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LETTER TO THE EDITOR

Triple-block for surgical anesthesia in hip surgery: PENG block with combination of lumbar plexus and erector spinae plane blocks

Kalça cerrahisinde cerrahi anestezi için üçlü blok: Lomber pleksus ve erektör spina plan blokları ile PENG bloğu kombinasyonu

Onur BALABAN,[1] Ali EMAN,[2] Bedirhan GÜNEL,[1] Ali Fuat ERDEM[1]

To the Editor,

Combined triple nerve blocks have been used rarely to provide surgical anesthesia in patients who underwent hip and knee surgery. We performed a triple plane block as a combination of a PENG block, lumbar plexus block, and erector spinae plane block for hip surgery in two patients with femur fractures. The patients had brain tumors, which were at high risk for either a neuraxial block or general anesthesia. We would like to present the patients with the performed block technique and discuss the efficacy of this method in hip surgery.

Written informed consent was obtained from the patients. Patient one was a 71-year-old female presenting with a femur neck fracture, planning hip replacement. She had a brain tumor with metastases through the esophagus and the spine. The patient was uncooperative and had minimal effort capacity. Initially, we performed a PENG block in the supine position to reduce the pain and to facilitate the positioning of the patient. We injected a local anesthetic mixture of 4 ml lidocaine 2% + 4 ml bupivacaine 0.5% for the PENG block. After ten minutes, the patient was positioned laterally without pain, and we performed a lumbar plexus block under ultrasound guidance with the assistance of a nerve stimulator. We injected 20 ml local anesthetic mixture (10 ml lidocaine 2% + 10 ml bupivacaine 0.5%). Then we performed a lumbar erector spinae plane (ESP) block at the L5 vertebra level to extend the anesthesia to the sacral spinal levels (Fig. 1a, b). We injected a mixture of 5 ml lidocaine and 15 ml bupivacaine for the ESP block. The whole block procedure was completed in 14 minutes, and a total of 48 ml of local anesthetic was used. After 25 minutes, surgical anesthesia was provided, and the surgery was initiated. The surgery continued for 150 minutes, and the patient did not feel pain and was hemodynamically stable during the surgery without a requirement of additional analgesia (Fig. 1c). The block provided 12 hours of postoperative analgesia with pain scores of 2/10 at the 1st hour, 4/10 at the 6th hour, and 4/10 at the 12th hour.

Patient two was a 77-year-old female presenting with an intertrochanteric femur fracture, planning proximal femoral nailing. She also had a brain tumor treated with radiotherapy, comorbidities of hypertension, and diabetes. She was uncooperative and had minimal effort capacity. The same block procedure was applied to the patient, which also provided sufficient surgical analgesia. The surgery was completed without any complications. There was 10 hours of postoperative analgesia with pain scores of 1/10 at the 1st hour, 4/10 at the 6th hour, and 6/10 at the 12th hour.

Our cases show that this novel block method may be an alternative in hip surgery for patients with contra-

[1]Department of Anesthesiology and Reanimation, Sakarya University Faculty of Medicine, Sakarya, Türkiye
[2]Department of Anesthesiology and Reanimation, Sakarya University Training and Research Hospital, Sakarya, Türkiye

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Correspondence: Dr. Ali Eman. Sakarya Üniversitesi Eğitim ve Araştırma Hastanesi, Anesteziyoloji ve Reanimasyon Kliniği, Sakarya, Türkiye.
Phone: +90 - 264 888 40 00 **e-mail:** dralieman02@gmail.com

