

Anaesthetic Management in Patients with Placenta Accreta: A Case Report

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Abstract: *Placenta accreta is one of the obstetric emergencies that continue to increase along with the increase in caesarean deliveries. We reported a case of a 25 years old woman with gestational age of 34 weeks, transverse position and placenta previa totalis. Vital signs and physical examination were within normal limits. Laboratory examinations were also within normal limits. Abdominal ultrasound examination showed the fetus in a transverse position with placenta closing the internal uterine orifice. She was scheduled for caesarean section and hysterectomy with RA-Subarachnoid Block. No pre-medication was given to the patient. Spinal block anaesthesia was performed by giving 0.5% heavy bupivacaine at L3-L4 as much as 15 mg. After the baby was born, she was evaluated and began to complain of pain and discomfort in the abdomen, therefore the anaesthetic technique was changed to GA-OTT with fentanyl 100 mcg IV, propofol 100 mg IV titrated until the patient was hypnotized, and atracurium 30 mg IV. She was also given Ondansetron 4 mg IV, oxytocin 30 IU IV, tranexamic acid 1000 mg. During the operation, a ruptured bladder was found, therefore primary hecting was performed. Then the operation was followed by a hysterectomy. The operation lasted 5 hours 2 minutes. During the operation, the total bleeding was 1,600 ml and the amount of urineoutpuy was 250 ml. Hemodynamic fluctuations occurred during surgery. After surgery, the patient was given analgesics. In addition, she was also given tranexamic acid 500 mg every 8 hours, ceftriaxone 2 grams every 24 hours. She was treated for five days and was discharged in good condition. A good understanding of the early diagnosis of this disease is needed, planning and good management for patient delivery to prevent patient morbidity and mortality.*

Keywords: placenta accreta, hysterectomy, caesarean delivery, bleeding, transfusion

1. Introduction

Maternal haemorrhage is the leading cause of maternal death worldwide, accounting for 25% of maternal deaths. In addition, the most frequent cause of intensive care in obstetric patients is peripartum hemorrhage. Placenta accreta is one of the two main causes of peripartum bleeding besides uterine atony which is the most frequent indication for hysterectomy.¹ Placenta accreta is one of the leading causes of maternal morbidity and mortality in the world. The number of events that occur in the world until now is still uncertain, but it is estimated that it can reach 1 in 1000 deliveries.²

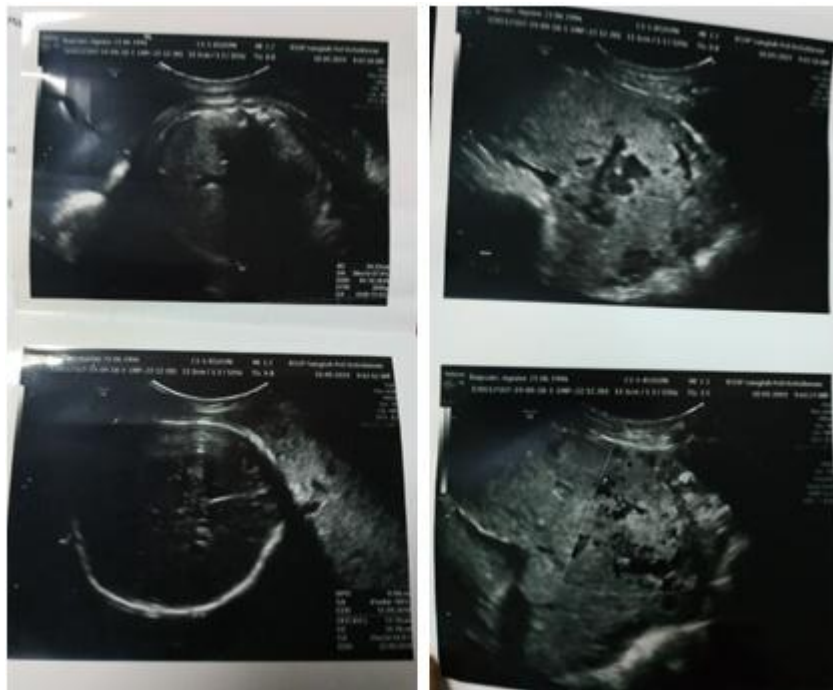
The incidence of placenta accreta is also expected to increase due to an increase in caesarean deliveries. Caesarean delivery in addition to having intraoperative complications such as uterine atony and infection, also has a risk for disturbances in subsequent pregnancies such as placenta previa, placenta accreta, and uterine rupture. The pathogenesis is thought to be developed from scar tissue from a previous caesarean section. Most cases (32%) developed uterine rupture with bleeding and shock, which ultimately required laparotomy and hysterectomy.^{1,3}

