

# Epidural Anesthesia Management in Cesarean Section with Placenta Accreta

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## ABSTRACT

**Background:** In pregnant women, the spectrum of placenta accreta is considered a high risk syndrome. Placenta accreta is responsible for 7-10% of all maternal deaths worldwide. This study reports on a patient with placenta accreta who underwent a cesarean section using epidural anesthesia.

**Case:** A 30-year-old woman (Gravida: 3, Abortus: 1, Partus: 1) with a gestational age of 8 months came to the hospital. with 8 months of gestation was diagnosed with antepartum hemorrhage et causa placenta previa totalis morbidly adherent placenta high risk with planned elective cesarean section with bilateral tubectomy to hysterectomy, Double J (DJ) stent, Ballooning using epidural anesthesia with physical American Society of Anesthesiologists (ASA) II status. Local anesthetic with 2% lidocaine 2 ml, 12 ml of 0.5% bupivacaine given in incremental doses of 4 ml every 5 minutes while monitoring the patient's hemodynamics. Intraoperative drugs consist of intravenous (IV) dexamethasone 5 mg IV, ondansetron 8 mg IV, tranexamic acid 1 gram, paracetamol 1 gram IV, bupivacaine 0.5% 3ml every 1 hour via an epidural catheter. Maintenance using O<sub>2</sub> 3 lpm. The operation lasted 450 minutes, with stable outcome both maternal and fetal.

**Conclusion:** Anesthesia management in patients with bleeding during labor is very important. In this case, epidural anesthesia provide a good outcome in maternal and fetal after cesarean section in placenta accreta patient.

**Keywords:** placenta accreta, epidural anesthesia, antepartum hemorrhage, morbidly adherent placenta

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## INTRODUCTION

Placenta accreta is a disorder in which the implantation of the placenta is not correct. Although the source of this condition is unknown, some experts believe that it is caused by a myometrial-endometrial error, leading to failure of normal decidualization in the uterine scar area, resulting in improper villous attachment and trophoblastic infiltration.<sup>1</sup> In pregnant women, the spectrum of placenta accreta is considered a high risk syndrome. This is because there is a possibility of bleeding during labor or pregnancy. Because both mother and fetus are at risk for life-threatening bleeding, blood transfusions are often necessary. In 2015, the American College of Obstetricians and Gynecologists (ACOG) recommended that individuals with placenta accreta receive level 3 prenatal care for this reason.<sup>2</sup>

Compared to placenta increta or percreta, placenta accreta occurs more frequently. When 138 cases with histological evidence of placental implantation outside the hysterectomy

tissue were examined, it was discovered that 79 % of these cases had placenta accreta, 14 % of them involved placenta increta, and 7 % of them involved placenta percreta. The sickness had an impact on 731 births that occurred in the United States between 2008 and 2011. In recent years, placenta accrete occur in 3 per 1,000 babies as the usage of cesarean sections has increased.<sup>3</sup> The spectrum of placenta accreta becomes problematic during labor when the placenta is not fully separated from the uterus and is followed by significant bleeding, which can result in renal failure, hysterectomy, injury to the tissues of the ureter, bladder, bowel, or neurovascular system, and injury to the ureter, bladder, or bowel. The average perinatal mortality rate is 30%, and the average maternal mortality rate from placenta accreta is 20%. In the entire world, 7-10% of all maternal deaths are caused by placenta accreta.<sup>4</sup>

In severe placenta previa, elective cesarean delivery is advised. In placenta accreta, a cesarean hysterectomy is advised

to retain the placenta in place. The two alternatives for people with placenta accreta who still wish to maintain their fertility are manual removal of the placenta with resection of the contaminated area and conservative therapy, which involves keeping the placenta in situ. Massive bleeding following placental separation is a risk with the first method, whereas extended placental retention with the latter method may result in secondary problems.<sup>5</sup>

Anesthesia technique used in the cesarean section must consider the duration of the surgery and the potential blood loss. Task Force on Anesthesia for Obstetrics The first line of defense, according to the American Society of Anesthesiologists, should be neuraxial anesthesia. Most patients can experience extended surgery and significant blood loss while under epidural anesthesia, with the option to switch to general anesthetic if medically necessary. The conversion rate from local anesthetic to general anesthesia is reportedly between 29 and 44%. If there is significant bleeding that needs significant fluid resuscitation, endotracheal intubation and mechanical ventilation may be recommended.<sup>6-8</sup> This case reports on a patient with placenta accreta who underwent cesarean section using epidural anesthesia.

