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Letter to the Editor

Motor block following lumbar erector spinae plane block for postoperative analgesia after lumbar spinal surgery: A case report

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Dear Editors,

Postoperative pain remains a challenge following lumbar disc herniation surgery [1]. Erector spinae plane block (ESPB) entails the injection of a local anesthetic into the deep fascia of the erector spinae muscle. It can be administered from the cervical to sacral levels and is regarded as safe due to its clear visualization and anatomical distance from critical structures such as the pleura [2]. However, case reports suggest that ESPB may induce unexpected motor block due to paravertebral spread [3].

This case report describes a patient who developed motor block after a lumbar ESPB for postoperative analgesia following lumbar disc herniation surgery.

A 32-year-old female (99 kg, 170 cm, ASA II) presented with right lower back, hip, and leg pain, accompanied by numbness in the right leg, and underwent a right L4-L5 microdiscectomy without intraoperative complications. Thirty minutes before extubation, the patient received 1 g of paracetamol and 100 mg of tramadol for analgesia. Additionally, a bilateral erector spinae plane block (ESPB) was performed at the L4-L5 level using a convex transducer placed 4 cm lateral to the midline in the sagittal plane. After confirming needle placement at the L4 transverse process with 5 ml of 0.9% NaCl, 30 ml of 0.25% bupivacaine was administered bilaterally (total of 60 ml).

Postoperatively, neurological examination revealed a complete motor block (Bromage score of 3) in the left lower extremity. This motor block was suspected to result from paravertebral spread of the ESPB; however, a lumbar MRI was performed to exclude complications such as hematoma. Imaging revealed no hematoma, infection, spinal cord or nerve root compression, or other surgical complications. Motor function gradually improved within 12-16 hours, and the patient regained movement in the left lower extremity. After symptomatic improvement, the patient was discharged with follow-up recommendations in the neurosurgery clinic.

ESPB may enhance local anesthetic spread near dorsal and ventral roots, covering lateral cutaneous branches and rami communicantes. Cadaveric studies show cranio-caudal contrast spread from T2 to L3 (right) and C5 to L2 (left) at T7, with radiological evidence from C7 to T8 at T5 and cold sensation loss from T5 to L2 at T8, suggesting effective visceral and somatic pain control [3]. The enhanced analgesic effect of ESPB may result from wound infiltration, increased vascular absorption in the highly vascularized erector spinae muscle, or epidural spread facilitated by anatomical disruptions from laminectomy. These mechanisms, individually or combined, may explain its effectiveness in this surgical context [4].

High-volume, high-concentration local anesthetics may induce motor side effects, including bilateral sensory block after unilateral ESPB [3,5]. In this case, a higher volume was administered for effective pain control, though it may have contributed to motor block.

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Various techniques, including modified thoracolumbar interfascial plane (m-TLIP) and Quadro Iliac Plane Block (QIPB), are used for pain control after lumbar surgery. Ciftci et al. [1] found no significant difference in intra- and postoperative pain management between ESPB and mTLIP in lumbar spine surgery. Tulgar et al. [6] introduced the QIPB for hip, lower abdominal, and lumbosacral surgeries, which may offer advantages in lumbar procedures due to its distance from the surgical field and broad distribution.

This case report provides a detailed account of motor block following ESPB. Clinicians may choose different regional anesthesia techniques for postoperative pain management in lumbar spinal surgery based on their experience.

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Conflict of Interest

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Data Availability

The datasets created and/or analyzed during the current study are not publicly available, but are available from the corresponding author upon reasonable request.

Ethics Approval and Consent to Participate

Written informed consent was obtained from the participants. All methods were performed in accordance with relevant guidelines and regulations.

Author Contributions

Hande Gungor: *conceptualization, investigation, writing – original draft, visualization.*
Ahmet Cetinkal: *clinical supervision, validation, writing – review & editing.*

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