Not Just Another Postpartum Headache: A Case of Arachnoiditis Following Neuraxial Anesthesia

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Introduction

Postpartum headache is a common clinical complaint with a broad differential diagnosis ranging from benign etiologies, such as sleep deprivation and dehydration, to life-threatening conditions requiring urgent intervention. Obstetrician-gynecologists are trained to recognize headache as a potential warning sign of hypertensive disorders of pregnancy, including preeclampsia with severe features, given their prevalence and significant contribution to maternal morbidity. However, less common neurologic conditions may present with overlapping symptoms, creating a diagnostic challenge in the postpartum period.

Case Presentation

We present the case of a 29-year-old G3P1102 admitted with preterm premature rupture of membranes at 35 weeks and 2 days gestation who underwent an uncomplicated repeat cesarean delivery following a failed trial of labor.

Her postpartum course was notable for the development of a severe 10/10 positional headache on postoperative day (POD) 1, associated with visual changes and lightheadedness. The headache worsened with ambulation and position changes and was initially suspected to be a post-dural puncture headache related to neuraxial anesthesia. Although symptoms transiently improved with medical management, the headache recurred later that day and was also accompanied by shooting pain radiating along the spine with movement.

On POD 2, she underwent an epidural blood patch for presumed spinal headache. Despite initial improvement, she subsequently developed lower back pressure and sharp radicular pain radiating down the left lower extremity.

After discharge on POD 3, she represented on POD 4 with worsening headache, blurry vision, dizziness, and back pain radiating from her lower spine into her neck and head despite treatment with Tylenol, Motrin, and oxycodone. Given persistent symptoms refractory to standard therapy, multidisciplinary evaluation by Anesthesiology and Neurology was pursued. Neuroimaging was unrevealing, and the patient was ultimately diagnosed with arachnoiditis, a rare inflammatory disorder of the arachnoid mater and subarachnoid space, likely secondary to meningeal irritation following neuraxial procedures/ Patient was treated with IV steroids and discharged with a PO steroid taper.

Image 1: Anatomical figure representing arachnoiditis

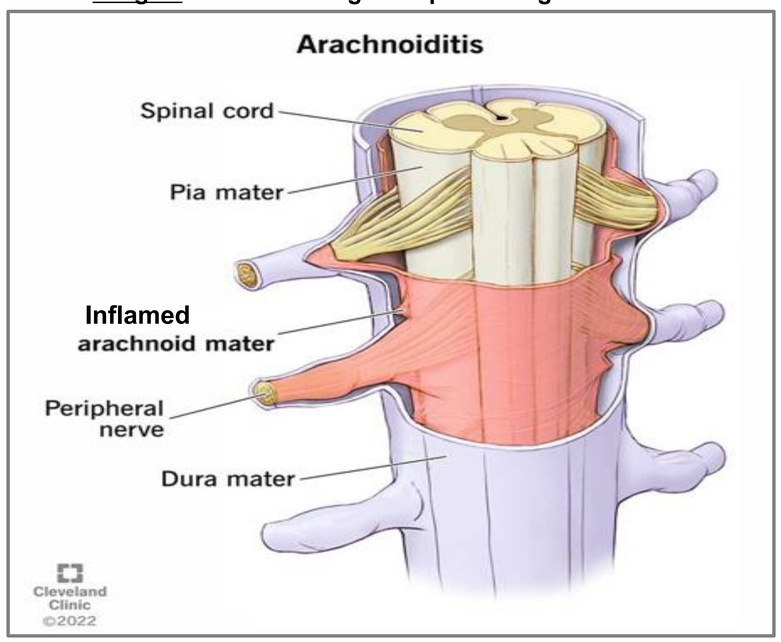


Table 1: Post-dural puncture headache and arachnoiditis: comparison

Feature	Post-Dural Puncture Headache	Arachnoiditis
Pathophysiology	Cerebrospinal fluid (CSF) leakage at the dural puncture site, leading to intracranial hypotension	Inflammation of the arachnoid mater and subarachnoid space caused by mechanical, chemical, inflammatory or chemical insult that can lead to fibrosis and adhesions within the space which can ultimately disrupt the flow of CSF
Typical Trigger	Disruption of dura mater during lumbar puncture, e.g. during placement of neuraxial anesthesia	Mechanical, chemical, inflammatory or chemical disruption of the arachnoid mater or subarachnoid space Often associated with spinal surgery, infection, subarachnoid hemorrhage, lumbar epidural injections, exposure to oil-based myelographic contrast agents, or chemical irritation
Main Symptoms	Postural headache, often accompanied by neck stiffness and hearing disturbances	Headache, extremity weakness, paresthesia, radicular pain, and/or bowel/bladder dysfunction
Onset	Typically, within 5 days of procedure	Variable
MRI Findings	IV Gadolinium administration may demonstrate descent of the cerebellar tonsils below the foramen magnum, effacement of the basilar cisterns, thickening of the meninges, subdural fluid accumulation, venous sinus engorgement and/or an enlarged pituitary gland	Arachnoiditis is a clinical diagnosis MRI does not always correlate with clinical presentation
Treatment	Expectant management Can utilize a blood patch to seal dural leak	No standard treatment Variable success with trial of high dose steroids
Prognosis	Days, No lasting symptoms once headache resolves	Chronic, lifelong and progressive which can lead to significant disability No known cure

Discussion

Arachnoiditis is an uncommon neurologic condition that occurs in response to mechanical, chemical, or inflammatory insult to the arachnoid space within the spinal cord. The annual incidence of arachnoiditis is unknown, as the condition is rare, underrecognized, and underreported.

Arachnoiditis is often missed as a diagnosis in favor of a more common cause for similar patient presentations. Patients with arachnoiditis can present with a variety of symptoms including headache, extremity weakness or paresthesia, radicular pain, or bowel and/or bladder dysfunction.

In a postpartum patient, it is easy to misdiagnose this collection of symptoms and attribute this presentation to much more common causes that obstetricians are trained to readily identify hypertensive disorders of pregnancy, urinary retention, pelvic nerve injury, and peripheral neuropathy due to patient positioning in the second stage of labor.

Conclusion

This case underscores the importance of careful symptom reassessment, multidisciplinary collaboration, and recognition of arachnoiditis, an uncommon neurologic sequela of neuraxial anesthesia in the postpartum period.

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