Placenta accreta is an abnormal attachment of the placenta to the uterine wall. It occurs when the chorionic villi invade the myometrium in an abnormal way. This situation is broadly divided into three based on the histopathological condition, namely placenta accreta vera, increta, and percreta. The deeper the attachment of the placenta, the greater the risk of morbidity in the form of massive bleeding and involvement of other organs, therefore optimal management is needed

involving a multidisciplinary care team.⁴ By understanding the epidemiology, pathophysiology, risk factor assessment, preparation and planning for surgical and anaesthetic management and resuscitation strategies from placenta accreta is expected to assist doctors in making decisions and reduce maternal morbidity and mortality. We reported a case of a patient with placenta accreta who underwent caesarean section and trans-abdominal hysterectomy and found bladder rupture caused by placental adhesions.

2. Case Report

We reported a case of 25 years old woman. She was referred from the Gianyar General Hospital with third pregnancy and gestational age of 34 weeks, transverse position of fetus and placenta previa totalis. There were no history of vaginal bleeding and abdominal pain. She was known to have placental adhesions since 17 weeks of gestation 5 days after ultrasound control at Gianyar Hospital. History of shortness of breath and increased blood pressure during pregnancy was denied. There is no history of previous illness. She had two caesarean sections previously. On physical examination, vital signs were within normal limits; blood pressure was 110/80 mmHg, pulse was 106x/minute, temperature was 36.4°C, respiratory rate was 18x/minute and oxygen saturation was 98%. Other physical examinations were within normal limits. On abdominal examination, the uterine fundal height was 2cm below the xiphoid process and the FHR was 144 beats per minute. Patient with placenta accreta index score : \geq caesarean deliveries (3), lacunae grade 3 (3,5), sagittal smallest myometrial thickness $<$ 1 mm (1), anterior placenta previa (10, bridging vessels (0,5) with total score 9, therefore the probability of invasion 96%.

