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CASE REPORT

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A case of postpartum chronic subdural hematoma

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Abstract

Headache is a common presentation during postpartum period. Anesthesiologist, obstetrician, and neurosurgeon should be aware of the possibility of subdural hematoma in patient complaining of headache following spinal anesthesia.

KEYWORDS

chronic, Postpartum, subdural

1 | INTRODUCTION

Intracranial subdural hematoma following spinal anesthesia is an infrequent occurrence and has variable presentation. Due to rarity, it may often be misdiagnosed as post-dural puncture headache. In this report, we describe a case of a 25-year-old woman who presented with a headache following lower segment cesarean section after spinal anesthesia.

Spinal anesthesia is commonly used anesthesia during obstetric procedures. Although complications related to spinal anesthesia are generally benign, about 0.05% of complications are critical.[1,2] Post-dural puncture headache (PDPH) and hypotension are the most common complication of spinal anesthesia.[3]

Intracranial subdural hematoma (ISH) is one of the rare but fatal complications of spinal anesthesia.[1] ISH following spinal anesthesia is reported to be more common in the obstetric population.

The most common presentation of intracranial subdural hematoma is headache (74–91%).[2,4] When headache is the presenting complaint in the puerperal period, ISH is rarely presumed, leading to misdiagnosis and delay in the treatment. Although an infrequent complication, early diagnosis of this disease manifested by headache is crucial during the postpartum period to avoid potentially fatal complications that will impact both the mother and the baby.

This study aims to report a rare case of chronic subdural hematoma (CSDH) following lower segment cesarean section (LSCS) delivery after spinal anesthesia and discuss the measures we can take for early diagnosis and prevention of potentially fatal complications.

2 | CASE PRESENTATION

A 25-year-old woman presented to our emergency department with a complaint of persistent progressive, non-postural headache for 3 days. The headache was insidious in onset and was not associated with nausea, vomiting, impairment of consciousness, focal weakness, or numbness. Sixteen days prior to the presentation, she had delivered a baby via LSCS after spinal anesthesia. It was reported that while performing the spinal anesthesia, single dural puncture was made using 25 gauge spinal needle. She did not have any history of trauma during or after her pregnancy. She had no history of pre-eclampsia, connective tissue disorder during her pregnancy, and her preoperative hematological, serological, and coagulation

studies were normal. Following the spinal anesthesia and LSCS, she did not have any reported complications. Her neurological examination at the time of presentation was unremarkable.

Computed tomography (CT) scan of the head was performed, which revealed up to 0.9 cm thick hypodense CSDH in right fronto-parieto-temporal convexity with some degree of mass effect and left-sided midline shift measuring about 0.6 cm from the center (Figure 1). The cerebral CT arteriogram and cerebral venogram study were normal. Preoperative hematological and coagulation studies were normal. The patient subsequently underwent a right frontoparietal burr hole and evacuation of the hematoma under general anesthesia without complications. On her third postoperative day, the patient was discharged home.

3 | DISCUSSION

ISH is a rare complication of spinal anesthesia. About 41% of postpartum ISH becomes chronic, and the ratio of acute (31%) and subacute (33%) subdural hematomas (SDH) is similar.[3]

While the exact incidence of ISH following spinal anesthesia is unknown, as patients are usually treated conservatively without any investigations and reporting, it is known that the incidence of ISH in patients following this anesthesia is 1:500,000–1,000,000,[5] and in case of obstetric population, the incident rate is 0.0002%.[2]

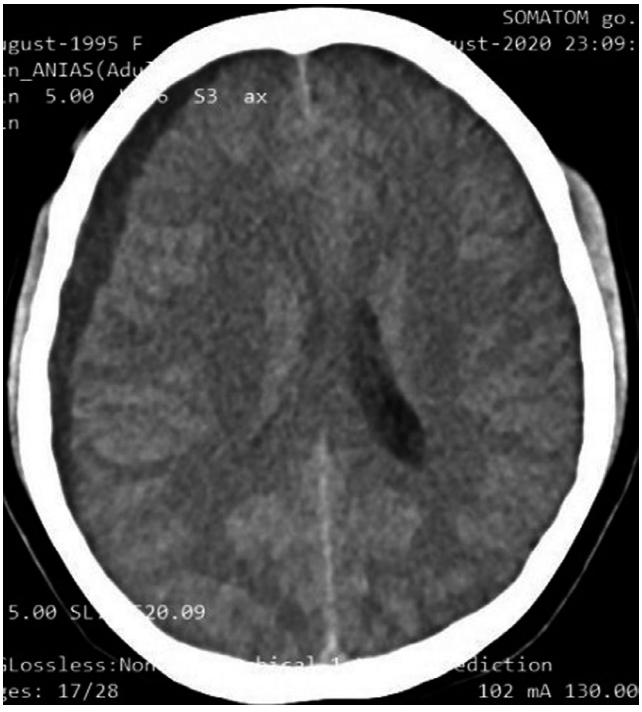

FIGURE 1 Computed tomography scan of the head showing chronic subdural hematoma in right fronto-parieto-temporal convexity

