

Content available at: <https://www.ipinnovative.com/open-access-journals>

Indian Journal of Clinical Anaesthesia

Journal homepage: www.ijca.in

Short Communication

Repeat spinal or general anesthesia: A dilemma!

Imran Ahmed Khan^{1,*}, Anita Sharma²

¹BRD Medical College, Gorakhpur, Uttar Pradesh, India

²LNM Railway Hospital, Gorakhpur, Uttar Pradesh, India



ARTICLE INFO

Article history:

Received 28-05-2022

Accepted 14-06-2022

Available online 13-08-2022

This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprint@ipinnovative.com

Keywords:

Subarachnoid Block

Failed Block

Repeat Spinal

General Anesthesia

A spinal, Intrathecal or Subarachnoid Block (SAB) is obtained by injection of local anesthetic with or without additives into the subarachnoid space of the spinal cord leading to autonomic, sensory and motor block according to type of drug and concentration used.¹ SAB is a favored technique by anesthesiologists because it is easy to practice, safe, provides dense sensory and motor block, effective analgesia and high patient satisfaction. It also avoids respiratory complications which is a feared complication of General Anesthesia due to airway handling. SAB is a complete and reliable technique of anesthesia for certain procedures but at times effect may be inadequate. Such inadequacy may include one or more components of the block: the extent, quality, or duration.^{2,3} This becomes more problematic if occurs during the conduct of surgery. In such circumstances, maintenance of anesthesia can be done by local anesthetic infiltration of the wound, various nerve block supplements, sedation, general anesthesia, or repeat subarachnoid block. The particular method to be used depend on various factors like extension of duration needed, condition of the patient and surgical requirement.

We present a case scenario to address the situation of inadequate duration of spinal block during an orthopedic surgery.

A 41-year-old obese female was posted for hip hemiarthroplasty. The patient was operated 3 months back where two hip screws were fixed, which were dislodged one day back when the patient met with an accident while riding a two-wheeler. On Preanesthetic Checkup (PAC) Body Mass Index (BMI) of the patient was found 33.6 and history of using CPAP (Continuous Positive Airway Pressure) device at night. She had normal vitals and her routine surgical profile, was within normal limits and her MPS was III (Mallampatti score). On the day of surgery, the patient was taken into the operation theatre, her identity and site of surgery confirmed and preloading was done with Ringer Lactate solution. After checking the anesthesia machine, oxygen source, required medication, and suction machine, routine ASA (American Society of Anesthesiologists) monitors (Pulse oximeter, Noninvasive Blood Pressure Monitoring, and 5 lead electrocardiography) were applied and their function verified. Under aseptic precaution, the subarachnoid space was identified using 27 G spinal needle at L 3/4 space in sitting position at 8.5 cm and block given using 2.5 ml of 0.5%

* Corresponding author.

E-mail address: ikhan0046@gmail.com (I. A. Khan).

heavy Bupivacaine. Adequate analgesia and block were ensured after positioning, painting and draping, Hip screws were removed through appropriate incision. This took about 30 minutes. The incision was further extended for hemiarthroplasty. The patient started complaining of pain at the surgical site after about 45 minutes of subarachnoid block. Injection fentanyl 100 micrograms plus injection ketamine 25 mg and paracetamol 1 gm were given intravenously and surgery restarted after 10 minutes. The patient again started complaining of pain and surgery stopped. Now, in view of the difficult airway, favorable position for subarachnoid position (lateral recumbent), and requirement of supine position for intubation following induction, repeat SAB in the lateral position was planned. The surgical site was covered with a sterile drape, and after exposing the lumbar area, a repeat SAB was performed at L 4/5 space using 0.5% isobaric, preservative free Levobupivacaine 1.5 ml (7.5mg) with 25 micrograms of fentanyl. The patient became pain-free and surgery was restarted after 3 minutes and completed smoothly. After completion of the procedure, she was shifted to the PACU (post anesthesia care unit) under observation of dedicated trained staff.

