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Uterine Rupture in Second Trimester Due to Misoprostol Use: A Case Report and Literature Review

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ABSTRACT

Intravaginal misoprostol is used worldwide with excellent results for second-trimester pregnancy termination. However, it has a rare but serious complication of uterine rupture, both in previously scarred and unscarred uteri. In this report, we present a case of this rare complication in an unscarred uterus during termination with misoprostol. Uterine rupture was found on laparotomy after the patient showed signs of shock during termination. A 2- to 3-cm laceration was detected in the uterine wall along with the left cornea. The placenta was attached to the uterus on the other side. We found an unusual pregnancy in the cornea and successfully repaired it. Although using misoprostol for termination is safe, a regimen protocol should be established. However, uterine structure and implantation safety should be confirmed before administrating misoprostol. This case highlights a difficult diagnosis of abnormal placentation, especially cornual ectopic pregnancy.

Keywords: Misoprostol, Second-trimester Pregnancy, Uterine rupture

Introduction

The most widely used technique for terminations is non-surgical methods but can be performed by surgical evacuation too. Both methods are safe, but have rare complications such as retained tissue, infection, sepsis, hemorrhage, uterine perforation or rupture.

One of the medical methods for termination in the first and second trimester is misoprostol prescription, both in combination or alone. It's a synthetic E1 prostaglandin (PGE1), that is administered in pregnancy for ripening of the cervix, inducing the labor and also, termination especially in the second trimester **(1-5)**.

Although a rare complication of misoprostol use, uterine rupture, is potentially life threatening one that can be happened at any time during pregnancy in both scarred and unscarred uteri **(4, 6, 7)**.

Signs of uterine rupture include abdominal pain, hemodynamic instability, or vaginal bleeding **(8)**.

In this paper, we present a case of rupture in an unscarred uterus, during the second trimester with misoprostol. During termination, the patient was presented with abdominal pain and vital sign changes. The patient was subjected to emergency laparotomy, and a large uterine fundal defect was found. It was a cornual ectopic pregnancy and was successfully repaired.

Case Presentation

A 30-year-old primigravida woman with a history of membrane rupture about 1 week ago presented to the obstetrical triage unit of Vali-e-Asr Hospital at 18 weeks' gestation for termination of pregnancy. Her obstetrical history indicated that she was admitted to another hospital for epigastric pain and dyspnea 2 weeks ago, but no significant finding was obtained, and vital signs were stable. Echocardiography revealed no abnormalities. After 1 day, she was discharged. Termination was performed with an initial dose of sublingual misoprostol of 400 mg. The patient received 400 mg of misoprostol. After 6 hours, the patient complained of epigastric pain during the admission. Her vital signs were stable, and charting of intake and output was normal. She had good contractions; therefore, we did not repeat the misoprostol dose. Then, we performed a complete blood count. After 3 hours, the patient was conscious, with signs of shock and generalized abdominal pain. She had a tachycardia of about 110 beats per minute. Her blood pressure was 100/70 mm Hg. Pelvic examination result demonstrated vaginal bleeding. Her cervix was closed, and her hemoglobin levels decreased. Initial resuscitation was started by 2 intravenous lines, and the patient was given 1 L of ringer lactate. Fast ultrasonography revealed a huge amount of intraperitoneal fluid, which was likely to be

hemoperitoneum. The patient was taken up for emergency laparotomy, which revealed a hemoperitoneum of approximately 3 L. A rupture was found at the fundal surface of the uterus, 2–3 cm at the left cornu, and was actively bleeding (Figure 1). There was a huge intramural up to subserosal leiomyoma at the right fundal of the uterus. The fetus was removed through the rupture line. The placenta was attached to the myometrium at the site of the leiomyoma and separated with difficulty. The uterine rupture was repaired, and a myomectomy was performed (Figure 2). Other abdominal organs were normal. The postoperative course was uneventful. She received a transfusion of 4 units of packed red blood cells and 2 units of fresh-frozen plasma. Her hemoglobin level at discharge was 9 g/dl. The histopathological report indicated leiomyoma with necrosis and placenta. The final diagnosis was abnormal implantation, which was a cornual ectopic pregnancy.