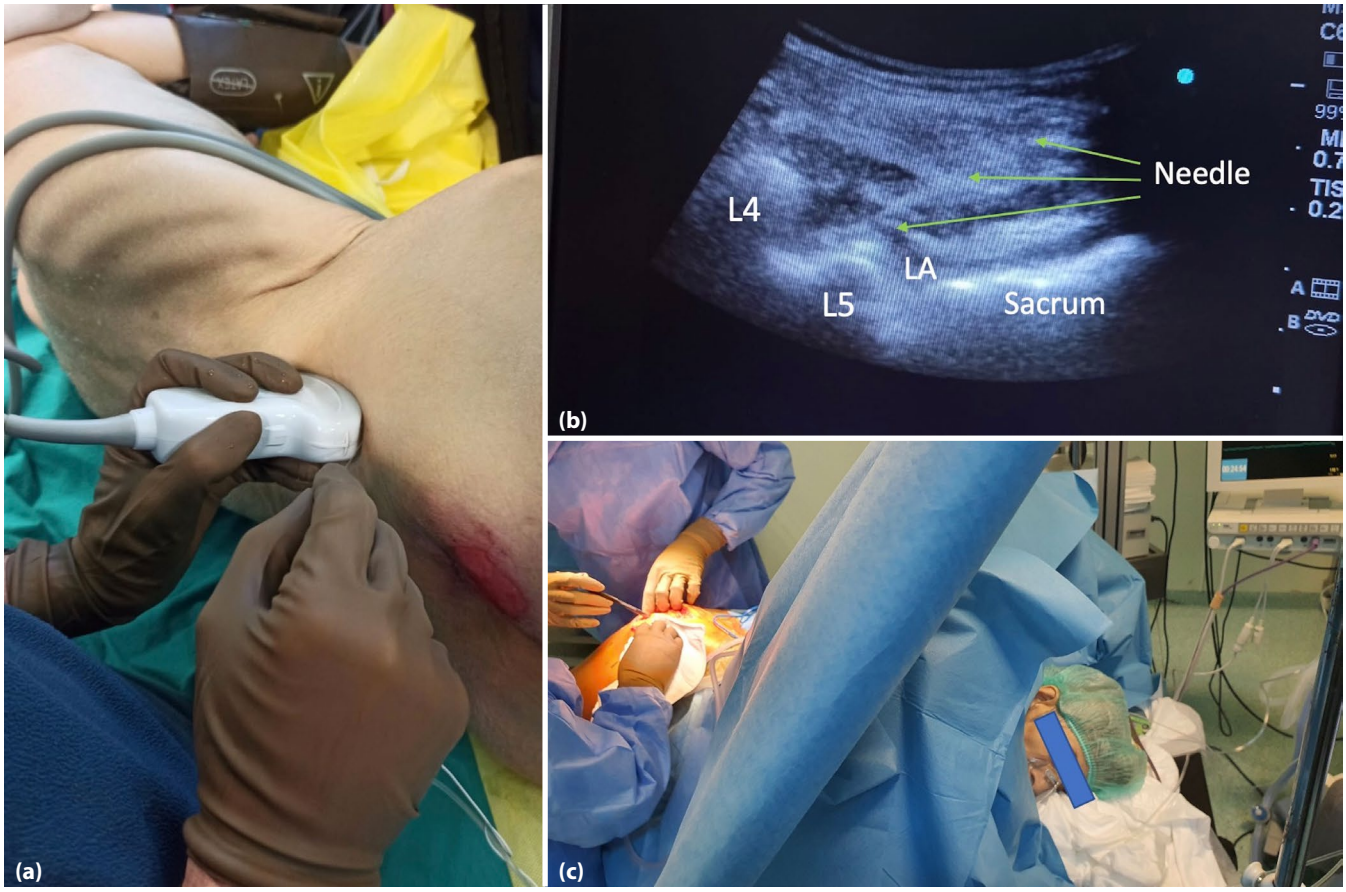

Figure 1. (a) Position of the patient, ultrasound probe, and needle during the lumbar erector spinae plane (ESP) block procedure. **(b)** Ultrasound image of the lumbar ESP block. LA: Local anesthetic. **(c)** The patient was placed in a lateral position during the surgery; supplemental nasal oxygen was administered continuously.

indications for both neuraxial blocks and general anesthesia. To date, multiple blocks have been used for perioperative analgesia in hip surgery as a combination of lumbar ESP and quadratus lumborum blocks to cover both lumbar and sacral vertebrae levels.[1,2] A combination of lumbar ESP and PENG block was also implemented for postoperative pain relief in hip surgery.[3,4] Combination of lumbar ESP block with mild sedation and analgesia provided adequate surgical anesthesia in high-risk elderly patients undergoing hip surgery, as Ahiskalioglu et al.[5] reported in a recent paper. In our consideration, lumbar plexus block with the addition of a lumbar ESP block at the L5 vertebra level or a sacral ESP block may provide sufficient surgical anesthesia with coverage extending to the sacral vertebra levels. The performance of a PENG block before the block procedures may also provide analgesia of bone at the hip joint for surgical anesthesia and enable proper lateral positioning of the patient. This triple nerve block method should not be confused with the three-in-one technique, which involves the femoral, lateral femoral cutaneous, and obturator nerves.[6]

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