

Management of a Ruptured Arteriovenous Malformation Requiring Ventriculostomy and Craniotomy During Pregnancy

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Cerebrovascular Complications of Pregnancy

Pregnancy is associated with an **increased risk** of:

- non-hemorrhagic **ischemic stroke**
- **hemorrhagic stroke**, most common etiologies being IPH from eclampsia (44%) and ruptured AVM (37%)
- **CVA** in the setting of **vascular dissection, aneurysm, and cerebral venous thrombosis**

AVM in Pregnancy

- Data is **inconclusive** regarding risk of rupture during pregnancy and elective management of unsecured AVMs
- The risk of **re-bleeding during pregnancy** after an AVM rupture is **significantly higher**

Case Presentation

23yo G3P1011, no significant PMH:

- **Presentation:** 21w5d presents with severe HA, seizures, and AMS
- **CTH and CTA:** large front-parietal hemorrhage in setting of R AVM
- **Initial management:**
 - intubation in the setting of poor exam and strict hemodynamic control
 - EVD placed in setting of intracranial hypertension
- **Repeat Imaging:** worsening midline shift
- **Definitive Management:** to OR for **emergent craniotomy**

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Post-operative Management

- Q1H neurological exams in a neurosurgical intensive care unit
- stringent blood pressure goal of SBP <140 to ↓ the risk of re-bleeding
- hypertonic saline through CVC for intracranial hypertension
- **Digital Subtraction Angiography** demonstrated that endovascular intervention on the AVM was not possible due to anatomical challenges
- improvement of neurological exam → extubated and EVD removed

Antepartum Monitoring

Discharged with **multidisciplinary follow-up** for delivery and neurosurgical intervention planning

- Neurosurgery deferred management of AVM until **postpartum** with plans for AVM resection and cranioplasty
- MFM planned for **cesarean delivery at 39w**



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Discussion Topics

Antepartum Management of AVM

- Ruptured versus un-ruptured
- Timing of management of lesions requiring surgical intervention
- Hemodynamic control during delivery

Effect of Pregnancy on ICP

- Increased potential for brain edema
- Safety of mannitol and hypertonic saline
- Other interventions to manage elevated ICP in the parturient

CVA in Pregnancy

- Thrombolysis and mechanical thrombectomy
- Role of preeclampsia and post-partum risk of stroke
- Multidisciplinary planning