Combined Spinal Epidural Anaesthesia for Caesarean Section and Hysterectomy in a Parturient with Placenta Accreta

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Placenta accreta complicates the anaesthetic and surgical approach in caesarean section. In this report, a parturient with placenta accreta and multiple drug allergies who was managed using combined spinal epidural anaesthesia for caesarean hysterectomy is discussed.

Key Words: Cesarean section, placenta accreta, regional anaesthesia

Introduction

Unless there is a contraindication, neuraxial block is the method of choice in obstetric anaesthesia. However, general anaesthesia may be recommended in patients with placental implantation abnormalities such as placenta accreta especially in patients in whom severe bleeding is anticipated, as the intervention takes a long time, surgical interventions additional to caesarean section are performed and treatment of haemodynamic instability associated with bleeding in the presence of sympathetic system blockade is difficult (1). In the literature, both anaesthesia methods are reported in patients suspected of placenta accreta (2-5).

We aimed to present and discuss the use of combined spinal epidural anaesthesia (CSE) during caesarean section and hysterectomy surgery in a placenta accreta case with a history of allergic reactions during general anaesthesia, after patient consent was obtained.

Case Presentation

A 32-years-old (gravida 2, para 1) pregnant patient (86 kg and 165 cm) at 36 weeks of gestation who was followed up with a pre-diagnosis of placenta accreta, was scheduled for caesarean delivery. The patient reported a history of allergic reactions in her previous emergency caesarean section under general anaesthesia in another hospital, however the anesthetic records could not be located. Allergy consultation revealed that she was allergic to succinylcholine, rocuronium, tramadol, fentanyl, remifentanyl, meperidin and ranitidine, but not to atracurium, thiopental, bupivacaine and lidocaine. The results of preoperative biochemistry tests were within normal ranges; haemoglobin (Hgb) = 13.9 g dL⁻¹, platelet count=225.000 mm⁻³, prothrombin time (PT)=10 seconds, activated partial thromboplastin time (aPTT)=24.4 seconds. Anaesthesia methods that could be applied for caesarean section and possible hysterectomy were discussed, and as the parturient definitely refused to receive general anaesthesia, combined spinal epidural anaesthesia was planned according to her consent. After 750 mL of lactated Ringers' solution was infused before anaesthesia, the patient was placed in lateral decubitus position and an epidural catheter was placed at the L3-L4 interspace, and advanced 4 cm in the cranial direction. After location of the catheter was verified with a test dose of lidocaine and adrenaline, intrathecal 10 mg hyperbaric bupivacaine was given through the L4-5 interspace. Thereafter, the patient was placed in supine position with left uterine displacement. Presence of complete motor block in lower extremities and sensory block reaching T4 dermatome was observed. As systolic blood pressure (SBP) dropped under 80 mm Hg, a total of 10 mg intravenous (IV) ephedrine was applied. The surgery was initiated after a radial artery cannula, a urinary catheter and five 16 G venous cannulas were inserted under local anaesthesia. Following the birth of a neonate with 1 and 5 minutes Apgar scores of 9 and 10 after eight minutes, oxytocin infusion was initiated. Hysterectomy surgery that was started on seeing that placenta was not detached and serious bleed-

ing started, was completed within 40 minutes. In this period, if SBP <80 mmHg despite fluid and blood transfusion, 5 mg IV ephedrine was administered, in case of no response to ephedrine, the patient was given an adrenaline bolus (20 µg). Oxygen was delivered via a face mask at a rate of 5 L min⁻¹. During the intervention that took 105 minutes, 6700 mL crystalloid, 5 U red blood cell suspension, 3 U fresh frozen plasma (FFP), 35 mg ephedrine, 100 µg adrenaline and 20 U oxytocin until the end of hysterectomy surgery was administered. Hemodynamic course, and the times of using vasopressors and infusions are presented in Figure 1. A total of 2 mg midazolam and 25 mg ketamine intravenously was administered for agitation and shivering during haemodynamic instability. As the patient felt uncomfortable after 80 minutes of intrathecal injection, 10 mL isobaric 0.5% bupivacaine was delivered through the epidural catheter. At the end of the surgery, blood gas analysis and coagulation parameters of the patient were as follows, pH: 7.35 pO₂: 107 mmHg, pCO₂: 30 mmHg, BE: -3.5 mmol L⁻¹, Hgb: 8.1 g dL⁻¹, lactate: 1.6 mmol L⁻¹, PT: 12.2 sec, aPTT: 26 sec, platelet count: 155.000 mm⁻³.

