

World Journal of *Clinical Cases*

World J Clin Cases 2021 November 26; 9(33): 10052-10391



Contents

Thrice Monthly Volume 9 Number 33 November 26, 2021

REVIEW

- 10052** Effects of alcohol consumption on viral hepatitis B and C
Xu HQ, Wang CG, Zhou Q, Gao YH

MINIREVIEWS

- 10064** Effects of anti-diabetic drugs on sarcopenia: Best treatment options for elderly patients with type 2 diabetes mellitus and sarcopenia
Ma XY, Chen FQ

ORIGINAL ARTICLE

Retrospective Cohort Study

- 10075** Utility of cooling patches to prevent hand-foot syndrome caused by pegylated liposomal doxorubicin in breast cancer patients
Zheng YF, Fu X, Wang XX, Sun XJ, He XD

Retrospective Study

- 10088** Clinicopathological features of small T1 colorectal cancers
Takashina Y, Kudo SE, Ichimasa K, Kouyama Y, Mochizuki K, Akimoto Y, Maeda Y, Mori Y, Misawa M, Ogata N, Kudo T, Hisayuki T, Hayashi T, Wakamura K, Sawada N, Baba T, Ishida F, Yokoyama K, Daita M, Nemoto T, Miyachi H
- 10098** Comparison of dental pulp periodontal therapy and conventional simple periodontal therapy as treatment modalities for severe periodontitis
Li L, Chen HJ, Lian Y, Wang T
- 10106** Tripartite intensive intervention for prevention of rebleeding in elderly patients with hypertensive cerebral hemorrhage
Li CX, Li L, Zhang JF, Zhang QH, Jin XH, Cai GJ
- 10116** Clinical and electroencephalogram characteristics and treatment outcomes in children with benign epilepsy and centrotemporal spikes
Chen RH, Li BF, Wen JH, Zhong CL, Ji MM
- 10126** Endoscopic ultrasonography diagnosis of gastric glomus tumors
Bai B, Mao CS, Li Z, Kuang SL
- 10134** Learning curves of robot-assisted pedicle screw fixations based on the cumulative sum test
Yu J, Zhang Q, Fan MX, Han XG, Liu B, Tian W
- 10143** Value of GRACE and SYNTAX scores for predicting the prognosis of patients with non-ST elevation acute coronary syndrome
Wang XF, Zhao M, Liu F, Sun GR

- 10151** Effectiveness of enhanced recovery after surgery in the perioperative management of patients with bone surgery in China

Zhao LY, Liu XT, Zhao ZL, Gu R, Ni XM, Deng R, Li XY, Gao MJ, Zhu WN

Clinical Trials Study

- 10161** Association between plasma dipeptidyl peptidase-4 levels and cognitive function in perinatal pregnant women with gestational diabetes mellitus

Sana SRGL, Li EY, Deng XJ, Guo L

- 10172** Paricalcitol in hemodialysis patients with secondary hyperparathyroidism and its potential benefits

Chen X, Zhao F, Pan WJ, Di JM, Xie WN, Yuan L, Liu Z

Observational Study

- 10180** Did the severe acute respiratory syndrome-coronavirus 2 pandemic cause an endemic *Clostridium difficile* infection?

Cojocariu C, Girleanu I, Trifan A, Olteanu A, Muzica CM, Huiban L, Chiriac S, Singeap AM, Cuciureanu T, Sfarti C, Stanciu C

- 10189** Effect of nursing intervention based on Maslow's hierarchy of needs in patients with coronary heart disease interventional surgery

Xu JX, Wu LX, Jiang W, Fan GH

- 10198** Impacts of statin and metformin on neuropathy in patients with type 2 diabetes mellitus: Korean Health Insurance data

Min HK, Kim SH, Choi JH, Choi K, Kim HR, Lee SH

META-ANALYSIS

- 10208** Is endoscopic retrograde appendicitis therapy a better modality for acute uncomplicated appendicitis? A systematic review and meta-analysis

Wang Y, Sun CY, Liu J, Chen Y, Bhan C, Tuason JPW, Misra S, Huang YT, Ma SD, Cheng XY, Zhou Q, Gu WC, Wu DD, Chen X

- 10222** Prognostic value of ground glass opacity on computed tomography in pathological stage I pulmonary adenocarcinoma: A meta-analysis

