

Misoprostol-Induced Uterine Rupture in a Primiparous Woman: A Case Report

Honglan Zou, Yang Mei and Ran Yunhong

Department of Obstetrics, Suiyang County People's Hospital Affiliated to University of Zunyi Medical and Pharmaceutical College, Zunyi, China

ABSTRACT

Uterine rupture, although rare, is a serious complication of pregnancy with potentially devastating consequences for both mother and foetus. It most commonly occurs during the antepartum or peripartum periods, typically affecting the lower anterior segment of the uterus. Key risk factors include prior cesarean deliveries, previous uterine surgeries, advanced maternal age, and labour induction with prostaglandins. This case study reports on a 40-week primiparous woman who underwent labour induction with vaginally administered misoprostol tablets. After delivery, clinical examination revealed a rupture of the external uterine wall accompanied by a complete cervical tear within the soft birth canal. The patient underwent a total abdominal hysterectomy and right adnexectomy as part of the emergency management. This case highlights an atypical presentation of uterine rupture, emphasising its timing and clinical features in a primiparous patient.

Key Words: *Parauterine rupture, Vaginal delivery, Unscarred uterus, Misoprostol.*

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INTRODUCTION

Uterine rupture is a severe complication of labour, carrying a foetal mortality rate that can reach as high as 83% and an almost universal fatality rate among newborns. This condition presents potentially catastrophic outcomes for both mother and foetus. Uterine rupture in unscarred pregnancies is exceedingly rare, occurring in approximately 1 in 5,700 to 1 in 20,000 pregnancies.¹ Most ruptures in unscarred uteri occur in the anterior lower uterine segment, while lateral uterine ruptures are particularly uncommon.

Misoprostol, a medication commonly used for labour induction, primarily works by regulating calcium ion concentrations in uterine myocytes, thereby promoting smooth muscle contractions. However, labour induction with misoprostol requires careful monitoring to prevent uterine tetanic contractions, which can lead to rupture and pose life-threatening risks to both mother and foetus. Numerous cases of uterine rupture have been reported in patients administered misoprostol during labour trials.²⁻³

This report details an exceptionally rare case involving a 23-year primigravid woman at 40 weeks of gestation. She experienced a lateral uterine wall rupture and a complete cervical tear during the second stage of labour. Following the successful vaginal delivery of a live infant, the emergency surgical intervention including a total hysterectomy and right adnexal resection was carried out.

CASE REPORT

A 23-year primigravida at 40 weeks of gestation underwent standardised prenatal examinations throughout her pregnancy. She had no history of uterine surgery, such as myomectomy or resection for uterine horn pregnancy. A third-trimester ultrasound revealed no abnormalities. On obstetric evaluation, the pelvis was normal, and her Bishop score was 3. To promote cervical ripening, a single 25 µg misoprostol tablet was administered vaginally at 12:00 noon. At 13:50, the maternal membranes ruptured spontaneously, releasing clear amniotic fluid. Labour was confirmed at 14:30, and epidural analgesia was administered at 16:00 hours, resulting in a Visual Analogue Scale (VAS) pain score of 0 during labour. At 18:20, the patient vomited once, expelling stomach contents, and reported symptoms of dizziness, fatigue, and irritability but continued to experience no uterine pain. Abdominal palpation indicated strong (+++) uterine contractions. At 19:20, the foetal heart rate dropped to 92–115 beats per minute (bpm), with further monitoring revealing persistent foetal heart fluctuations between 60–70 bpm. The uterine orifice was fully dilated, and the foetal head was at +3 station. Despite the absence of uterine pain, signs of foetal distress necessitated intervention. A perineal lateral incision and foetal vacuum extraction were performed, resulting in the vaginal delivery of a male infant at 19:34, weighing 3,200 g.

Correspondence to: Dr. Honglan Zou, Department of Obstetrics, Suiyang County People's Hospital Affiliated to University of Zunyi Medical and Pharmaceutical College, Zunyi, Guizhou Province, China
E-mail: 942662297@qq.com

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The placental membranes were delivered naturally and completely. However, following placental delivery, a significant amount of blood—approximately 2,300 mL—was observed in the vagina. Examination revealed poor uterine contractions, an unclear uterine contour, and a severe cervical laceration at the 9 o'clock position, with the laceration extending beyond the point of exploration. Due to extensive postpartum haemorrhage and severe lacerations of the soft birth canal, an emergency exploratory laparotomy was performed.

