Vol 5 No 1 April 2025
Solo Journal of Anesthesi, Pain and Critical Care

E-ISSN : 2797-0035
P- ISSN : 2776-1770

CASE REPORT

Spinal Anesthesia in a Patient with Complete Placenta Previa and Suspected Placenta Accreta Undergoing Cesarean Hysterectomy: Is it Possible?

Awang Dody Irwanda[*], Stevanus Eliansyah Handrawan[✉*], Mayang Indah Lestari[**]

Article Info :
Submitted :
24-05-2022
Accepted :
22-04-2025
Published :
30-04-2025
https://doi.org/10.20961/sojaV5i1.61448

Authors' affiliations:
[*]Anesthesiology Resident, Faculty of Medicine Universitas Sriwijaya
[**]Anesthesiology consultant, Anesthesiology and Intensive Therapy Department RSUP Dr Mohammad Hoesin Palembang
[✉]Correspondence:
stevanus.handrawan@gmail.com

ABSTRACT

Background : Placenta accreta spectrum (PAS) is a major contributor to peripartum hemorrhage and an important cause of maternal morbidity and mortality. Anesthetic management in such cases requires planning to minimize complications.

Case Illustration : This report describes the perioperative management of a 39-year-old woman, gravida 4 para 2 at 35 weeks' gestation, who was diagnosed with complete placenta previa and suspected placenta accreta based on ultrasonography and clinical presentation. She underwent cesarean section followed by hysterectomy under spinal anesthesia using 0.5% hyperbaric bupivacaine (12 mg) and clonidine (30 mcg) at the L4-L5 interspace. Intraoperative monitoring included non-invasive blood pressure, ECG, SpO_2, $EtCO_2$, body temperature, urine output, and serial blood glucose. The operation lasted approximately 2.5 hours with an estimated blood loss of 2000 ml. Fluid resuscitation consisted of crystalloids, albumin, and packed red cells, achieving a calculated fluid replacement of 11.1 mL/kg/h. The baby was delivered in good condition with an APGAR score of 7 and 9 at 1 and 5 minutes, respectively. Postoperative recovery within 24 hours was stable, with minimal pain and no complications.

Conclusion : This case demonstrates that with appropriate preparation, spinal anesthesia can be safely and effectively used in selected patients with PAS.

Keywords: Hysterectomy; Placenta Acccreta; Placenta Previa Totalis; Section Caesaria.

INTRODUCTION

Placenta accreta is a general term used to define a clinical condition in which part or all of the placenta adheres to the myometrium that is difficult to expel.[1] Statistically, significant increases in the incidence of maternal bleeding have been reported in retrospective studies in Canada (from 4.1% to 5.1%) and Australia (from 4.9% to 6.3%).[2] Placenta accreta is a placental disorder that has existed for a long time and has reappeared in Indonesia since 2016 with an incidence of 2% and is still increasing today.[3] In the United States, the incidence has increased from less than 1 per 2000 pregnancies in 1980 to about 1 per 500 pregnancies today. The increase in cases of placenta accreta is always directly proportional to the rate of cesarean delivery.[4] Here we present the case of 39 years old woman diagnosed with suspect of placenta accrete with one day primary rupture of membrane with oligohydramnios.

CASE ILLUSTRATION

A 39-year-old woman, gravida 4 para 2, at 35 weeks of gestation, was admitted with a diagnosis of complete placenta previa with high suspicion of placenta accreta. The diagnosis was based on clinical signs, transabdominal ultrasonography, and color Doppler imaging that showed placental lacunae, loss of the clear zone, and bridging vessels. The placenta was seen covering the internal os, effectively closing the birth canal. The patient had a history of two cesarean sections (2013 and 2016) and one curettage in 2020, all performed under spinal anesthesia without complications. She denied any history of diabetes, hypertension, allergies, or drug use.

Preoperative laboratory results showed a hemoglobin level of 10.4 g/dL, platelet count of 210,000/µL, INR of 1.2, APTT 32 seconds, and fibrinogen 380 mg/dL. The patient fasted for 6 hours prior to surgery. Based on a Placenta Accreta Index Score of 6.5, the estimated probability of placenta accreta was approximately 69%.

In the operating room, standard monitoring was applied including ECG, non-invasive blood pressure, SpO_2, $EtCO_2$ via nasal cannula, and urine output through a Foley catheter. Core temperature monitoring was performed using a skin-surface temperature probe, and intraoperative normothermia was actively maintained using a forced-air warming systemand pre-warmed intravenous fluids. The patient's

temperature remained within a safe range (36.5–36.9°C), preventing hypothermia-related coagulopathy. Intraoperative blood glucose monitoring was conducted every 30 minutes and the values remained within the normal range throughout the surgery.

