

## Total spinal block after spinal anesthesia following ongoing epidural analgesia for cesarean delivery

Sahar M. Siddik-Sayyid · Pamela H. Gellad ·  
Marie T. Aouad

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To the Editor:

A 26-year-old woman in labor requested an epidural analgesia. The epidural space was located at 5 cm, and the catheter was threaded 4 cm. After 12 h of labor, the patient was scheduled for cesarean delivery for failure to progress. A level to pinprick at T12 was elicited, and the catheter was noted to be at 7 cm from the skin. Based on its inadequate distance in the epidural space, the catheter was removed and spinal anesthesia with bupivacaine 10.5 mg was performed. Immediately thereafter, phenylephrine infusion was started at a rate of 100 µg/min. The last bolus of bupivacaine 0.25% 5 ml was administered 90 min before spinal anesthesia. After supine positioning with left uterine displacement, level to pinprick was at T6. Patient's blood pressure was 120/80, heart rate 90 bpm, and SpO<sub>2</sub> 100%. Ten minutes after the subarachnoid injection, the patient developed panic and started complaining of difficulty in breathing, followed by respiratory arrest and loss of consciousness. She was immediately intubated with no requirement for any medication. Positive pressure ventilation was initiated, and anesthesia was maintained with nitrous oxide and sevoflurane. A baby was delivered 20 min after subarachnoid injection with good Apgar scores. During the entire episode, there was no change in the patient's vital signs, with no need for any additional vasopressors except for the continuous phenylephrine infusion. One hour later, the patient was awakened and extubated with no further complication.

Many consider spinal anesthesia as contraindicated following an ongoing or failed epidural because of the potential risk of total spinal block [1–4], the incidence of which was estimated to be 11% versus 0.02% in patients undergoing spinal anesthesia alone [4]. The manifestations of a total spinal block occur within minutes of injecting a spinal drug, and may include profound hypotension, apnea, loss of consciousness, and even cardiac arrest. In our patient, hypotension did not supervene because of the phenylephrine infusion, thus avoiding a serious cardiac compromise in the presence of total spinal anesthesia.

Our case shows that spinal-induced hypotension with the resulting hypoperfusion of the brain and brainstem is not the only cause of respiratory failure and loss of consciousness. These sequelae were probably caused by the cephalad spread of intrathecal drugs resulting from compression on the dural sac by the epidural solution, with the local anesthetics interfering with the neuronal function in the cervical spinal cord and above.

To minimize this complication, it was recommended to avoid epidural boluses in the 30 min preceding spinal injection, to reduce the spinal dose, and to delay supine positioning following spinal injection [5]. For our patient, no boluses were administered in the 90 min before spinal, bupivacaine dose was reduced (10.5 mg instead of 12.75 mg), and she still developed total spinal block requiring tracheal intubation.

In conclusion, total spinal block after spinal anesthesia for cesarean delivery following ongoing epidural analgesia can occur without hemodynamic instability in the presence of phenylephrine. We recommend extreme caution when performing spinal anesthesia after an epidural analgesia and suggest that prophylactic phenylephrine infusion may partially limit the problem.

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S. M. Siddik-Sayyid (✉) · P. H. Gellad · M. T. Aouad  
Department of Anesthesiology, American University of Beirut  
Medical Center, P.O. Box 11-0236, Beirut, Lebanon  
e-mail: ss01@aub.edu.lb

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