



LETTER TO THE EDITOR

Accidental intrathecal catheterization in two patients having undergone lumbar radiotherapy

Lomber radyoterapi alan iki hastada kazara intratekal kateter yerleştirilmesi

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To the Editor,

Accidental dural puncture (ADP) and intrathecal catheterization (IC) can occur when performing an epidural block. IC after ADP may be an option for perioperative analgesia and postdural puncture headache (PDPH) by preventing the leakage of cerebrospinal fluid (CSF).^[1] We report two cases of ADP. The first one involved a 65-year-old woman [weight, 95 kg; height, 160 cm, body mass index (BMI) 37 kg/m²] diagnosed with gonarthrosis and scheduled for bilateral knee replacement. Preanesthetic assessment was performed and the patient was categorized as ASA physical status III. She had a history of modified radical mastectomy for breast cancer and lumbar spine radiotherapy for metastases. Continuous epidural analgesia was planned for both perioperative and postoperative pain management. The radiologists recommended the L3-4 interspace to be suitable for the placement of the epidural catheter. In both cases, lumbar puncture was performed in the right lateral decubitus position after patients were induced with propofol (2 mg/kg), rocuronium (0.6 mg/kg) and remifentanyl (0.05 µg/kg/min). Anesthesia was maintained with desflurane. The epidural space was reached through the L3-4 interspace with an 18-gauge Touhy needle (B/Braun Perfifix, Germany) using the loss-of-resistance test with normal saline. After a negative aspiration test, the epidural catheter was easily pushed forward. The epidural space was reached at 6 cm and 5 cm of the epidural catheter. CSF aspiration by the catheter indicated the possi-

bility of accidental dural perforation during the attempt. First, we removed the catheter and then rotated the needle up and down in the epidural space. The catheter passed into intrathecal space again despite these maneuvers. Thus, we decided to leave 5 cm of the catheter intrathecally. Perioperative analgesia was maintained with a single dose of intrathecal morphine (500 µg) and 0.5 ml 0.5% bupivacaine. The duration of surgery was 180 min, and no analgesia was required. The patient's hemodynamic state was stable during surgery. Postoperative analgesia was accomplished with 500 µg morphine at the 18th and 24th postoperative hours. The second case involved a 68-year-old man [weight, 100 kg; height, 165 cm; BMI, 36 kg/m²] diagnosed with rectum cancer and scheduled for colectomy. He had a history of radiotherapy for rectum cancer. A Touhy needle (B/Braun Perfifix, Germany) was inserted at the level of L3-4 using the loss-of-resistance test with normal saline. In this case, epidural space was deeper and was reached at 10 cm of the catheter with difficulties. We realized that the catheter had passed through the duramater after aspiration of CSF during the administration of a local anesthetic. Thus, we decided to leave 5 cm of catheter intrathecally. In both cases, the catheters were pushed into the epidural space because the aspiration tests were negative and no CSF was aspirated by the needle. Perioperative analgesia was maintained with a single dose of intrathecal morphine (500 µg). No perioperative or postoperative analgesia was required. The catheter was removed on the third postoperative day in both

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cases. PDPH was not observed. PDPH is observed in approximately 50% patients who experience ADP.^[1, 2] The leakage of CSF from the subarachnoid space into the epidural compartment caused intrathecal hypotension, resulting in the traction of intracranial pain-sensitive structures.^[3] The risk factors for PDPH can be classified as modifiable (size and shape of spinal needle, bevel orientation and angle of insertion, and experience with spinal anesthesia) and non-modifiable (age, female sex, low BMI, history of prior PDPH, and history of chronic headache). The incidence of PDPH in patients with IC following ADP has been investigated in many studies. It was hypothesized that intrathecal catheter plugs the dural tear; thus, leakage of CSF from the subarachnoid space is decreased or stopped.^[1, 2] Another hypothesis is that an inflammatory reaction develops in the dura surrounding the puncture site as edema or fibrinous exudate. This fibrous stopper blocks the dural hole and prevents the leakage of CSF.^[1, 2] The insertion of intrathecal catheter for long-term use (>24 h) and prophylactic epidural blood patch (EBP) have been suggested as beneficial methods for preventing PDPH after ADP.^[1] In Heesen's meta-analysis, the need of EBP was shown to be significantly reduced by IC. Furthermore, IC may reduce severe headaches.^[2] In our cases, the epidural catheters were passed through the duramater accidentally. Thus, we decided to leave the catheters intrathecally to prevent PDPH and provide perioperative analgesia. Short-term (<24 h) IC with a single dose of intrathecal morphine (50 µg) was associated with reduced PDPH.^[1] In our first case, intrathecal morphine (500 µg) was administered at a single dose after induction and repeated at the same doses at the 18th and

24th postoperative hours. The numerical pain scale (NPS) score was 4 in the second case, and intrathecal morphine (500 µg) was administered after induction but was not repeated due to painless postoperative period. The NPS score was 0.

The possibility of accidental IC after successful placement of needle in the epidural space may be increased in patients with history of radiotherapy due to possible cohesiveness that makes advancing the catheter in the epidural space difficult. In both cases, the catheters, accidentally placed in the intrathecal space, were not removed. We reached adequate analgesia and prevented PDPH in both cases with IC. IC may be a good solution in cases with ADP.

Another point that we want to mention is the fact that both cases had history of radiotherapy for conditions of the spine. We did not find data regarding the relationship between radiotherapy and ADP in the literature. The epidural space was reached, although the catheter was passed into the intrathecal space in both cases. Thus, we believe that a relationship between ADP and radiotherapy exists.

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