

SPINAL ANESTHESIA FAILURE IN PATIENTS WITH TOTAL ABDOMINAL HYSTERECTOMY WITH ANEMIA AND ITS MANAGEMENT: CASE REPORT

I Gede Catur Wira Natanagara, I Komang Budi Lastiawan

General Practitioner at Balimed Karangasem General Hospital, Anesthesiology and Intensive Therapy Specialists at Balimed Karangasem General Hospital
Email: caturwira@hotmail.com, budilastiawan@gmail.com

INFO ARTIKEL	ABSTRACT
Diterima 5 Maret 2022 Direvisi 15 Maret 2022 Disetujui 25 Maret 2022	Anesthesia in surgery can be done by various methods according to the actions to be performed by the operator. Various difficulties can occur, especially with spinal anaesthesia. Spinal anesthesia failure is one thing that can happen during anesthesia. In this case, the definition, criteria, mechanism and management will be discussed. As in the case, a 46-year-old woman with a diagnosis of uterine fibroids and anemia underwent an elective total abdominal hysterectomy by an obstetrician and gynecologist. The patient had received a PRC transfusion, fasted for 8 hours and was hemodynamically stable. Preoperative vital signs showed blood pressure: 130/80 mmHg, pulse: 64 beats/minute, respiration: 20 breaths/minute, and oxygen saturation of 97% without supplemental oxygen. Spinal anesthesia technique was performed with the patient in the lateral decubitus L3-4 position, CSF (+), blood (-), Bupivacaine 0.5% hyperbaric 15 mg then the patient was positioned back in the supine position. A pin prick test was performed to determine the absence of sensory and motor blocks, spinal anesthesia was performed again in a sitting position, at L3-4, CSF (+), blood (-), Bupivacaine 0.5% hyperbaric 15 mg and returned to the supine position. Assessed by pin prick test and still no sensory and motor block. The block failed and was changed to general anesthesia with ETT. The duration of the operation is 2 hours, during observation in the recovery room the patient can be treated in the room
Kata Kunci: spinal anaesthesia; uterine myoma; anemia; bupivacaine	

Introduction

Spinal anesthesia is probably the most used anesthetic technique for cesarean delivery due to its efficacy and safety. In surgical services, anesthesia is needed to increase patient and operator comfort in performing surgery. Anesthesia can be performed under regional anesthesia or general anesthesia. Regional anesthesia has several methods such as spinal anesthesia, epidural anesthesia, and peripheral nerve block anesthesia.

Spinal anesthesia as an anesthetic technique is often used because it has

advantages such as the patient being able to maintain spontaneous breathing, consciousness can be maintained, patients can eat and drink faster, and speed up patient treatment time. However, failure to perform regional anesthesia. In some cases, there can be failure to perform spinal anesthesia and handling is required in performing anesthesia services in the operating room. This failure of spinal anesthesia can be something that causes discomfort for both the patient and the operator who will perform the procedure

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(Ahlawat, 2016) (Jaswant, 2016; Ketan S Parikh, 2018).

Therefore, the purpose of this case report is to explain the definition, criteria, mechanism and management of failed spinal anesthesia to prevent further complications.

Method Research

This case report is a patient who was treated at the Balimed Karangasem General Hospital who was treated during Desember 2021.

The female patient was 46 years old, ASA III with uterine myoma and moderate anemia with a history of cesarean section 15 years ago, planning to perform an elective total abdominal hysterectomy. From the physical examination, it was found that the patient was conscious of compost mentis with a general condition of moderate pain. On examination, vital signs were found within normal limits, on physical examination the conjunctiva was anemic and there was a fixed mass in the abdomen. After optimizing the condition by an internist with blood transfusions with 3 bags of PRC, a surgical plan can be made. Laboratory results showed hemoglobin 9.9 mg/dL, leukocytes $10.4 \times 10^3/uL$, platelets $272 \times 10^6/uL$, urea 13.2 mg/dL, creatinine 0.64 mg/dL, SGOT 15.7 U/L, SGPT 5.9 U/L, 140 sodium mg/dL, potassium 4.1 mg/dL, chloride 101 mg/dL, bleeding time 2 minutes 30 seconds and clotting time 12 minutes and non-reactive Covid 19 rapid antigen. On examination, chest X-ray was found within normal limits and ECG sinus rhythm.

It was determined to do regional anesthesia with subarachnoid block with lateral decubitus position, puncture point at L3-4, CSF +, with bupivacaine 0.5% hyperbaric agent 15 mg, evaluate for 5 minutes positive sensory and motor responses, do subarachnoid reblock in sitting position, puncture point at L3-4, CSF +, with the agent bupivacaine 0.5% hyperbaric 10

mg, the patient was evaluated for positive sensory and motor responses, converted under general anesthesia with ETT intubation.

