Placenta Percreta and its consequences: A case report

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ABSTRACT

Severe hemorrhage during delivery may lead to complications if the urinary bladder is involved in cases of placenta percreta. If placenta percreta and its complications are discovered during delivery, they might be able to be successfully managed. However, in this situation, the mother can lose her uterus to stop the severe bleeding to save the mother's life. Therefore, early detection of placenta percreta is highly recommended. We present here a case of urinary bladder involvement in placenta percreta, which later led to hydronephrosis. We discuss possible steps to save the uterus for future conception based on findings in our patient.

Key words: *Placenta percreta, Hydronephrosis, Uterus transplantation, Kidney.*

1. INTRODUCTION

The condition of a morbidly adherent placenta includes placenta accrete, increta, and percreta. Among these three types, placenta percreta is the most severe form. In placenta percreta, abnormal placental implantation of chorionic villi penetrates through the myometrium to the serosa of the uterus or other adjacent organs. This leads to severe bleeding and hysterectomy is usually required [1]. The estimated incidence of placenta percreta is 7%, but this incidence is continually increasing [2].

The pathogenesis of placenta percreta is unclear, but its incidence increases when there is complete dehiscence of an old uterine scar. The extra villous trophoblast directly penetrates in the deeper myometrium, serosa, and surrounding organs due to this scar [1]. A uterine scar may result from any type of uterine surgery. Uterine scars can be caused by myomectomy entering the uterine cavity, removal of intrauterine adhesions, corneal section of an ectopic pregnancy, dilation and curettage, endometrial ablation, cesarean scar pregnancy, a history of pelvic irradiation, and infertility procedures [3, 4, 5]. Because of the propensity of severe hemorrhage from placenta percreta, placenta percreta is a potentially life-threatening condition. Although placenta percreta is commonly discovered at the time of delivery, antenatal diagnosis with ultrasonography (USG), magnetic resonance imaging, and/or cystoscopy might be helpful to recognize this condition before delivery. Several steps of investigations during antenatal checkup can detect the early stage of placenta percreta. In this report, we discuss a case of placenta percreta with involvement of the urinary bladder that led to hydronephrosis. We propose several steps to be taken during an antenatal checkup to save the uterus based on our findings obtained in this patient.

2. CASE REPORT

A 30-year-old woman, gravida 2, who had been married for 5 years, was admitted to hospital at 27 weeks' (+4 days) gestation because of a tender, contracted abdomen and vomiting for two times in the last 4 hours. She had a history of cesarean section (C/S) for her first child 18 months ago. She had no other relevant medical history, except for allergic rhinitis. During her second (present) pregnancy, at approximately 11 weeks of gestation, she complained of itching at her old C/S wound site, and this continued throughout her pregnancy. At 20 weeks' gestation, she was diagnosed with anemia (hemoglobin: 9.8 g/dl), oligohydramnios, and type II placenta previa. The patient was referred to a tertiary level hospital, and within 2 weeks, her hemoglobin level was 12 mg/dl. She was discharged with some medications (mainly progesterone, aspirin, iron supplements, and calcium tablets). At the 24th week of gestation, she had low back pain with itching at the old wound. The placental position was type III. There was no sign of fetal distress, the fetus was not at a viable age, and fetal growth was normal. Therefore, we decided to wait until 28 to 30 weeks of gestation to allow maturation of the fetus. However, the patient was admitted to the hospital early in the morning at 27 weeks (+4 days) of gestation with a tender and contracted abdomen. The patient was hemodynamically stable. The fetal heart rate was 128 beats per minutes (bpm). The patient was provided conservative treatment and was continually monitored. There was severe per vaginal bleeding after 20 hours of admission and she was in shock within the period of preparing for the operating theater.

Type IV placenta previa, a morbidly adherent placenta with placenta percreta, was found during the operation. Surgeons closed the abdomen and the uterus was intact. A male neonate weighing 1700 g, with an Apgar score of 4 and 2 at 4 and 5 minutes, respectively, was delivered. The neonate was sent to the neonatal intensive care unit and was artificially ventilated. A

radiological investigation showed that his lungs were not mature enough for drug treatment. The neonate died 4 days after delivery.

Per vaginal bleeding of the mother started 15 minutes after abdominal closure and could not be stopped by any regular (for postpartum hemorrhage) drugs. There was insufficient time for blood tests to measure variables, such as prothrombin time, international normalized ratio, fibrinogen, and platelets. The patient was then taken to the operating theater for subtotal hysterectomy under general anesthesia. Three hours after the second intervention, her vital conditions started to deteriorate (pulse: 130–170/min, blood pressure: 35/55 mmHg, oxygen saturation: 98%). A third operation was immediately arranged in the presence of urologists with the suspicion of concealed bleeding. There were approximately 1–5 units of clotted and liquid blood in the whole abdomen, mainly in the paracolic gutter. Many bleeding spots were encountered on the bladder surface and placental tissue was removed from bladder surface. There was no placental tissue inside the urinary bladder. The patient was unconscious for 3 days. She developed a urinary tract infection and left-sided moderate hydronephrosis after the 10th postoperative day. A ureteric stent was inserted the next day (Figure 1). The stent was removed 5 months later. The patient was completely discharged from the hospital 1 month and 11 days after admission.

