

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.JournalofSurgicalResearch.com

Safety and efficacy of preoperative abdominal aorta balloon occlusion in placenta increta and/or percreta



Wenjuan Sun, MD,^a Shuhong Duan, MD,^a Gang Xin, MD, PhD,^a
 Juan Xiao, MS,^b Fanzhen Hong, MD, PhD,^a Haijie Hong, MD,^a
 Yuange Wu, MD,^a and Yongping Xu, MD, PhD^{a,*}

^a Department of Obstetrics, The Second Hospital of Shandong University, Jinan, Shandong, China

^b Department of Evidence-based medicine, The Second Hospital of Shandong University, Jinan, Shandong, China

ARTICLE INFO

Article history:

Received 6 April 2017

Received in revised form

5 September 2017

Accepted 2 October 2017

Available online xxx

Keywords:

Abdominal aorta balloon occlusion

Placenta increta

Placenta percreta

Postpartum hemorrhage

Cesarean section

ABSTRACT

Background: With the increase of cesarean deliveries globally, the incidence of placenta adhesive disorder has been on the rise greatly which is associated closely with maternal and infant morbidity and mortality. We sought to investigate the safety and efficacy of preoperative transfemoral balloon occlusion of abdominal aorta in cesarean section of women with placenta increta or percreta.

Methods: We conducted a retrospective study of 31 patients with placenta increta or percreta diagnosed by ultrasound and/or magnetic resonance imaging. The observation group included 19 patients who received transfemoral abdominal aorta balloon occlusion for preoperative prophylaxis, while the other 12 patients in the control group did not receive any preoperative interventional managements. Clinical outcomes were compared between the two groups.

Results: Patients in observation group had significantly less estimated blood loss during surgery than those in control group (1.2 L versus 3.15 L, $P = 0.006$). The average transfusion volume of the observation group was significantly lower than the control group (0.8 L versus 1.95 L, $P = 0.017$). Seventy-nine percent (15 of 19) patients in the observation group and 50% (6 of 12) in the control group had their uterus successfully retained ($P = 0.093$). No peripheral tissues including bladder, ureter, and bowel were injured in all patients. Neonatal weight and Apgar scores of 1 min and 5 min had no statistical difference ($P = 0.513$ and $P = 1$, respectively) between the two groups. The mean radiation exposure time of fetus in the observation group was 22.68 ± 8.07 s and mean radiation exposure dose was 4.20 ± 1.49 mGy. Both operation time and postoperative hospital stay had no statistical difference between the two groups (2 versus 2.75 h, $P = 0.063$; 7.0 versus 6.5 d, $P = 0.846$). No patients had long-term complications after 6–8 wk follow-up.

Conclusions: Application of preoperative transfemoral abdominal aorta balloon occlusion during cesarean section is a safe and effective strategy for patients with placenta increta and/or percreta. It could reduce intraoperative blood loss and enhance the possibility of uterus preservation and ensure the safety of life from severe complications.

© 2017 Elsevier Inc. All rights reserved.

* Corresponding author. Department of Obstetrics, The Second Hospital of Shandong University, NO.247, Beiyuan Street, Tianqiao District, Jinan 250033, Shandong, China. Tel.: +86 15153169289; fax: +86 531- 88962544.

E-mail address: xyp1117@sdu.edu.cn (Y. Xu).

0022-4804/\$ – see front matter © 2017 Elsevier Inc. All rights reserved.

<https://doi.org/10.1016/j.jss.2017.10.002>

Introduction

Placental adhesive disorder (PAD) is a complicated obstetrical complication caused by impaired embedding of the placenta in endometrium.¹ As the most common reason of vaginal bleeding in the third trimester of pregnancy, PAD is associated with high fetomaternal morbidity and mortality.² It is generally classified into placenta accreta (76%), placenta increta (18%), and placenta percreta (6%) based on the depth of myometrial invasion.¹ A case-control study showed that the incidence of PAD was 1.7 per 10,000 deliveries overall, as high as 577 per 10,000 in women with both cesarean history and placenta previa.³ History of uterine surgeries especially cesarean section (CS) is a consistently reported risk factor for PAD in subsequent pregnancies.^{1,4,5} Uterine scar defect after CS can lead to the presence of chorionic villi deep into the uterine wall, giving extravillous trophoblast greater access to the deep myometrium and thus developing into placenta increta.⁶ The mechanism of PAD is not clear yet, but it may be related to the increasing invasion potential of trophoblastic cells in injured decidua.⁷ When abnormal placenta is located at the incision segment of anterior uterine wall, pernicious placenta previa will occur. A study showed the incidence rate of placenta previa in women with a history of CS was much higher (8.7/1000) than previous vaginal delivery (4.4/1000).⁸ There is also a high rate of placenta increta in women with placenta previa, 10% after one CS and 59.2% after two or more times.⁹ Thus, the higher frequency of cesarean surgery leads to the more serious endometrial damage of uterine with incision scar formation and the higher incidence of placenta increta.