The patient was preoxygenated and premedicated by induction of fentanyl 100mcg, artacurium 10mg and propofol 200mg. installation of ETT 7.0 with maintenance sevoflurane 2 vol%, oxygen 2 liters/minute and N₂O 2 liters/minute. During the operation, the patient's hemodynamics were relatively stable. Post operatively the patient was fully conscious and given petidine 150 mg + dexketoprofen 150 mg in D5% 500 ml as much as 20 tpm and ondancetron 4 mg if the patient had nausea and vomiting.

Results and Discussions

In the case report above, it was found that the patient planning for TAH surgery had spinal failure despite CSF (+), it can be said that the patient had spinal failure based on the definition of pain during the surgical procedure, block level insufficiency before surgery, and conversion to general anesthesia (Jones et al., 2017) (Ahlawat, 2016)(Jaswant, 2016).

This is caused by several mechanisms experiencing problems, namely: (1) problems with lumbar puncture, (2). Errors in the preparation and injection of fluids can include inadequate distribution of the drug through the cerebrospinal fluid, failure of drug action on nervous tissue, and difficulties related to patient management of the actual block (Ahlawat, 2016) (Neuman et al., 2021)

Failure in spinal anesthesia is the result of: a. The low contact between the anesthetic agent and the nervous structure, b. Use of low volume or anesthetic concentration, c. The use of a second anesthetic fluid, d. Inadequate patient position after spinal injection, e. All block failed, due to slow block onset (Jones et al., 2017) (Fettes et al., 2009) (Lee et al., 2020)

Classification of spinal anesthesia failure based on the cause, namely: (1).

Successful drug injection but relative maldistribution of surgical planning needs, (2). Failed injection of unknown drug (partial or total), (3). Failure of the technique to enter the subarachnoid space without the drug being injected (Fettes et al., 2009). Drug error, wrong or inappropriate drug, (4). Local anesthetic resistance (Agrawal J RA, 2019).

Failure of spinal anesthesia may manifest as complete or partial failure. Treatment of spinal anesthesia failure that can be done is to ignore the spinal procedure, repeat the spinal anesthetic procedure, use additional intravenous sedation and analgesia, conversion to general anesthesia, or additional peripheral nerve block (Ashagrie et al., 2020) (Colish et al., 2020).

In addition to the above treatment, maneuvers that occur in spinal anesthesia failure can also be performed after an evaluation is carried out based on the conditions obtained: (Levy et al., 1985)

- a. No block: this can occur if the wrong local anesthetic agent is injected, deposited in the wrong place, or the local anesthetic agent is not effective at all. The maneuver that can be done is to repeat the procedure with an appropriate spinal anesthetic agent or directly convert to general anesthesia (Fettes et al., 2009) (YL, 2016).
- b. Good block of inadequate cephalad spread: this can be caused by a low level of puncture at the time of injection, an anatomic abnormality that limits the spread of local anesthetic agents, or a misplaced injection of anesthetic agents. What can be done, if the anesthetic fluid used has hyperbaric properties, maneuvers can be carried out to flex the patient's hips and knees and head down the operating table, this adjusts the lumbar curve so that the local anesthetic agent is cephalad (Fettes et al., 2009), (Neelam Noreen Halimi MB, Hafiz Muhammad Waqas, Muhammad Javed Khan, 2020).

- c. Good, but unilateral block: this can be due to the position of the puncture and injection, and the presence of the longitudinal ligament supporting the chordae preventing the anesthetic agent from spreading. If unilateral block occurs and surgery on the extremity is performed, this should be notified to the operator and repeated block with facilitation of hyperbaric agents on the unblocked side (Ahlawat, 2016) (Fettes et al., 2009).
- d. Patchy block: this definition is used to describe a block that occurs, but sensory and motor effects occur incompletely. There are several causes of inadequate block, but the most common is that the local anesthetic agent is partially misplaced, or the dose given is inadequate. If this occurs prior to the incision or procedure, it may be necessary to repeat the spinal anesthesia or add an anesthetic agent intravenously once the incision has been made (Fettes et al., 2009) (Aasvang et al., 2018).
- e. Inadequate duration: this is the most common occurrence caused by the spread of local anesthetics in the cerebrospinal fluid. The reason is that lidocaine used for skin infiltration and bupivacaine were swapped or the operation took longer than predicted. Adjuvant administration is possible but rarely, the only option that is often used is conversion to general anaesthesia (Fettes et al., 2009), (Yukse A MOH, Honca M, 2020).

Conclusion

This patient underwent repeat spinal anesthesia with a hyperbaric local anesthetic agent when the previous block failed, but because the block did not go well. The patient was converted to general anesthesia with an ETT with consideration of rapid induction and the operator was able to perform the operation immediately. Regional spinal anesthesia was performed

on a 46-year-old woman with total abdominal hysterectomy. However, two spinal anesthetics have been performed. He experienced spinal failure and was converted to general anesthesia with ETT, the duration of the operation was 2 hours, during intraoperative monitoring the patient was hemodynamically stable, and postoperatively the patient could be treated in an ordinary room. Based on the above case report including spinal anesthesia failure with the causes of several mechanisms described and its management by converting to general anesthesia ETT.

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