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CASE REPORT

Subsequent placenta accreta after previous mifepristone-induced abortion: A case report

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Abstract

BACKGROUND

Mifepristone-induced abortion (MIA) has been used worldwide to terminate pregnancies. However, the association between placenta accrete (PA) and MIA has seldom been reported.

CASE SUMMARY

A 26-year-old pregnant woman presented with painless vaginal bleeding at 35 wk of gestation. She had a medical abortion (mifepristone followed by misoprostol) 1 year ago at the sixth week of gestation. Her personal history for previous surgery was negative. Abdominal ultrasonography showed a normal foetus with complete placenta previa. The foetal membrane ruptured with massive vaginal bleeding and severe abdominal pain. An emergency Caesarean section was performed, and the newborn was delivered. The placenta failed to expel and manual extraction was carried out. A large defect was noted in the uterine fundus and repair of the uterine rupture was conducted immediately. The postoperative pathology report showed placenta accreta.

CONCLUSION

The evidence suggests a possible etiologic role of MIA in PA, as the incidence of PA after MIA is much higher than general population. Millions of pregnancies are complicated by PA each year, some of which result in fatality. To prevent subsequent placental complications after MIA, hormonal supplementation might be a promising therapeutic options. However, further studies are needed to identify the high-risk factors and to confirm the effectiveness of estrogen supplement therapy.

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Core Tip: The main findings of the current study are (1) a potential association between placenta accrete (PA) and mifepristone-induced abortion (MIA); and (2) the prevalence of PA after MIA has been neglected and underestimated for a long time. Millions of pregnancies are complicated by PA each year, some of which result in fatality. To prevent subsequent placental complications after MIA, hormonal supplementation might be a promising therapeutic option. However, further study is needed to identify risk factors and to confirm the effectiveness of estrogen supplement therapy.

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INTRODUCTION

Considered as the most popular abortion choice, mifepristone-induced abortion (MIA) has been used to terminate unwanted pregnancies. It has been estimated that 3 million women received mifepristone in combination with misoprostol in France, Sweden, the United Kingdom, and China in 2000[1]. Since then, the worldwide use of MIA has expanded. By 2003, the estimated number of induced abortions has reached 46 million [2]. The immediate side effects of MIA have been well studied and the long term outcomes still need full evaluation. There have been published findings of placental complications, such as retained placenta[3], placental abruption[4], and placenta previa[5] associated with MIA. However, placenta accreta (PA) has been seldom reported. The aim of this study was to (1) report a case of PA after a previous MIA; (2) review the literature; and (3) evaluate the risk factors and therapeutic strategies for preventing placental complications.

CASE PRESENTATION

Chief complaints

A 26-year-old (gravida 2, parity woman presented at our emergency department at 33 wk of gestation with a chief complaint of painless vaginal bleeding for 5 h.

History of present illness

There was no fever, vaginal bleeding, vaginal discharge, or any other symptoms.

History of past illness

She had a medical abortion (mifepristone followed by misoprostol) 1 year ago at the sixth week of gestation. Her personal history for previous surgery, including cervical and uterine surgery, was negative.

Personal and family history

No significant personal history or hereditary family history was noted.

Physical examination

The patient's vital signs were normal on admission. Vaginal spotting was noted. No abdominal sharp tenderness or rebound pain were present. Vaginal examination revealed that the cervix was closed and its length was in the normal range. There was no vaginal fluid.

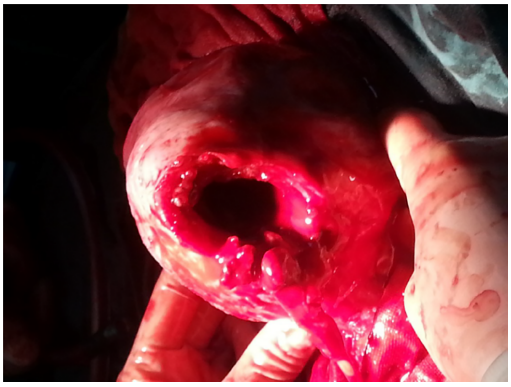

Figure 1 A large uterine defect was noted in the fundus after manual removal of the placenta.

Laboratory examination

She was hemodynamically stable with normal liver function tests, normal coagulation profile and a haemoglobin level of 10.8 mg/dL. Cardiotocography, C-reaction protein, and fetal non-stress test results were normal.

Imaging examination

Abdominal ultrasonography showed a normal foetus with the placenta located in the anterior uterine wall. The fundus and the lower margin of the placenta completely covered the internal orifice of the cervix (complete placenta previa). No fluid was detected in the pouch of Douglas.

FINAL DIAGNOSIS

The patient was diagnosed with complete placenta previa at week 33 of gestation.