## CASE

A 30-year-old woman (Gravida: 3, Abortus: 1, Partus: 1) with a gestational age of 8 months came to the hospital. The patient feels active fetal movement, denies tingling, leaking amniotic fluid (-), bleeding from the birth canal (-), vaginal discharge (-), pain in the bladder (-). Fever, cold cough, shortness of breath and chest pain was denied. The patient has a history of allergies to anchovies and shrimp. He denied history of hypertension and asthma. History of cesarean section in 2018 using regional anesthesia. History of chemotherapy was denied. The pregnancy history of the patient who was pregnant with her first child had an abortion at 7 weeks of gestation and no curettage was performed. The patient gave birth to her second child by cesarean section due to failed induction.

The patient is fully conscious, Glasgow Coma Scale score Eye: 4, Vision: 5, Motion: 6. The patient had a blood pressure of 110/68 mmHg, pulse 99 beats/minute, respiratory rate 20 times/minute, temperature 36.8 °C, and oxygen saturation of 99% with O<sub>2</sub> nasal cannula 3 lpm. The patient weighs 77 kg, height 156 cm, body mass index 31.6 including obesity stage 1. Airway, nasal patency (+/+), septal deviation (-/-), mouth opening >3 fingers, mallampati 2, teeth within normal limits, free neck movement. The shape of the thorax is normochoest, symmetrical, right chest expansion is the same as the left chest, retraction (-/-), accessory muscles of breath (-/-), sonor/sonor, basic vesicular sound (+/+), additional sound (-/-), respiratory rate 20 times/minute. Chest examination revealed regular I-II heart sounds, murmurs (-). Capillary refill time <2 seconds, cold akral (-/-). pupil isocor with a diameter of 3mm/3mm, light reflex (+/+).

Laboratory examination showed mild anemia with hemoglobin 10.7 mg/dL, hematocrit 32%, leukocytes 6.6 x 10<sup>3</sup>/μl, platelets 246 x 10<sup>3</sup>/ μl, erythrocytes 4.14 x 10<sup>6</sup>/ μl, prothrombine time (PT) 11.5 seconds, activated partial thromboplastin time (APTT) 36 seconds, international Normalized ratio (INR) 0.850, blood glucose 109 mg/dl, sodium 136 mmol/l, potassium 3.5 mmol/l, chlorine 107 mmol/l. Abdominal ultrasound examination showed a transverse intrauterine single fetus, the placenta was seen extending to cover the internal uterine ostium, the amniotic fluid appeared to

be sufficient, there were no major congenital abnormalities, and the current impression was that the fetus was in good condition.

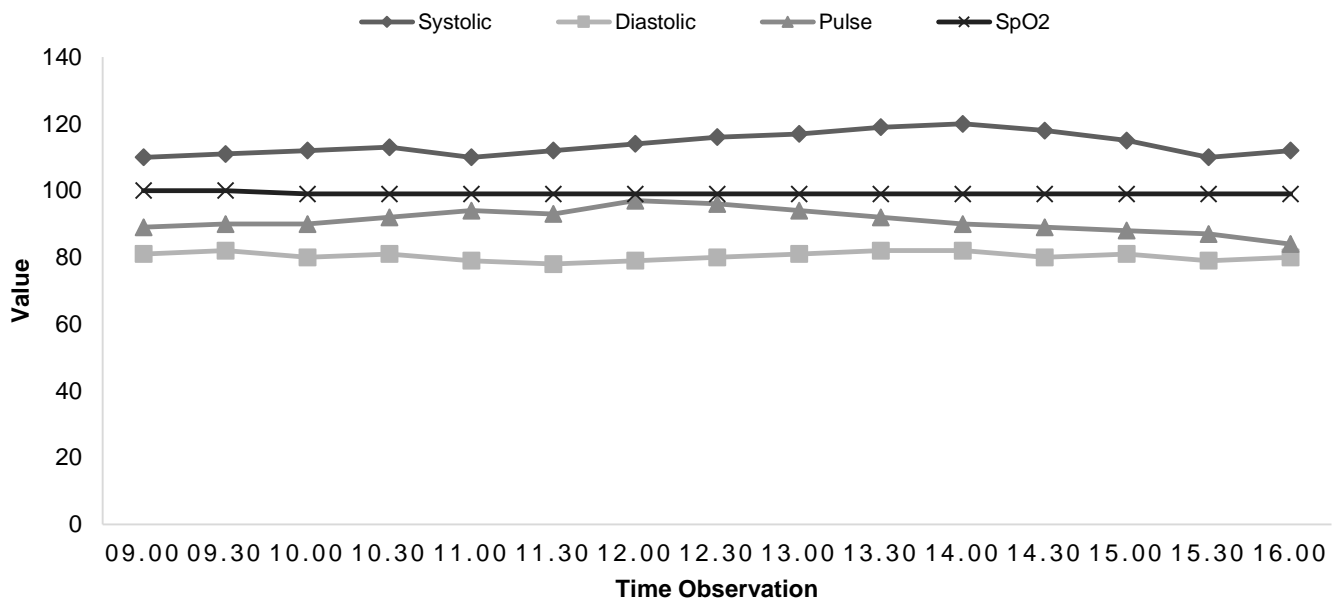
The patient was diagnosed with antepartum hemorrhage et causa placenta previa totalis morbidly adherent placenta high risk. Obgyn doctors stabilize the patient by giving 3 lpm of Oxygen and 12 lpm of ringer lactate infusion. The anesthetist then performed a pre-operative examination. Parturient is American Society of Anesthesiologists (ASA) II, then planned an elective cesarean section with bilateral tubectomy to hysterectomy, DJ stent, ballooning using epidural anesthesia. Complications in this operation are 36+5 weeks of gestation with antepartum hemorrhage et causa placenta previa totalis morbidly adherent placenta high risk, anemia, food allergies and obesity. Possible problems in this operation are bleeding, high spinal, total spinal, post dural puncture headache, postoperative pain, hypotension and epidural hematoma.

