

Massive secondary postpartum haemorrhage managed with insertion of a Bakri balloon catheter after surgical evacuation of the uterus



R Agrawal, MB ChB, MRCOG

F Legge, MB ChB

Department of Obstetrics and Gynaecology, South Tyneside Foundation Trust, UK

K Pollard, MB ChB, FRC Path

Department of Pathology, South Tyneside Foundation Trust

S Al-Inizi, MB ChB, MRCOG

Department of Obstetrics and Gynaecology, South Tyneside Foundation Trust

Massive secondary postpartum haemorrhage (PPH) can be life threatening. A case of massive secondary PPH is presented which was managed by uterotonic agents, evacuation of the uterus and insertion of an intra-uterine balloon catheter to control bleeding and avoid the need for other surgical interventions such as laparotomy and hysterectomy.

However, massive secondary PPH following caesarean section invariably requires hysterectomy, as does secondary PPH from severe sepsis.

Case report

A 29-year-old woman, para 2, was admitted with heavy vaginal bleeding and abdominal pain 12 days after ventouse vaginal delivery for fetal bradycardia. Clinical examination revealed significant pallor, tachycardia (130 beats/min), a blood pressure of 80/40 mmHg, and a temperature of 36.4°C. The uterus was sub-involved and tender, corresponding in size to a 14-week gestation, with a 3 cm open cervix. An ultrasound scan confirmed retained products of conception. She was immediately resuscitated with blood and blood products. The hospital policy for massive blood loss was followed with a multidisciplinary approach.

Blood tests ruled out liver and renal failure, the coagulation profile was within normal limits, and the patient maintained oxygen saturation on 60% oxygen delivered by face mask. Despite the use of several uterotonic agents such as syntocinon, ergometrine and misoprostol, bleeding continued. Immediate surgical evacuation of the uterus was performed and an adherent piece of placental tissue 3 cm in size was removed. In spite of the uterus being emptied, bleeding continued

with a total estimated blood loss of 5 litres. A Bakri balloon catheter was inserted and inflated with 250 ml normal saline. This helped in achieving haemostasis and stabilising the patient, who remained stable in intensive care. A total of 8 units of packed red cells, 4 units of fresh-frozen plasma and 1 pool of platelets together with antibiotics were administered. The Bakri balloon catheter was removed after 36 hours. The patient was discharged home after 3 days with a haemoglobin concentration of 10 g/dl.

Histological examination confirmed residual decidua and chorionic villi with sub-involved blood vessels (Fig. 1).

Discussion

Postpartum haemorrhage (PPH) remains a significant complication of childbirth worldwide.¹ Secondary PPH is any abnormal bleeding from the birth canal occurring between 24 hours and 12 weeks postnatally; it affects about 2% of women who need to be admitted subsequent to giving birth in developed countries, half of whom undergo uterine evacuation.² It is usually caused by infection and/or fragments of the placenta/membranes

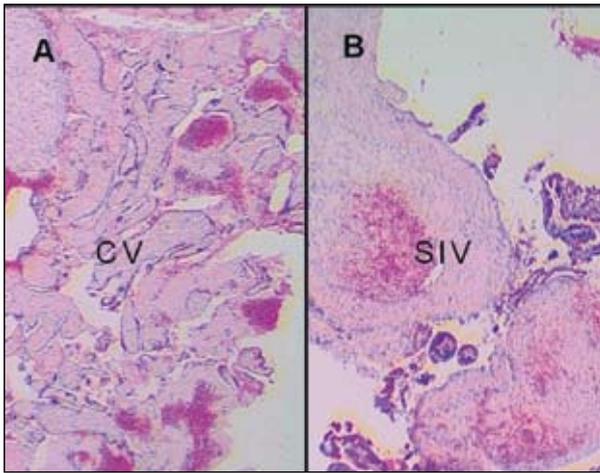


Fig. 1. Curettage from uterus: A = chorionic villi (CV); B = sub-involuting vessels (SIV) (original image $\times 20$ H&E stain).

remaining in the uterus, causing infection or preventing the uterine placental bed vessels from involuting.³ Treatment usually involves drug treatment, surgery or both.² Drug treatment can include uterotonic agents and other medications such as cyclokapron. Various surgical approaches have been described to control secondary PPH.^{4,5} The use of a hydrostatic balloon catheter to control primary PPH has been widely reported as achieving good results when medical treatment fails.^{6,7}

To our knowledge, this is the first reported case of secondary PPH managed successfully with use of a Bakri

balloon catheter. We presume that in this case there was placental bed bleeding and possible morbidly adherent placental tissue. However, this technique may not be helpful in all cases of secondary PPH, especially after caesarean section and where there is severe sepsis with organ failure. Hysterectomy should not be delayed in such critically ill patients.

Conclusion

We describe a case of massive secondary PPH managed successfully with insertion of a Bakri balloon catheter after evacuating the uterus when uterotonic agents failed. This method is simple and enables laparotomy and hysterectomy to be avoided. It can be considered as a management option in certain situations, and if more cases are described could become part of existing guidelines for management of selected cases of secondary PPH after vaginal delivery.

1. Department of Health. Confidential Enquiry into Maternal and Child Health. Saving Mothers Lives: Reviewing Maternal Deaths to make Motherhood Safer – 2003 - 2005. London: Chiltern, 2007:1-12.
2. Alexander J, Thomas PW, Sanghera J. Treatments for secondary postpartum haemorrhage (Review). The Cochrane Database of Systematic Reviews, Cochrane Library, 2009 issue. CD002867.
3. Alexander J, Gracia J, Marchant S. The BLIPP Study – a survey and case control study. Final report of the South and West NHS Executive Research and Development Committee (Response mode). Bournemouth: Institute of Health and Community Studies, Bournemouth University, 1997.
4. Pelage J-P, Soyer P, Repiquet D, et al. Secondary postpartum haemorrhage: Treatment with selective arterial embolization. *Radiology* 1992;212:385-389.
5. B-Lynch C, Coker A, Adebayega HL, et al. The B-lynch surgical technique for the control of massive postpartum haemorrhage: an alternative to hysterectomy. *Br J Obstet Gynaecol* 1997;104:372-375.
6. Vitthala S, Tsoumpou I, Anjum ZK. Use of Bakri balloon in postpartum haemorrhage: A series of 15 cases. *Aust N Z J Obstet Gynaecol* 2009;49:191-194.
7. Lau MS, Tee JS. Use of a large Rusch hydrostatic catheter balloon to control post partum haemorrhage resulting from a low placental implantation. *Singapore Med J* 2009;50(9):321-323.