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RESEARCH ARTICLE

DELAYED BILATERAL FRONTOPARIETAL SUBDURAL HEMATOMAS FOLLOWING SPINAL ANESTHESIA FOR CESAREAN DELIVERY IN A TWIN PREGNANCY: A CASE REPORT

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Key words:-
Spinal anesthesia; Cesarean section; Subdural hematoma; Postpartum headache; Twin pregnancy; Burr-hole drainage.

Abstract

Introduction: Intracranial subdural hematoma is a rare but potentially life-threatening complication of spinal anesthesia. Its diagnosis may be delayed because the initial symptoms often resemble post-dural puncture headache.

Case Presentation: We report the case of a 23-year-old woman, gravida 1 para 2, with no significant medical or surgical history, who underwent cesarean delivery under spinal anesthesia for a term twin pregnancy. The first twin was in breech presentation and the second in cephalic presentation. Spinal anesthesia was performed at the L3-L4 interspace using a 25-gauge Quincke needle and required a single uncomplicated attempt. The patient received postoperative prophylactic low-molecular-weight heparin for seven days. Ten days after delivery, she developed mild-to-moderate headaches that progressively worsened and became associated with visual disturbances. Twenty-two days after cesarean section, she was admitted for further evaluation. Neurological examination revealed a Glasgow Coma Scale score of 15/15, equal and reactive pupils, and no sensory or motor deficits. Visual field impairme nt involving the right eye was noted. Hemodynamic parameters were stable testing was negative. Brain computed tomography demonstrated bilateral frontoparietal subdural hematomas measuring 19 mm on the right side and 21 mm on the left side, with bilateral fluid-blood levels. The ventricular system was normal and the cerebral midline remained centered. Enlargement of the perioptic nerve sheaths was also observed. The patient underwent bilateral burr-hole drainage under sedation with laryngeal mask airway management. Postoperatively, headaches resolv ed completely and visual symptoms progressively improved.

Conclusion: Persistent or progressive headache after spinal anesthesia should not be automatically attributed to post-dural puncture headache. The occurrence of visual symptoms should prompt urgent neuroimagin g to exclude intracranial complications such as subdural hematoma.

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Introduction:-

Spinal anesthesia is considered the anesthetic technique of choice for cesarean delivery because of its rapid onset, reliability, and favorable maternal and neonatal outcomes. Post-dural puncture headache (PDPH) remains its most frequent neurological complication, occurring as a consequence of cerebrospinal fluid (CSF) leakage through the dural puncture site.Intracranial subdural hematoma is an exceptionally rare complication following spinal anesthesia, with only a limited number of cases reported in the literature. The presumed mechanism involves persistent CSF loss resulting in intracranial hypotension and caudal displacement of the brain. This downward traction may stretch and rupture the bridging veins, leading to subdural bleeding.The diagnosis can be challenging because the initial symptoms often mimic PDPH. However, persistence, worsening of symptoms, or the development of neurological signs should raise suspicion of intracranial pathology.We report a case of delayed bilateral frontoparietal subdural hematomas occurring after uncomplicated spinal anesthesia for cesarean delivery in a twin pregnancy.

Case Presentation:-

A 23-year-old woman, gravida 1 para 2, with no significant medical or surgical history, presented 22 days after cesarean delivery.The patient had undergone cesarean section for a term twin pregnancy. The first twin was in breech presentation and the second in cephalic presentation. Spinal anesthesia was performed at the L3-L4 interspace using a 25-gauge Quincke needle. The procedure was technically uncomplicated and required a single puncture attempt.Postoperatively, the patient received prophylactic low-molecular-weight heparin (40 mg daily) for seven days and amoxicillin-clavulanic acid according to local obstetrical protocols.Ten days after delivery, she developed headaches of mild-to-moderate intensity. The symptoms progressively worsened over the following days and became associated with visual disturbances, leading to hospital admission.Upon examination, the patient was fully conscious with a Glasgow Coma Scale score of 15/15. Pupils were equal and reactive to light. No focal motor or sensory deficits were detected. Visual field impairment affecting the right eye was noted. Blood pressure was 120/60 mmHg, heart rate was 70 beats per minute, and urine dipstick testing was negative.

Brain computed tomography revealed bilateral frontoparietal subdural hematomas measuring 19 mm in maximal thickness on the right side and 21 mm on the left side. Both hematomas exhibited fluid-blood levels. The ventricular system remained normal in morphology, and no midline shift was observed. Enlargement of the perioptic nerve sheaths was also reported.

