



Intraoperative Spinal Injection in a Morbidly Obese Patient

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Abstract

Morbid obesity is becoming a worldwide health concern. Anesthesiologists face increasing numbers of obese patients requiring elective and emergency surgeries. Morbid obesity is associated with cardiovascular, pulmonary, degenerative joint disorders, and clinical syndromes such as obstructive sleep apnea syndrome. Hypoxic events are common in anesthetised morbidly obese patients due to atelectasis.

This paper discusses spinal surgery with spinal anesthesia in a morbidly obese patient. The spinal block ended before the surgery was completed and the surgeon injected local anesthetic intradurally through the surgical incision and the operation ended without any complications. The patient was discharged the next day. We conclude that in selected cases when general anesthesia increases the risk, regional anesthesia may decrease perioperative complications and hospital stay.

Key Words: Morbid Obesity; Spinal Surgery; Spinal Anesthesia.

Morbid Obez Hastada İntraoperatif Spinal Enjeksiyon

Özet

Morbid obezite dünya genelinde hızla artan bir sağlık problemidir. Anestezistler, elektif ve acil cerrahi gereken, artan sayıda obez hasta ile karşılaşmaktadır. Morbid obezite ile birlikte kardiyovasküler, pulmoner, dejeneratif eklem hastalıkları, obstrüktif uyku apne sendromu gibi klinik problemler görülebilmektedir. Morbid obez hastalarda genel anesteziye bağlı ateletazi nedeniyle operasyon sırasında ve sonrasında hipoksiye bağlı komplikasyonlar görülebilmektedir. Bu yazıda spinal anestezi altında spinal cerrahi uygulanan morbid obez olgu irdelendi. Spinal bloğun etkisinin, cerrahi bitmeden geçmesi üzerine, cerrah tarafından operasyon alanından spinal anestezi uygulandı ve operasyon komplikasyonsuz tamamlandı. Olgu ertesi gün taburcu edildi. Genel anestezinin riskli olduğu uygun vakalarda rejyonel anestezi uygulanmasının, perioperatif komplikasyonları ve hastanede kalış süresini azaltacağı kanaatindeyiz.

Anahtar Kelimeler: Morbid Obezite; Spinal Cerrahi; Spinal Anestezi.

INTRODUCTION

Often applied in disc herniation, spinal surgery is a surgical operation that aims at anatomic structures causing compression on medulla spinalis and spinal nerve roots. The incidence of obesity, one of the predisposing factors of disc herniation, is 17.2% among the adult population in Turkey (1,2).

Anesthesiologists are faced with an increasing number of obese patients that are either elective or emergency cases. In such situations, endocrine, cardiac, and pulmonary comorbidities are important as far as perioperative complications are concerned (3). Long surgery time, prone position, and postoperative analgesia may complicate the management of anaesthesia. In spinal surgery, usually general anaesthesia is used (4). In suitable cases that carry risks for general anaesthesia, spinal anaesthesia is successfully applied but sometimes the time spinal anaesthesia allows may be insufficient. In this article, we aim to present the case of a morbidly obese patient for whom we had to apply subarachnoid injection through the surgery area during the operation due to inadequate level of spinal blocking.

CASE REPORT

A 41 year old female patient with pain in her lower back due to, as the tests results showed, L1-2 lumbar disc herniation was assessed one day before the surgery. Morbidly obese (weight: 153kg, height: 168cm, body mass index: 53.1 kg/m²), the patient's Mallampati score was III. From her account, we learnt that she had a story of a cesarean section under general anaesthesia. Cardiac examination and pulmonary function tests were normal. Assessed as an American Society of Anesthesiologists (ASA) II patient, we informed the patient about the risks of general anesthesia and regional anaesthesia and obtained her consent.

On the operating table, we started the electrocardiogram, peripheral oxygen saturation, and non-invasive blood pressure monitoring. As the patient previously asked to undergo spinal anaesthesia of her own will, we established peripheral vascular access from two points with 20G branule. Blood pressure was 128/81 mmHg, pulse was 82/min. and rhythmical, and peripheral oxygen saturation was 98%. Because the subcutaneous adipose tissue was thicker in the sitting position, we tried to make spinous processes. Having

observed the flow of the cerebrospinal fluid by using a 25G (Brain Spinocan Quincke) spinal needle through L1-2, we injected 20 mg of 0.5% hyperbaric bupivacaine (0.5% Marcaine Heavy spinal bulb) into the subarachnoid space.

