

Postoperative Neurologic Deficit After Central Neuraxial Anesthesia in a Patient with Preoperative Non-Specific Back Pain

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Preoperatif Nonspesifik Sırt Ağrısı Olan Bir Hastada Santral Nöralaksiyel Blok Sonrasında Postoperatif Nörolojik Defisit

ABSTRACT

A 65-year-old female patient with preoperative back pain underwent right knee arthroplasty under combined spinal and epidural anesthesia. At preoperative assessment, her neurologic examination and lumbar magnetic resonance imaging findings were unremarkable. Five weeks after discharge, she complained of weakness in her lower extremities and developed fecal and urinary incontinence. A magnetic resonance imaging of the whole spine showed a spinal mass at the T7-8 level which compressed the spinal cord. Motor and sensory deficits completely resolved following total removal of the mass. Six months later, she underwent left knee arthroplasty under the same anesthetic method that had been used for her previous knee arthroplasty.

Keywords: Back pain, spinal tumor, neuraxial block, neurological deficit

Öz

Preoperatif arka ağrısı olan 65 yaşındaki kadın hasta kombine spinal epidural anestezi altında sağ diz artroplastisine alındı. Preoperatif değerlendirmede nörolojik muayene ve lomber manyetik rezonans görüntüleme bulguları normaldi. Taburcu olduktan 5 hafta sonra, alt ekstremitelerinde güçsüzlük yakınması oldu ve gayta ve idrar kaçırma gelişti. Omurganın manyetik rezonans görüntülemesinde T7-8 düzeyinde omuriliği sıkıştıran bir kitle görüldü. Motor ve duyuşal defisit, kitle tamamen çıkarıldıktan sonra tamamen düzeldi. Altı ay sonra önceki diz artroplastisinde kullanılan anestezi yöntemle sol diz artroplastisi uygulandı.

Anahtar kelimeler: Arka ağrısı, spinal tümör, nöralaksiyel blok, nörolojik defisit

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INTRODUCTION

Patients undergoing total knee arthroplasty (TKA) commonly experience mild back pain ⁽¹⁾. However, most of these patients do not seek medical care because the pain is generally attributed to bone demineralization, muscle atrophy, inflexibility, and loss of functional ability ⁽²⁾. On the other hand, the presence of back pain during preoperative assessment may sometimes indicate an underlying pathology.

Herein, we present a patient with preoperative back pain who experienced paraparesia and loss of control of the anal sphincter after combined spinal-epidural anesthesia for unilateral TKA. Written informed consent for publication of this report was obtained from the patient.

CASE PRESENTATION

A 65-year-old female with osteoarthritis in both knees was scheduled for right TKA. She was using medications for hypertension and diabetes mellitus. One month previously she had been admitted to orthopedic department with the complaint of back pain. Physical examination was unremarkable and preoperative laboratory blood tests yielded normal results. Neurologic examination and lumbar magnetic resonance imaging (MRI) findings were also within normal limits. A combined spinal-epidural anesthesia (CSEA) was performed with the patient in the sitting position via L3-4 interspace with 0.5% hyperbaric bupivacaine, followed by placement of an epidural catheter. During the operation, vital signs were stable and hypotension was not observed. Patient-Controlled Epidural Analgesia (PCEA) with bupivacaine 0.125% and also intravenous analgesics were used for postoperative pain control. She was discharged uneventfully on postoperative day 6. Five weeks after discharge, she readmitted with weakness of both legs and difficulty in walking. Strength was 3/5 in both legs, there was no sensory loss, and anal sphincter control was normal. Three days later, the symptoms rapidly worsened to sensory loss below T8; strength was 1/5 in both legs with urinary incontinence and loss of control of the anal sphincter. The patient was then re-evaluated and a whole spine MRI showed a spinal mass at the T7-8 level (Figure 1). The patient was referred to neurosurgery depart-

ment and emergency laminectomy of T7-T8 with total removal of the mass was performed under general anesthesia (Figure 2). Her perioperative course was uneventful. Motor and sensory deficits completely resolved and she was discharged on the 4th postoperative day. Pathological examination demonstrated meningioma.

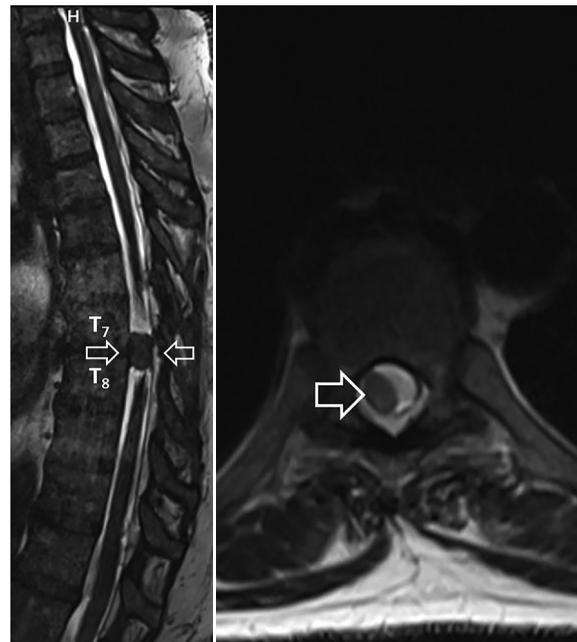


Figure 1. Thoracic magnetic resonance imaging findings 5 weeks after central neuraxial anesthesia: (A) sagittal scan shows mass at T7-8 level, (B) axial scan shows that the mass is compressing the spinal cord.