The mechanism of development of ISH following spinal anesthesia is analogous to PDPH. It is postulated that the orifice made in the dura mater after puncturing with the cerebrospinal fluid (CSF) needle remains open for several weeks after the puncture. This leads to rapid loss of CSF, which reduces the intraspinal and intracranial pressure. This causes a caudal shift of the brain, which causes traction of the structures sensitive to pain and bridging veins in the subdural space leading to its rupture causing ISH and headache.[5,6] The time taken for diagnosis of ISH following a dural puncture ranges from 4 h to 29 weeks.[2,4]

The time that is taken from CSF loss to progress to headache and develop hematoma ranges from 2 h to 44 days.[5] Most often when physicians come upon a case of headache following spinal anesthesia, PDPH is assumed to be the cause.[3,7] Headache due to PDPH worsens or develops within 15 minutes after sitting or standing up, and it improves within a similar period after laying down. It appears within 5 days after the puncture and resolves spontaneously within 1 week or up to 48 hours after epidural blood patch.[8,9] This distinguishing feature helps us to exclude other causes of postpartum headache. However, in rare situations, the headache may last for months or even years.[10] ISH should be suspected in a patient when PDPH changes its characteristics to non-postural headache with possible accompanying features like focal central nervous system (CNS) signs, impairment in consciousness level, paresis, ptosis, vomiting, blurring of vision, drowsiness, disorientation, and prolonged unresolved headache.[1,6] Unlike these typical features, ISH may present only as a headache and may be unrelated to PDPH.[8]

Postpartum headaches are quite common (39%)[4]; majority of them are primary headaches such as migraine, tension-type, and cluster headache and are therefore considered first in the differential diagnosis.[4] Secondary postpartum headache can be fatal and includes PDPH, eclampsia/pre-eclampsia, cerebral venous thrombosis, reversible cerebral vasoconstriction syndrome, and pituitary mass/hemorrhage.[4] It is common that these headaches coexist and simulate each other in the puerperium causing difficulty in differentiation.[8]

Predisposing factors for ISH following spinal anesthesia are pregnancy, use of large-sized needles, multiple dural punctures, dehydration, use of anticoagulants, cerebral vascular abnormalities, and brain atrophy.[1,2,9] Increased susceptibility during pregnancy may be due to differences in elasticity of the dura, hemostatic imbalance, and possibly gender-based differences in cranial morphology.[1] Due to venous dilatation in pregnancy, intracranial vessels are prone to tear and bleed. Moreover, postpartum diuresis, peripartum dehydration which could decrease the amount of CSF, sudden reduction in intra-abdominal pressure, vena caval pressure at delivery, hormonally induced ligamentous changes,[3] Valsalva maneuver at

labor,[3,9] and thrombocytopenia[3,9] increase the susceptibility to develop cerebral SDH.

Diagnosis of ISH is usually made by a CT scan of the head. However, cranial magnetic resonance imaging is more sensitive and specific for iso-dense CSDH.[7] Surgery is indicated if the thickness of hematoma is more than 10 mm, midline shift is greater than 5 mm, or there is neurologic deterioration.[4] In absence of the above features, conservative management is recommended, which requires close neurological and radiological follow-ups.[1,2] In addition, it is established that ISH caused by dural punctures resulting in long-standing CSF leakage can also be treated with epidural dural patching.[4]

The incidence of ISH following spinal anesthesia and development of related complications is preventable to some extent, vigilance regarding procedure-related factors, prophylactic monitoring of susceptible patients, and regular follow-up after discharge help in avoiding potential morbidity and mortality.[6]

In the reported case, the patient developed headache 13 days after LSCS. Her headache did not have an association with PDPH and other neurologic signs. As her symptoms were vague, there was a possibility of misdiagnosis. Perhaps, the development of CSDH in her case was chiefly due to the lumbar puncture during spinal anesthesia. Moreover, her post-pregnancy status may have added up as a predisposing factor for the progression of the CSDH.

4 | CONCLUSIONS

ISH is a rare but serious complication following spinal anesthesia and may mimic PDPH. Cases presenting solely with headaches during the postpartum period are often assumed to be benign, and conditions such as ISH may be masked initially resulting in a delay in diagnosis and intervention. Therefore, with proper neurological examination and regular follow-up, the possibility of an ISH must be kept in mind when evaluating these cases.

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CONFLICTS OF INTEREST

None of the authors have potential conflicts of interest to be disclosed.

AUTHOR CONTRIBUTIONS

Suyasha Rajbhandari involved in original draft, conceptualization, review, and editing. Pritam Gurung involved in review, editing, and supervision. Gopi Nepal and Samir Acharya established the diagnosis and treated the patient. Basant Pant involved in supervision.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical approval of case report is not needed in accordance with the local ethical guideline. Written informed consent was obtained from the patient to include the clinical details.

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