Foot drop after spinal anesthesia for cesarean section: a case report

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Objective: Spinal anesthesia is the preferred anesthetic technique for cesarean section. Neurological complications are very rare and often transient after spinal anesthesia.

Case report: In the present case, a 37-year-old woman was considered eligible for cesarean section due to fetal distress. She underwent spinal anesthesia with a 25-gauge pencil-point spinal needle. In the sitting position, 3 mL of 0.5% bupivacaine was injected following free flow of cerebrospinal fluid. The cesarean delivery was uneventful without severe and significant hemodynamic changes. After recovery, the patient complained of tingling and stiffness in the left leg, accompanied with movement disorders and foot drop. Lumbar magnetic resonance imaging was normal. After receiving 500 mg intravenous methylprednisolone daily for 72 hours, she was discharged from the hospital with no particular problems.

Conclusion: Foot drop is a neurological disorder, which occurs following natural childbirth and spinal anesthesia due to direct needle trauma or local anesthetic toxicity. This complication is transient and usually resolves within a few days. In our patient, the neurological complication appeared after labor and anesthesia recovery, which was treated by corticosteroids and anti-inflammatory drugs, with no particular side effects.

Keywords: foot drop, cesarean section, spinal anesthesia

Introduction

Neurological complications following regional anesthesia are uncommon. The prevalence of these complications is estimated to be 0–36 per 10,000 epidural anesthesia cases and about 35 per 10,000 spinal anesthesia cases.1,2 These complications occur in 20% of postpartum women, with only 0.2% being clinically significant.3 Generally, a few neurological complications are reported after cesarean section.4 Subarachnoid block is a common and safe method for the delivery of the anesthetic. In a 2-year study by Scott and Tunstall, neurological disorders were reported in eight out of 14,856 deliveries with spinal anesthesia (0.054%), all of which were transient.5 Moreover, in one study, neurological disorders were reported in 24 cases, with a prevalence of 0.06% after spinal anesthesia and 0.02% after epidural anesthesia.6

Foot drop arises from lumbosacral trunk injury and damage to the common fibular nerve. The symptoms of this neurological disorder, which often occurs in mothers of short stature with fetal macrosomia, include unilateral movement disorders of the ankles with sensory impairment or paresthesia; however, this type of complication is rare after cesarean section.7 Herein, we present a case of foot drop following spinal anesthesia for cesarean delivery. We obtained written informed consent from the patient.

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cations of the journal.

Case presentation
A 37-year-old woman (G1P0AB0L0) with 181 cm height
and 88 kg weight presented to our clinic for cesarean section
due to fetal distress. She had no history of cardiopulmonary,
nervous, or sensory motor problems before the cesarean sec-
tion. The preanesthetic examination indicated the following
results: a body temperature of 36.5°C, 17 breaths/min, 78
beats/min, and a blood pressure of 120/80 mmHg. More-
over, preoperative routine coagulation results were normal
(international normalized ratio=1).

On fetal ultrasonography, cephalic presentation and a
normal anterior placenta (grade II) were reported (amniotic
fluid index, 105 mm; estimated fetal weight, 3,150 g). The
spinal anesthesia was performed after obtaining the mother’s
consent. She was initially monitored in terms of electro-
cardiography, peripheral capillary oxygen saturation, and
noninvasive blood pressure. Then, 500 mL of 0.9% normal
saline was administered. Spinal anesthesia was induced in
the sitting position, using a 25-guage pencil-point spinal
needle. The needle was inserted into the L3–L4 space and,
after withdrawal of the cerebrospinal fluid, 3 mL of 0.5%
bupivacaine was injected. Following needle removal, her
after withdrawal of the cerebrospinal fluid, 3 mL of 0.5%

Spinal anesthesia was induced without any incidents,
pain, or paresthesia at the time of needle insertion or local
anesthetic injection. After 5 minutes and attaining an upper
sensory level of T4, the cesarean section was performed
without any significant blood pressure changes on ~40 min-
utes. During operation, we infused 1,500 mL of 0.9% saline
again with 700 mL hemorraghe. The patient had no signifi-
cant hypotension, and we did not inject vasopressor. After
90 minutes, the nerve block was on T10 level, and on 2.5
hours, the patient had no foot anesthesia and could move
and flex her knees.

Following the cesarean section and recovery from spinal
anesthesia, the patient reported tingling and paresthesia of the
left lower limb. Upon examination, the right dorsiflexion
was normal, whereas the left dorsiflexion was reduced to the II/V
level. The right plantar flexion was normal, whereas the left
plantar flexion was reduced to II/V. The patient complained
of foot drop, and her left ankle was immobile with reduced
leg muscle strength (II/V). Other than the left foot drop, there
were no other sensory and motor symptoms in upper left leg.
Sensory and motor examinations were normal in the right
leg. Lumbar magnetic resonance imaging (MRI) results were
reported to be normal. The electromyography (EMG) showed
reduced conduction velocity, besides increased latency and
frequency in the lumbar region.

A 500 mg intravenous methylprednisolone was prescribed
daily for 3 days and was gradually reduced over the next
days. The patient’s foot drop was resolved in about 72 hours.
She had no other problems and was discharged 3 days after
cesarean section. After 1 week, she referred no related signs
to the clinic, and the neurological examination was normal.

Discussion
Spinal anesthesia is commonly used for cesarean delivery.
The most common side effects of this method include
hemodynamic changes, nausea and vomiting, back pain,
and headache. Neurological complications following spinal
anesthesia are rare and transient, with a prevalence of about
3.5%. So far, rare cases of permanent neurological com-
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intraneural injection of the local anesthetic. These complications may develop as radiculopathy of a single nerve root and are often transient.1,12 In one study, the prevalence of neurological complications was nearly one in 1,000 cases.1 Moreover, in a case report, neurological complication was seen in knee replacement surgery after combined spinal and epidural anesthesia. Pain and paresthesia were attributed to the needle insertion, not drug injection.13

Differential diagnosis of foot drop should be performed to detect complications of the central and peripheral nervous systems by conducting neural and EMG evaluations, as well as MRI studies, to investigate space-occupying lesions. Intense and long-term hemodynamic changes are among the factors, which cause spinal cord ischemia and spinal artery thrombosis, involved in neurological complications. In the present case, no specific hemodynamic changes were observed during surgery or spinal blockade. In some studies, a long-lasting lateral position was the cause of sciatic neuropathy.14,15 But in our report, surgery lasted less than half an hour, and the patient was not in the lateral position for a long time.

The onset, recovery time rate, and extent of neurological symptoms vary among patients. In a study by Auroy et al on 103,000 patients with spinal blockade, all neurological problems initiated within 48 hours, and recovery took from 2 days to 3 months.6 In our case, the complication appeared immediately after recovery from spinal anesthesia and the patient recovered after 72 hours.

In conclusion, we described the case of a patient who experienced unilateral foot drop after spinal anesthesia. This neurological complication appeared after cesarean section and was treated by corticosteroids and anti-inflammatory drugs, with no particular side effects.

Disclosure
The authors report no conflicts of interest in this work.

References