The patient was free from any physical complaints at a 6-month follow-up. However, during these 6 months, she suffered from left-sided low back pain, clotted PV bleeding, and lower abdominal heaviness, which were treated symptomatically.

3. DISCUSSION

Continuous sutures (both single and double layer closure) in the uterine myometrium during prior C/S is one of the independent risk factors for placenta accrete/percreta [6]. Our patient had a previous history of C/S in which itching started at approximately 11 weeks of pregnancy. We assumed that itching was an early sign of placenta percreta. At that time, we might have detected early signs of placenta percreta by an antenatal investigation using Color Doppler ultrasonography, which can detect blood flow of the placenta [7]. In our case, Color Doppler was performed only during 8 weeks of pregnancy, but not later. Color Doppler ultrasonography is highly recommended when itching symptoms arise [8, 9]. Additionally, magnetic resonance imaging with gadolinium contrast [10, 11] and cystoscopy [12] are helpful for early detection of placenta percreta. If signs of placenta percreta are found early, then an abortion can be performed to save the uterus. Although the desired outcome is a healthy child, this might not be possible to achieve before 27 weeks of pregnancy. This is because the placenta enables blood flow to the surrounding organs of the uterus, which might be life-threatening for the mother due to blood loss. Hysterectomy is another result to stop bleeding to save the life of the mother, which can cause mental deterioration of the mother. Therefore, an early abortion can be an option in this case to save the uterus [13]. Two steps of management are necessary to avoid placenta percreta as follows. (1) Surgeons should use an interrupted suture during closure of the abdomen and uterus in the first C/S, which might not lead to placenta percreta. If prenatal diagnosis of placenta percreta is suspected, then a high longitudinal C/S versus low transverse C/S is preferred. (2) Color Doppler USG should be used during every antenatal checkup to detect abnormal blood flow of the placenta. Color Doppler USG is expensive for developing countries. Therefore, we expect universal health coverage to cover Color Doppler USG. (3) Aspirin should

be carefully used because it might increase the tendency for bleeding by blocking normal function of platelets [14]. The placenta usually invades the surrounding structures of the uterus, such as the urinary bladder, rectum, and ureter, during placenta percreta. This can cause a life-threatening condition to the mother [15]. Although the urinary bladder is commonly involved in placenta percreta [15], kidney has not been previously documented. Our patient developed hydronephrosis post-operation. Hydronephrosis can be due to the operative procedure either during the initial C/S or to subsequent surgeries. Uterine and hypogastric artery ligation is the most effective option for controlling postpartum hemorrhage [16]. Hypogastric artery ligation can cause urinary retention [17], which can lead to hydronephrosis. Another possible cause of hydronephrosis is untreated urinary tract block. This blockage might appear because of a blood clot [18]. We assume that our patient had urinary tract block due to blood clot, which was untreated from 24 weeks of gestation as she complained low back pain at that time. hydronephrosis can be treated with a ureteric stent or pyeloplasty [19]. Our patient received a ureter stent for the treatment of unilateral hydronephrosis and recovered after 5 months. Therefore, the possible cause of hydronephrosis in our case was a urinary tract blockade by blood clotting due to placenta percreta.

Loss of the uterus is the most common complication in placenta percreta [20], and this had occurred in our patient. Uterus transplantation is a good option for our patient. Though successful outcome of uterus transplantation was documented [21] but public funding [22] was the questionable remark for our patient. Therefore, another option for our patient is surrogacy, which is psychosocially and legally controversial in some countries [21]. Because our patient had repeated anesthesia within a short time, a long time with a stent, and uterine loss, these maneuvers could have had undesired psychological effect. However, there is no documentation

of psychological effect after hysterectomy [23], which is consistent with neuropsychological assessment of our patient up to 1 year.

4. CONCLUSION

Because placenta percreta usually involves the urinary bladder, there might be a consequence in the kidney by blocking the urinary tract. Therefore, any blockage in the urinary tract should be immediately and properly investigated when placenta percreta is detected. The regular practice of interrupted sutures instead of continuous suture at the inner side of the uterine wall and a high longitudinal C/S are suggested to reduce the incidence of placenta percreta. Regular use of Color Doppler USG is highly recommended to detect abnormal placental flow during an antenatal checkup. Additionally, aspirin should be carefully used because it can cause prolonged bleeding.

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COMPETING INTERESTS:

The author declares no competing interest.

ETHICAL ISSUE:

The patient gave written informed consent.

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Figure legend

Figure 1: Ultrasonogram shows a stent that was provided for hydronephrosis of the left kidney.