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In the Treatment of Postpartum Haemorrhage, Bakri Balloon Should be the Second Line Measurement

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Introduction

Because of the fear we as obstetricians have receiving a patient with massive postpartum hemorrhage (PPH), we try to improve our response to this extreme emergency. Postpartum hemorrhage is a major cause of pregnancy related death in both developed and developing nations. Bakri balloon is one of these improvements, which, I believe, is one of the most important advances for treating serious postpartum hemorrhage. I'll explain here why this device should be utilized more often when treatment with uterotonics hasn't adequately resolved bleeding.

In 1992, Dr Younes Bakri introduced intrauterine balloon tamponade for the treatment of obstetric hemorrhage during cesarean delivery [1-4]. Both the International Federation of Gynaecology and Obstetrics (FIGO) and the International Confederation of Midwives (ICM) have approved the balloon as one of the primary support measures in treating PPH [3,5]. A number of recent reports have described the successful use of balloon tamponade to manage hemorrhage from the lower uterine segment due to placenta prevail accrete [6-8]. The catheter provides temporary reduction of postpartum uterine bleeding if management with uterotonics, repair of genital lacerations, and removal of retained placental tissue has been unsuccessful.

Bakri balloon is a silicone balloon of a 24-French, 54-cm long, silicone catheter with a filling capacity of 500-mL [3-4]. Ductile shape allows it to conform to uterine anatomy and shape. Added to that, it allows for hemostatic cushion application and limits clot adhesion. The large diameter lumen in the shaft and multipored, nonabrasive tip allows for constant drainage. Because of this feature an ongoing uterine hemorrhage does not go undetected post-application [3,4,9]. Once deflated, the Bakri Balloon is removed with ease transvaginally without the need for an additional surgical procedure unlike older style uterine packing operations. It is usually kept for 24 hours, but may be removed after physician determination of hemostasis or the need to apply more aggressive treatment [2,4].

How to Insert Bakri Balloon During Caesarian Section

The Bakri balloon is inserted through the cesarean section incision or transvaginally through the cervical opening. While, an assistant working from below helps pull the distal end of the balloon shaft through the cervix into the vagina. After proper insertion of the catheter, the balloon is inflated by 50–100 mL of normal saline. After closure of the uterus and caesarian section scar balloon will be further inflated up to 300-500 mL until the blood draining through catheter is significantly decreased. Post-balloon application, low-dose intravenous oxytocin infusion

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usually maintained for 24 hours. The drainage amount usually checked hourly for the first 6 hours and if < 100 mL/h, every 4 h thereafter.

Bakri balloon is easily placed and removed. Its silicone composition reduces the chances that the balloon will "stick" to the uterine lining. The large central port provides real-time assessment of the effectiveness of balloon tamponade. This property of the balloon allows it to be used in a diagnostic manner or what is called tamponade test.

Tamponade Test

A common challenge for any obstetrician when a woman has a massive postpartum hemorrhage is to determine quickly if she requires exploratory laparotomy or can be treated with conservative measures. In one case series, investigators concluded that, in women who have severe postpartum hemorrhage that is unresponsive to uterotonics, immediate placement of a uterine tamponade balloon is an effective test for rapidly distinguishing patients who need exploratory laparotomy from those whose condition can be managed conservatively [10,11].

In that series, women who developed postpartum hemorrhage were treated first with uterotonics, includes oxytocin, ergometrine, and carboprost. Next, they underwent initial exploration to look for lacerations of the uterus, cervix, and vagina and to ensure that no placental tissue had been retained. Sixteen subjects (most of whom had uterine atony as a provisional diagnosis) continued to have massive bleeding after those first two steps were employed. They next had a Sengstaken-Blakemore esophageal catheter placed in the uterine cavity. The catheter was then filled with 70 to 300 mL of warm saline. Gentle downward traction was applied to the catheter to ensure contact of the catheter with the lining of the uterus. Uterine bleeding stopped quickly in 14 women after the intrauterine balloon was filled to produce the tamponade effect. Bleeding continued in two women; they underwent exploratory laparotomy [10,11].

This indicates that the tamponade test can be used after both vaginal and cesarean delivery and in the second or third trimester. The Bakri balloon can also be used at the same time with additional interventions, including B-Lynch and uterine artery embolization [5,11]. I have conducted a retrospective study on 225 placenta previa patients, where we evaluate the outcomes of uterine tamponade using a Bakri balloon for management of placenta previa during caesarean deliveries [12]. We concluded that, Bakri balloon was more effective in controlling bleeding and was associated with less maternal morbidity and mortality than not using the balloon.

Postpartum hemorrhage occurs after approximately 3-6% of all deliveries. A clinician who performs, 200 deliveries a year will confront this complication about ten times in that year. For an event that occurs only every few weeks, that obstetrician needs to develop, and rehearse, a systematic plan of response. One component of a good plan, I believe, should be the Bakri balloon, which can be a life-saving measure for women whose severe postpartum hemorrhage hasn't responded to first-line measures.

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