

Novel use of dual cell salvage in Jehovah's witness patient presenting with placenta accreta.

Should this be the new standard?

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Introduction

Caesarean delivery for patients with placenta accreta frequently results in significant post-partum haemorrhage. However, in patients who decline blood products, the risks of associated morbidity and mortality are significantly higher requiring meticulous multidisciplinary perioperative management.

Case Report

A 25 patient was referred to our institution at 33 weeks' gestation following a late diagnosis of placenta previa with suspected accreta. She had one previous caesarean section and identified as a Jehovah's Witness. Her starting Haemoglobin was 97 g/L and Platelets 357.

On arrival an MRI confirmed placenta accreta and an experienced multidisciplinary team was assembled to plan and consent for delivery. A consultant haematologist prescribed both iron infusion and erythropoietin injections to optimise her preoperatively and had perioperative blood product consent completed. Within this she confirmed that she would not accept red blood cells, fresh frozen plasma or platelets but would accept cell salvage, cryoprecipitate and other blood derivatives.

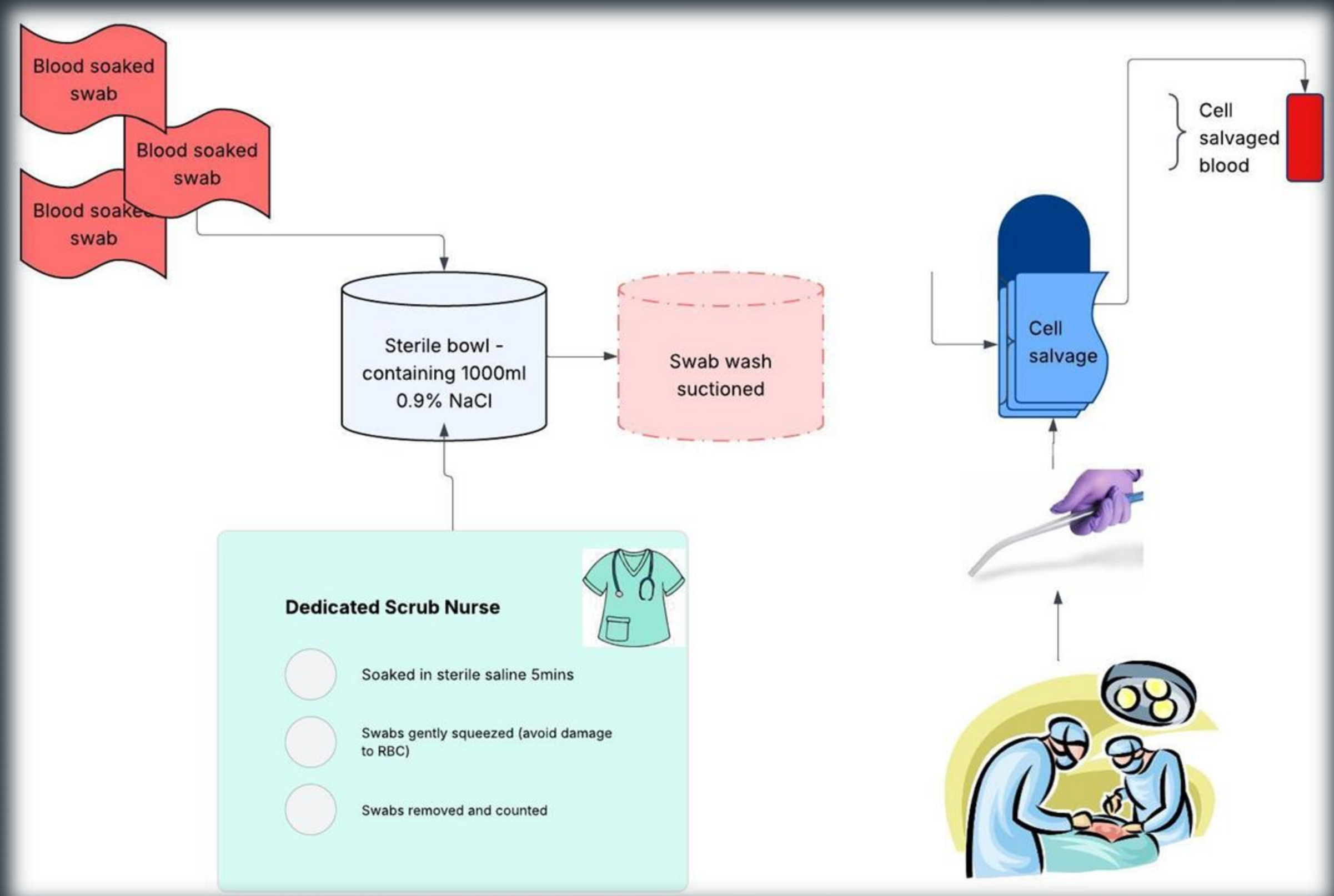


Fig 1 : Illustrative diagram explaining the process dual of cell salvage and swab washing (Generated using Lucid)

She underwent an elective caesarean delivery at 36 weeks' gestation. Her preoperative haemoglobin had escalated to 104 g/L. Our anaesthetic approach included a combined spinal epidural which was topped up intraoperatively to good effect, a radial arterial line, two 14-gauge cannula, and internal jugular central venous catheter.

Due to the high-risk nature of surgery proactive blood management strategies included interventional radiologists inserting bilateral internal iliac balloons prior to caesarean section with inflation of these on delivery and planned embolization of bleeding vessels. We also utilised dual cell salvage machines, with one specifically dedicated to swab washings. Illustrated in (Figure 1). In addition, we followed a detailed plan from haematology for alternative blood product delivery. 1 gram of Tranexamic acid was given following CSE and further 1 gram given prior to the start of the caesarean section.

Following insertion of internal iliac balloons, a high fundal incision was made to deliver the baby. 4 units of cryoprecipitate were administered at the start of the caesarean delivery. Following delivery of the baby, permissive hypertension was utilised, iliac balloons inflated. Shortly afterwards the placenta began to separate, so an oxytocin bolus was given, infusion started and ergometrine 500mcg was administered intramuscularly. A small segment of myometrium was resected which was adherent to the placenta, but total hysterectomy avoided.

