

South Australian Perinatal Practice Guidelines

Balloon Tamponade and Uterine Packing for Major PPH

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Introduction

- > Case studies have described successful uterine tamponade with a variety of balloon devices such as the 'Bakri SOS' balloon, Sengstaken-Blakemore oesophageal catheter and the Rusch urological hydrostatic balloon (Condous et al. 2003)
- > The ability of the tamponade to arrest bleeding, or a positive 'tamponade test', has a predictive value of 87 % in successfully managing PPH without the need for further surgical intervention. (Ramanathan & Arulkumaran 2006)
- > Tamponade devices are undergoing clinical trials at present
- > In the absence of available balloon devices, packing the uterus with sterile gauze could be attempted, with the end of the pack fed through the cervix into the vagina (Ramanathan & Arulkumaran 2006)

Indications

- > Balloon tamponade is indicated for women not responding to uterotonics and uterine massage, after excluding bleeding from vaginal and cervical lacerations and retained products of conception
- > Balloon tamponade may be used:
 - > To control haemorrhage due to uterine atony in the upper segment of the uterus
 - > To control bleeding in the lower uterine segment secondary to placental implantation in the lower uterine segment, either where the placenta has been delivered complete but the placental site has not properly contracted or there is an abnormally adherent placenta in the lower uterine segment
 - > Before laparotomy to arrest haemorrhage in placenta accreta
- > Balloon tamponade may be used in combination with other measures, such as the B-Lynch suture

Contraindications

- > Suspected arterial bleeding
- > Cervical cancer
- > Some uterine anomalies (congenital, large distorting leiomyoma)
- > Suspected uterine rupture
- > Allergy to balloon material (silicone, rubber)

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Bakri SOS balloon

- > The Bakri SOS (Surgical Obstetric Silicone) balloon was specifically designed for placement in the uterus for control of postpartum haemorrhage
- > The Bakri balloon is a 58 cm long silicone catheter with an inflatable balloon on a double lumen shaft (Vitthala et al. 2009). The central lumen of the catheter allows drainage and is designed to monitor ongoing bleeding above the level of the balloon

Insertion

- > Ensure that the bladder is empty by inserting an indwelling Foley catheter (if not already in place)

In the case of uterine atony unresponsive to uterotonics:

- > Ensure the uterus is clear of any retained placental fragments, blood clot, arterial bleeding or lacerations before inflating balloon
- > Insert balloon catheter under spinal, epidural or general anaesthesia in theatre
- > Introduce vaginal speculum and using sponge forceps, insert balloon catheter transvaginally into the uterine cavity under guided ultrasound (avoid excessive force)
- > Once in place, inflate balloon with a volume of 100 - 300 mL of warm 0.9 % sodium chloride until enough counter pressure is exerted to stop bleeding from uterine sinuses (usually fill balloon until visible in the cervix lumen)
- > The test result is considered successful if there is no bleeding through the cervix or through the drainage channel of the balloon catheter
- > If bleeding continues, the tamponade test is unsuccessful and surgery is needed
- > Document amount of fluid in balloon
- > Apply gentle traction to balloon and tape balloon to the woman's inner thigh to maintain tension
- > The placental bed takes an average time of six hours to clot and stop bleeding (Lalonde et al. 2006)

In the case of bleeding from the lower uterine segment:

- > As above steps 1 & 2
- > Insert balloon into lower segment with the tip of the catheter in the uterine cavity
- > Inflate balloon under ultrasound guidance with up to 500 mL warm 0.9 % sodium chloride
- > Pack the vagina to ensure the balloon stays in place
- > Continue to observe the uterus by ultrasound scanner, the output from the Bakri catheter and the vaginal loss

Management following insertion

- > High dependency or intensive care for ongoing management
- > Fast until removal of balloon tamponade in case of need to return to theatre

Observations

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- > Hourly respiratory rate, pulse rate, blood pressure, oxygen saturation (SpO₂), fundal height, urine output, and vaginal blood loss (through the lumen of the catheter) until stable
- > Temperature every two hours (every hour if blood transfusion in progress)

Oxytocin infusion

- > Little evidence is available to determine the required concentration, rate or duration of an oxytocin infusion to sustain uterine contractility after insertion of a balloon tamponade (Georgiou 2008)
- > Medical expert consensus recommends a 40 U Syntocinon® infusion over the first 4 hours (*for further information, refer to the PPG 'Syntocinon: prophylaxis for third stage management and infusion regimen in PPH'*)
- > NB: Prolonged use of an oxytocin infusion may lead to hyponatraemia and the need to restrict fluids, as the initial load of resuscitation fluids (crystalloids / blood / blood products) to compensate PPH is often significant (Georgiou 2008)

Antibiotics

- > Administer IV antibiotics (ampicillin [or amoxycillin] 2 g IV initial dose then 1g IV every 4 hours, gentamicin 5 mg / kg IV as a single daily dose, metronidazole 500 mg IV every 12 hours) until after removal of the balloon catheter

Analgesia

- > Provide adequate analgesia

Removal of Bakri SOS balloon

- > Leave balloon tamponade in place for 8 to 24 hours to allow time for blood transfusion and coagulopathy correction (Lalonde et al. 2006; Vitthala et al. 2009)
- > Once parameters are within acceptable limits, deflate the balloon, either all at once, or in two stages:
 - > withdraw half the 0.9 % sodium chloride, and if no significant bleeding after 30 minutes, withdraw the remaining volume to deflate and remove balloon
- > Continue to observe the woman for any active bleeding (Condous et al. 2003)

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Abbreviations

et al	And others
g	Gram(s)
IV	Intravenous
kg	Kilogram(s)
mg	Milligram(s)
mL	Millilitre(s)
%	Percent
PPH	Postpartum haemorrhage
U	Unit(s)

Version control and change history

PDS reference: OCE use only

Version	Date from	Date to	Amendment
1.0	11 Sept 07	22 May 12	Original version
2.0	22 May 12	Current	reviewed

ISBN number:
Endorsed by:
Contact:

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