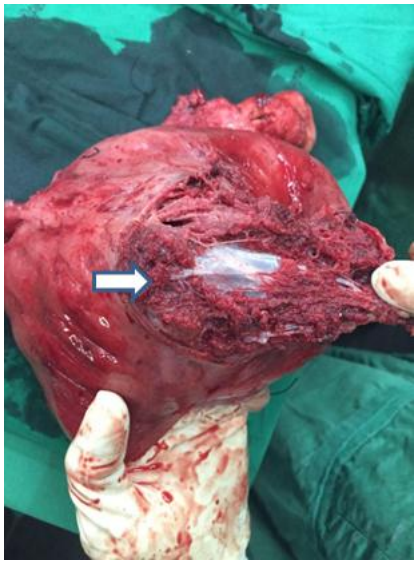

**Fig 1** Stretch and closed up the uterine rupture site (white arrow), and revealed the placenta invasion throughout the uterine wall

The diagnosis of placenta percreta, and ruptured uterus were macroscopically made. The emergency hysterectomy and bilateral salpingectomy were performed due to hemodynamic instability. Pre- and during surgical procedure, the patient was transfused 19 units of compatible blood, 19 units of fresh frozen plasma, and 10 units of platelet concentration. Postoperatively, she was kept in incentive care unit on ventilator for 3 days, and she was discharge after 20 days of hospital stay. The histopathology of the specimen of the uterus confirmed placenta percreta to be the cause of uterine rupture.

## Discussion

The incidence of the abnormally invasive placenta is varied between 1 in 540 and 1 in 93,000 with the average of 1 in 700. [12,13] The placenta percreta represents 5 to 7% of all abnormal placentation. [13,14] The spontaneous rupture of the uterus causing by placenta percreta is one of the most urgent obstetric complication which is more commonly seen in the third trimester, and is very rarely encountered in second trimester. [15] Histologically, placental percreta is characterized by chorionic villi penetrating through the myometrium into uterine mucosa, and infiltrates the nearby organs such as urinary bladder and bowel. [16]

The most common predisposing factor of abnormal placentation is previous cesarean section, which is attributed to increase in the rate of cesarean section. The other factors are of prior uterine scar such as uterine curettage, myomectomy, Asherman's syndrome, iatrogenic uterine perforation, manual removal of placenta, placenta previa, and advanced maternal age [17,18], as the in vitro fertilization is considered to be one of high risk factor. [19,20] But still, precise etiology of abnormal placentation is unknown.

**Table 1** Placenta percreta: Six reported cases during 2015 to 2016, and present case

| | Age | Parity | GA (week) | Symptom | Prior uterine scar | Diagnosis | Surgical procedure |
|---|---|---|---|---|---|---|---|
| Farooq F, et al | 27 | 2 | 17 (twin) | acute abdomen | two cesarean section scars | USG | total abdominal hysterectomy |
| Kohn JR, et al | 28 | 4 | $20^{+1}$ | Bleeding | three cesarean section scars, curettage, uterine ablation | USG, MRI | hysterectomy* |
| Sahu RR, et al | 30 | 0 | 26 | bleeding, acute abdomen | placenta previa | USG | local resection |
| Sun JN, et al | 39 | 1 | 17 | hypogastralgia, dizziness, abdominal pain | Hysteromyomectomy | USG, CT | Local resection |
| | 24 | 0 | 34 | abdominal pain, nausea | three previous abortion without curettage | USG, CT | Hysterectomy |
| Ozyurek ES, et al | 28 | 2 | $18^{+1}$ | rupture of membrane, no amniotic fluid | two cesarean section scars | USG | hysterectomy |
| Chandeying N | 38 | 0 | $27^{+4}$ | unconsciousness, air hunger, shock | myomectomy | exploratory laparotomy | hysterectomy |

* Incomplete rupture of uterus

Intra-abdominal bleeding due to placenta percreta may mimic many serious conditions, so in case of potential risks the imaging tools are recommended. Besides, the spontaneous rupture of uterus in early pregnancy is another lethal complication of early placenta percreta leading to significant hemoperitoneum and shock, thus necessitating hysterectomy. The clinical profiles of 6 cases of placenta percreta with complete/ incomplete uterine rupture, during 2015 to 2016, and the present case were demonstrated in **Table 1**. [21-25] Because of rare complication, thus it is essential to recognize the patients at risk, attempt to make antenatal diagnosis, and involve experienced obstetrician in management. [26] The diagnosis of placenta percreta using criteria of different ultrasonography (USG) is reliable, as well as magnetic resonance Image (MRI), and computerized tomography (CT). [27-28]

A review of published cases, the three commonly used surgical strategies among published cases of placenta percreta associated with local resection, hysterectomy or leaving the placenta in situ. Local resection (selection bias for less severe case) seems to be associated with fewer complications within 24 hours post-operatively compared with hysterectomy or leaving the placenta in situ. Whereas, conservative management, where the placenta is left in situ for resorption, seems to be associated with severe long-term complications of hemorrhage and infections, including a 58% risk that a hysterectomy will eventually be needed up till nine months after the delivery. [29] However, the choice between hysterectomy and conservative therapy is dependent on the severity of placenta percreta and associated complication.

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