

A CASE REPORT: MULTIDISCIPLINARY APPROACH IN SUCCESSFUL MANAGEMENT OF A PARTURIENT HAVING PLACENTA ACCRETA SPECTRUM WITH A STANDARDIZED MASSIVE BLOOD TRANSFUSION PROTOCOL.

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ABSTRACT

One of the leading causes of maternal mortality and morbidity across the world is postpartum hemorrhage. A clinical scenario known as abnormally invasive placenta (AIP) or placenta accreta spectrum disorder (PAS) is when the placenta fails to separate spontaneously after birth and cannot be removed by force without resulting in significant and potentially fatal hemorrhage. Disorders of the placenta accreta spectrum possess the potential to complicate pregnancy. The most important risk factor for placenta accreta is a prior cesarean delivery combined with placenta previa. Here, we report an intriguing case of 28 years old woman at 35 weeks of gestation with previous 3 caesarean sections & with the diagnosis of placenta previa[1]. This case study illustrates the challenges related to placenta previa with previous three cesarean sections resulting in significant maternal bleeding that necessitated massive blood transfusion & resuscitation measures. In order to manage the complexity involved, it was vital to use a multidisciplinary approach comprising obstetricians, anesthesiologists, radiologists, and neonatologists.

KEYWORDS

Placenta accreta spectrum disorders, hemorrhage, massive blood transfusion protocol.

Introduction

Postpartum hemorrhage (PPH) is the most common cause of maternal death worldwide. Placenta previa and prior caesarean operations are the primary risk factors for placenta accreta spectrum disorders (PAS), a diverse range of anomalies of placental adhesion or invasion[2]. Over the past 50 years, the American College of Obstetricians and Gynecologists (ACOG) has recorded 10

times increase in the incidence of PAS, most likely associated with a rise in the rate of caesarean sections[2]. Massive blood transfusion protocol (MBT) may be used to provide significant benefits in the management of PPH. Here, we discuss the difficult case of a distinct PAS disorder in a patient who has had three caesarean sections at our referral center. We emphasize the value of a highly trained multidisciplinary team

approach addressing such instances of PPH by massive blood transfusion protocol[3].

Case Report

A 28-years-old female with G4P3L2A1 at 35 weeks 4 days of gestation with previous 3 LSCS was referred to our tertiary care center with suspected PAS. She was moderately built with normal vital parameters. Blood tests were within normal limit, there was no clinical evidence of vaginal bleeding. Systemic examination was normal. USG abdomen & pelvis was suggestive of a single live intrauterine fetus with gestational age of 36 weeks & 5 days & a complete placenta previa grade 4. For further evaluation MRI was advised which reported a well-established placenta previa with patchy interface loss around the bladder, suggestive of a placenta increta with close bladder wall adherence.

Following an in-depth evaluation conducted by a multidisciplinary team comprising radiologists, gynecologists, neonatologists, and anesthesiologists, the decision was made to perform a Cesarean section at 35 weeks gestational age, with a possibility for an obstetric hysterectomy SOS. A written informed consent for the same was obtained after proper counselling of the patient.

Anesthetic challenges expected in this patient were management of difficult airway[3], extensive blood loss & coagulopathy requiring resuscitation for management of hemodynamic instability which may be encountered perioperatively.

Anesthetic management

Pre anesthetic checkup was done prior to the surgery. Airway examination revealed Mallampati grade 2 with adequate mouth opening (3 fingers), normal neck movements. Thyromental distance was 5.4cm. Two wide bore (18G) peripheral intravenous cannulas were secured along with triple lumen 7F central venous catheter preoperatively. Blood grouping, cross matching was done priorly. After taking written informed consent the patient was given general anesthesia[4]. In the OR, all standard monitors were attached to the patient. To reduce aortocaval compression, the patient was kept in a supine posture with a fifteen-degree left lateral tilt. Patient was preoxygenated with 100 % oxygen for 3 minutes & premedicated with 4 mg injection ondansetron, .2mg injection glycopyrrolate along with 1-2 mg/kg propofol was given in 10 mg titrated until loss of the verbal response. After attaining adequate bag and mask ventilation, succinylcholine 2mg/kg was given. Skilled anesthesiologist performed direct laryngoscopy and a 7 mm disposable cuffed oral endotracheal tube was used to secure the airway. After that, the patient was connected to a ventilator to begin controlled ventilation. A trans fundal caesarean section was carried out. After the delivery of a male baby 100mcg injection fentanyl was given & injection Atracurium boluses and oxygen/nitrous oxide/isoflurane combination were used to maintain anaesthesia. Bilateral air entry was checked by 5 points auscultation technique. End tidal CO₂ levels were maintained in the range of 32-35mmHg. Following delivery of

the baby with APGAR score of 8 it was discovered that the placenta was extremely adhered **Figure 1** & had infiltrated the posterior bladder wall[2]. As a result, placenta had to be removed from the bladder serosa & muscularis. Blood loss from the attached placenta was excessive. In order to control massive bleeding, the left common iliac vessels were ligated & operating surgeon decided for obstetric hysterectomy **Figure 2**. The amount of blood loss during the surgical procedure was approximately 1800ml which was more than maximum allowable blood loss[5]. Patient was resuscitated with warm iv crystalloids; vasopressors were started to maintain MAP \geq 65 mmHg and massive blood transfusion protocol was initiated. 6 units of packed red blood cells, 6 units of fresh frozen plasma, 6 units of platelets were transfused to the patient in the ratio of 1:1:1. As a result of prompt & targeted resuscitative measures the hemodynamic parameters were stabilized & vasopressors discontinued[6]. Patient was shifted to PACU with ETT in situ on T Piece and was extubated after 4 hours. Post operative period was uneventful for both mother & the baby. The postoperative state of health was reaffirmed by further follow-up assessments, highlighting the effectiveness of the meticulously planned multidisciplinary approach.

Discussion

Placenta accreta spectrum patients can have massive obstetric hemorrhage entailing emergency hysterectomy[2]. Five-to-ten-fold higher incidence of PAS has been noted in last four decades in developing countries.

This rise has been associated with number of prior cesarean sections (0.3% in women with one previous cesarean section to around 7% for those with more than five cesarean deliveries). Significant rise in maternal mortality has been reported because of uncontrolled hemorrhage associated with PAS disorders. RCT studies have concluded that most of the cases were not diagnosed antenatally for PAS disorders. The initial presentation in those undiagnosed women is most commonly seen massive postpartum hemorrhage during attempted manual removal of placenta after the delivery of baby.

To avoid such mishap routine prenatal obstetric ultrasound of high-risk patients with previous cesarean deliveries or placenta previa should be carefully examined. The suspected patients should further be evaluated by investigation like MRI to get a clear vision of placental anatomy. Anesthesiologist should be made aware of all the warning signs from the surgical point of view to be prepared for extensive hemorrhage which can be life threatening to the patient. Prior information gives the ample amount of time to prepare the patient as well as to get a multidisciplinary team ready comprising of obstetrician, anesthesiologist, urologist, radiologist, neonatologist & a well-stocked blood bank to activate massive blood transfusion protocol when needed.

A multidisciplinary team-based approach has all the potential to improve overall outcome & reduce hospital stay.

Conclusion

The coexistence of placenta previa and prior cesarean sections during pregnancy, poses significant mortality risks. We conclude that the thorough understanding & proper perioperative planning should be meticulous before taking up such cases for surgery. Multidisciplinary approach with massive blood transfusion protocol helped in successful management of the case.

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Figure 1: Massive hemorrhage from adherent placenta.



Figure 2: Obstetric hysterectomy