

# Anesthetic Management for Resection of a Rare, Large, Metastatic Brain Mass during Multiple Gestation Pregnancy

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*A previously healthy 39-year-old presented with new chest pain*

Chest CT: right lung mass consistent with synovial sarcoma

*\*Complicated by news of twin conception via IVF\**

13 w

Decision to continue pregnancy & undergo right middle & lower lobe lung resections

24 w

Occurrence of progressive headaches, visual impairment, & word finding difficulties  
- *Brain MRI: 3cm x 4cm left superior posterior parietal brain mass*

25 w

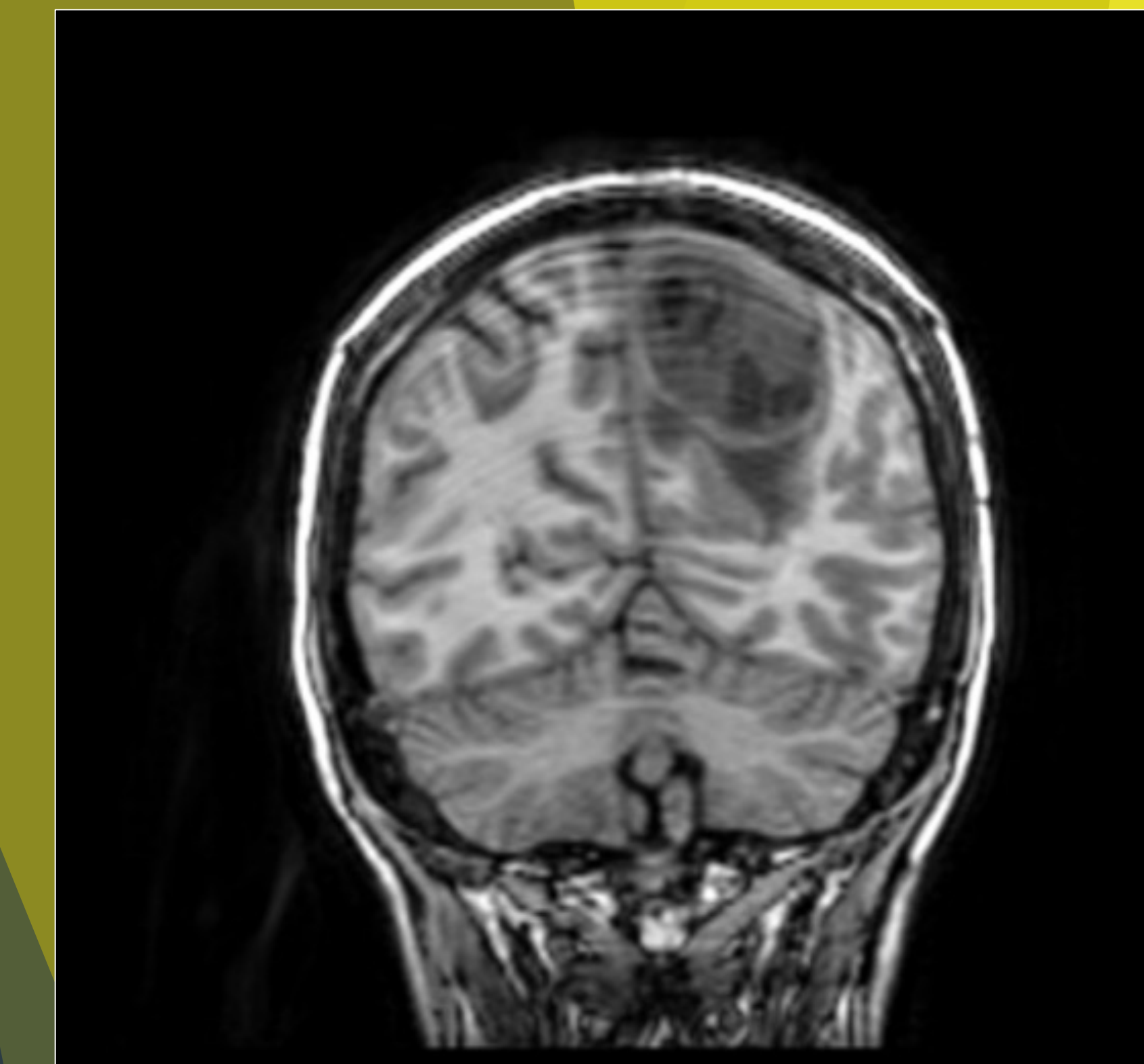
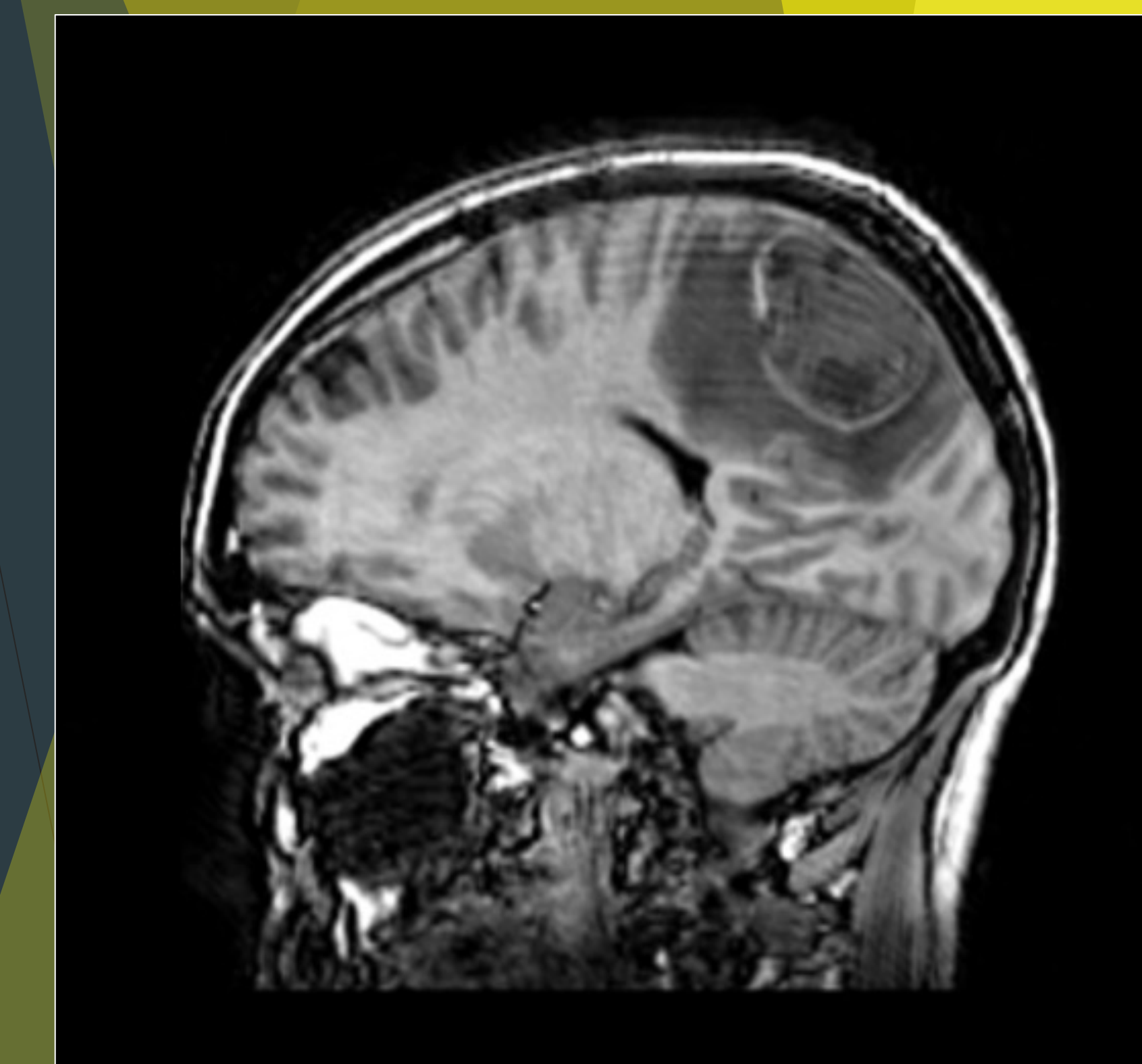
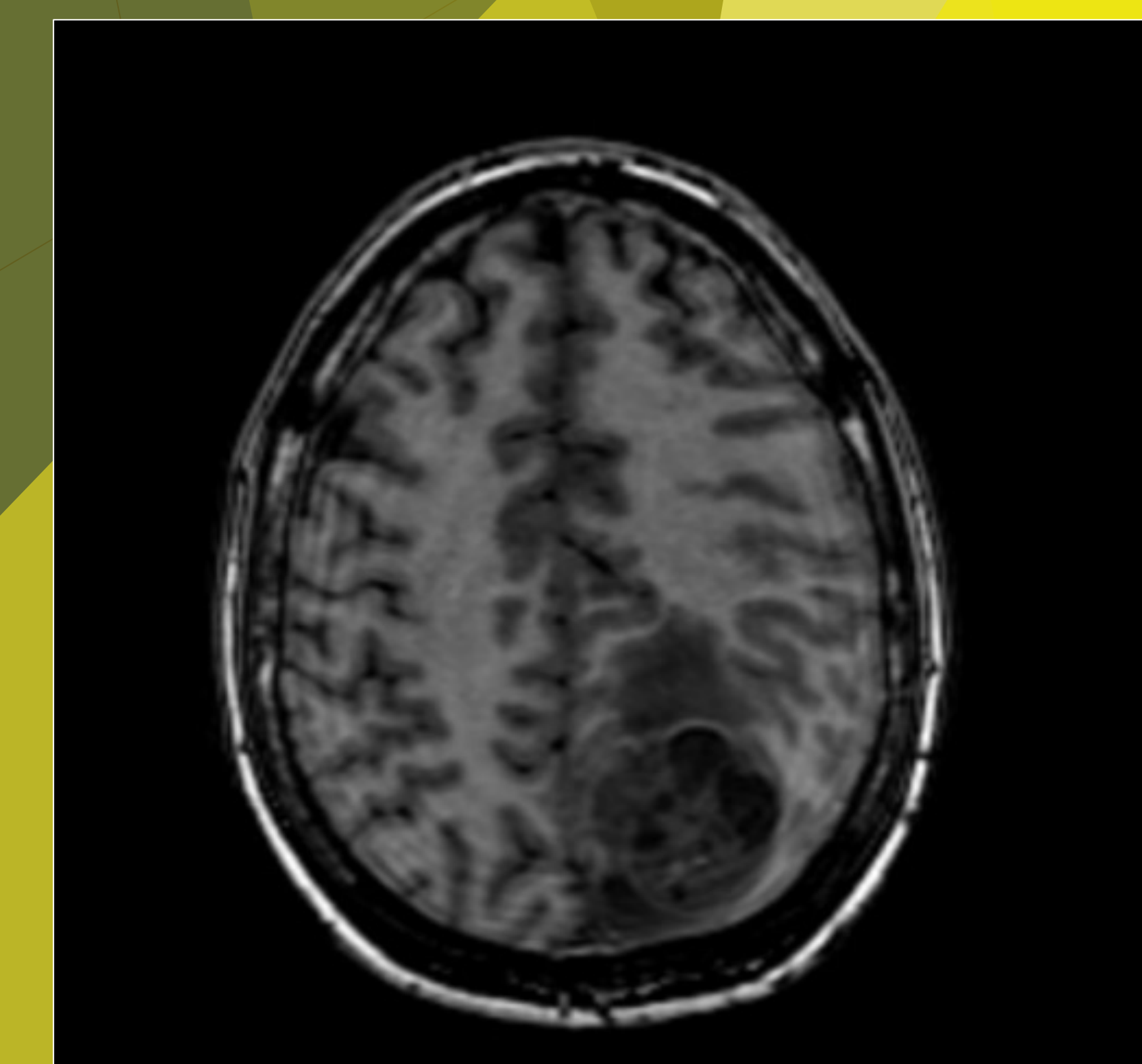
Uneventful brain tumor resection, discharged on POD2 & restarted chemotherapy

