

BALLOON PLACEMENT FOR UTERINE TAMPONADE

1. AIM

- Appropriate use and management of Uterine Tamponade Balloon (Bakri®) to control uterine bleeding, using an aseptic technique

2. PATIENT

- Woman who requires advanced management of ongoing primary postpartum haemorrhage secondary to bleeding from the placental bed or partial uterine atony

3. STAFF

- Medical, nursing and midwifery staff

4. EQUIPMENT

- Uterine Tamponade Balloon Pack
- Drainage bag
- Normal saline - 500mLs
- Urinary catheter
- Vaginal packing gauze

5. CLINICAL PRACTICE

- Check for any contraindications for use of Uterine Tamponade Balloon (Bakri®):
 - Arterial bleeding requiring surgical exploration or angiographic embolisation
 - Complete uterine atony bleeding, although it may be effective in partial atony
 - Cases indicating hysterectomy
 - Pregnancy
 - Cervical cancer
 - Purulent infections of the vagina, cervix, or uterus
 - Untreated uterine anomaly
 - Disseminated intravascular coagulation
 - A surgical site which would prohibit the device from effectively controlling bleeding
- **Administer prophylactic antibiotics**
 - Administer a single dose of cefazolin 1g intravenous (IV) prior to insertion of the uterine tamponade balloon (Bakri®) after vaginal birth⁴
 - Administer single dose IV antibiotics as outlined in surgical bundle LOP, for caesarean section or laparotomy. Consider giving an additional dose IV after four hours if intra-operative blood loss >1500mL
- **Placement of the balloon**
 - **Transvaginal Placement (after vaginal birth or caesarean section)**
 - Place a Foley catheter in woman's bladder to collect and monitor urine output hourly

BALLOON PLACEMENT FOR UTERINE TAMPONADE cont'd

- Ensure uterus is empty of any retained placental fragments, arterial bleeding/lacerations are secured/repaired, and the woman has no contraindications to use of the uterine tamponade (Bakri®) balloon – see educational notes
- Estimate uterine volume by physical examination or ultrasound
- Insert the balloon portion of the catheter in the uterus, making certain the entire balloon is past the cervical canal and internal os
- Avoid excessive force when inserting the balloon into the uterus
- **Transabdominal Placement – Caesarean Delivery**
 - Ensure uterus is empty of any retained placental fragments, arterial bleeding/lacerations are secured/repaired
 - Pass the uterine tamponade (Bakri®) balloon via the caesarean incision, inflation port first, through the uterus and cervix
 - Have an assistant pull the shaft of the balloon through the vaginal canal until the deflated balloon base meets the internal cervical os
 - Close the incision as usual prior to balloon inflation taking care to avoid puncturing the balloon while suturing
- **Instructions for balloon inflation**
 - Measure 500mL of sterile fluid (e.g. normal saline, sterile water, sodium lactate solution) into a jug
 - Fill the balloon to the required volume (max 500mL) using the enclosed syringe. Alternatively, rapid inflation can be achieved by attaching a 500mL bag of normal saline directly to the balloon catheter with the stopcock – see device instructions.
 - Apply gentle traction to the balloon shaft to ensure proper contact between the balloon and tissue surface. To maintain tension, secure the balloon shaft to the woman's leg or attach a weight (max 500g)
 - Ensure correct placement of balloon with ultrasound
 - Maximize tamponade effect by packing the vagina where necessary with iodine or obstetric cream-soaked vaginal gauze. Do not extend packing into the uterus.
 - Clearly document numbers of packs, if used, on the operation report.
- **Monitoring of Woman**
 - Connect the drainage port to a fluid collection bag to monitor hemostasis
 - Flush the balloon drainage port and tubing to clear clots if required with sterile isotonic saline
 - Monitor woman for signs of increased bleeding, disseminated intravascular coagulation (DIC), uterine rupture, or deteriorating condition
 - Monitor urine output while the uterine tamponade (Bakri®) balloon is in situ
- **Removal of Balloon**
 - Remove uterine tamponade (Bakri®) balloon when bleeding is well controlled and woman is clinically stable - generally four to six hours is adequate, maximum indwelling time is 24 hours³
 - Remove balloon during daylight hours in the presence of appropriate senior obstetric staff in case further intervention is necessary³
 - Remove tension from balloon shaft and remove any vaginal packing
 - Aspirate the contents of the balloon until fully deflated
 - Gently retract the balloon from the uterus and vaginal canal and discard
 - Continue to monitor the woman for signs of uterine bleeding