[Insert Figure 1: Initial CT scan showing bilateral frontoparietal subdural hematomas]

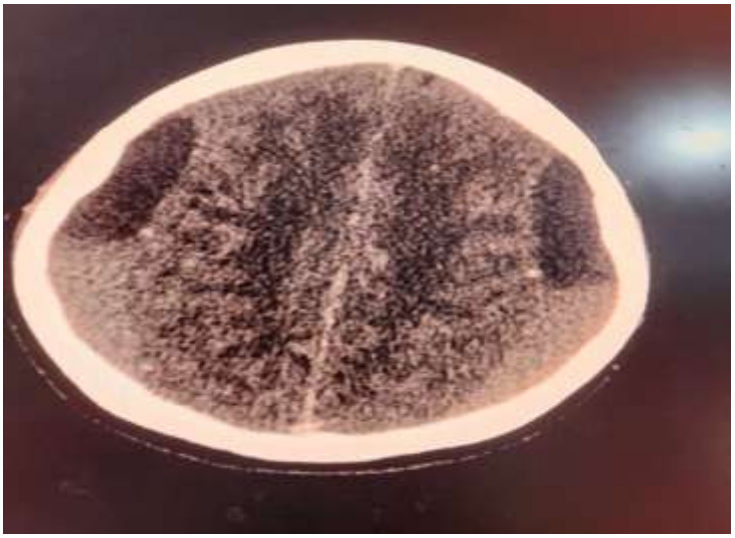
[Insert Figure 2: CT scan demonstrating bilateral fluid-blood levels and preserved midline structures]

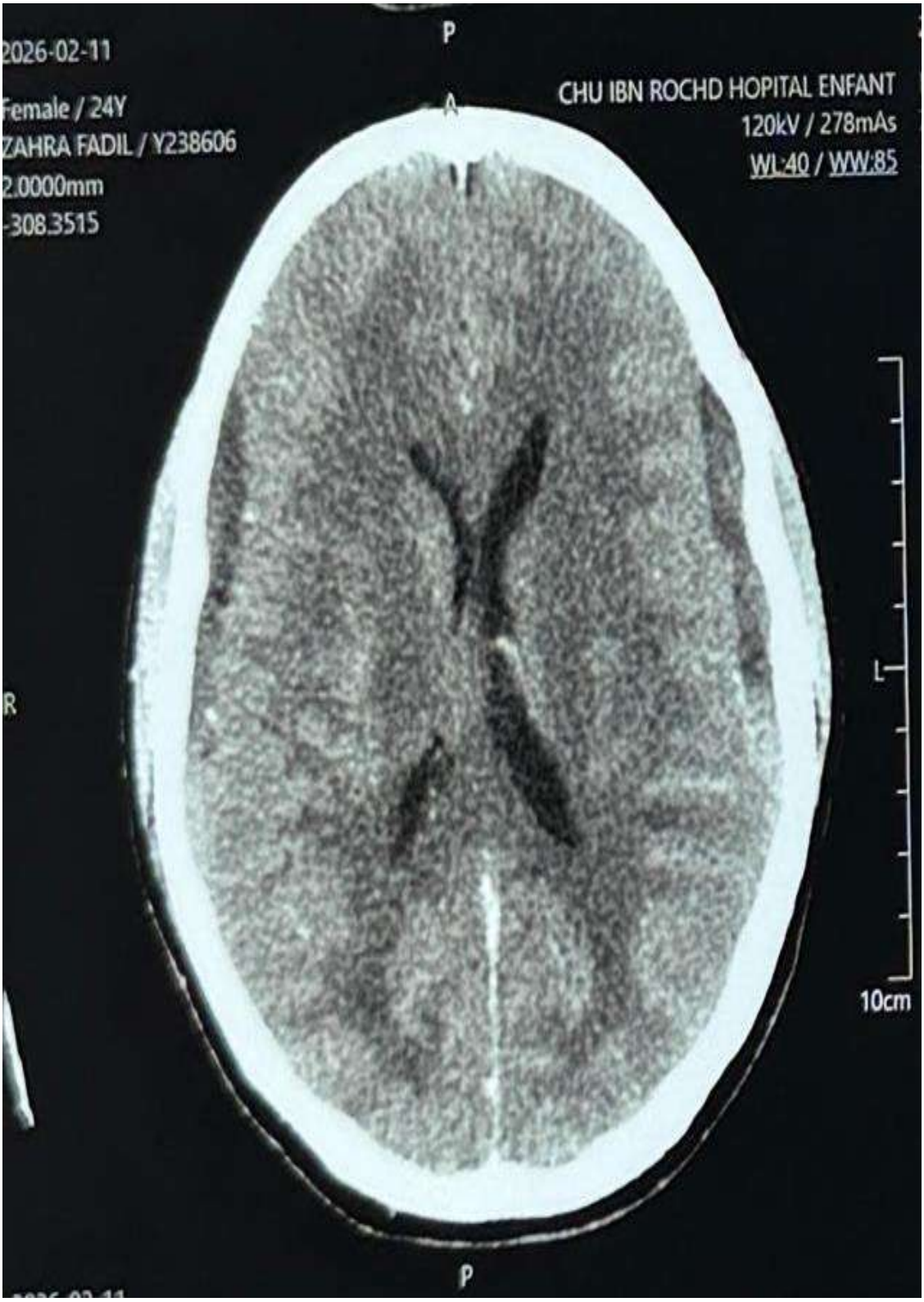
Following neurosurgical consultation, the patient underwent bilateral burr-hole drainage under sedation with laryngeal mask airway management.