32.3 w

Urgent CD due to fetal distress while hospitalized with mild COVID-19 symptoms

2w PP

Restarted chemotherapy & radiation with 2 healthy babies



# Education Point 1: Optimizing both Maternal and Fetal Safety

## Consideration 1: Maternal Protection

- ▶ Neurological:
  - Maintenance of cerebral perfusion
  - ↑ ICP treatment (see next slide)
  - Seizure prophylaxis
- ▶ Pulmonary:
  - Aspiration risk, consider a difficult airway
  - Respiratory alkalosis and increased O2 consumption in pregnancy
- ▶ Cardiovascular:
  - ↓ SVR, avoidance of hypotension
  - ↑ volume and cardiac output

## Consideration 2: Fetal Protection

- ▶ Maintenance of Fetal Perfusion
- ▶ Opioid Minimization
- ▶ Avoid harmful medications

## Anesthetic Plan

| Phase of Care        | Plan                                                       |
|----------------------|------------------------------------------------------------|
| Pre-Op:              | Famotidine 20mg IV                                         |
| Induction:           | RSI with Lidocaine, Propofol, Remifentanil & Rocuronium    |
| Intubation:          | 6.5 ETT & McGrath                                          |
| Maintenance:         | 0.5 MAC Isoflurane<br>IV Infusions: Remifentanil, Propofol |
| Reversal:            | Neostigmine & Atropine                                     |
| Considerations       | Plan                                                       |
| Monitors & Lines:    | ASA V + Arterial Line + PIV x2                             |
| Positioning:         | Lateral decubitus with LUD                                 |
| Pain:                | Scalp blocks                                               |
| ↑ ICP:               | Hyperventilation, HOB at 30 degrees, Furosemide 40mg IV    |
| PONV:                | Dexamethasone & Ondansetron                                |
| Seizure Prophylaxis: | 1000mg of Levetiracetam                                    |
| Hypotension:         | Phenylephrine infusion & 1gm of CaCl <sup>-</sup>          |

1.Molina-Botello, Diego et al. “Pregnancy and Brain Tumors; a Systematic Review of the Literature.” *Journal of clinical neuroscience* 86 (2021): 211-216.  
2.Proskynitopoulos et al. “A Review of the Neurosurgical Management of Brain Metastases During Pregnancy.” *Canadian journal of Neuro. Sci.* 48.5 (2020): 1-707.

## Educational Point 2: Physiologic Impacts of ↑ ICP in Pregnancy

- ▶ **Symptoms:** Nausea, vomiting, headaches, & seizures (difficult to distinguish from pregnancy)
- ▶ **Treatment:** Steroids, Mannitol, diuretics, positioning
  - Hyperventilation may be less effective with baseline respiratory alkalosis
- ▶ **CPP = MAP - ICP:** ↓ SVR in pregnancy can compromise CPP

## Educational Point 3: Implications of Fetal Monitoring during Neurosurgery

- ▶ No true consensus on for FHR monitoring (ACOG recommends individualized basis)
  1. Determine if feasible during the case
  2. Determine if necessary during the case
    - Viable gestational age? If so, would we stop the surgery to emergently deliver?
    - Are substantial vital sign shifts expected to occur?

*We opted to monitor FHR pre- and post-op*