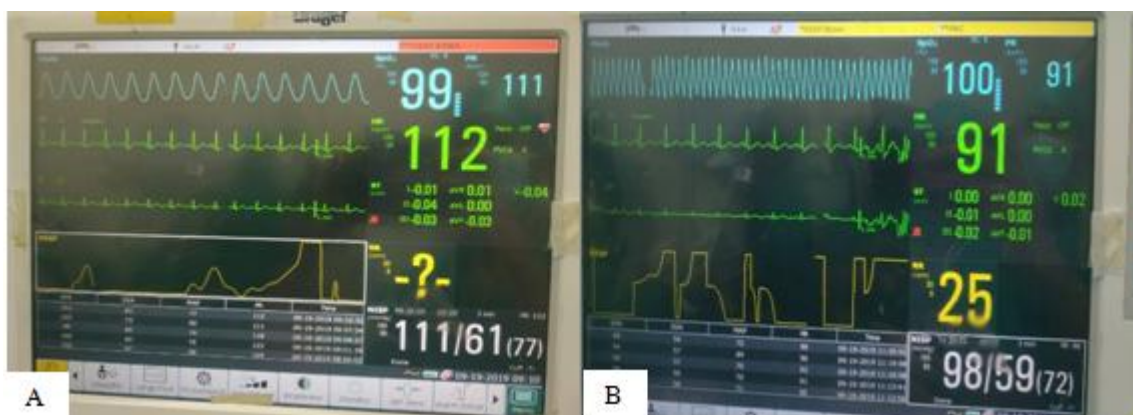


Picture 1: Abdominal Ultrasound

On complete blood count, WBC was $11.74 \times 10^9/\mu\text{L}$ (4.1-11); HGB was 10.70 g/dL (13.5-17.5); HCT was 33.43% (41-53); PLT was $331.00 \times 10^9/\mu\text{L}$ (150-440). Hemostatic physiology examinations were also within normal limits with PT 13.2 (10.8-14.4) seconds; aPTT 30.1 (24-36) seconds; INR 0.94. Abdominal ultrasound examination showed a single fetus, with fetal heart beat (+) and in transverse position. The placental body was located anterior to the lower uterine segment which covers the internal uterine orifice. She was with an ASA II physical status.

She was scheduled for caesarean section and hysterectomy with RA-Subarachnoid Block. No pre-medication was given to the patient. Spinal block anaesthesia was performed by giving 0.5% heavy bupivacaine at L3-L4 as much as 15 mg. After the drug was inserted, she was hemodynamically stable and there were no complaints of shortness of breath. The block height test was performed, it was found that the sensory block was as high as T6. After the ureteral catheter

was inserted and the baby was delivered, she was evaluated and began to complain of pain and discomfort in the abdomen, therefore the anaesthetic technique was changed to GA-OTT (2 hours 10 minutes after RA-BSA) with fentanyl 100 mcg IV, propofol 100 mg IV titration until she was hypnotized, and atracurium 30 mg IV. She was also given Ondansetron 4 mg IV, oxytocin 30 IU IV and tranexamic acid 1000 mg. After the baby was born, the common iliac artery was explored and the artery was ligated. During the operation, a ruptured bladder was found, therefore primary hecting was performed. Then the operation was followed by a hysterectomy. The operation lasted for 5 hours 2 minutes. During the operation, the total bleeding was 1,600 ml and the amount of urine was 250 ml. There were hemodynamic fluctuations during surgery:
 HR: 64-116 times per minute
 BP : 90-130/50-78 mmHg
 RR: 14-20 times per minute
 SpO2 : 97-99%



Picture 2: Haemodynamic fluctuation. (A) at arrival in OR (B) after spinal anesthesia

After surgery, she was given morphine 20 mg in 20 ml NaCl 0.9% at a rate of 0.6 ml/hour and Paracetamol 1000 mg every 8 hours IV. In addition, she was also given tranexamic

acid 500 mg every 8 hour and ceftriaxone 2 grams every 24 hours. She was treated for one day in the intensive care unit and then continued in regular room for four days.



Picture 3: Hysterectomy

3. Discussion

Anaesthetic management of placenta accreta should consider the degree of placental invasion, estimation of postpartum haemorrhage, choice of peripartum hysterectomy, availability of blood, readiness of the intensive care unit, and experience of the operator. Haemorrhage in placenta accreta can be as high as 2000 mL in 66% of cases, 5000 mL in 15% of cases, 10,000 mL in 6.5% of cases, up to 20,000 mL in 3% of cases. It is important to note that when massive bleeding begins to occur, at the beginning of the operation the bleeding will usually be minimal, but the bleeding will increase rapidly when the operator begins to work at the base of the placental implantation.²

An experienced team can choose neuraxial anesthesia in an electively prepared patient. Intraoperative manipulation, dissection, and traction can cause pain, nausea and vomiting. Maintaining anaesthesia at a sensory T4 level and sedation can reduce the likelihood of conversion of a neuraxial technique to a general anaesthetic technique. In a multicenter study examining peripartum hysterectomy, of 12 patients who were given epidural anaesthesia, none required induction into general anaesthesia. However, several other studies suggest the use of regional anaesthesia in patients with minimal risk of placental invasion. Chestnut et al reported that during CS, as many as 28% of patients under epidural anaesthesia were converted to general anaesthesia due to inadequate operating conditions and/or patient discomfort.⁵