Having checked the sensory block levels through both anterior axillary lines with pinprick test and seeing that they reached T10 level, we inserted a urinary catheter and put the patient in the prone position. After supporting the head, neck, chest, and extremities with silicone pads, we initiated the surgery. 2 mg of midazolam was administered intravenously (iv) for sedation. In the 15th minute of the operation, we experienced an insignificant bradycardia (48/min.) though, after the incident, we did not observe any hemodynamic instability until the end of the operation. Because the skin, subcutaneous fat, and muscle tissues were thick, we experienced difficulties in the beginning and following stages of the surgery. Around the intraoperative 150th minute, the patient felt pain and we administered 50mg of ketamine (Ketas) and 1 mg of midazolam (Zolamid 5 mg bulb) IV. Besides, the surgeon also applied 60 mg of lidocaine (lidocaine 2% bulb) to the operation area. After patient's discomfort due to pain within the next 20 minutes, the brain surgery specialist was asked to apply 10 mg of 0.5% hyperbaric bupivacaine (Marcaine Spinal 0.5% Heavy bulb) with a 27G (Brain Spinocan Quincke) spinal needle under sterile conditions. Reaching the spinal canal from below T12 level, a subarachnoid block was performed. The patient's head position was changed 10 degrees upwards. Observing that the patient did not feel pain after 2 minutes, the surgery continued. The operation lasted for 255 minutes. During the operation, we administered 1500cc of colloid (6% HES) and 1500cc of crystalloid (0.9% NaCl) intravenously. The patient was hemodynamically stable after the operation so she was taken to the recovery room to observe the regression of the block level. Because the postoperative motor block ceased and the hemodynamics were clinically stable, the patient was sent to the surgery ward after four hours. Having no postoperative complications on the first day, the patient was discharged. The follow-up a week later also showed that she did not have any complaints.

DISCUSSION

In this case, we have seen that spinal anaesthesia could be successfully used and the surgery time could be extended through additional local application of anaesthetics should the block time fall short in cases such as morbid obesity patients for whom general anaesthesia is risky. Conditions like coronary artery disease, diabetes mellitus, degenerative joint diseases, and obstructive sleep apnea may threaten the anaesthesia management and following stages in morbidly obese patients (3). In the preoperative evaluation, additional diseases, latent pathology, surgical positions, and probable postoperative complications should be examined in detail to determine the risks (5). Obesity-related respiratory distress may cause hypoxia and hypercapnia in the perioperative

period (3). In our case, because the patient's Mallampati score was III and she had limited neck movements, we preferred regional anaesthesia to avoid hypoxia in the intraoperative period and atelectasis in the postoperative period. Complications related to the prone position, which is commonly used in spinal surgery, can be more frequent in obese patients (3). Unconscious in the prone position, the patient can not protect himself/herself and this may result in ophthalmic complications such as eyelid oedema, and permanent or temporary loss of vision (6,7).

With regional anaesthesia in morbidly obese patients, one can also reduce pulmonary complications, nausea, vomiting, deep vein thrombosis, postoperative analgesic requirement, bleeding, and operation time (8). For obese patients requiring spinal surgery, spinal or epidural anaesthesia may be used. Patient's fears should be reduced through sedation but deep sedation that would block the airways should be avoided. Also, the patient should not be repositioned before seeing that the blocking is fully achieved. In times when the block is inadequate and blood pressure rises due to moving, and eventually pain, in obese patients, maintaining the operation through a small and bleeding incision area is difficult for the surgeon.

In our case, the herniation in the L1-2 level was itself a disadvantage for spinal anaesthesia, however, with adequate hydration and position changes the desired level of anaesthesia was achieved. Due to the prolongation of the surgery time, the spinal anaesthesia lost its effectiveness at length and the patient felt pain during the intraoperative period. At the time, because the surgery was substantially complete, we did not consider switching to general anaesthesia; instead, we preferred sedoanalgesia and application of local anaesthetics to the surgical area. Despite the difficulties such as operating a morbidly obese in the prone position, with close monitoring and evaluation of the positional level, we were able avoid complications. Throughout the operation, we administered a low volume of local anaesthetics into the subarachnoid space through the surgical field by using a smaller spinal needle (27G). One minute after the injection, the patient was totally free of pain. Once the patient was immobilised and the bleeding declined, only then the surgeon was able to complete the operation quickly.

In morbid obesity cases, which may cause difficulties in intubation and may develop respiratory failure after the general anaesthesia due to atelectasis, spinal surgery through spinal anaesthesia can be successfully implemented. Moreover, we think that additional doses may extend the operation time if the blocking becomes insufficient. In short, we firmly believe that regional anaesthesia is more advantageous than general anaesthesia in avoiding complications arising from obesity and operation positions.

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