Spinal anesthesia was administered in the sitting position at L4-L5 using 12 mg of 0.5% hyperbaric bupivacaine combined with 30 mcg of clonidine. A sensory block up to T10 was achieved. The patient remained conscious and hemodynamically stable throughout the procedure.

The cesarean section proceeded uneventfully with delivery of a live male infant in cephalic presentation. The APGAR scores were 7 and 9 at 1 and 5 minutes. Because of the intraoperative findings and high-risk status, a total hysterectomy was performed immediately after delivery. The total surgical time was approximately 2.5 hours. Estimated blood loss was 2000 ml, and urine output was 600 ml. Intraoperative fluids included 1500 ml Ringer lactate, 1000 ml gelofusin, 250 ml of 5% albumin, and 600 ml of packed red blood cells. The total intraoperative fluid replacement rate was approximately 11.1 mL/kg/hour, with a 70 kg body weight. Hypotension that occurred post-spinal injection was managed with 300 ml of rapid Ringer lactate infusion.

Postoperatively, the patient was transferred to the recovery unit where she remained hemodynamically stable. Pain was minimal with a numeric rating scale (NRS) of 1–2 at rest and 3 on movement within the first 6 hours post-op. Pain was effectively controlled with intravenous paracetamol 1 g every 8 hours. There were no reports of nausea, vomiting, or neurologic complications. The patient's overall condition remained satisfactory over the next 24 hours.

DISCUSSION

The management of PAS remains a significant anesthetic and obstetric challenge, especially in patients undergoing cesarean hysterectomy. Spinal anesthesia is not contraindicated in patients with stable hemodynamic parameters, absence of coagulopathy, and well-prepared surgical and anesthetic teams. In this case, spinal anesthesia was preferred due to the patient's stability and prior positive experiences with regional blocks.[5] The addition of clonidine to hyperbaric bupivacaine extended the duration and quality of the sensory block, minimizing

intraoperative stress and reducing postoperative opioid requirements. [4–6]

A case with placenta accreta in a mother with a history of 4 cesarean sections, a multigravida with a gestational age of 35 weeks inutero with a cephalic presentation and a single live fetus, complaining of vaginal bleeding since she was 6 months pregnant. This complaint is an objective complaint of an abnormal placental position. At preoperative time, the Placenta Accreta Index Score was 6.5. In this patient, the percentage of possible placenta accreta was 69%. From an objective assessment it can be concluded that the patient has a fairly high suspicion of placenta accreta.[7–9] In this patient, a cesarean section was immediately planned followed by a hysterectomy. Patients with a free airway, normal breathing, hemodynamically stable, and no comorbidities. The patient had no history of previous drug use and no history of drug allergy. Short duration of action, fast onset of action, better quality of sensory and motor blockade, able to prevent a more complete stress response, and can reduce intraoperative bleeding. One of the disadvantages of spinal regional anesthesia is the limited duration of action.[5] The patient underwent spinal regional anesthesia with hyperbaric bupivacaine 0.5% 12 ml and clonidine 30 mcg, L4-L5 puncture with a T10 target.

Bupivacaine is one of the most widely used local anesthetics for spinal anesthesia and provides adequate anesthesia and analgesia while in the operating room of medium to long duration.[10,11] Adjuvant 2-adrenergic agonists to enhance analgesic effect and prolong sensory and motor block.[12] The use of local anesthetic drugs in regional anesthetic techniques can be combined with opioid and non-opioid drugs such as vasoconstrictors, clonidine, midazolam, glucocorticoids, neostigmine and so on. neuraxial block technique by binding to postsynaptic -2 adrenergic receptors in the dorsal horn of the spinal cord. Clonidine induces hyperpolarization in the ventral horn of the spinal cord and facilitates the action of local anesthetics. Receptor 2 agonists act on adrenoreceptors in the spinal cord area and block conduction of C and Aδ fibers, increase potassium conductance, and increase conduction blockade of local anesthetics. Fentanyl citrate is a -1 and -2 agonist with high lipophilicity, rapid onset, and short duration of action with a lower incidence of respiratory

depression. Other beneficial effects are antiemesis, reduced post-spinal shivering, anxiolysis and sedation.

