Ruling out an epidural arteriovenous malformation in a parturient with Hereditary Hemorrhagic Telangiectasia

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Background

- Hereditary Hemorrhagic Telangiectasia (HHT) is a disorder which causes the development of arteriovenous malformations (AVMs), which can be found in pulmonary and cerebral vasculature.
- While most women with HHT deliver uneventfully, rare reports of peripartum complications exist including embolic events and hemorrhage due to a ruptured AVM [1].
- Neuraxial analgesia is often requested for patients with HHT and a cerebral AVM to mitigate the sympathetic response to labor [2].
- Epidural AVMs are generally considered a contraindication to neuraxial analgesia due to the risk for an epidural or subdural hematoma [3,4].

Case Report

A 42-year-old woman G1P0 with HHT and a cerebral AVM had a lumbar spine MRI at 35 weeks gestation to exclude an epidural AVM in preparation for neuraxial labor analgesia. The standard supine MRI showed engorgement of the epidural venous plexus and dorsal displacement of the dural sac caudal to L2, interpreted as “likely epidural AVM”. A right lateral MRI was obtained, which revealed a decrease in epidural venous engorgement and increased caliber of the IVC and aorta at the L3 disc level. Venous engorgement in the supine imaging was attributed to compression of the IVC by the gravid uterus, which diverts a portion of the pelvic and lower extremity venous return to the epidural venous plexus [5,6]. AVMs are not expected to change in size with position changes due to higher intraluminal pressure. Reassured that the engorged epidural venous plexus had been misinterpreted as an AVM, an ultrasound-guided epidural was placed at the L1/2 interspace, which was used to successfully provide analgesia for spontaneous vaginal delivery without complication.

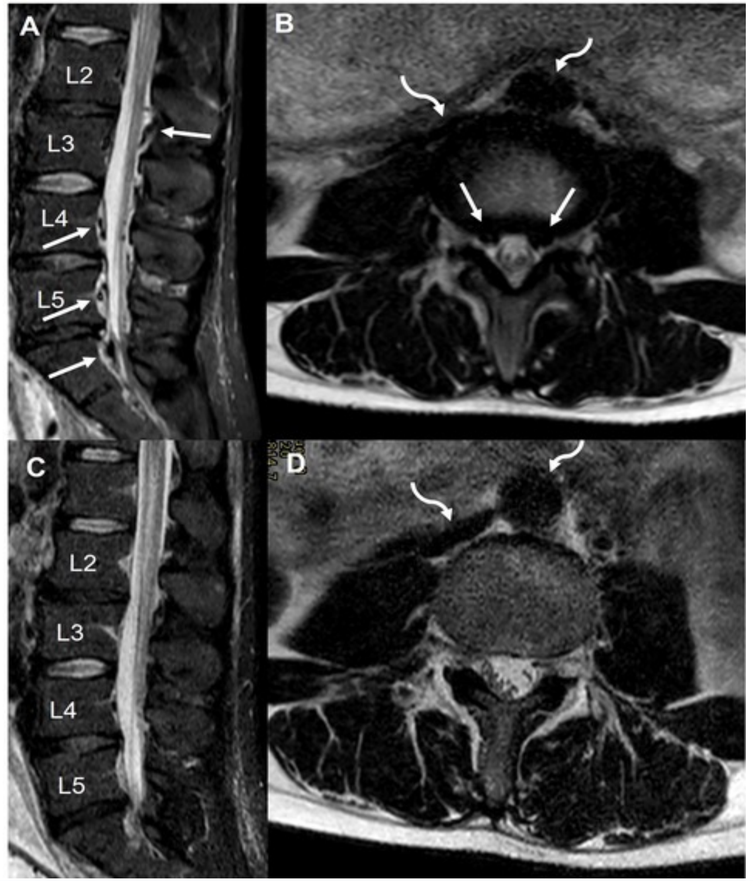

Figure 1: MRI of the lumbar spine in the supine and lateral position

Panel A: engorged veins in the epidural venous plexus (straight arrows)
Panel B: compressed aorta and IVC (curved arrows) and engorged veins in the epidural venous plexus (straight arrows)
Panel C: reduced epidural venous engorgement (no dark flow voids).
Panel D: non-displaced dural sac, increased caliber of aorta and IVC.

Conclusion

- AVMs are thought to enlarge during pregnancy due to an increase in cardiac output, venous congestion, blood volume, and plasma concentrations of progesterone and estrogen [1].
- Knowledge of an epidural AVM limits analgesic options for laboring patients.
- This case highlights the utility of position changes to distinguish between an AVM and normal physiologic epidural venous plexus engorgement during pregnancy.

References

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