Anesthetic Management for a Patient with Placenta Percreta Invading the Urinary Bladder

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Introduction

Placenta percreta is a rare condition in which the placenta invades the full thickness of the myometrium and frequently other intra-abdominal organs. The incidence of placenta percreta is dramatically rising, primarily because of the increasing rise in cesarean delivery rates in the past few decades. Placenta percreta carries a high morbidity and mortality risk for mother and fetus, accounting for the majority of maternal deaths, due to failure to achieve lasting hemostasis at the time of cesarean section. We present a case of a multigravida with a known placenta previa and high level of suspicion for placenta percreta presenting for cesarean delivery.

Case description

33-year-old multiparous woman with history of gestational diabetes, previous cesarean delivery and two uterine curettages, presented to the hospital at 27 weeks gestation with painless vaginal bleeding and macroscopic hematuria. Ultrasound revealed placenta previa with its anterior margin reaching to the mid-anterior uterine body. Magnetic resonance imaging was not conclusive but suggested the placenta had invaded beyond the uterine serosa, involving the bladder wall. Therefore, a clinical diagnosis of placenta percreta invading the urinary bladder was made. She was taken to the OR for cesarean delivery.

Preoperatively, adequate large bore intravenous access was ensured. In anticipation of the potential need for massive transfusion and possible development of coagulopathy, blood products, cell saving device, rapid infusers and point-of-care viscoelastic rotational thromboelastometry (ROTEM®) were readily available.

The patient was placed supine on the operating room (OR) table, with left uterine displacement. Standard monitors were applied. While the obstetricians were prepping and draping the surgical field, 100% of oxygen was given to the patient by a face mask. After five minutes of preoxygenation, general anesthesia was induced using a rapid sequence intravenous technique (propofol and succinylcholine).

Following endotracheal intubation, an arterial line was placed for continuous blood pressure monitoring and serial blood gas sampling. Immediately after the delivery of a live and vigorous neonate, a massive hemorrhage was encountered while attempting to separate the placenta from the bladder wall. This led to the initiation of a massive transfusion protocol, while total abdominal hysterectomy was performed.
The hysterectomy was technically challenging due to the attachment of the uterus to the posterior wall of the bladder. During surgical dissection, it was noted there was severe injury to the bladder as well as transection of the left ureter. The latter was repaired by the urologist performing ureteric diversion with reimplantation of the ureter.

During the case, ROTEM provided quick and valuable information on clot formation over time and fibrinolysis. ROTEM was used to identify what part of the clotting process was disrupted, facilitating a fast differential diagnosis and allowing targeted coagulation factor replacement therapy.

A total of 10 units of packed red blood cells (PRBCs), 450 cc of blood recovered from the cell saver, 5 units of fresh frozen plasma (FFP), 3 units of platelets, and 2 pre-pooled concentrates of cryoprecipitates were given. Blood loss amounted to 5000 mL of blood before the hemorrhage was surgically controlled.

Anesthesia was maintained with sevoflurane, fentanyl, hydromorphone and midazolam. At the conclusion of the surgery, the patient was hemodynamically stable and was uneventfully extubated and transferred to the surgical intensive care unit (SICU) for further hemodynamic monitoring. On postoperative day 2 the patient was transferred to the floor and subsequently discharged home on postoperative day 4 without major complications.

Discussion

Our case illustrates some of the complexities of perioperative management of abnormally invasive placenta, and provides recommendations for anesthetic management of this challenging and potentially life-threatening obstetric scenario. An integrated and well-coordinated multidisciplinary approach is key to a successful outcome in these cases.