Due to the increase in cesarean deliveries globally, the incidence of placenta increta has been increasing largely in recent years.¹⁰ Placenta increta can cause unmanageable intraoperative or postpartum hemorrhage, disseminate intravascular coagulation (DIC), renal damage, infection, hysterectomy, and can even be life threatening.¹¹ The maternal mortality caused by placenta increta was reported as high as 7%.¹² Placenta increta appears to be an independent risk factor for perinatal mortality and late preterm birth.¹³

Over the last century, planned cesarean hysterectomy was the main approach for the management of invasive placenta. In recent decades, more and more studies and case reports have suggested more safer and successful conservative management strategies for uterine preservation.¹⁴⁻¹⁷ In recent years, interventional therapies, such as uterine artery embolization, internal iliac artery balloon occlusion, and common iliac artery occlusion, have been introduced into obstetrics to minimize blood loss and avoid hysterectomy during delivery.¹⁸⁻²⁰ These methods, though have been proved to be effective in controlling intraoperative blood loss and avoiding perinatal hysterectomy, there were also many failed cases with a subsequent hysterectomy and complications of thrombosis, hematoma, uterine necrosis, bladder necrosis, artery injury, and aneurysm formation.²¹⁻²³

Compared with other interventional methods such as uterine artery embolization and internal iliac artery balloon occlusion, abdominal aortic balloon occlusion can block most

blood supplies of uterus, including from collateral vessels. Only a few case reports in literature described the use of this technique as preoperative prophylaxis for CS with placenta increta,^{22,24,25} and very few studies have evaluated its safety and efficacy.^{26,27} Thus, we aimed to investigate the safety of this technique and its effectiveness in blood loss control and uterus preservation in patients with placenta increta and percreta.

Methods

Subjects

Thirty-one patients with pernicious placenta increta or percreta who delivered at the Second Hospital of Shandong University between January 1, 2014 and December 30, 2016 were included in our study. Antenatal diagnosis was made by ultrasound and/or complemented by magnetic resonance imaging (MRI), confirmed by intraoperative findings and postoperative pathology. Intraoperative confirmation was based on placenta abnormal adherence to the uterus or even invasion to serosal surface of the bladder wall. Since May 2015, the technique of transfemoral balloon occlusion of abdominal aorta was developed in our hospital and approved as a preoperative prophylaxis for patients with pernicious placenta previa. The choice of the surgical program was made by patients themselves after sufficient disclosure before surgery. The written informed consent was obtained from each patient. Nineteen patients with placenta increta who chose this surgical program were defined as the observation group, while other 12 patients underwent normal obstetric surgery were defined as the control group. Patients with serious internal or surgical diseases, coagulation dysfunction, and abdominal aortic balloon occlusion contraindications were excluded.

Multidisciplinary management

To ensure the safety of both mother and infant, multidisciplinary managements that required several departments' coordination were ensured. (1) Obstetrical Department: played a leading role to clarify the diagnosis before operation, made evaluation of diseases, communicated sufficiently with patients, contacted with other departments, and determined the time to terminate pregnancy. (2) Interventional Radiology (IR) Department: when patients decided to use the technique of transfemoral abdominal aorta balloon occlusion, doctors from this department arranged a preoperative interview with patients to explain risks, possible complications, and sequelae of interventional surgery. They were also responsible for operation room preparation for both interventional surgery and CS. (3) Anesthesia Department: selected anesthesia mode, made deep venous catheterization, monitored ambulatory blood pressure, and builded up multiple infusion pathways. (4) Neonatology Department: did neonatal rescue. (5) Blood transfusion Department: supplied enough blood products. (6) Urology Department: did ureteral catheterization to avoid vesicoureteral injury.

Download English Version:

<https://daneshyari.com/en/article/8835833>

Download Persian Version:

<https://daneshyari.com/article/8835833>

[Daneshyari.com](https://daneshyari.com)