The effectiveness of adding clonidine 1 mcg/kgBW intrathecal to hyperbaric bupivacaine 0.5% 12.5 mg can prolong the analgesic effect, but there are side effects of hypotension and bradycardia. A study revealed that the onset and regression of combined spinal anesthetic sensory block between hyperbaric bupivacaine 12 mg combined with clonidine 30 g was faster and the regression of sensory block was longer than the control group.[13] The mechanism of action of clonidine is derived from the antinociceptive effect of the spinal cord through post junctional 2 adrenoreceptors mediated through the release of noreadrenaline in the dorsal horn.[13,14] It is this antinociceptive effect that may explain the prolongation of sensory blockade when added to spinal anaesthesia. The analgesia effect of clonidine will be mediated spinally through the activation of postsynaptic 2 receptors in the substantia gelatinosa of the spinal cord.[12] The effectiveness of adding clonidine 1 mcg/kgBW intrathecal to hyperbaric bupivacaine 0.5% 12.5 mg can prolong the analgesic effect.[13,15] Although, there are side effects of hypotension and bradycardia. The combination of bupivacaine with clonidine provides a longer duration of analgesia than the combination of bupivacaine with fentanyl.[13,15]

Side effects that may occur with spinal clonidine include hypotension, bradycardia, and sedation.[16] Venous pooling can reduce backflow so that cardiac output decreases, therefore the administration of fluid loading and administration of vasoconstrictors is the main thing for the management of hypotension. If hypotension occurs after injection of local anesthetic drugs in this study, it was treated according to the management procedure in the form of giving 300 cc of RL fluid loading. [6,16]

In this case, the total surgical time was approximately 2.5 hours. Estimated blood loss was 2000 ml, and urine output was 600 ml. Intraoperative fluids included 1500 ml Ringer lactate, 1000 ml gelofusin, 250 ml of 5% albumin, and 600 ml of packed red blood cells. The total intraoperative fluid replacement rate was approximately 11.1 mL/kg/hour, with a 70 kg body weight. Resuscitation of patients with crystalloids and colloids results in hemodilution and is associated with dilution of clotting factors, further

exacerbating more bleeding and eventually coagulopathy. Core temperature monitoring was performed using a skin-surface temperature probe, and intraoperative normothermia was actively maintained using a forced-air warming systemand pre-warmed intravenous fluids. The patient's temperature remained within a safe range (36.5–36.9°C), preventing hypothermia-related coagulopathy.[17]

Laboratory tests required are hematocrit, platelets, international normalized ratio (INR), activated partial thromboplastin time (APTT) and fibrinogen. As part of the preoperative evaluation, the patient was asked about any comorbidities or chronic illnesses. She denied any history of diabetes mellitus, hypertension, or allergies. Intraoperative blood glucose monitoring was conducted every 30 minutes due to the risk of hypoglycemia related to fasting and the physiological stress response, but the values remained within the normal range throughout the surgery. The duration of fasting can also affect intraoperative blood glucose levels, so the patient remains fasted for 6 hours preoperatively. Despite being under regional anesthesia, the patient was continuously monitored for signs of discomfort, sedation, or hemodynamic instability. Although the patient was conscious throughout the procedure, this was necessary and beneficial for multiple reasons: it allowed direct neurological assessment, immediate feedback if the block became insufficient, and real-time monitoring for signs of high spinal block or local anesthetic toxicity.[6,18] Consciousness during regional anesthesia does not negate the need for vigilant monitoring and ongoing assessment.[18]

CONCLUSION

Bupivacaine with clonidine as an adjuvant in spinal anesthesia prolong the analgesia effect in neuraxial block technique by binding to postsynaptic -2 adrenergic receptors in the spinal cord dorsalis horn. The combination of bupivacaine with clonidine provides a longer duration of analgesia than the combination of bupivacaine with fentanyl. Side effects of spinal clonidine include hypotension, bradycardia and sedation.

REFERENCES

1. Jauniaux E, Ayres-de-Campos D, Duncombe G, Klaritsch P, Chantraine F, Kingdom J, et al. FIGO consensus guidelines on

placenta accreta spectrum disorders: Introduction. Int J Gynaecol Obstet [Internet]. 2018 Mar 1 [cited 2025 Apr 17];140(3):261–4. Available from: https://pubmed.ncbi.nlm.nih.gov/29405322/