TREATMENT

Dexamethasone was administered instantly to the mother to promote foetal lung maturation. The patient stayed hospitalized for recurrent vaginal bleeding and tocolytics were given accordingly. 12 d later at 35 wk of gestation, the foetal membranes ruptured with massive vaginal bleeding and severe abdominal pain. An emergency Caesarean section was performed and a newborn was delivered with a birth weight of 2500 g and an Apgar score of 9 at 5 min and 10 at 10 min. The placenta failed to expel and manual extraction was carried out. The placenta was tightly attached and was difficult to remove. A large 5 cm × 3 cm defect was noted in the uterine fundus after manual removal of the placenta (Figure 1). Repair of the uterine defect was conducted immediately. The surgery went well with an estimated blood loss of 1000 mL.

OUTCOME AND FOLLOW-UP

The pathology report showed placenta accreta. The patient was discharged 6 d after surgery and recovered uneventfully during follow-up.

DISCUSSION

This preliminary study showed that there was a potential association between PA and MIA. In theory, the use of mifepristone to induce abortion is associated with endometrial haemorrhage and extracellular matrix degradation, which may cause irreversible injury to the endometrium[6]. If the severity of injury exceeds the self-repair capacity of the uterus, long term adverse effects are likely to occur. PA, defined as the invasion of chorionic villi into the myometrium, is one of the clinical manifest-

Table 1 Studies of estrogen administration following mifepristone-induced abortion

Ref.	Hormone regimen	Dose	Duration
Martin *et al* [12], 1988	Post-operation, oral contraceptive	Ethinyl oestradiol 30 μg; levonorgestrel 150 μg	Start on the day of abortion, daily for 21 d
Tang *et al* [13], 2002	Post-operation, oral contraceptive	Ethinyl oestradiol 30 μg; levonorgestrel 150 μg	Start 1 d after the administration of misoprostol, daily for 21 d
Liu *et al*[14], 2006	Post-operation, estrogenic supplementation	Oestradiol valerate 1mg	Start 1 d after abortion, daily for 14-18 d
Wang *et al* [15], 2011	Post-operation, oestrogenic-progesterone sequential administration	Oestradiol valerate 2 mg; Medroxyprogesterone 10 mg	Oestradiol valerate, start 1 d after abortion, daily for 21 d; Medroxyprogesterone, daily for the last 5 d
Farhi *et al* [16], 1993	Post-operation, oestrogenic-progesterone sequential administration	Oestradiol valerate 2 mg; Norgestrel 0.5 mg	Oestradiol valerate, start 1 d after abortion, daily for 21 d; Norgestrel, daily for the last 10 d
Luo *et al* [17], 2012	Pre-operation, oestrogen supplementation	Oestradiol valerate 5 mg	Oestradiol valerate, daily for 3 d before abortion

ations of such a condition. This study also demonstrated that the prevalence of PA after MIA has been neglected and underestimated for a long time. It has been reported that the incidence of PA after MIA was 0.5%[7], which is twelve-fold higher than the 0.04% estimated in pregnant women in the general population[8]. Between 2010 and 2014, an estimated 55.9 million induced abortions were performed worldwide[9], with 65.1% of the women having subsequent pregnancies[10]. To put the above estimates into real-world terms, there would be 0.2 million pregnancies complicated by PA. Moreover, the misuse of over the counter or black market mifepristone by self-administration potentially poses a serious danger. For example, in India, 5 million unsafe abortions are performed each year, and 31.25% of the patients had a history of self-administration of abortion pills[11]. Therefore, the actual number of pregnancies complicated by PA after MIA can be assumed to be much higher than the estimated number.

The prevention of PA after MIA is a major concern of physicians during clinical practice. Sporadic studies have shown hormonal supplementation to be one of the promising options to prevent endometrial injury after MIA[12-16]. Administration of estrogen before or after MIA increases endometrial proliferation and reduces the risk of endometrial injury. The details of studies of post-[12-16] and pre-MIA hormonal supplementation[17] are shown in Table 1. However, the previously described effectiveness of estrogen supplementation needs to be verified by a larger and more suitable clinical trial. Additionally, prescribing estrogen for every patient would lead to a significant financial burden and consumption of precious resources. Therefore, it is important to identify the risk factors that increase the risk of PA associated with MIA. Several observational studies[7,18,19] showed that multiple MIAs, prolonged duration of vaginal bleeding after MIA, gestational age more than 6 wk at MIA, and an interpregnancy interval longer than 18 mo might be associated with placental complications. In this report, the patient had one clinical feature that could be identified as a risk factor, and that was a gestational age of more than 6 wk at MIA. Further study should be conducted to confirm the risk factors.

CONCLUSION

In conclusion, there is evidence of a possible etiologic role of MIA in PA, as the incidence of PA after MIA is much higher than it is in the general population. Millions of pregnancies are complicated by PA each year, some of which result in fatality. Hormonal supplementation might effective for preventing placental complication subsequent to MIA. However, further studies needed to identify risk factors and to confirm the effectiveness of estrogen supplementation therapy.

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