Pan XL, Liao ZL, Yao H, Yan WJ, Wen DY, Wang Y, Li ZL

CASE REPORT

- 10233** Atrial fibrillation and concomitant left subclavian, axillary and brachial artery embolism after fiberoptic bronchoscopy: A case report

Yang CL, Zhou R, Jin ZX, Chen M, Zi BL, Li P, Zhou KH

- 10238** Streptococcal toxic shock syndrome after hemorrhoidectomy: A case report

Lee CY, Lee YJ, Chen CC, Kuo LJ

- 10244** Subsequent placenta accreta after previous mifepristone-induced abortion: A case report

Zhao P, Zhao Y, He J, Bai XX, Chen J

- 10249** Autosomal dominant tubulointerstitial kidney disease with a novel heterozygous missense mutation in the uromodulin gene: A case report
Zhang LL, Lin JR, Zhu TT, Liu Q, Zhang DM, Gan LW, Li Y, Ou ST
- 10257** Novel KDM6A mutation in a Chinese infant with Kabuki syndrome: A case report
Guo HX, Li BW, Hu M, Si SY, Feng K
- 10265** Pancreatic cancer with synchronous liver and colon metastases: A case report
Dong YM, Sun HN, Sun DC, Deng MH, Peng YG, Zhu YY
- 10273** Veno-venous-extracorporeal membrane oxygenation treatment for severe capillary leakage syndrome: A case report
Nong WX, Lv QJ, Lu YS
- 10279** Anticoagulant treatment for pulmonary embolism in patient with cerebral hemorrhage secondary to mechanical thrombectomy: A case report
Chen XT, Zhang Q, Zhou CQ, Han YF, Cao QQ
- 10286** Complete restoration of congenital conductive hearing loss by staged surgery: A case report
Yoo JS, Lee CM, Yang YN, Lee EJ
- 10293** Blastic plasmacytoid dendritic cell neoplasm with skin and bone marrow involvement: Report of three cases
Guo JH, Zhang HW, Wang L, Bai W, Wang JF
- 10300** Extracranial multiorgan metastasis from primary glioblastoma: A case report
Luan XZ, Wang HR, Xiang W, Li SJ, He H, Chen LG, Wang JM, Zhou J
- 10308** Transverse myelitis after infection with varicella zoster virus in patient with normal immunity: A case report
Yun D, Cho SY, Ju W, Seo EH
- 10315** Duodenal ulcer caused by coil wiggle after digital subtraction angiography-guided embolization: A case report
Xu S, Yang SX, Xue ZX, Xu CL, Cai ZZ, Xu CZ
- 10323** Crab lice infestation in unilateral eyelashes and adjacent eyelids: A case report
Tang W, Li QQ
- 10328** Local random flaps for cervical circumferential defect or tracheoesophageal fistula reconstruction after failed gastric pull-up: Two case reports
Zhang Y, Liu Y, Sun Y, Xu M, Wang XL
- 10337** Incurable and refractory spinal cystic echinococcosis: A case report
Zhang T, Ma LH, Liu H, Li SK
- 10345** Individualized treatment of breast cancer with chronic renal failure: A case report and review of literature
Cai JH, Zheng JH, Lin XQ, Lin WX, Zou J, Chen YK, Li ZY, Chen YX

- 10355** Persistent fibrinogen deficiency after snake bite: A case report
Xu MH, Li J, Han L, Chen C
- 10362** Successful prolonged cardiopulmonary resuscitation after intraoperative cardiac arrest due to povidone-iodine allergy: A case report
Xiang BB, Yao YT, Jiao SL
- 10369** Clinical algorithm for preventing missed diagnoses of occult cervical spine instability after acute trauma: A case report
Zhu C, Yang HL, Im GH, Liu LM, Zhou CG, Song YM
- 10374** Carbon ion radiotherapy for synchronous choroidal melanoma and lung cancer: A case report
Zhang YS, Hu TC, Ye YC, Han JH, Li XJ, Zhang YH, Chen WZ, Chai HY, Pan X, Wang X, Yang YL
- 10382** Heart failure as an adverse effect of infliximab for Crohn's disease: A case report and review of the literature
Grillo TG, Almeida LR, Beraldo RF, Marcondes MB, Queiróz DAR, da Silva DL, Quera R, Baima JP, Saad-Hossne R, Sasaki LY

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The WJCC is now indexed in Science Citation Index Expanded (also known as SciSearch®), Journal Citation Reports/Science Edition, Scopus, PubMed, and PubMed Central. The 2021 Edition of Journal Citation Reports® cites the 2020 impact factor (IF) for WJCC as 1.337; IF without journal self cites: 1.301; 5-year IF: 1.742; Journal Citation Indicator: 0.33; Ranking: 119 among 169 journals in medicine, general and internal; and Quartile category: Q3. The WJCC's CiteScore for 2020 is 0.8 and Scopus CiteScore rank 2020: General Medicine is 493/793.