Spinal anaesthesia can be given to patients with placenta accreta who are planned for caesarean section and hysterectomies, but it has drawbacks in terms of the duration of anaesthesia given and the risk of hemodynamic shock is higher than epidural. When choosing a spinal anaesthetic

technique, the patient should also be evaluated for the possibility of difficulty in airway management, because of the high risk of changing the anaesthetic technique. Good judgment is necessary because conversion of regional anaesthesia to general anaesthesia is a high risk situation if not planned properly.⁶

As the risk of bleeding increases, general anesthesia is a good anesthetic technique of choice. This is because patients with severe hypotension will require airway protection, secondly massive fluid shifts and massive transfusions can affect the oxygenation process, so control of ventilation with an endotracheal tube is necessary. Third, rapid fluid transfer carries the risk of airway edema, which may lead to failure of ventilation/intubation during surgery. Fourth, massive transfusion of blood products is often accompanied by administration of vasopressors, so that central venous access is required, insertion of a central venous catheter is easier when the patient is under general anaesthesia. All patients at risk for peripartum hysterectomy under neuraxial anaesthesia should be informed about the risk of discomfort and bleeding during surgery requiring conversion to general anaesthesia.³

The choice of anaesthetic agent is also important to consider. Premedication with lidocaine or fentanyl is not recommended because of the risk of exposure to the fetus. Propofol is the preferred induction option in CS because it can induce in just 45 seconds. Caution is needed in the use of propofol due to the risk of causing hypotension, but based on research, the administration of propofol has no effect on the Apgar score of neonates (at a dose of 2-2.5 mg/kg), but has a significant effect on causing hemodynamic depression in neonates at a dose of 9 mg/kg. kg.³

Uterine muscle tone is not affected by striated/skeletal muscle relaxants, and at standard doses all classes of muscle relaxants have very minimal transfer to the neonate. Rocuronium can provide relaxation on endotracheal intubation less than 60 seconds at a dose of 0.9-1.2 mg/kg. Rocuronium was minimally transferred to the fetus, therefore it does not cause muscle weakness in the baby. Although cholinesterase inhibitors can be administered in the neonate, the mainstay of therapy is to provide adequate respiration until the drug is eliminated.³

Bleeding in the case of placenta accreta occurs because physiologically there is an increase in uterine blood flow from 100 ml/minute to 350 ml/minute, whereas in placenta accreta the vascularity and flow was increase even more. In patients with placenta accreta, the uterine vessels not only have a larger diameter than normal pregnancies, but also have less muscle tissue and an elastic layer. This results in uncontrolled bleeding due to the inability of vasospasm.⁷ Early administration of tranexamic acid may be an option in bleeding obstetric patients.⁸ Antifibrinolytic therapy is suggested as a therapy for coagulopathy associated with postpartum haemorrhage. In 2013, the European Society of Anesthesiology recommended tranexamic acid for use in obstetric bleeding to "reduce the amount of bleeding, the duration of bleeding, and the number of transfusion units". Another randomized clinical trial study showed tranexamic acid (10 mg/kg) vs placebo showed a significantly lower 2-

hour postpartum bleeding outcome.⁹ However, until now, the best time of administration in dealing with bleeding is still a big question of whether tranexamic acid should be used as prophylaxis or when postpartum hemorrhage has occurred.¹

Postoperative care of patients should be in the ICU, because massive bleeding is often causing haemorrhagic shock and requires further transfusion. Massive bleeding is also at risk for impaired ventilation and perfusion, therefore artificial ventilation is required during ICU care. In one study, intensive care was required in as many as 51.6% of patients with placenta accreta, of which 29% had intraoperative complications and 40% experienced them in the postoperative period.¹⁰ Close monitoring in the intensive room for vital signs, bleeding, and other clinical conditions is very important.

4. Conclusion

Placenta accreta is one of the obstetric emergencies that continues to increase along with the increase in Caesarean deliveries. A good understanding of the early diagnosis, planning and good management for patient delivery is needed to prevent patient morbidity and mortality. The anaesthetic technique required depends on the risk of bleeding, the readiness of the multidisciplinary team, and the availability of blood.

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