Management of elective pre-term cesarean delivery in a patient with a recently resected grade III astrocytoma

Christopher R. Parrino, MD,[A] Michael Brush MD, Shobana Bharadwaj, MBBS,[A] Jessica Galey, MD,[A] Allison Lankford, MD,[B] Amy Zheng, MD[A]

[A] Department of Anesthesiology, [B] Department of Obstetrics, Gynecology and Reproductive Sciences, University of Maryland School of Medicine, Baltimore, MD

Introduction

- Incidence of primary malignant brain tumors: 2.6 per 100,000 women; same in pregnancy
- Prompt initiation of chemotherapy and radiation after resection improves survival for certain neoplasms
- Pregnant patients face a difficult choice: termination or early delivery to allow prompt therapy for the parturient

Case Presentation: Craniotomy

- 38-year-old G1P0 at 25w0d gestation presented with 2-weeks of brain fog and word-finding difficulty
- MRI: 5x5x5 cm multiloculated cystic lesion in the left parietal lobe
- Underwent craniotomy and tumor resection; FHR stable during surgery
- Pathology confirmed IDH-mutated grade III astrocytoma
- Post-operative symptoms: word-finding difficulty and visual field changes
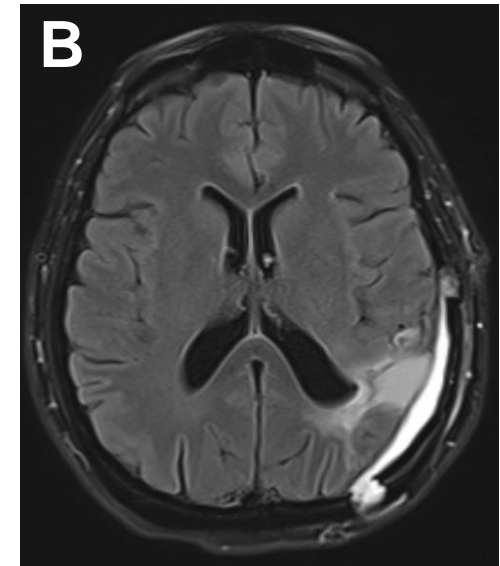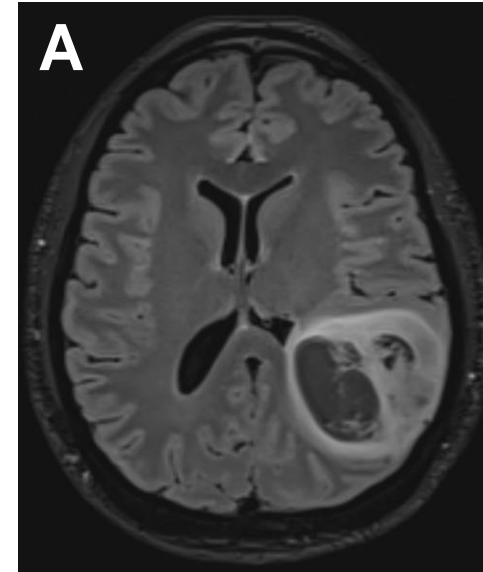- Antiepileptic and steroid therapies maintained

Figure. Pre-operative (A) and post-operative (B) T2 FLAIR MRI sequences demonstrating successful resection of left parietal lobe neoplasm.

SOAP Society for Obstetric Anesthesia and Perinatology

Management of elective pre-term cesarean delivery in a patient with a recently resected grade III astrocytoma

Christopher R. Parrino, MD,[A] Shobana Bharadwaj, MBBS,[A] Jessica Galey, MD,[A] Allison Lankford, MD,[B] Amy Zheng, MD[A]
[A] Department of Anesthesiology, [B] Department of Obstetrics, Gynecology and Reproductive Sciences,
University of Maryland School of Medicine, Baltimore, MD

Case Management: Cesarean Section

- Multidisciplinary discussion: plan for elective primary C-section at 32w to initiate chemotherapy and radiation
- Perioperative stress dose steroids
- Vasogenic edema, but no residual tumor on pre-operative MRI
- Patient asked to communicate via hand gestures if she had word-finding difficulty during procedure
- Anesthesia: spinal (hyperbaric bupivacaine, fentanyl, morphine PF, epinephrine)
- Blood pressure: maintained within 10% of baseline
- Neonate: Apgar scores 8 & 8 at 1 & 5 mins, to NICU for prematurity
- Blood loss: 310 mL
- Patient did not experience worsening of symptoms during C-section or in post-partum period
- Began radiation 3 weeks later

Management of elective pre-term cesarean delivery in a patient with a recently resected grade III astrocytoma

Christopher R. Parrino, MD,[A] Shobana Bharadwaj, MBBS,[A] Jessica Galey, MD,[A] Allison Lankford, MD,[B] Amy Zheng, MD[A]
[A] Department of Anesthesiology, [B] Department of Obstetrics, Gynecology and Reproductive Sciences,
University of Maryland School of Medicine, Baltimore, MD

Discussion

- As pregnancy progresses
  - Cerebral blood flow increases
  - Cerebrovascular resistance decreases
- The result: increased intracranial pressure (ICP) in susceptible patients
- After resection, patients still require close monitoring for symptom resolution or progression
- Similar precautions as those with known elevated ICP should be taken in parturients with recently-resected intracranial masses
- Multidisciplinary planning is crucial with regards to determining mode and timing of delivery in patients with complex comorbidities
- Risks to fetus and mother must be weighed
- Patients with expressive aphasia undergoing neuraxial anesthesia should be encouraged to communicate with hand gestures and through their support person

References

1. Yust-Katz S, de Groot JF, Liu D, et al. Pregnancy and glial brain tumors. *Neuro Oncol*. 2014;16(9):1289-1294.
2. Kacmar RM, Gaiser R. Chapter 2: Physiologic changes of pregnancy. In: Chestnut DH, Wong CA, Tsen LC, et al., eds. *Chestnut's Obstetric Anesthesia Principles and Practice*. 6th ed. Elsevier; 2019:27.
3. Godoy DA, Robba C, Paiva WS, Rabinstein AA. Acute Intracranial Hypertension During Pregnancy: Special Considerations and Management Adjustments. *Neurocrit Care*. 2022;36(1):302-316.

SOAP Society for Obstetric Anesthesia and Perinatology