2. Jauniaux E, Chantraine F, Silver RM, Langhoff-Roos J, Duncombe G, Klaritsch P, et al. FIGO consensus guidelines on placenta accreta spectrum disorders: Epidemiology. Int J Gynaecol Obstet [Internet]. 2018 Mar 1 [cited 2025 Apr 17];140(3):265–73. Available from: https://pubmed.ncbi.nlm.nih.gov/29405321/
3. Aryananda RA. Resurgence of placenta accreta in Indonesia. Majalah Obstetri & Ginekologi [Internet]. 2018 Feb 9 [cited 2025 Apr 17];26(3):98–9. Available from: https://e-journal.unair.ac.id/MOG/article/view/10925
4. Abousifein M, Shishkina A, Leyland N. Addressing Diagnosis, Management, and Complication Challenges in Placenta Accreta Spectrum Disorder: A Descriptive Study. J Clin Med [Internet]. 2024 May 28 [cited 2025 Apr 17];13(11). Available from: http://www.ncbi.nlm.nih.gov/pubmed/38892867
5. Sentilhes L, Kayem G, Chandraharan E, Palacios-Jaraquemada J, Jauniaux E, Duncombe G, et al. FIGO consensus guidelines on placenta accreta spectrum disorders: Conservative management. International Journal of Gynecology and Obstetrics. 2018 Mar 1;140(3):291–8.
6. Alwatban S, Ibrahim LM, Borges BCR, Miller S. Anesthetic Management of Placenta Accreta Spectrum Disorders: A Narrative Review. Journal of Obstetric Anaesthesia and Critical Care [Internet]. 2025 Jan [cited 2025 Apr 17];15(1):12–22. Available from: https://www.researchgate.net/publication/388751760_Anesthetic_Management_of_Placenta_Accreta_Spectrum_Disorders_A_Narrative_Review
7. Matsuzaki S, Mandelbaum RS, Sangara RN, McCarthy LE, Vestal NL, Klar M, et al. Trends, characteristics, and outcomes of

placenta accreta spectrum: a national study in the United States. Am J Obstet Gynecol. 2021 Nov 1;225(5):534.e1-534.e38.

8. Jauniaux E, Bunce C, Grønbeck L, Langhoff-Roos J. Prevalence and main outcomes of placenta accreta spectrum: a systematic review and meta-analysis. Am J Obstet Gynecol. 2019 Sep 1;221(3):208–18.
9. Guo Z, Han X, Zheng W, Yang H, Ma J. Placenta Accreta Spectrum Among Multiple Gestation: A Retrospective Analysis Based on a Chinese Population. Front Endocrinol (Lausanne) [Internet]. 2022 May 18 [cited 2025 Apr 17];13:862785. Available from: www.frontiersin.org
10. Sng BL, Han NLR, Leong WL, Sultana R, Siddiqui FJ, Assam PN, et al. Hyperbaric vs. isobaric bupivacaine for spinal anaesthesia for elective caesarean section: a Cochrane systematic review. Anaesthesia [Internet]. 2018 Apr 1 [cited 2025 Apr 17];73(4):499–511. Available from: https://onlinelibrary.wiley.com/doi/full/10.1111/anae.14084
11. Paganelli MA, Popescu GK. Actions of Bupivacaine, a Widely Used Local Anesthetic, on NMDA Receptor Responses. The Journal of Neuroscience [Internet]. 2015 Jan 14 [cited 2025 Apr 17];35(2):831. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC4293426/
12. Prabhakar A, Lambert T, Kaye RJ, Gaignard SM, Ragusa J, Wheat S, et al. Adjuvants in clinical regional anesthesia practice: A comprehensive review. Best Pract Res Clin Anaesthesiol [Internet]. 2019 Dec 1 [cited 2025 Apr 17];33(4):415–23. Available from: https://pubmed.ncbi.nlm.nih.gov/31791560/
13. Bajwa BS, Singh AP, Rekhi AK. Comparison of intrathecal clonidine and fentanyl in hyperbaric bupivacaine for spinal anesthesia and postoperative analgesia in patients undergoing lower abdominal surgeries. Saudi J Anaesth [Internet]. 2017 Jan 1 [cited 2025 Apr 17];11(1):37. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC5292850/

14. Srinivas DB, Lakshminarasimhaiah G. Comparison of subcutaneous dexmedetomidine versus clonidine as an adjuvant to spinal anesthesia: A randomized double blind control trial. Local Reg Anesth [Internet]. 2019 [cited 2023 Feb 13];12:29–36. Available from: https://www.tandfonline.com/action/journalInformation?journalCode=dlra20
15. Benhamou D, Thorin D, Brichant JF, Dailland P, Milon D, Schneider M. Intrathecal Clonidine and Fentanyl with Hyperbaric Bupivacaine Improves Analgesia During Cesarean Section. Anesth Analg. 1998 Sep;87(3):609–13.
16. Bajwa SS, Bajwa S, Kaur J, Singh A, Singh A, Parmar S. Prevention of hypotension and prolongation of postoperative analgesia in emergency cesarean sections: A randomized study with intrathecal clonidine. Int J Crit Illn Inj Sci. 2012;2(2):63.
17. Reale SC, Farber MK. Management of patients with suspected placenta accreta spectrum. BJA Educ [Internet]. 2021 Feb 1 [cited 2025 Apr 17];22(2):43. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC8749385/
18. Sudhakaran Nair G, Mounir Soliman L, Maheshwari K, Sakr Esa WA. Importance of Vigilant Monitoring After Continuous Nerve Block: Lessons From a Case Report. Ochsner J [Internet]. 2013 [cited 2025 Apr 17];13(2):267. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC3684339/