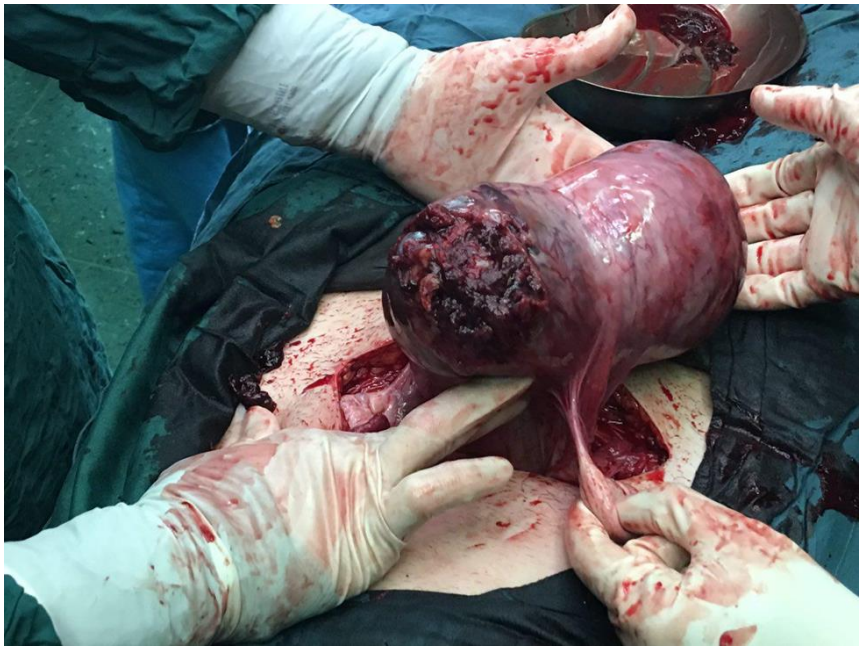

Figure 1. The rupture at the fondul surface of uterus. at the left cornu

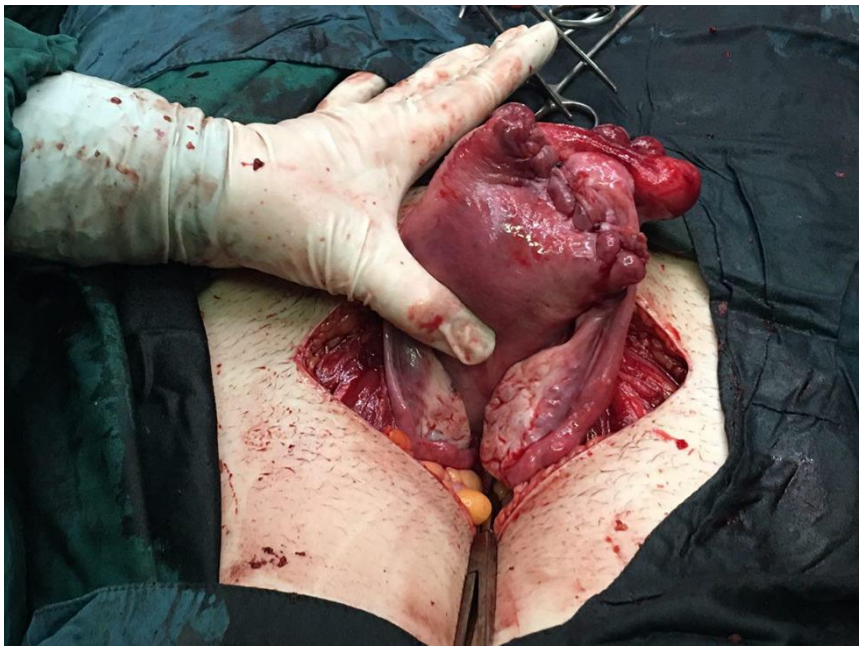

Figure 2. The uterine rupture was repaired

Discussion

Mostly misoprostol is used for medical abortion or termination in the first trimester **(9, 10)**. According to the recent clinical guidelines, misoprostol is often used before dilatation and evacuation in women with prior uterine surgery **(11, 12)**.

Uterine rupture can exist in women undergoing medical termination. It's rare but more frequently in the second trimester **(13)**. This complication is more likely when induction with oxytocin and misoprostol are used together **(14)**.

A systemic review including 16 studies was conducted by doyal **(15)** to approximate uterine rupture in termination with misoprostol. It proved significantly higher risk among those who had a prior scar. It was low in women without previous surgery on uterine, about 0.04%. There isn't any standard clinical regimen for termination with intravaginal misoprostol and is used in different clinical regimens. In our case, we used 400 mg of misoprostol. As a clinical protocol, the route of administration and dose of it, as a clinical protocol, must be available to optimize the accuracy and minimize the adverse effect **(16)**.

Uterine rupture due to abnormal implantation usually occurs in term pregnancy or during the third trimester, but there are some cases of uterine rupture in the first or second trimester. Although in misoprostol use, ruptures usually can be seen in scarred uterine, cases of ruptures in normal uterine have been reported. Henderson et al. reported a case of uterine rupture after misoprostol use in a multiparous woman with no history of previous surgery on the uterine. The short interval between pregnancies was the risk factor during the last-mentioned case **(17)**. The difference between Henderson's patient and us is the multiparity of Henderson's reported case. Jiang et al. reported a multiparous female with the previous transverse incision in the inferior segment of the uterine with signs of urinary retention and hematuria after termination. The patient's laparatomy revealed a uterine rupture in the inferior segment but the uterine was preserved successfully **(18)**. Unlike Jiang's case, our patient has no history of the previous cesarean.

Khabbaz et al. also reported a case of a rupture in a multiparous patient with a non-scarred uterine in the third trimester **(19)**. Ezegwui et al. described a case of uterine rupture in a primigravid woman at term pregnancy. The presentation was fetus bradycardia and laparotomy revealed rupture in which uterine was preserved **(20)**. The difference between the Ezegwui case and our patient was in the time of termination. There was no problem in the placement of placenta implantation in the previously mentioned cases, but placenta implantation placement was abnormal in our case.

Our patient presented signs of shock. We decided to do emergency laparotomy. We safely preserved the uteri and fertility of the patient. Ultrasonography examination that was performed before the termination, was unable to diagnose the ectopic pregnancy. Before using misoprostol, the safety of the uterus and placentation should be ensured first.

Conclusion

Although uterine rupture is a rare but serious complication, it should be suspected in women during termination with misoprostol. Signs of it should be considered and also, a clinical protocol should be determined for different gestational ages **(16)**. It should be used in lower doses in patients with a history of uterine surgery. The safety of uterine structures and normal placental implantation should be confirmed before administering misoprostol. In addition, tight monitoring should be applied during the termination.

Acknowledgments

None declared by Authors.

Ethical Permission

Not applicable

Written informed consent was obtained from the patient to publish this case report and accompanying images. A copy of the written consent form is available in the journal office.

Authors Contribution

1-F.K.: The main surgeon of the patient, Editing the final manuscript

2-M.S.: Collecting data

3-N.Z.: Writing and editing the article, Corresponding

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Conflicts of Interests

None declared by Authors

The authors have no conflicts of interest relevant to this article

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