Use of the Bakri Balloon in the management of massive postpartum haemorrhage, secondary to cervical trauma at vaginal birth

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Introduction:

Postpartum haemorrhage (PPH) is an obstetric emergency that accounts for 25% of maternal deaths globally[1]. Although Balloon Tamponade Technology (BTT) is commonly used in the management of postpartum haemorrhage (PPH) secondary to an atonic uterus, BTT has been used for other indications including prophylaxis and vaginal canal trauma[2][3]. This case report describes the use of a BTT for the management of PPH secondary to cervical trauma at birth suite.

Initial Presentation: A 30 year old woman G1P0, 41^{+3}weeks gestation, singleton pregnancy, presented to birthing suite for induction of labour for post-dates. She was induced by cervical ripening with balloon catheter, artificial rupture of membranes and an oxytocin infusion.

An instrumental birth with Kiwi cup was performed due to maternal exhaustion/fetal distress. The patient initially received prophylactic 5 IU Oxytocin : 500mcg Ergometrine (Syntometrine) IM injection. The placenta was delivered by controlled cord traction and was deemed complete.

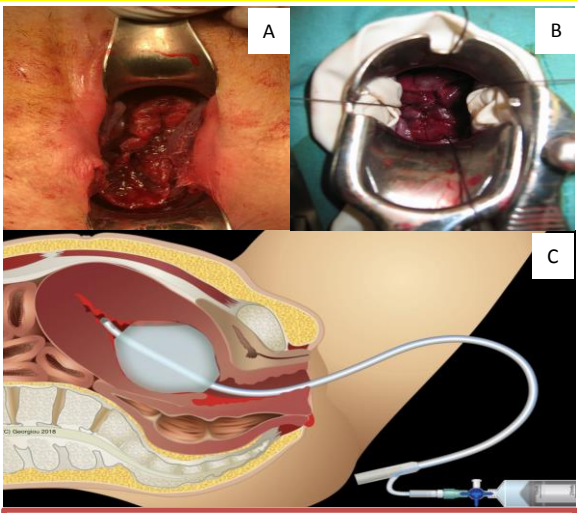
Subsequently, a PPH of 1200ml had occurred. The uterus was atonic. In addition to uterine fundal massage, 40 IU Oxytocin infusion IV was commenced and 1g Misoprostol was inserted per rectally (PR). Bleeding continued despite a well contracted uterus. Vaginal examination suggested that the ongoing blood loss was originating from cervical lacerations.

Due to the unavailability of operation theatre (OT) staff, a Bakri balloon was inserted on the birth suite and deliberately inflated within the lower uterine segment with 500mls of normal saline and placed on mild traction (image C).

Theatre: The patient was eventually transferred to OT and received a general anaesthetic. The Bakri balloon was removed and further uterine blood clots were expelled. Cervical lacerations were confirmed at 10, 12 and 2 o'clock position (Image A). Interrupted sutures were placed around the cervix (Image B). Despite the uterus being well contracted, there was ongoing bleeding from the various cervical tears, between the interrupted sutures. Therefore, a replacement Bakri balloon was placed as described as above. Ongoing bleeding ceased. The weighted blood loss was 2240mls.

Images:

A: Cervical lacerations at 10, 12 and 2 o'clock position
B: Post cervical repair in OT (From other case)
C: Bakri balloon was inserted and inflated within the lower uterine segment with 500mls of normal saline



Two units of packed red blood cells and one unit of fresh frozen plasma were transfused intraoperatively. Preoperative haemoglobin was 89g/L. Haemoglobin post transfusion was 104g/L and trended down to 97g/L on postoperative day 3. She was subsequently given iron infusion prior to discharge. Coagulation profile parameters were within normal limits throughout the intraoperative and postoperative courses. Output from the Bakri balloon on placement was minimal.

Post-Theatre: The patient received 1g IV Cephazolin QID and 500mg IV Metronidazole BD for 24 hours. The Bakri balloon was removed on Day 1 and the woman was discharged on Day 3.

Discussion

1. A combination of causes lead to massive PPH. In this case tone and trauma were the cause.
2. Uterotonics alone are not effective in reducing blood loss from PPH.
3. Bakri balloon is commonly used to control blood loss from an atonic uterus.
4. The tamponade effect of a Bakri balloon can be used to control blood loss from trauma as well.
5. Bakri balloon within the uterine cavity, cervix and if necessary within the vagina may serve to significantly reduce blood loss.
6. Bakri balloon can be used as both a prophylactic and therapeutic measure in the birth suite to control rapid blood loss before OT becomes available.

Conclusion:

This case highlights the importance of early intervention using BTT in birth suite to reduce PPH blood loss.

References:

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