Cerebral Vasoconstriction Syndrome in Peripartum Patient

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Our Case:

26 y.o. female G1P1 at 39w4d with PMH of Graves disease, admitted for IOL from clinic in setting of new oligohydramnios with non-reassuring fetal heart rate tracing. She denied a gush but reported losing her mucus plug and leakage of pink-tinged fluid on a pad since then. She also endorsed having irregular and mild contractions.

IOL with Pitocin → **planned cesarean** delivery under spinal anesthesia

→ **During closure: profound hypotension** (SBP 40s) → treated with **phenylephrine 400 mcg + ephedrine 10 mg**

→ **Rapid rebound hypertension (SBP >200) → acute headache + visual changes**

→ **New-onset seizure** (b/l UE tonic-clonic) → eye deviation, emesis, obtundation, hypoxemia → **aborted w Midazolam 4 mg**

→ **Focal deficits noted (RUE>LUE) → Airway management:** RSI with propofol + succinylcholine

→ **Stroke workup:** CT head negative → CTA with right M2 occlusion → **angiography showed multifocal distal ACA/MCA narrowing (RCVS)**

→ **Treatment + outcome:** IA verapamil + Keppra → SICU admission → **complete resolution** (normotensive) → follow-up CTA showed resolution of stenosis

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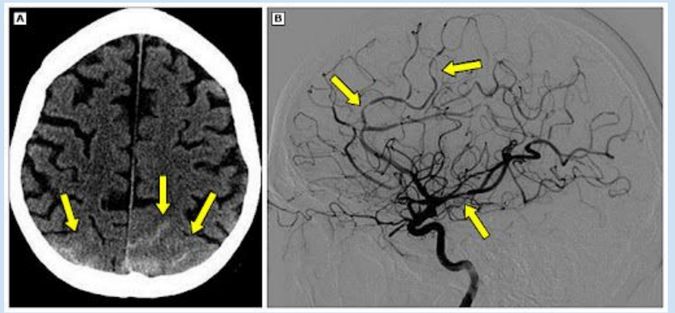
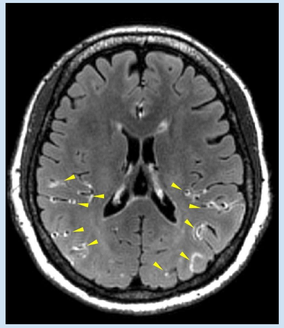
The Condition:

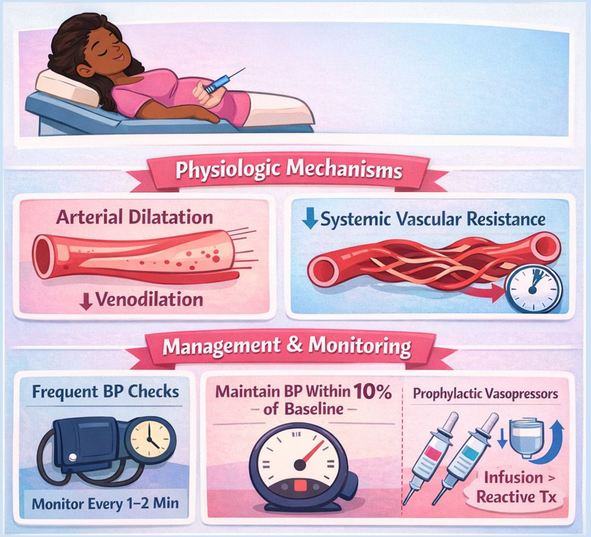
Transient neurovascular disorder characterized by **reversible multifocal cerebral arterial vasoconstriction.** Classically presents with **thunderclap headache, ± seizures or focal neurologic deficits.**





- Predominantly affects **postpartum women**, after otherwise uncomplicated pregnancies.
- Pathophysiology: **dysregulation of cerebral vascular tone**, with sensitivity to rapid blood pressure changes and vasoactive stimuli.
- Mimics obstetric emergencies (eclampsia, acute stroke) -- making **diagnosis challenging**.

	Acute Stroke	Eclampsia	RCVS
Timing	Peripartum → 2-6 weeks postpartum	Usually ≤48 hours (up to weeks PP)	Peripartum (intra-op → weeks postpartum)
Symptoms	**Persistent focal deficits** (e.g., hemiparesis, aphasia) +/- headache and altered mental status.	**Seizure** (tonic-clonic), HTN, +/- proteinuria.	**Thunderclap headache**, mild BP. Nausea/ vomiting. Focal deficits/seizure possible.
Epidemiology	Rare, peak risk immediate postpartum. Related to hypercoagulability & thrombosis, or hemorrhage.	More common. Due to severe **hypertension**.	Rare, up to 1 wk postpartum. Triggered by **vasoactive substances**.
Diagnosis	**CT/MRI** (to define type). CTA/MRA for vessel pathology.	**Clinical diagnosis.** Labs (LFTs, platelets).	**MRA/CTA**: "String-of-beads" sign (reversible narrowing).
Treatment	Acute stroke intervention (tPA/thrombectomy). BP control.	**Magnesium sulfate** (seizure control). Strict **BP control**.	**Trigger avoidance**. Calcium channel blockers (e.g., **Nimodipine**).



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Teaching Points:

Diagnosis:

- 20–38% of eclamptic seizures **occur without prior HTN/proteinuria** → differentiation from RCVS can be difficult without **vascular imaging**
- ~2/3 of RCVS cases occur **within 1 week postpartum**, often after a normal pregnancy
- **Multifocal segmental arterial narrowing** (angiographic vasoconstriction) with resolution over weeks–months is **pathognomonic for RCVS**

Management:

- **Intraoperative management:**
  - Prioritize **oxygenation + hemodynamic stability**
  - **Propofol** is effective for **rapid seizure termination**
- **Hemodynamic considerations:**
  - Vasopressors (phenylephrine, ephedrine) are standard, but **rapid BP fluctuations may trigger neurologic events**
- No standardized prevention → focus on **trigger avoidance, careful BP control, and early recognition**