Under general anaesthesia, intraoperative exploration revealed a lateral rupture in the lower segment of the uterus. The rupture extended upward from the cervical region at the 9 o'clock position to the lower uterine segment near the uterine body, measuring approximately 12 cm in length. Uterine vessel injuries and active bleeding were identified, alongside extensive subcapsular haematocoele in the right-subserosal uterine area, right broad ligament, and mesosalpinx. Additionally, the right fallopian tube exhibited oedema and a dark red discolouration. The patient's vital signs were unstable, with uncoagulated blood, a balloon-shaped uterus, and necrosis involving the right fallopian tube and mesangium. Given these findings, a total hysterectomy with right adnexectomy was performed (Figure 1).



Figure 1: Uterine rupture during intraoperative exploration.

The total blood loss during the operation was 6,500 mL, and the infusion volume reached 14,820 mL. This included 20 units of suspended erythrocyte fluid, 100 mL of fresh frozen plasma, 1,800 mL of frozen plasma, 10 units of cryoprecipitate blood, and two therapeutic doses of platelets. Due to the critical nature of her condition, the patient was transferred to the ICU postoperatively for stomach care, albumin infusion, infection prevention, and other necessary treatments. She was discharged on day six, and a follow-up visit two weeks later indicated a reassuring recovery.

DISCUSSION

Uterine rupture is a rare but life-threatening obstetric complication, defined as a full-thickness tear in the uterine wall, including the serosa. Research suggests that the use of misoprostol is associated with a uterine rupture risk of around 0.35% in scarred uteri and 0.04% in unscarred uteri.⁴ A study conducted in the Netherlands revealed that uterine ruptures in unscarred uteri accounted for only 13% of all reported cases.⁵

Labour analgesia blocks and separates the sensory and motor nerves, reducing the stress response of pelvic floor muscles to pain and fully or partially relieving contraction pain.⁶ In this case, the pregnant woman received epidural labour analgesia, resulting in a VAS score of 0. Consequently, the typical symptoms of uterine rupture were absent during labour observation. This delayed the timely detection of foetal heart abnormalities, ultimately leading to the severe complication of uterine rupture.

The principles for managing uterine rupture emphasise immediate surgical intervention while addressing shock, regardless of whether the foetus is viable. In almost all cases, the onset of haemorrhagic shock requires an urgent laparotomy, rapid infusion of crystalloid solutions, and whole-blood transfusion for resuscitation.¹

In summary, this case highlights the critical importance of effective management during labour, coupled with a thorough understanding of the indications for obstetric surgical interventions and adherence to operational protocols. Despite the absence of high-risk factors, heightened vigilance for uterine rupture is essential. Early recognition, the implementation of proactive management strategies, and comprehensive training for rapid response teams are pivotal in achieving favourable outcomes for both the mother and the foetus.

PATIENT'S CONSENT:

This case report was published with the written informed consent of the pregnant woman.

COMPETING INTEREST:

The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:

HZ: Conception, design of the work, acquisition, analysis, and interpretation of the data.

MY: Drafting of the work and revising it critically for important intellectual content.

YR: Final approval of the version to be published.

All authors approved the final version of the manuscript to be published.

REFERENCES

1. Sisay A, Teshome A, Regasa E, Siferih M. Early labour posterior uterine wall rupture in a primigravid mother with successful repair and live birth: A case report. *Int J Womens Health* 2024; **16**:95-98. doi: 10.2147/IJWH.S439619.

2. Paprikar S, Lagoo A, Lagoo J. Uterine rupture: Review of cases from tertiary care centre in India. *Int J Reprod Contracept Obstet Gynecol* 2022; **11(9)**:2499. doi: 10.18203/2320-1770.ijrcog20222317.
3. Haas J, Barzilay E, Chayen B, Lebovitz O, Yinon Y, Harel L, et al. Safety of labor induction with prostaglandin E2 in grandmultiparous women. *J Matern Fetal Neonatal Med* 2013; **26(1)**:49-51. doi: 10.3109/14767058.2012.722719.
4. Goyal V. Uterine rupture in second-trimester misoprostol-induced abortion after cesarean delivery: A systematic review. *Obstet Gynecol* 2009; **113(5)**:1117-23. doi: 10.1097/AOG.0b013e31819dbfe2.
5. Zwart JJ, Richters JM, Ory F, de Vries JI, Bloemenkamp KW, van Roosmalen J. Uterine rupture in the Netherlands: A nationwide population-based cohort study. *BJOG* 2009; **116(8)**:1069-78. doi: 10.1111/j.1471-0528.2009.02136.x.
6. Ghidini A, Vanasche K, Cacace A, Cacace M, Fumagalli S, Locatelli A. Side effects from epidural analgesia in labouring women and risk of cesarean delivery. *AJOG Global Reports* 2024; **4(1)**:100297. doi: 10.1016/j.xagr.2023.100297.

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