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# Optimizing blood conservation in caesarean sections: Intravaginal tamponade technique for abnormal placentae insertion

Dear Editor,

The global increase in severe postpartum hemorrhage (PPH) is a critical concern in obstetrics, significantly contributing to maternal mortality worldwide. This trend is not limited to low-income regions; even high-income countries are experiencing a rise in PPH, primarily due to uterine atony and abnormal placentation [1]. The heavy reliance on allogenic blood transfusions, which carry considerable medical and economic burdens, underscores the need for innovative approaches in maternal transfusion practices. The concept of patient blood management, focusing on preserving the patient's blood supply, represents a significant shift in handling PPH, offering a promising direction for future interventions [2,3].

To address this clinical challenge, we propose a novel technique to limit vaginal blood loss at the time of high-risk caesarean delivery, such as in case of suspicion of placentae accreta diseases, with the placement of a tamponade balloon intravaginally and placement of a collection bag that acts as a cell saver *(Video)*.

This procedural innovation entails *the following:*

Step 1- Setting up: Placement of spinal anesthesia. Perineal and intravaginal disinfection followed by placement of an anal protection and a urinary catheter. Insertion of an intravaginal tamponade balloon (Bakri system) and inflated to 300 ml. Placement of two collection bags under the patient: the first to collect the amnionic fluid during fetal extraction and removed shortly after it; the second one to collect the patient's blood lost vaginally.

Step 2 – Induction of general anesthesia followed by exposition and fetal extraction after general anesthesia: The fetus is extracted through a vertical uterotomy.

Step 3 – Minimizing maternal blood loss using a temporary uterine sling: A uterine sling with a Foley catheter is temporarily placed to ligate the uterine arteries as previously described. [4].

Step 4 – Hysterectomy: A total hysterectomy is performed, and abdominal cell salvage is started. The bladder is partially opened during the process and subsequently closed with the help of urologists.

In the present case, blood loss was estimated to be 2.5 liters. The patient received 850 ml of erythrocytes via the abdominal cell saver; no blood loss was observed through the vagina as the placement of the prevented vaginal bleeding. This technique allowed 1) a correct estimation of maternal blood loss, enabling adequate resuscitation, and 2) efficient blood collection through an abdominal cell saver. Although the safety of reinfusion of blood collected through the vagina has been demonstrated [5], our technique offers the advantage of clearly visualizing maternal blood loss and reducing the risk of potential infections. The technique is straightforward to set up and might be used even in emergencies. This brief report will ignite further dialogue and critical analysis within PPH management and the quest for transfusion alternatives.

Yours sincerely,

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## CRediT authorship contribution statement

**Boussac Emilie:** Validation, Conceptualization. **Cuenoud Alexia:** Validation, Conceptualization. **Sichitiu Joanna:** Writing – review & editing. **Desseauve David:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Project administration, Conceptualization. **Moser Laureline:** Writing – review & editing, Writing – original draft. **Vouga Manon:** Writing – review & editing, Writing – original draft, Visualization, Validation. **Benkortbit Khadidja:** Validation, Conceptualization.

## Declaration of Competing Interest

The authors report no conflicts of interest.

## Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.eurox.2024.100282.

## References

[1] Callaghan WM, Kuklina EV, Berg CJ. Trends in postpartum hemorrhage: United States, 1994-2006. Am J Obstet Gynecol 2010;202(4). https://doi.org/10.1016/j.ajog.2010.01.011. 353.e1-6.

[2] SABM. Society for the advancement of patient blood management. ⟨https://sabm.org/⟩.

[3] Shander A, Van Aken H, Colomina MJ, et al. Patient blood management in Europe. Br J Anaesth 2012;109(1):55–68. https://doi.org/10.1093/bja/aes139.

[4] Pache B, Balaya V, Desseauve D. Temporary cervical sling and uterine twist before B-Lynch for massive uterine bleeding after delivery. J Obstet Gynaecol 2022;42(7):3393–4. https://doi.org/10.1080/01443615.2022.2106827.

[5] Phillips JM, Tamura T, Waters JH, Larkin J, Sakamoto S. Autotransfusion of vaginally shed blood as a novel therapy in obstetric hemorrhage: a case series. Transfusion 2022;62(3):613–20. https://doi.org/10.1111/trf.16794.

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