Arachnoiditis: A rare complication of an epidural blood patch **Vochsner** Health **Bradley Skene**, DO Department of Anesthesiology, Ochsner Health, New Orleans, Louisiana Background

- The epidural blood patch (EBP) recognized as the definitive treatment of post dural puncture headache (PDPH)
- While considered relatively safe, side effects include transient bradycardia, back pain, febrile reactions
- More serious, rare complications include cranial subdural hematoma, abducens or facial nerve paresis, cauda equina syndrome, seizure, aspectic meningitis, or arachnoiditis (1)
- Passage of blood into the subarachnoid space can cause "aseptic meningitis" or "arachnoiditis"
- Theorized the RBC breakdown products form free radicals which cause damage to nerve roots (2)
- Etiologies include trauma/surgery (subarachnoid hemorrhage, multiple LPs, spinal surgery), chemical (radiographic contrast), infection (syphilis)
- Presents as persistent low back and limb pain, paresthesia, weakness, hyporeflexia
- MRI is most sensitive modality for diagnosis; can use CT, inflammatory markers (CRP, ESR, interleukins, and myeloperoxidase (3)

(1) Paech, M. (2005). Epidural blood patch - myths and legends. Canadian Journal of Anesthesia/Journal Canadien d'anesthésie, 52(S1). https://doi.org/10.1007/bf03023087 (2) Rice, I., Wee, M. Y., & Thomson, K. (2004). Obstetric epidurals and chronic adhesive arachnoiditis. British journal of anaesthesia, 92(1), 109–120. https://doi.org/10.1093/bja/aeh009 (3) Arachnoiditis. (2023, February 17). Physiopedia, Retrieved 01:01, April 7, 2025 from https://www.physio-pedia.com/index.php?title=Arachnoiditis&oldid=327312.



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Case Report

- 28 year old G4P2 woman with a history of pre-eclampsia in previous pregnancy and iron deficiency anemia presented for induction of labor at 39 weeks and 2 days
- A lumbar epidural for labor analgesia placed complicated by accidental dural puncture with Tuohy at L3-4, successful placement at L4-5
- Labor course progressed without issue resulting in SVD of a healthy baby girl
- On PPD #1, the patient endorsed a positional headache, characteristic of PDPH unrelieved with conservative measures. The patient requested an EBP.
- The anesthesiologist reported having difficulty with obtaining epidural access, and confirmed their location with a 25G spinal needle dural puncture. 18mL of autologous blood was then injected at L3-4 interspace. The patient's headache immediately resolved and she was discharged to home.
- Presented to OB ED on PPD #11 with radicular back pain starting at the site of the EBP and radiating • cephalad along the midline spine, also caudal down both legs, worsened with ambulation and unrelieved with acetaminophen or ibuprofen. The patient denied any other neurologic symptoms, including recurrence of headache, weakness, sensory deficits, or bowel and bladder dysfunction.
- Physical exam revealed no focal neurologic deficits.
- A lumbar MRI with hyperintense material layering within the left dependent portion of the thecal sac at the S1-S2 level, as well as mild • clumping and non-dependent positioning of the cauda equina nerve roots at the L5-S1 and S1-S2 levels. These findings suggest a possible intradural hematoma and sequela of arachnoiditis.
- Discharged with gabapentin 100mg tid and is pending follow-up with neurology.







- A 2021 literature review published in Headache identified 8 cases of arachnoiditis after EBP, 6 of those related to labor analgesia; anywhere from 20-70mL autologous blood injected.
- Some case reports of arachnoiditis, usually following large volume EBP (>20mL) or repeat EBP
- Most resolved by 1 month, but 1 patient had continued severe leg pain at her 3 month visit with partial dependence of wheelchair (1)
- Thought the increased pressure from larger volumes can cause blood to enter through the initial dural puncture (2)
- In this case a common dose of autologous blood injection 18mL, less than 20mL, was used on an initial blood patch. Dural puncture with spinal needle may have increased this patient's risk for arachnoiditis and likely recommended to avoid in the future after this complication
- Treatment is focused on pain control, supportive measures; can consider steroid course mixed reviews on outcomes
- Precautions to avoid intrathecal injection of blood on EBP must be taken for difficult epidural placement for high risk of repeat wet tap, can consider EBP under real time imaging to visualize needle and blood localization
- Areas for future investigation optimal timing for EBP, optimal volume/pressure of autologous blood

(2) Riley, C. A., & Spiegel, J. E. (2009). Complications following large-volume epidural blood patches for postdural puncture headache. Lumbar subdural hematoma and arachnoiditis: initial cause or final effect?. Journal of clinical anesthesia, 21(5), 355–359. https://doi.org/10.1016/j.jclinane.2008.08.028

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⁽¹⁾ Villani LA, Digre KB, Cortez MM, et al. Arachnoiditis, a complication of epidural blood patch for the treatment of low-pressure headache: A case report and systematic review. Headache. 2021;61:244–252. https://doi.org/10.1111/head.14076