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Paraparesis Following Spinal Anesthesia in a Patient After Cesarean Section: A Rare Entity

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ABSTRACT

Paraparesis, as a complication after spinal anesthesia, is very rare. It may occur due to presence of undiagnosed spinal tumor or spinal shock after lumbar puncture. We describe a 22-year-old mother who had cesarean section under spinal anesthesia and developed paraparesis in postoperative period. She had history of facial palsy and hearing impairment for last 9 years. Magnetic resonance imaging (MRI) revealed spinal space-occupying lesion (extramedullary meningioma) at D-5/D-6 level. Careful observation and examination in postoperative period after regional anesthesia is necessary for early diagnosis and management.

Keywords: Spinal anesthesia, meningioma, paraparesis, cesarean section

Post-spinal paraparesis is an uncommon complication after applying spinal anesthesia. It may occur due to neuronal injury at lumbar vertebrae level or spinal shock. This type of incidence may happen with history of previous neurological morbidity or presence of previously undiagnosed spinal tumor.[1]

CASE REPORT

Mrs CD, a 22-year-old female P_{1+0} with previous history of lower-segment cesarean section (indications: Severe pre-eclampsia with scar tenderness in post-cesarean pregnancy with 39 weeks 5 days gestational age) presented at Eden Hospital, Kolkata. Her blood pressure (BP) was 174/112 mmHg during admission. Labetalol and prophylactic magnesium sulfate was administered. Spinal anesthesia was given for cesarean section. A healthy girl baby weighing 2.5 kg was delivered with Apgar score 8 and 10 at 1 minute and 5 minutes, respectively after birth. The vital signs were normal throughout cesarean section. Total operative time was 50 minutes. She was kept in observation ward for observation and transferred to postoperative ward after 6 hours. During postoperative follow-up, the patient developed paraparesis in both lower limbs with loss of sensory response to pain and temperature. The degree of motor block was scale 2 (according to Bromage scale). The patient had right-sided Bell's palsy and hearing impairment for the last 9 years and history of 3-4 episodes of generalized convulsions during the last antenatal period. She subsequently developed urinary retention after removal of Foley's catheter. Her BP was gradually normalized with medications and investigations were done to rule out renal, liver, cardiac dysfunctions, whose levels were found within normal limits. Hemoglobin - 12.8 g/dL, TC - 14,900/mm^3, D/C - $N_{78}L_{10}M_7E_5B_0$, platelet count - 3.2 lac/mm^3, total bilirubin - 0.5 mg/dL, postprandial blood sugar (PPBS) - 139 mg/dL, blood urea - 33 mg/dL, creatinine - 0.7 mg/dL. She was referred to Anesthesiologists and Dept. of Neuromedicine for opinion and they advised magnetic resonance imaging (MRI) of dorsal and lumbosacral spine for diagnosis. MRI features were suggestive of marginated isotense extramedullary lesion involving posterior and left side of spinal canal at D-5/D-6 level (Fig. 1) favoring meningioma that almost blocked the spinal cord canal with dorsal cord thinned out and shifted towards right side with cord edema. Figure 2 shows the lateral view of dorsolumbar spine showing the space-occupying lesion. A small marginated lesion was also seen intraspinally at L-3 level likely to be small meningioma or neurogenic tumor. Then, the patient was

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Figure 1. Marginated isotense extramedullary lesion involving posterior and left side of spinal canal at D-5/D-6 level.

Figure 2. Lateral view of dorsolumbar spine showing the space-occupying lesion.

referred to a neurosurgeon for specific management. Laminectomy with resection of the tumor was done in the Dept. of Neurosurgery. She attended Gynecology OPD after 3 months without any paraparesis.

DISCUSSION

Spinal or epidural anesthesia is commonly given during cesarean section or related procedures. It may be associated with variety of complications. Immediate complications may be in the form of high neuronal block causing hypotension, bradycardia, respiratory insufficiency, apnea, unconsciousness or even cardiac arrest. The delayed complications may be post-dural puncture headache or neuronal injury. Neurological injury may occur due to direct accidental injury to the spinal cord or damage to the conus medullaris leading to paraplegia, isolated sacral dysfunctions, etc. Transient neurological symptoms may occur in the form of back pain without sensory or motor deficit. In some patients, intraspinal or epidural hematoma or abscess may lead to neurological deficit as a result of compression effect.[2-4] But paraparesis as a complication of spinal anesthesia is very rare. It may be due to presence of space-occupying lesion (intradural extramedullary tumor) or spinal shock. In our case, though some neurological morbidity was present previously, no clinical signs or symptoms were found suggestive of compressive spinal cord tumor before the incident. The diagnosis of meningioma was revealed after developing post-operative paraparesis.

Probably, the space-occupying lesion created a pressure gradient above and below the level of nearly obliterated spinal cord canal. When the lumbar puncture was done in the lower compartment, the cerebrospinal fluid continued to leak-out through the puncture site causing spinal-coning. MRI, a better diagnostic procedure in the present case, revealed the space-occupying lesion and the patient was referred to a neurosurgeon for definitive management (laminectomy for the resection of the tumor mass).

For spinal anesthesia, 0.5% hyperbaric bupivacaine is commonly used. It's duration of action is 90-120 minutes. During postoperative follow-up of our patient, there was motor and sensory deficit even after 6 hours. The case report suggested that close postoperative monitoring with special emphasis on motor or sensory dysfunctions (neurological assessment) is needed and immediate investigations are needed to rule out spinal pathology. During preoperative anesthetic check-up, any pre-existing neurological disorders should be enquired.[5]

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