

Double-Block for Cesarean Section and Hysterectomy in a Patient with Severe Placenta Accreta Spectrum: Are Neuraxial Blocks a Better Option Nowadays? A Case Report

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Abstract: The Placenta Accreta Spectrum is an anomaly in the placenta that adheres to the uterus and fails to separate from it at delivery, which can lead to massive hemorrhage. For the anesthesiologist, the decision between general anesthesia (risks of pulmonary aspiration and difficult airway) or neuraxial block (worsening of hemorrhagic shock) is challenging. Vascular surgeons have helped reduce the bleeding for many years, and some techniques are more efficient. Is this the moment to prefer a neuraxial block? We expect to show that both methods are possible, but since the advent of vascular devices, neuraxial blocks are less harmful as these devices can reduce bleeding rates.

Keywords: Placenta Accreta; General Anesthesia; Case Report.

1. Introduction

The Placenta Accreta Spectrum (PAS) includes an anomaly in the placenta that adheres to the uterus and fails to separate from it at delivery. It happens in 0,8 to 3,1% of all pregnancies [1]. There's a strong relationship between the number of previous cesarean sections in the patient and the appearance of placenta accreta [2]. Two classifications are present, but the more common has three types: placenta accreta (75% of all cases) with only adhesion to the myometrium, increta (18%) with invasion of the myometrium, and the most severe and risky placenta percreta (7%) with invasion of other organs like the bladder [3, 4]. Some significant complications can happen in these situations, and the anesthesiologist must be aware of them in all cases [1].

The main complication after delivery is massive bleeding when attempting to remove the placenta from the myometrium. The use of vascular devices has become popular in recent years. It may reduce hemorrhage significantly, allowing neuraxial anesthesia instead of general anesthesia and its risks in pregnant women [3, 5]. Moving from regional to general anesthesia is a possibility and can lower the risks of fetal exposure to anesthetics, difficult airways, and pulmonary aspiration [3, 6]. The case reported here refers to a patient with a very severe placenta percreta that attained not only the uterus but also the bladder. As anesthesia, she received a neuraxial double-block and no general anesthesia.



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2. Case Report

After informed consent, a 27-year-old female 34-week pregnant patient 1,55m, 49 kg was scheduled for her 4th cesarean section (C-section) followed by hysterectomy because of severe placenta percreta. During the pre-natal, she was diagnosed with placenta percreta with an invasion of the bladder. The preoperative evaluation showed us a patient without comorbidities but anxious. Her physical examination was near normal, including blood pressure and heart rate, but upper airway examination showed Mallampati 3, standard mouth opening, and normal thyromental distance. As we feared difficult intubation and pulmonary aspiration, we preferred a neuraxial block. Because of the high risk of severe bleeding, placement of a bilateral hypogastric balloon was scheduled under X-ray to reduce the arterial flux to the uterus.

This placement was realized under local anesthesia. Two large-bore cannulas (16G) were placed, and ephedrine and norepinephrine were prepared. The patient was monitored with a cardioscope, oximetry, and invasive blood pressure. Her mean arterial pressure (MAP) was 66mmHg, the cardiac rate was around 96 bpm, and the temperature was between 36 and 36,4. His exams revealed no anemia (Hemoglobin- Hb 11,9g/dL) or other problems. After this, an epidural block was realized at the L1-L2 lumbar level, and 3ml of lidocaine 2% plus morphine 2mg was injected. As the spinal anesthesia probably would not be enough for the whole operation based on other cases in the same hospital, an epidural catheter was placed and fixed aseptically.

A spinal anesthesia single shot was realized with bupivacaine 0,5% 3ml with glucose for 47 the C-section. When the patient lay down, her MAP fell from 66mmHg to 47mmHg. Ephedrine 10mg was injected, and norepinephrine was started at a rate of 322 mcg/h and lowered to 166 mcg/h after around 30 minutes. Two blood gas analyses (BGA) were collected. The first one showed acidosis pH 7.30, pCO₂ 5,32 kPa, BE (base excess) -7, NaHCO₃ 13mmol/L, and Hemoglobin 102g/L after 1h40min from the beginning of the surgery at the time of the hysterectomy and a bleeding around 180ml. Sodium bicarbonate is used to correct the acidosis. Two hours and 20 min from the beginning of the surgery, the patient was complaining of pain, and 5ml of ropivacaine 1% was injected through the epidural catheter and 2mg midazolam intravenously.

