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LETTER TO THE EDITOR

Subdural hematoma following labor analgesia utilizing an intrathecal catheter

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To the Editor:

We report a subdural hematoma following repeated neuraxial analgesia during labor. A healthy parturient presented with an unremarkable preanesthetic examination. At L3–L4, an 18-gauge Tuohy was advanced until a depth of 4 cm. Free-flowing cerebral spinal fluid (CSF) confirmed accidental dural puncture. A 20-gauge catheter was advanced 4 cm into the intrathecal space (IT) and secured at 8 cm at the skin. One milliliter bupivacaine 0.25 % with sufentanil 5 μg preceded infusion of bupivacaine 0.0625 % with fentanyl 1.5 μg/ml and epinephrine 1:700,000 at 2 ml/h. Four hours later, analgesia became less potent. On inspection the catheter unintentionally came out to 4 cm, thus exiting the IT. Aspiration no longer produced free-flowing CSF. Vaginal exam revealed advancement of labor. Repeat epidural catheterization at L2–L3 followed. Ten milliliters bupivacaine 0.25 % and the same infusion solution yielded analgesia.

On postpartum day (PPD) 1, bilateral headache without photophobia appeared. By PPD 3 pain was nonradiating, worsened with standing, and not improved with fluid or caffeine. Examination yielded no focal neurological deficits. Magnetic resonance imaging on PPD 3 demonstrated hyperintensity along the left frontoparietal convexity and left tentorium consistent with subdural hematoma (Fig. 1). Medical management included oxycodone/acetaminophen, tramadol, ibuprofen, and morphine until PPD 9. Computed tomography on PPD 7 revealed stability.

Dural puncture is a common complication of epidural placement, with incidence of 0.3 % [1]. Pressure decrease results in traction on the meninges and vascular structures, yielding headache [2]. Infrequently, subdural hematoma occurs following low CSF pressure, causing vein dilatation and traction on bridging veins, resulting in tearing [2]. Prompt epidural blood patching may influence subdural hematoma formation by sealing the dural leak.

Recently, advancing a catheter into the IT following dural puncture has been advocated [3]. Kuczkowski and Benumof recommended five steps: (1) injection of CSF into the IT through the needle; (2) insertion of an IT catheter; (3) continuous intrathecal labor analgesia; (4) leaving the catheter in situ for 12–20 h; and (5) injection of 3–5 ml preservative-free saline into the IT before removal [4]. Intrathecal catheter placement does not negate all risk. The anesthesiologist must frequently check for accidental catheter removal. Unrecognized displacement increases the risk of subdural hematoma [5]. Following intrathecal catheter analgesia, patients need frequent monitoring for early recognition of complications.

Anticoagulation, cerebral atrophy, dehydration, arteriovenous malformations, and excessive CSF leakage [5] are

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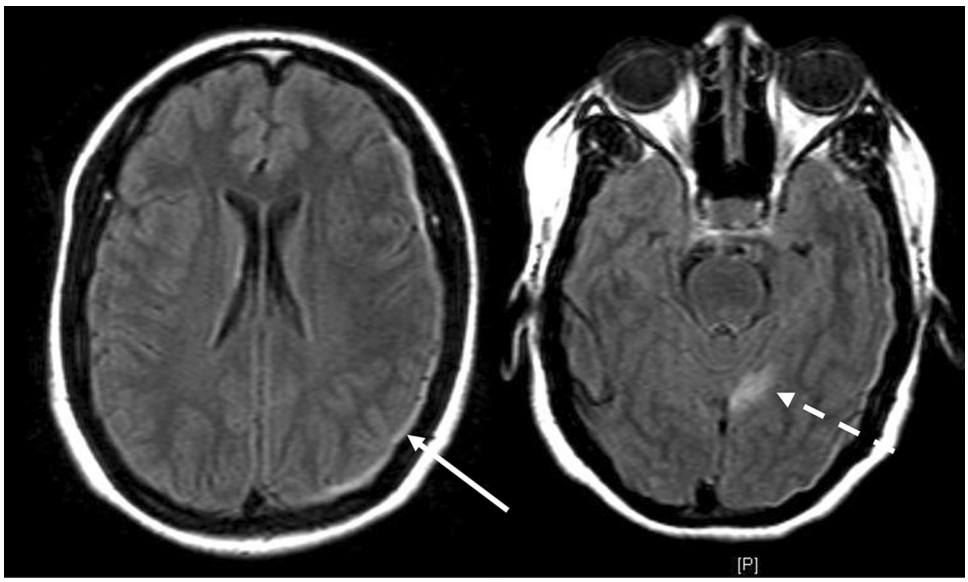

Fig. 1 Axial fluid-attenuated inversion-recovery (FLAIR) images demonstrate hyperintensity along the left frontoparietal convexity (*solid arrow*) and left tentorium (*dashed arrow*) consistent with subdural hematoma

considered to increase the risk of subdural hematoma. Pregnant woman are at higher risk because of peripartum dehydration, abrupt reduction of epidural venous pressure at delivery, and increased CSF leakage while bearing down. Prolonged labor, 20 h, during which oral intake was limited, and 600 ml blood loss following delivery, occurred in this patient. The occurrence of subdural hematoma increases intracranial pressure, which is associated with nonpostural headache, convulsions, and other neurological symptoms. Our case shows introducing an intrathecal catheter will not eliminate the chance of subdural hematoma. With increased utilization of intrathecal catheters, caution is mandatory to ensure recognition of catheter migration, with frequent monitoring following removal.

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