Bakri Balloon for Postpartum Hemorrhage: Does It Work?

By Heidi Anne Duerr, MPH [2]

Following caesarean section for abruption, a patient continues bleeding and is taken back to the operating room. There, a D & C is performed, and a Bakri balloon is inserted and inflated. The patient continues to deteriorate and shows signs of continued bleeding. After a third surgery, in which a hematoma was evacuated from under the fascia, the Bakri is released. After removal, there is no significant vaginal bleeding.

This case has been a recent source of discussion on the OBGYN.net professional forum, and has inspired further conversation among clinicians about the use of Bakri balloon. Did the Bakri balloon play a role in the bleeding? Can the Bakri balloon help in such cases? And when is it most useful? In 2001, Bakri and colleagues published a study discussing their use of a silicone, fluid-filled balloon designed for tamponade function¹. The balloon in question had a filling capacity volume of 500 cc of sterile saline, and had the strength to withstand a maximum internal and external pressure of 300 mmHg. The research team found that the balloon was effective in controlling postpartum hemorrhage that originated from the placental site of the lower uterine segment as well as in controlling bleeding from the implantation site of cervical ectopic pregnancy. Since then, clinicians have come to use the Bakri balloon in their fight against postpartum hemorrhage, which continues to be a major cause of pregnancy-related deaths around the world.

There are several benefits in using the Bakri balloon:
• It can be easily inserted by the physician.
• It can be easily removed without the need for an additional surgical procedure.
• Effectiveness of the device can be quickly ascertained.
• It conservatively manages obstetrical hemorrhage.
• It may help temporize a patient while preparations for more aggressive treatments are made.

The Bakri balloon is indicated for placental acreta and in vaginal delivery. Following c-sections, it can be passed retrograde through the cesarean incision. The Bakri balloon should be used in women who are at least 19 weeks gestation. When using the Bakri balloon, it should be inserted into the uterus so that the entire balloon is past the internal cervical os. A syringe filled with sterile saline to the desired volume is used to fill the balloon. The tamponade effect is maintained via a gentle downward traction placed on the balloon stem. Clinicians should consider vaginal packing to help ensure that the balloon remains in the lower uterine segment. A fluid collection bag is used to monitor uterine bleeding. The balloons should remain inflated for 12 to 24 hours.

Recent research continues to document the efficacy of the Bakri balloon, either alone or with other techniques. For instance, in their study, researchers from Germany found that 60% of all patients in the study were successfully treated for postpartum hemorrhage with the balloon alone; another 30% were treated successfully with the addition of the B-Lynch suture.² In another report, researchers looked at women who had unsuccessful medical treatment for postpartum hemorrhage. They found all patients were treated successfully with the use of a “uterine sandwich” technique, in which uterine compression sutures are used in association with intrauterine tamponade.³ In this prospective observational study, the Bakri balloon was in place for a median of 22 hours and the median volume was 330 ml. These researchers found no postpartum morbidity.

Ultimately, the patient in question recovered well after the evacuation, and stabilized after receiving several more units of blood. She was discharged a few days later after blood counts remained stable over two days. The probable cause of initial bleeding was uterine atony (or at least lower segment atony), and it was reported that the Bakri seemed to dramatically slow down the bleeding.
References

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