The result was a very calm patient, completely free of pain. The bladder was separated from the placenta, and opening it during the procedure was unnecessary. A hysterectomy was performed without complication, and blood loss was limited to around 200ml (MAP 55-70 mmHg). The following blood gas analysis one hour before the end of the surgery (total time 5h30 min) revealed pH 7.44, pCO₂ 5,18 kPa and BaseExcess (-3), NaHCO₃ 23mmol/L, and Hemoglobin 99g/L. The intravenous infusion for the whole procedure was 1000ml Plasmalyte®, a solution with less risk of acidosis, and ringer lactate 700ml. Total hemorrhage was 380ml.

The epidural catheter was removed because we know there is a possibility of coagulation disorders [1], and morphine 2mg is generally enough for 24-hour analgesia. In the remaining days, multimodal analgesia is an option with fewer risks. The patient was then transferred to the Intensive Care Unit (ICU) without norepinephrine, where paracetamol 1g and ketoprofen 100mg every 12 hours were used, and morphine 4mg IV if necessary. Another blood gas analysis showed severe anemia (Hb 50g/L) the next day. One packed red blood cell (PRB) was transfused. Two days after the surgery, she was transferred to the ward asymptotically, and five days later, she was discharged home without any sequelae.

3. Discussion

PAS occurs when there's an abnormal adherence of the placenta to the uterus and no spontaneous separation at delivery. It occurs more frequently in patients with placenta previa and previous cesarean section [2], which seems to be more and more frequent over

the decades [7]. The placenta percreta is the most serious form; in this form, myometrium, uterine serosa, and even the bladder can be attained. As it is difficult to remove surgically, massive bleeding can occur [1]. To reduce the risks of hemorrhagic shock, balloon-occlusion of the hypogastric arteries, embolization of the internal iliac artery, or ligation of the hypogastric or uterine arteries are excellent measures [5], but probably the best one is the insertion of a REBOA® catheter under ultrasound control in infrarenal aorta unfortunately absent in this hospital. The bleeding can be limited to 1 liter with this device, which is a good level in PAS cases. One meta-analysis in 2021 showed that REBOA was more effective than the other measures [8, 9].

Maybe using one of the vascular devices is a good reason to use neuraxial anesthesia instead of general in most patients and stop waiting for catastrophic bleeding as it was in the past. One huge problem is the unexpected cases of PAS where there's no vascular occlusion before the surgery. The anesthesiologist must be prepared for the worst [3]. Retrospective studies show that neuraxial blocks can safely be done in these patients without the risks of difficult airway and pulmonary aspiration when general anesthesia is performed but with more risk of cardiovascular instability [3]. General anesthesia can be a good option in 2 situations: suspected difficult airway (fiberoptic intubation necessary before the commencement of the surgery) and high possibility of massive bleeding, but we can never underestimate its risks.

The decision for the neuraxial block was based on literature: general anesthesia risks for pregnant women and the probability of less bleeding as an iliac balloon was available. Monitoring like ours is the usual practice [1, 2]. An epidural catheter was very indicated as surgery time in our institution is more than four hours. The patient had significant hypotension just after the spinal block, but this is not unexpected in pregnant women in which vena cava compression is a rule [10]. Ephedrine was adequate, but a low norepinephrine infusion was started to prevent other crises. Fluid therapy was made using only crystalloids, which seems to be the usual practice in Brazil, as shown in one study [11]. Postoperative analgesia with an epidural catheter is a risk, as coagulation disorder may be present after the operation, so we prefer multimodal analgesia. The patient's following BGA is impressive. We speculate that there is remarkable bleeding after removing the iliac balloon, a possibility in PAS cases in the first postoperative day [3]. Many more studies are necessary to identify the best anesthesia since the first vascular device used to reduce bleeding during this operation was implemented. Neuraxial blocks should be, at least, considered as an option.

4. Conclusion

PAS can lead to serious complications for pregnant women, especially massive hemorrhage. The anesthesiologist must decide between a neuraxial block with its risks of sympathetic block or general anesthesia with the risk of pulmonary aspiration and difficult airway, but, unfortunately, we don't know yet which one is the best option. With the advent of vascular techniques to reduce bleeding, like iliac balloon and Reboa®, neuraxial blocks may be considered a better option.

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