In total 4 units of cryoprecipitate, 4 g of Fibrinogen concentrate and 463ml of cell salvage blood was returned to the patient. Total blood loss was estimated to be 2 litres Post operative haemoglobin was 101 g/L.

Discussion

Multidisciplinary involvement, proactive blood management strategies and dual cell salvage were critical to respecting the patient's wishes and ensuring a successful outcome.

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To facilitate replication of this, in other centres, we report on some hurdles we have encountered in utilising dual cell salvage for caesarean deliveries and strategies used to minimise their impact. (Figure 2)

Factors Limiting use	Potential solutions
Patient consent	- Informed discussion with patient regarding setup of the ICS equipment and the acceptability of swab washing .Ideally to take place in advance. Outcome of these discussions to be clearly communicated to the team.
Contamination of ICS blood Absolute Contraindications - Antibiotics not licenced for IV use - Iodine skin Prep - Chlorhexidine - Topical clotting agents - Fibrin based glues	- Risk benefit discussion on use – case by case decision risk of contamination vs benefits for patient, patient engagement in discussions and decisions . - Issues of contamination and strategies for avoidance reiterated in team brief - Clear labelling of suction + dedicated cell salvage ICS suction (reduce risk of mis-selection)
Relative Contraindications - Amniotic Fluid - Urine	- Dedicated suction operators if possible (avoid mis-selection)
Scrub/surgical team occupied with other tasks	- Dedicated Team member for swab washing - Identified and recruited early (separate role where possible)
Resus D – mothers with Rh + babies	- Dose of 1500 iU anti D immunoglobulin (within 72 hours of ICS)

(Figure 2) Table describing issues encountered using Dual Cell Salvage for Caesarean Delivery at our Centre and Solutions identified

References

1. Jauniaux ERM, Alfirevic Z, Bhide AG, et al. Placenta Praevia and Placenta Accreta: Diagnosis and management: Green-top guideline No. 27a. *Brish Journal of Obstetrics and Gynaecology*. 2019;126(1):e1-e48. doi:10.1111/1471-0528.15306
2. Klein AA, Bailey CR, Charlton A, et al. Associaon of Anaesthetists: anaesthesia and peri-operave care for jehovah's witnesses and paents who refuse blood. *Anaesthesia*. 2019;74(1):74-82. doi:10.1111/ANAE.14441