Available literature shows about 1% to 17% of spinal anesthesia fails to serve its purpose, but most of the studies reported a failure rate between 2% to 4%.⁴ Spinal anesthesia is considered to have failed if block have not been achieved even after 10 minutes of heavy bupivacaine and 25 minutes for plain bupivacaine injection in the subarachnoid space.⁵ Inadequate duration of spinal anesthesia may be due to various factors. It may be due to improper dose of local anesthetic delivered to the CSF, total dose not delivered at the intended site, improper storage of local anesthetic or the extended duration of the surgical procedure. Complete failure or insufficient block is usually managed by repeating the procedure, supplemental nerve block or converting to General anesthesia with Endotracheal Intubation. It is important to consider the risks of repeat spinal injections.⁶ Because repeating the block, particularly in partial block, can sometimes result in excessive cephalad spread, one school of thought recommends using a lower repeat dose to reduce the possibility of this risk. Conversion of spinal to general anesthesia should be <1% and <3% in elective and emergency caesarean sections respectively.⁷ A prospective study was undertaken by Abraham AA. and Philip J. over one year, and they concluded that repeating a spinal anesthetic can be chosen as a method of management with certain precautions.⁸ To increase chances of success it should be given by a senior member, ensure free flow of Cerebrospinal fluid before injecting drug, use barbotage, try a different intervertebral space with lower dose of local anesthetic and avoiding excessive head down tilt of table. Repeat spinal anesthesia was also described by

Kumar R. et al. in a kyphoscoliotic patient after a failed first attempt. They also stressed that it can avoid general anesthesia in high-risk groups such as parturients.⁹ Based on a retrospective study of 1197 parturients undergoing elective and emergency caesarean sections under spinal anesthesia, it was concluded that the outcome of repeat spinal anesthesia appears effective with no additional side effects that can easily be practiced in low resource settings with limited facilities for general anesthesia.¹⁰

So, SAB can be safely repeated in cases of failed block or early dissipation of spinal effects in certain situations like stable hemodynamics, favorable patient position and patient preference. The possibility of excessive block height, hypotension, and bradycardia should be born in mind and adequately taken care of. Repeat SAB can avoid the dangers of difficult airway manipulation. Rescue General anesthesia should always be ensured before any anesthetic.

1. Conflict of Interest

None.

References

1. Wilson JM, Farley KX, Bradbury TL, Guild GN. Is spinal anesthesia safer than general anesthesia for patients undergoing revision THA? Analysis of the ACS-NSQIP Database. 2020;478(1):80–7.
2. Yüksek A, Miniksar Ö, Honca M, Öz H. Incidence and Causes of Failed Spinal Anesthesia. *Dubai Med J.* 2020;3(2):50–4.
3. Liu SS, McDonald SB. Current issues in spinal anesthesia. *Anesthesiology.* 2001;94(5):888–906.
4. Yüksek A, Miniksar ÖH, Honca M, Öz H. Incidence and Causes of Failed Spinal Anesthesia. *Dubai Medical Journal.* 2020;3(2):50–54.
5. Kinsella SM. A prospective audit of regional anaesthesia failure in 5080 Caesarean sections. *Anaesthesia.* 2008;63(8):822–32.
6. Fettes PD, Jansson JR, Wildsmith JA. Failed spinal anaesthesia: mechanisms, management, and prevention. *Br J Anaesth.* 2009;102(6):739–48.
7. Parikh KS, Seetharamaiah S. Approach to failed spinal anaesthesia for caesarean section. *Indian J Anaesth.* 2018;62(9):691–7.
8. Abraham AA, Philip J. Failed spinal anaesthesia-management by giving a second spinal. *Sri Lankan J Anaesthesiol.* 2013;21(1):14–9.
9. Kumar R, Singh K, Prasad G, Patel N. Repeat spinal anesthesia after a failed spinal block in a pregnant patient with kyphoscoliosis for elective cesarean section. *J Obstet Anaesth Crit Care.* 2014;4(2):84–6.
10. Pokharel A. Study of failed spinal anesthesia undergoing caesarean section and its management. *Postgrad Med J NAMS.* 2011;11(2).

Author biography

Imran Ahmed Khan, Senior Resident  <https://orcid.org/0000-0002-0460-0754>

Anita Sharma, Senior DMO

Cite this article: Khan IA, Sharma A. Repeat spinal or general anesthesia: A dilemma!. *Indian J Clin Anaesth* 2022;9(3):405–406.