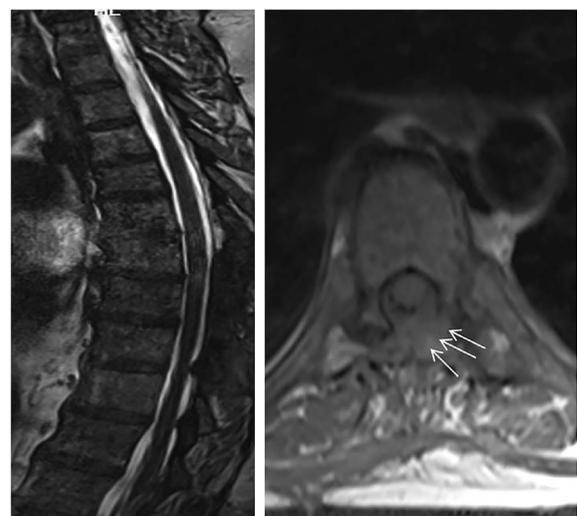


Figure 2. Thoracic magnetic resonance imaging findings after tumor removal: (A) sagittal scan shows that the mass was surgically removed completely, (B) axial scan shows that laminectomy of T7-T8 with total removal of the mass was performed.

Six months after her neurosurgical operation, she was admitted again, but this time for elective left TKA requiring the same anesthetic and analgesic method that had been used for her previous knee arthroplasty. Concerns for anesthetic implications of previous neurosurgery and potential neurologic complications were discussed with the orthopedist, neurosurgeon, and the patient. Finally, we decided to proceed with CSEA. Postoperative analgesia was provided by PCEA and intravenous analgesics. She was discharged uneventfully on postoperative day 5.

DISCUSSION

The incidence of preoperative back pain in TKA candidates is reported as high as 16.1 to 74%^(1,2). Therefore, anesthesiologists may neglect this symptom at preoperative evaluation, especially in the absence of neurologic complaints. However, back pain can indicate an underlying spinal pathology, which may lead to serious neurologic complications. Moreover, these complications can be attributed to anesthesia, because the majority of TKA operations are performed under spinal or epidural blocks.

When postoperative neurologic symptoms occur, the anesthetic method, surgical procedure and preexisting diseases should all be taken into consideration. Neurologic symptoms may result from epidural hematoma, direct needle injury, drugs used, chemical toxicity, or retention of epidural air after regional anesthesia. Surgery-related paraplegia may result from reduced perfusion to the spinal cord, especially in patients undergoing thoracotomy. Intraoperative hypotension may also induce spinal cord ischemia and thrombosis of the spinal arteries⁽³⁾. Preexisting diseases such as space-occupying lesions, disc herniation and anterior spinal artery syndrome should be considered. In these cases, realization of prompt and definitive diagnostic imaging of the whole spine is essential⁽⁴⁾. In our case, tumor compression at thoracic level was the cause of progressive neurologic symptoms. Unfortunately, the symptom of back pain was neglected because she had no neurologic symptoms with a normal lumbar MRI at preoperative evaluation. Thus, a spinal mass at higher levels was not suspected and no extra work-up was performed preoperatively.

Postoperative neurologic symptoms after central neuraxial blocks in patients with unrecognized spinal tumors were reported in several case reports before⁽⁵⁻⁹⁾. Most patients who experienced paraplegia due to an undiagnosed metastatic spinal tumor have not back pain preoperatively⁽⁵⁻⁸⁾. However, Kim et al.⁽⁹⁾ reported a patient with a preoperative chest pain who developed paraplegia due to an unrecognized thoracic spinal tumor. The authors pointed out that the chest pain was attributed to a cardiac etiology and they had not suspected a spinal tumor⁽⁹⁾. Hung et al.⁽³⁾ reported a patient who experienced postoperative paraplegia after epidural analgesia due to thoracic spinal cord compression from tumor metastasis. The authors neglected this symptom, because of the presence of a concomitant scoliosis in their patient. Additionally, their patient had weakness of bilateral lower limbs but did not mention these symptoms at preoperative evaluation⁽³⁾. Anesthesiologists should also suspect the presence of a potential spinal mass when faced with pathologic CSF, resistance to introduction of the catheter, severe paresthesia in one spinal nerve, or an altered distribution of sensory block during spinal or epidural anesthesia^(10,11). Neither CSF abnormality nor difficulty in establishing epidural anesthesia was noted with our patient.

The decision to perform epidural or spinal anesthesia in patients with history of surgery for spinal tumor should be based on the potential risks and benefits of each individual case. The recurrence rate for spinal meningioma is reported as 1.3-14.7%⁽¹²⁾. Therefore, a preoperative spine MRI may be helpful to determine the presence of a spinal meningioma if there is a recurrence. Patient preferences should also be considered. Our patient reported that she was highly satisfied with CSEA for her previous TKA and requested the same anesthetic method for her left TKA.

CONCLUSION

In preoperative evaluation of patients with back pain, spinal masses should always be kept in mind. Besides a careful neurologic evaluation, and whole spine MRI may be useful, because lumbar spine MRI may not be adequate to exclude spinal lesions compressing the spinal cord. Additionally, the possibility

of tumor recurrence should be considered in patients with a history of spinal tumor resection when a central neuraxial anesthesia is planned.

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