Anesthesia started at 09.00 am lasted 450 minutes, until 16.30 pm. Epidural anesthesia was performed. The patient is in a sitting position with a monitor attached. The puncture site was identified (L2-L3) and antisepsis was performed. Local anesthetic with 2% lidocaine 2 ml. Tuohy needle is inserted (2-3 cm) up to the ligamentum flavum. The mandrine is removed and replaced with a 10 ml syringe filled with air, continuing to insert the tuohy needle until the pressure (LOR) is lost. Remove the 10 ml syringe, insert the epidural catheter (15 cm) from the base of the tuohy needle with the tip at T12-L1 and remove the tuohy needle retaining the epidural catheter. Epidural catheter fixation. Test dose Enter the drug test dose (pehacaine 1.2 ml and lidocaine 1.05 ml diluted with NaCl to 3 ml (lidocaine 45 mg + epinephrine 15 μg). Return to supine position, monitor test dose results (note increase in hearth rate < 20% and is there any lower extremity motor weakness. Enter 12 ml of 0.5% bupivacaine given in incremental doses of 4 ml every 5 minutes while monitoring the patient's hemodynamics (using the Bromage formula). Ensure that the block height is reached to T10 and the sensory level is as high as T4 by waiting for approximately 20 -30 minutes.

Blood pressure during surgery 95-120 mmHg systolic/65-75 diastolic. Pulse 92-100 beat/minute, respiratory rate 18 times/minute, and temperature 36.2-36.5°C (Figure 1). Intraoperative drugs consist of intravenous (IV) dexamethasone 5 mg IV, ondansetron 8 mg IV, tranexamic acid 1 gram, paracetamol 1 gram IV, bupivacaine 0.5% 3ml every 1 hour via an epidural catheter. Maintenance using O<sub>2</sub> 3 lpm. Bleeding 1800 ml and urine 330 ml in 7 hours.

Sectio caesaria finished at 16.30 p.m. On examination 2 hours after surgery, she was conscious of compos mentis, blood pressure 130/88 mmHg, pulse 95 beat/minute, respiratory rate 16 times/minute, SpO<sub>2</sub> 99% with nasal cannula 3 lpm. Then the patient was transferred to the High care unit (HCU).

After the operation was completed, the patient was treated at the HCU. The patient received the epidural analgesia bupivacaine 0.2% at 3 ml/hour. The patient also received normal saline 0.9% 20 drops per minutes, injection of ketorolac 30 mg/8 hours, injection of tranexamic acid 1 gram/8 hours, injection of ampicillin 1 gram/8 hours, injection of adona 1 amp in 500 ml NS 0.9%, injection of vitamin C 50 mg/12 hours, and 1 colf packed red cell transfusion. The outcome of the baby was good then the baby was treated together with her mother after the mother in a stable condition.