BALLOON PLACEMENT FOR UTERINE TAMPONADE cont'd

6. DOCUMENTATION

- Medical record

7. EDUCATIONAL NOTES

- In a 2014 audit of 339 women who had an estimated blood loss of 2500mL or higher, the use of uterine tamponade balloon avoided the need for hysterectomy in 91% of cases¹
- Balloon tamponade can be used alone or in combination with other surgical interventions, such as internal iliac artery ligation and the B-Lynch suture
- Although there is a lack of high quality evidence for the efficacy of prophylactic antibiotic use with uterine tamponade balloon placement, one single-centre retrospective study showed no increase in the rates of endometritis with Bakri® balloon placement when a single dose of prophylactic antibiotics was given IV prior to balloon placement (with an additional dose given in caesarean section deliveries when intraoperative blood loss >1500mL)⁴
- Large trials show that a single preoperative dose of surgical antibiotic prophylaxis is sufficient to prevent postoperative infection for the vast majority of clean and clean-contaminated procedures and is as effective as longer courses. Intraoperative re-dosing may be necessary if⁶:
 - after prophylaxis is given, there is a significant delay in starting the operation
 - a short-acting antibiotic is used (e.g. cefoxitin, cefazolin) and more than two half-lives of the drug have elapsed since the previous dose (half-life for cephazolin 1.2-2.2 hours)
 - there is excessive blood loss during the procedure (e.g. 1.5 L or more)
- For a small minority of procedures identified throughout the antibiotic guidelines, there are inadequate data to show that a single dose of prophylaxis (with or without intraoperative doses) is as effective as 24 hours of prophylaxis. Postoperative doses may be considered but prophylaxis should not continue beyond 24 hours⁵
- The Bakri® Balloon is 100% silicone (no latex) and has a ductile shape which allows it to conform to the uterine anatomy. It allows for haemostatic cushion application, and limits clot adhesion. The large diameter lumen in the shaft and multi-ported, non-abrasive tip allows for constant drainage, so an ongoing uterine hemorrhage does not go undetected post- insertion
- Its pull-strength allows for the application of up to 500g of tension to aid tamponade achievement
- Once deflated the Bakri® Balloon is easily removed transvaginally without the need for an additional surgical procedure

8. RELATED POLICIES / PROCEDURES / CLINICAL PRACTICE GUIDELINES

- Postpartum Haemorrhage - Prevention and Management
- Adult Urethral Catheterisation for the Acute Care Setting NSW Health GL2015_016
- Infection Prevention and Control Policy NSW Health PD2017_013
- Manual Removal of Placenta
- Clinical Emergency Response System (CERS) – Management of the deteriorating patient
- Surgical Bundle for Abdominal Surgery

BALLOON PLACEMENT FOR UTERINE TAMPONADE cont'd

9. RISK RATING

- Low

10. NATIONAL STANDARD

- Standard 5 – Comprehensive care
- Standard 8 – Recognising and responding to the deteriorating patient

11. REFERENCES

- 1 Lennox C, Marr L; Reproductive Health Programme, Healthcare Improvement Scotland. *Scottish Confidential Audit of Severe Maternal Morbidity: reducing avoidable harm*. 10th Annual Report. Edinburgh: Healthcare Improvement Scotland; 2014.
- 2 Cook Medical. *Instructional Resource: Bakri® Postpartum Balloon with Rapid Instillation Components*. March 2020, (www.cookmedical.com/data/resources/RH-D54670-EN-F_M3_1585061971661.pdf)
- 3 RCOG Greentop Guideline. *Prevention and management of postpartum haemorrhage*. 16 December 2016.
- 4 Nagase Y, Matsuzaki S, Kawanishi Y, et al. Efficacy of Prophylactic Antibiotics in Bakri Intrauterine Balloon Placement: A Single-Center Retrospective Analysis and Literature Review. *AJP Rep*. 2020;10(1): e106-e112.
- 5 Therapeutic Guidelines (eTG), 2019, Principles of surgical antibiotic prophylaxis. <https://tgldcdp.tg.org.au.acs.hcn.com.au/viewTopic?topicfile=surgical-antibiotic-prophylaxis-principles§ionId=abg16-c96-s10#abg16-c96-s10>

REVISION & APPROVAL HISTORY

Endorsed Maternity Services LOPs July 2020
Amendment due to RCA recommendation June 2015 (page 1 Clinical Practice, Caesarean Delivery)
Approved Quality & Patient Safety Committee 20/6/13
Approved Quality & Patient Safety Committee 17/6/10
Endorsed Obstetrics Clinical Guidelines Group May 2010

FOR REVIEW : AUGUST 2025