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Successful management of a second-trimester post-abortion hemorrhage with the Bakri balloon tamponade

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Summary

Hemorrhage after abortion is rare but it is a significant cause of abortion-related mortality and morbidity. Conservative management of hemorrhage is gaining popularity. The authors describe a case which a uterine tamponade balloon which was successfully used to control second-trimester post-abortion hemorrhage.

Key words: Hemorrhage; Abortion; Bakri balloon tamponade.

Introduction

Hemorrhage after abortion is rare, occurring in less than one percent of abortions [1], but its associated morbidity may be clinically significant. Current recommendations regarding the risk factors and treatment of post-abortion hemorrhage are based on extremely limited evidence. The management of these complications depends on the causative factors and can include uterotonics, re-aspiration, Foley or intrauterine balloon tamponade, uterine artery embolization, hemostatic sutures, or hysterectomy. Here, the authors present a case of massive hemorrhage, due to a second-trimester abortion, successfully controlled by using a Bakri balloon catheter.

Case Report

A 35-year-old woman, who had a 19-week pregnancy, was admitted to the present emergency department due to premature rupture of membranes. It was her third pregnancy; she had undergone two prior vaginal deliveries. She had a blood pressure of 120/80 mmHg, pulse rate of 80/min, and cervix dilation of five cm. She experienced a spontaneous abortion five hours after her admission (baby's weight 0.4 kg; Apgar score 0/0). An ultrasonography examination indicated the presence of some retained placental tissue in the uterine cavity and curettage was performed under intravenous sedation. Uterine bleeding occurred during removal of the placenta. The patient's hemoglobin level and hematocrit value during admission were 12.8 g/dl and 36.9%, respectively. After evacuation of the uterus, bimanual uterine massage was performed and 0.2 mg of methylergonovine was administered intramuscularly to improve uterine tone and decrease uterine bleeding. However, after two minutes, uterine bleeding increased, and therefore, misoprostol (800 μg) was administered rectally. Ultrasonography examination indicated that the uterine cavity appeared normal and a physical inspection showed no apparent cervical lacerations. Her post-procedure control hemoglobin level was 7 g/dl. Hemorrhage continued, and she experienced tachycardia (128/min); subsequently, two units of red blood suspension were administered. To manage the hemorrhage in first instance, the authors used a G16 Foley catheter balloon tamponade. However, it was unsuccessful in controlling the hemorrhage and vaginal bleeding continued. A Bakri uterine balloon tamponade was then inserted under intravenous sedation. The anterior and posterior lips of the cervix were grasped with ring forceps and the catheter was inserted into the uterine cavity under sonographic guidance. After catheter insertion, the balloon was inflated with 200 ml warm sterile normal saline until the uterine fundus was firmly palpable or until the bleeding was controlled. After the balloon was inflated, it filled the uterine cavity and bleeding was arrested by the tamponade. Gentle traction was applied on the catheter to ensure that the balloon was firmly fitted in the uterine cavity. Broad-spectrum antibiotics were administered until the catheter was removed on the following morning. The patient's vaginal bleeding was minimal. Her postoperative hemoglobin level was 8.7 g/dl and was asymptomatic. She was discharged in a stable condition on her post-procedure first day.

Discussion

The most important complication after second-trimester abortions is massive uterine hemorrhage. Treatment for this condition should be carefully performed in order to preserve fertility since several patients are of reproductive age, and wish to remain fertile. For the management of hemorrhage, the successful utilization of tamponade techniques has been well described and for many years, uterine packing was the primary technique employed [2]. The Bakri intrauterine balloon tamponade method, which was developed in 1999, has been used specifically for the treatment of postpartum hemorrhage [3]. Cengiz *et al.* [4] and Aibar *et al.* [5] described the use of the Bakri balloon for the successful management of postpartum hemorrhage. In

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Figure 1. — Removed Bakri balloon.

the literature, only two reports have been described to use of the Bakri intrauterine balloon to control refractory bleeding after a first-trimester and second-trimester abortion, respectively [6, 7]. The present case appears to be the second case in which the Bakri intrauterine balloon was used to manage second-trimester post-abortion hemorrhage. In this case, the authors first used a Foley catheter because they had no previous experience with the Bakri balloon in post-abortion hemorrhage. The size of the uterus may permit the insertion of a large tamponade; however, the Foley tamponade could be inflated with only 30 cc of saline, which may not be sufficient to significantly compress the inner uterus. Moreover, unlike the Bakri balloon, when filled with fluid, the Foley catheter balloon tamponade cannot adapt to the shape of the intrauterine cavity. Thus, the Foley tamponade was not successful in terminating the bleeding in our case.

Thus far, no study has specified the exact quantity of fluid that should be used to fill the balloon for the management of post-abortion hemorrhage. Bakri *et al.* [3] have suggested the balloon should be inflated with 500 cc saline and placed in the uterus for 20–24 hours. In the present case, the authors filled the balloon, under sonographic guidance, with 200 cc saline until a slight resistance was encountered, and the bleeding reduced and finally stopped.

The authors believe that cervicovaginal bacteria may enter the uterus during the introduction of a balloon catheter; the surface of the catheter is a potential site of microbial adherence and retention, and the endometrium is a good target site for infection. Therefore, they administered broad-spectrum antibiotic prophylaxis while the balloon was still in place, as described by Nelson *et al.* [8]. The balloon was removed from the uterus after 24 hours (Figure 1). The manufacturers' instructions state that the indwelling time should be ≤ 24 hours due to the risk of infection and tissue necrosis; however, this time interval is not based on any published data. The Bakri device does not contain latex, and once inflated, it conforms very closely to the shape of the entire uterine cavity. The authors experienced no complications related to Bakri tamponade insertion in the presented case.

Conclusion

Uterine balloon tamponade is a fertility-sparing treatment option for second-trimester post-abortion hemorrhage. It can be used not only to manage uterine atony, but also in any situation in which hemorrhage should be conservatively managed. However, randomized trials are needed to compare the effectiveness of balloon tamponade with other conservative modes of treatments, such as arterial embolization, surgical ligation of uterine arteries, or uterine compression sutures.

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