**Figure 1.** Durante operation hemodynamic show stable condition

## DISCUSSION

Preoperative evaluation of the airway in this patient was very Placenta accreta management must be fully manage by specialized surgical team consist of anesthesiologists, obstetricians, gynecological oncologists, interventional radiologists, and blood bank operators. It has been demonstrated that careful planning lowers blood loss, the requirement for blood products, and perioperative morbidity and death. After the favorable gestational age has been achieved, which is typically regarded to be approximately 34 weeks, elective cesarean birth prior to the commencement of labor is typically advised for all of these reasons and to avoid unexpected emergency delivery.<sup>1</sup>

The conventional management of placenta accreta involves scheduled postpartum hysterectomy and elective cesarean birth, with a 98% hysterectomy rate reported in one retrospective cohort research. Today, certain patients can receive uterine sparing care thanks to recent developments in endovascular procedures. The placenta may be left in situ during this conservative method, which is then followed by angio balloon inflating or selective uterine artery embolization. Concurrent methotrexate therapy may accelerate the resorption of a poorly perfused placenta.<sup>4</sup>

Compare to general anesthesia, regional anesthesia for cesarean delivery was linked to a 17-fold lower rate of overall problems including, gastric contents aspiration, failed endotracheal intubation, hypoxia, intraoperative recall, and risk of maternal death. Additionally, regional anesthesia makes it possible for both parents to be present for the child's birth. In affluent nations, peripartum interventions under neuraxial anesthesia are now regarded as conventional practice.<sup>7</sup>

In circumstances where hemodynamic instability is probable, spinal and epidural anesthesia are less preferable options due to the hypotension brought on by sympathectomy and the inability to quickly reduce anesthetic levels following the establishment of a neuraxial block. The likelihood of spinal or epidural hematoma formation is significantly increased by coagulation problems, which frequently occur after bleeding and transfusion, particularly during catheter manipulation. General anesthesia is typically thought of as the preferred anesthetic for

patients with placenta accreta due to the high likelihood of hysterectomy during cesarean delivery, the significant risk of massive bleeding complicated by severe hypotension and coagulopathy, and the significant risk of massive bleeding. Recently, some authors have made the case that regional anesthetic might be a suitable substitute for patients who are otherwise healthy and have only slight placenta accreta invasion. The avoidance of general anesthesia will also be advantageous for patients chosen for conservative care. Such individuals will benefit most from epidural or spinal-epidural anesthesia combination. The use of both regional and general anesthesia has been recommended by several authors. In this method, the baby can be delivered while the mother is still conscious thanks to regional anaesthetic, and then the hysterectomy can be done after switching to general anesthesia.<sup>9</sup>

We did not use the neuraxial approach when preoperative estimates of the risk of coagulopathy related to significant bleeding were high. Rarely, we stop manipulating the epidural catheter when a patient suddenly has significant bleeding and coagulopathy and wait until hemostasis returns to normal.

Even when it wasn't initially planned, regional anesthesia can be changed to general anaesthetic in high-risk circumstances. Due to insufficient operating circumstances and/or patient discomfort, 28% of epidural anesthesia during cesarean hysterectomy needed to be changed to general anesthesia. We concur with the authors that general anesthesia is better in circumstances where there is a substantial likelihood of significant bleeding and coagulopathy (such as placenta percreta or in morbidly obese patients with placenta accreta).<sup>10</sup>

During pregnancy, the average blood flow via each uterine artery rises to 350 ml/min. Blood arteries in the presence of placenta accreta may have a bigger diameter and more blood flow. Such veins lose the majority of their muscle tissue from their walls and do not have a broad elastic layer. They rupture during birth, and because they cannot experience vasospasm, they become a source of uncontrollable bleeding.<sup>7</sup>

According to the previous study, people with placenta accreta may lose between 2.5 and 5 liters of blood on average, according to estimations.<sup>7</sup> The packed red blood cell transfusion

volume ranges from 3 to 29 units, with an average of 10 units. 40% of patients who underwent placenta percreta received more than 10 units of red blood cells, according to a recent assessment.<sup>11</sup> More than half of all emergency postpartum hysterectomy patients experience hemorrhagic shock, and more than 25% of patients experience coagulopathy or disseminated intravascular coagulation (DIC).<sup>7</sup>

In addition to the initial measurements, PTT, PT, platelet count, and fibrinogen levels should be checked every hour after initiation of massive transfusion to guide therapy. PT was more sensitive than PTT for indicating non-homeostatic levels of at least one clotting factor in trauma patients.<sup>12</sup> The evaluation of hemostasis as a whole can be improved with the use of treatment tools like thromboelastography and thrombo elastomer, which

also offer useful data for direct hemostatic therapy.<sup>5</sup> In the previous study, 51.6% of women with placenta accreta needed to be admitted to the intensive care unit; 29% of these women experienced intraoperative difficulties and 40% experienced postoperative issues. Up to one-third of patients may be complicated by infectious morbidity.<sup>12</sup>

## CONCLUSION

Anesthesia care in patients with bleeding during labor is very important. In this case, epidural anesthesia provide a good outcome in maternal and fetal after cesarean section in placenta accreta patient.

## ACKNOWLEDGMENT

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## CONFLICT OF INTEREST

None

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