

Massive Postpartum Hemorrhage Following an Inner Myometrial Laceration: A Case Report

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ABSTRACT

Background & Objective: Postpartum hemorrhage has different etiologies. One of the rare causes is inner myometrial laceration that makes the diagnosis more difficult. This report aimed to introduce a case of massive postpartum hemorrhage following an inner myometrial laceration.

Case Report: A 24-year-old primigravid woman referred to an academic Hospital due to hypertension of 140/90 and diagnosis of preeclampsia. Her pregnancy was terminated at 39th gestational week. She received two doses of 25 µg misoprostol sublingually. Subsequently, an induction was performed and normal vaginal delivery occurred. A 2800 gr infant was born. After the delivery, the patient suffered from massive postpartum hemorrhage which continued in spite of all medical treatments. With regard of unstable vital signs, laparotomy was done. By transverse uterine incision, a longitudinal inner myometrial laceration was found in the lower uterine segment, which was repaired, thus, hemorrhage was controlled.

Conclusion: An inner myometrial laceration is one of the differential diagnoses of postpartum hemorrhage which should be taken into consideration. Repairing the inner myometrial laceration using laparotomy and hysterotomy would control postpartum hemorrhage and could avoid hysterectomy.

Keywords: Postpartum hemorrhage, Inner myometrial laceration, Labor, Increased intrauterine pressure

Introduction

Postpartum hemorrhage is one of the major causes of maternal mortality that contributes to 50% of postpartum deaths in developing countries and is still an important cause of mortality and morbidity in pregnant women (1). In most cases, the cause of postpartum hemorrhage can be detected. Among prevalent causes of postpartum hemorrhage, uterine atony followed by hemorrhage from the placental implantation site, retained placenta, genital tract laceration, uterine laceration, and coagulation disorders can be mentioned (2).

When a hemorrhage continues despite fully contracted uterus and in a case that all other prevalent causes of hemorrhage are excluded, an inner myometrial laceration should be considered and evaluated as a less prevalent cause of postpartum hemorrhage (3).

This report aimed to introduce a case of massive postpartum hemorrhage following an inner myometrial laceration.

Case Report

A 24-year-old primigravid woman referred with edema and more-than-normal weight gain during prenatal routine

cares at the 39th week of pregnancy. Urinary analysis test was requested to evaluate proteinuria. Due to proteinuria 3+ and hypertension of 140/90 with diagnosis of preeclampsia, the termination of her pregnancy at the 39th week was decided. The CBC tests, liver, PTT, PT, urea, and creatinine tests were all normal.

The patient was admitted to a private Hospital. Her first pelvic exam was good and a cervical dilatation of 1 cm without effacement was reported.

For ripening the cervix, two doses of 25 µg sublingual misoprostol were prescribed to the patient every 4 hour. Four hours after administrating the last dose of misoprostol, induction with oxytocin was started for the patient at 4 cm dilatation and 60% effacement. The normal vaginal delivery occurred and a 2800 gr infant was born with an Apgar score of 9-10. During labor, due to hypertension of 160/110, magnesium sulfate was infused.

Immediately after delivery, the patient had massive vaginal hemorrhage. In the examination, the uterus was fully contracted. The cervix examination did not show any laceration. Intrauterine examination showed no placental residual tissue. The lower uterine segment was not contracted and massive hemorrhage continued. Oxytocin

perfusion over 10 mL/min, and 800 micrograms of rectal misoprostol were prescribed.

The clots were removed from the inside of the lower uterine segment and the inside of the cervix was tamponed with gauze. The hemorrhage was controlled and episiotomy was repaired. An hour after completing these stages, the patient suffered from a massive hemorrhage again. The gauze was removed and the cervix and the vagina were again tamponed with gauze. Three hours later, she suffered from shock and very massive vaginal hemorrhage; therefore, she was transferred to the operating room. Simultaneously, two gynecologists were asked to help. During this time, 3 units of packed red blood cell and 3 units of FFT were transfused.

Due to unstable hemorrhagic status (PR=140/min, BP=80/50 mmHg), laparotomy was performed while the blood transfusion was continued.

In the examination, the uterus was fully contracted. A transverse incision, like a transverse incision of cesarean section was done in the lower uterine segment. The intrauterine examination showed few lacerations in the lower uterine segment which had lacerated the myometrium and the hemorrhage was seen. Several sites were sutured and the inside of the uterus was tamponed with gauze. The lower hypogastric arteries on both sides were ligatured and the B-lynch suture procedure was applied. A suction drainage was placed inside the abdomen and the abdominal wall was closed. The patient was transferred to ICU after the surgery. The next day, the requested tests were normal. She only had hematocrit of 20%; hence, 4 units of red blood cell and FFT were transfused. Six hours after the transfusion, the coagulation factors investigation was normal. She was transferred to the Obstetrics Ward. On the third day after the surgery, she was discharged with a good general condition. Ten days later, she referred for check-up. Her condition was completely normal and the infant was fed with breast milk.