[Insert Figure 3: Intraoperative view of bilateral burr-hole drainage]

The postoperative course was favorable, with complete resolution of headaches and progressive recovery of visual function.

Cuypers V, Van de Velde M, Devroe S. Intracranial subdural hematoma after neuraxial anesthesia in obstetric patients: review of the literature. Int J Obstet Anesth. (à compléter selon l'article retenu).

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Discussion:-

Intracranial subdural hematoma (SDH) is a rare but potentially life-threatening complication of neuraxial anesthesia [1,2]. Although post-dural puncture headache (PDPH) is the most common neurological complication following spinal anesthesia, intracranial SDH remains an uncommon diagnosis that may be overlooked because of its nonspecific initial presentation [1,3].The most widely accepted pathophysiological mechanism involves persistent cerebrospinal fluid (CSF) leakage through the dural puncture site, leading to intracranial hypotension. The resulting downward displacement of intracranial structures exerts traction on the bridging veins, which may subsequently rupture and cause subdural bleeding [1,4]. This mechanism explains why SDH may occur even after an apparently uncomplicated spinal anesthetic procedure.Pregnancy and the postpartum period appear to represent particular risk settings for the development of intracranial SDH after spinal anesthesia [2,5]. Physiological changes during pregnancy, including venous engorgement, increased blood volume, and hemodynamic fluctuations, may contribute to the vulnerability of intracranial venous structures.

Furthermore, the widespread use of neuraxial anesthesia in obstetric practice explains the predominance of obstetric cases among reported observations [2,5].Several predisposing factors have been described, including multiple dural punctures, large-bore needles, coagulation disorders, dehydration, cerebral atrophy, vascular malformations, and anticoagulant therapy [4,6]. Interestingly, our patient developed bilateral SDH despite a technically straightforward spinal anesthesia performed with a single puncture using a 25-gauge Quincke needle. Similar observations have been reported in previous case reports, suggesting that meticulous technique alone cannot completely eliminate this rare complication [2,3,7].The diagnosis is often challenging because the clinical presentation may initially mimic PDPH. However, several warning signs should prompt further investigation, including persistence of headache, progressive worsening of symptoms, loss of postural characteristics, visual disturbances, cranial nerve palsies, seizures, altered consciousness, or focal neurological deficits [1,3,6]. In a review of published cases, headache was the most common presenting symptom, often leading to an initial diagnosis of PDPH before neuroimaging established the diagnosis of SDH [3].In the present case, headache developed ten days after cesarean delivery and progressively worsened before visual symptoms appeared. Visual field impairment represented a key red flag that prompted neuroimaging. Brain CT revealed bilateral frontoparietal SDH measuring 19 mm and 21 mm, respectively. Despite the considerable size of both hematomas, no midline shift was observed, most likely because of the symmetrical bilateral distribution of the lesions.

Visual disturbances have been reported in several patients with post-spinal SDH and should be regarded as an alarming symptom requiring urgent evaluation [3,6]. The enlargement of the perioptic nerve sheaths observed in our patient further emphasized the presence of altered intracranial dynamics.Management depends on neurological status, radiological findings, and hematoma size. Conservative treatment may be considered in neurologically stable patients with small collections [6]. However, surgical evacuation remains the preferred approach in symptomatic patients presenting with large hematomas or neurological manifestations [2,7]. In our case, bilateral burr-hole drainage resulted in complete resolution of headaches and progressive recovery of visual function, highlighting the favorable prognosis associated with early diagnosis and prompt neurosurgical management.

Conclusion:-

Intracranial subdural hematoma should be considered in the differential diagnosis of persistent or progressive postpartum headache following spinal anesthesia. The development of visual symptoms or other neurological signs should prompt immediate neuroimaging. Early recognition and timely surgical management can lead to excellent neurological outcomes, even in patients presenting with large bilateral hematomas.

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