After surgery, patient controlled epidural analgesia with 0.1% bupivacaine was used (4 mL hr⁻¹, bolus 4 mL, lockout time: 15 minutes, the limit for 4 hours: 50 mL). During 24 hours of monitoring, blood pressure was 90-110/60-70 mmHg, HR was 70-95 beats min⁻¹, and Hgb was 7.8-9.2 g dL⁻¹. As the coagulation tests of the patient were within normal ranges, the epidural catheter was removed at the second postoperative day. Once the vital signs were stable, patient was transferred to the ward. As the clinical and laboratory findings did not reveal any organ dysfunction, the patient was discharged on the fourth day of surgery.

Discussion

The anaesthetic management of this case is unique as she had drug allergies, refused general anaesthesia and had haemodynamic instability due to intraoperative bleeding.

Figure 1. Haemodynamic course, times of ephedrine and adrenaline boluses and blood and blood product transfusions
Preop: before anaesthesia, spinal: the onset of spinal anaesthesia, OS: the onset of surgery, D: delivery, OHS: the onset of hysterectomy, THS: termination of hysterectomy, TS: termination of surgery

It is recommended that the cause should be evaluated in patients who develop allergic reactions during general anaesthesia and regional anaesthesia should be applied in the subsequent surgeries, as allergy to local anaesthetics is a rare condition (6). Although the results of the allergy tests allow general anaesthesia, CSE anaesthesia was used in our patient, considering the long duration of the intervention, as she refused to receive general anaesthesia and there were no analgesia options other than local anaesthetics. The reason for choosing double space technique for combined spinal epidural anaesthesia was to ensure that the epidural catheter is placed correctly by administering a test dose before spinal anaesthesia, to increase the success chance of the block and to decrease the probability of converting to general anaesthesia (7, 8). ED95 value of intrathecal hyperbaric bupivacaine has been reported as 11.0±0.95 mg with 200 µg morphine and 10 µg fentanyl for spinal anaesthesia in pregnant women. (9). It has been shown that intrathecal 15 mg bupivacaine is equivalent to 12 mg bupivacaine applied together with 15 µg fentanyl in caesarean anaesthesia (10). Although the dose of bupivacaine, 10 mg, used for this patient was lower than the ED95 value, it has provided an adequate level of anaesthesia for caesarean section and epidural support was not required during anaesthesia induction. During operation, vasopressors were used to preserve perfusion pressure when severe hypotension developed despite fluid resuscitation and intense transfusion. Vasopressors can be used to maintain blood pressure in maternal bleeding during fluid resuscitation (11). Obstetric bleeding and associated hypoperfusion plays an important role in the development of end organ damage (12). We did not observe organ damage due to dynamic management of intraoperative hypotensive period. One may consider that haemodynamic parameters may be better protected by general anaesthesia in severe obstetric bleeding; however there is no prospective randomized study that compares the two anaesthetic methods in terms of hemodynamics in serious invasion anomalies of the placenta (13). Regional anaesthesia has been reported to decrease the amount of bleeding in placenta accreta cases due to sympathetic blockade (14, 15). However, some authors support for general anaesthesia with the argument that hypovolemia added to sympathetic blockade will cause haemodynamic instability in obstetric cases with severe bleeding (13). Sedation may be required for the patient under regional anaesthesia due to increase in anxiety levels along with blood loss (16) coupled with long intervention duration. However, the medication used for sedation should not affect protective reflexes and should not contribute to hypotension. We therefore titrated midazolam and ketamine in low doses in this case. Subanesthetic doses of ketamine provides a safe option as the laryngeal reflexes are preserved and may be preferred in hypovolemic cases due to sympathomimetic effects (17). Ketamine is frequently administered with benzodiazepines in order to avoid possible hallucinations. This drug combination is also used in similar doses to prevent shivering associated with spinal anaesthesia (18). Coagulopathies that

may develop after bleeding and transfusion increase the risk of spinal and epidural haematomas (19). After checking coagulation profile, epidural catheter was removed at the second postoperative day, both to provide postoperative analgesia and prevent the possible complications.

The absence of central venous pressure (CVP) monitoring during fluid management can be considered as a deficiency in the management of this patient. However, the contribution of CVP to dynamic fluid management is debatable and risk of complications associated with catheterization is high in pregnant women (20, 21). It has been reported that placement of a balloon catheter to uterine artery or iliac arteries decrease the amount of bleeding in cases where heavy bleeding is expected (22). The lack of such an intervention is an important limitation in our case.

Conclusion

Regional anaesthesia in placenta accreta cases may be complicated by severe bleeding causing intraoperative haemodynamic instability, therefore the anaesthetist should be prepared for this possibility.

Informed Consent: Written informed consent was obtained from patient who participated in this case.

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