RESPONSIBLE EDITORS FOR THIS ISSUE

Production Editor: Ji-Hong Lin; Production Department Director: Xiang Li; Editorial Office Director: Jin-Lai Wang.

NAME OF JOURNAL

World Journal of Clinical Cases

ISSN

ISSN 2307-8960 (online)

LAUNCH DATE

April 16, 2013

FREQUENCY

Thrice Monthly

EDITORS-IN-CHIEF

Dennis A Bloomfield, Sandro Vento, Bao-Gan Peng

EDITORIAL BOARD MEMBERS

<https://www.wjgnet.com/2307-8960/editorialboard.htm>

PUBLICATION DATE

November 26, 2021

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INSTRUCTIONS TO AUTHORS

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<https://www.wjgnet.com/bpg/GerInfo/287>

GUIDELINES FOR NON-NATIVE SPEAKERS OF ENGLISH

<https://www.wjgnet.com/bpg/gerinfo/240>

PUBLICATION ETHICS

<https://www.wjgnet.com/bpg/GerInfo/288>

PUBLICATION MISCONDUCT

<https://www.wjgnet.com/bpg/gerinfo/208>

ARTICLE PROCESSING CHARGE

<https://www.wjgnet.com/bpg/gerinfo/242>

STEPS FOR SUBMITTING MANUSCRIPTS

<https://www.wjgnet.com/bpg/GerInfo/239>

ONLINE SUBMISSION

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

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Author contributions: Zhao P and He J designed the research study; Zhao P and Zhao Y performed the literature research; Zhao P, Zhao Y, Chen J and Bai XX contributed data acquisition and data analysis; Zhao P and Zhao Y wrote the manuscript; He J, Bai XX and Chen J critically revised the manuscript; All authors have read and approved the final manuscript.

Informed consent statement:

Written informed consent for publication was obtained from the patient.

Conflict-of-interest statement: The authors declared no conflict of interest with respect to the research, authorship, and publication of this article.

CARE Checklist (2016) statement:

The authors have read the CARE Checklist (2016), and the manuscript was prepared and revised according to the CARE Checklist (2016).

Country/Territory of origin: China

Specialty type: Obstetrics and

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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 fetus 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.

gynecology

Provenance and peer review:

Unsolicited article; Externally peer reviewed.

Peer-review report's scientific quality classification

Grade A (Excellent): 0
 Grade B (Very good): B
 Grade C (Good): C, C
 Grade D (Fair): 0
 Grade E (Poor): 0

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Received: March 17, 2021**Peer-review started:** March 17, 2021**First decision:** April 13, 2021**Revised:** September 22, 2021**Accepted:** October 14, 2021**Article in press:** October 14, 2021**Published online:** November 26, 2021**P-Reviewer:** Levine E, Omar NS**S-Editor:** Gong ZM**L-Editor:** Filipodia**P-Editor:** Gong ZM

Key Words: Mifepristone-induced abortion; Placenta accreta; Uterine rupture; Placental complications; Hormonal supplementation; Case report

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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.

Citation: Zhao P, Zhao Y, He J, Bai XX, Chen J. Subsequent placenta accreta after previous mifepristone-induced abortion: A case report. *World J Clin Cases* 2021; 9(33): 10244-10248

URL: <https://www.wjgnet.com/2307-8960/full/v9/i33/10244.htm>

DOI: <https://dx.doi.org/10.12998/wjcc.v9.i33.10244>

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 <i>et al</i> [12], 1988	Post-operation, oral contraceptive	Ethinyl oestradiol 30 µg; levonorgestrel 150 µg	Start on the day of abortion, daily for 21 d
Tang <i>et al</i> [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 <i>et al</i> [14], 2006	Post-operation, estrogenic supplementation	Oestradiol valerate 1mg	Start 1 d after abortion, daily for 14-18 d
Wang <i>et al</i> [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 <i>et al</i> [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 <i>et al</i> [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 be 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.

ACKNOWLEDGEMENTS

We would like to thank Dr. Joynauth Jyotsnav for his critical review and language editing of this study.

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