Discussion

Postpartum hemorrhage is still one of the major causes of death in pregnant women. Common causes of postpartum hemorrhage are uterine atony, vagina, perineal, cervical laceration, uterine laceration, placenta accreta, uterine inversion, varicose veins lacerations and coagulation disorders. The management of this pathology is based on the etiology of postpartum hemorrhage (1).

One of the most important and rare differential diagnoses of postpartum hemorrhage is an inner myometrial laceration. One of its causes is increase in intrauterine pressure due to massive uterine contractions during labor (2).

A myometrial laceration was first reported as a cause of postpartum hemorrhage by Hayashi et al. in 2000. Out of the 37 cases under study, 3 cases of postpartum hemorrhage occurred due to myometrial lacerations. Therefore, they concluded that an abnormal increase in

intrauterine pressure during labor that happens due to massive uterine contractions may impose high levels of stress on the cervix and lead to an inner myometrial laceration (3). They reported that uterotonic compounds should be prescribed for the cervical ripening with appropriate doses and time intervals to prevent uterine laceration and increased excessive uterine contractions.

In a case study by Kaplanglou *et al.*, in 2016, 4 patients with normal vaginal delivery had massive uncontrollable hemorrhage. The emergency laparotomy was performed and inner myometrial lacerations were detected. As a primary management, the myometrial lacerations were sutured; however, 2 of these patients underwent hysterectomy due to massive uncontrollable hemorrhage. They concluded that an inner myometrial laceration is one of the causes of postpartum hemorrhage and should be managed by suturing the laceration. Considering the patient's age and parity, hysterectomy can be conducted when hemorrhage is uncontrolled (4).

Also, Hishikawak *et al.*, in 2017 reported inner myometrial laceration in a 35-year-old woman who did not have a uterine scar and a history of cesarean section and underwent a normal vaginal delivery with spontaneous contractions at 38th week of her pregnancy. Immediately after delivery, the patient had severe abdominal pain and loss of vital signs and shock. Laparotomy was done and inner myometrial and serosal lacerations with extensive hemoperitoneum were detected. They concluded that despite the absence of a uterine scar, a myometrial laceration during labor can be one of the causes of extensive hemoperitoneum and massive postpartum hemorrhage (5).

In a case report by Abu-Rustum *et al.*, in 2006, a 31-year-old woman, gravida 4 and para 2, with a term pregnancy had normal vaginal delivery with spontaneous uterine contractions. A 3600 gr infant was born. Massive hemorrhage after the delivery occurred which did not respond to any medical treatments. Cervical and vaginal lacerations and placental residues in the uterus were not reported. The uterus was packed; however, due to the massive hemorrhage, the pack was removed and laparotomy was done. A longitudinal inner myometrial laceration was reported and the hemorrhage was controlled by repairing this laceration (6).

In a study conducted in Japan by Hayashi *et al.*, in 2000, a 27-year-old primigravid woman with no history of any specific disease referred to a hospital at 42nd gestational week as a post term pregnancy. Pregnancy was terminated with induction of labor (oxytocin infusion). A 3310 gr infant was born by normal vaginal delivery. After delivery, the patient suffered from hemorrhage and uterine atony. Initially, oxytocin, methergine, 1000 µg of misoprostol, and 500 cc of glucose 5% were given to the patient; however, she did not respond to this management. The hemorrhage continued and 2 units of packed cells were transfused to the patient due to massive hemorrhage; then, she was transferred to the operating room and laparotomy and hysterectomy were done. In the examination of the uterine pathology, there was a 7 cm

inner myometrial laceration on the left side of the uterus and a 3 cm inner myometrial laceration was found on the right side of the uterus (3).

In the patient mentioned in the current study, like the other reports, due to the massive and uncontrollable postpartum hemorrhage, laparotomy was done and the laceration found in the lower uterine segment was repaired. Fortunately, the patient was managed without hysterectomy.

Conclusion

Inner myometrial laceration is one of the differential diagnoses of postpartum hemorrhage, and after excluding other causes, it may be taken into consideration. Laparotomy and hysterotomy with repairing the inner myometrial laceration may control the postpartum hemorrhage and avoid hysterectomy.

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Conflict of Interest

Authors declared no conflict of interests.

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