
Anesthetic Management and Extracorporeal Membrane Oxygenation Cannulation for Cesarean Section in Patient with Metastatic Anterior Mediastinal Neuroendocrine Tumor

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Case Report – Anterior Mediastinal Mass in Pregnancy

INTRODUCTION

- 45-year-old G1 at 31 weeks gestation presenting with **chest pressure, dyspnea, and hemoptysis**

DIAGNOSIS

- **Stage IV neuroendocrine carcinoma**
- Primary lung mass involving:
 - right atrium
 - right superior pulmonary vein compression
 - right middle lobe artery compression

TREATMENT PLAN

- **Primary Cesarean at 34 weeks** gestation to expedite initiation of chemotherapy

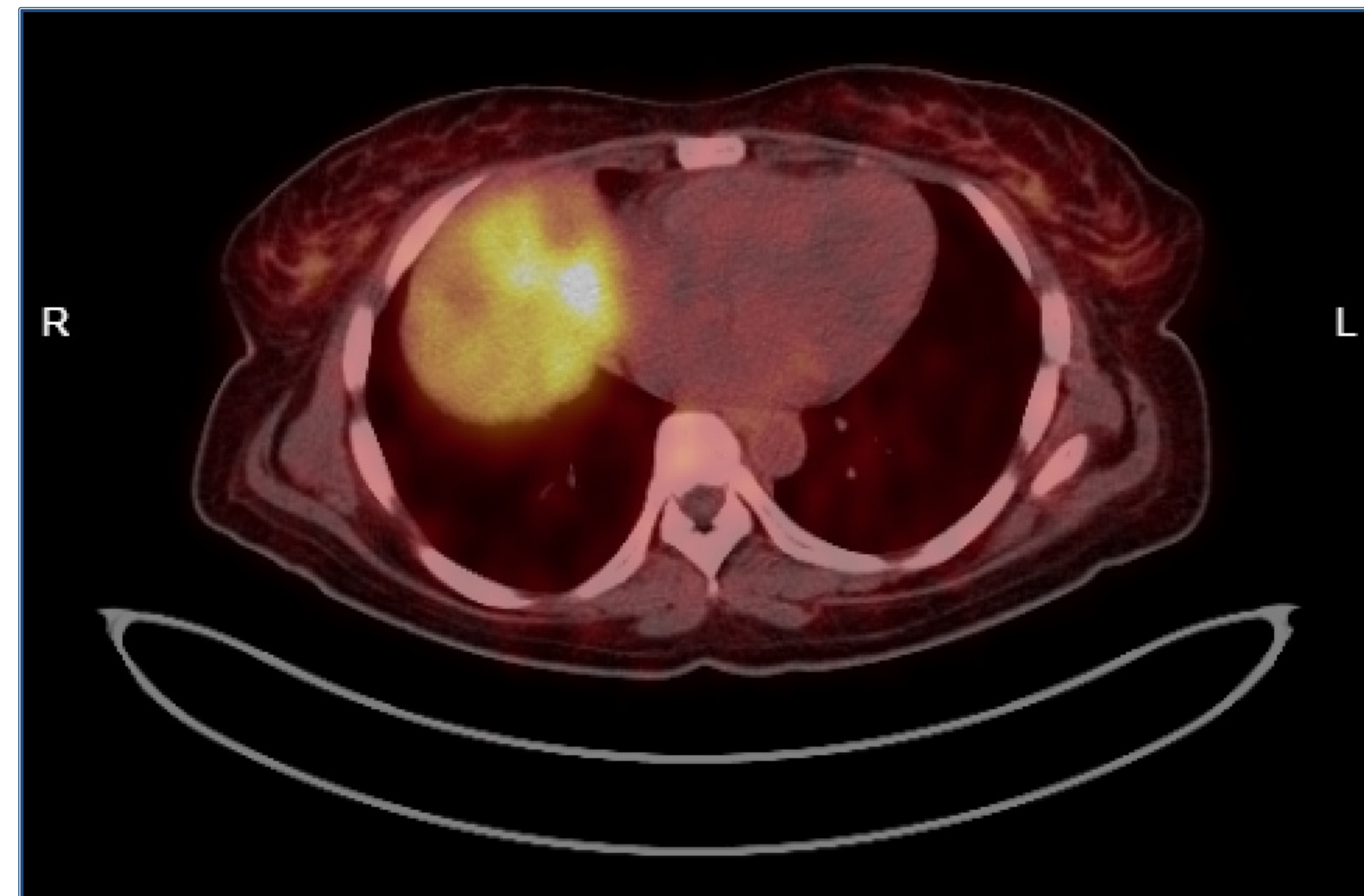


Figure 1. Lung mass on PET CT.

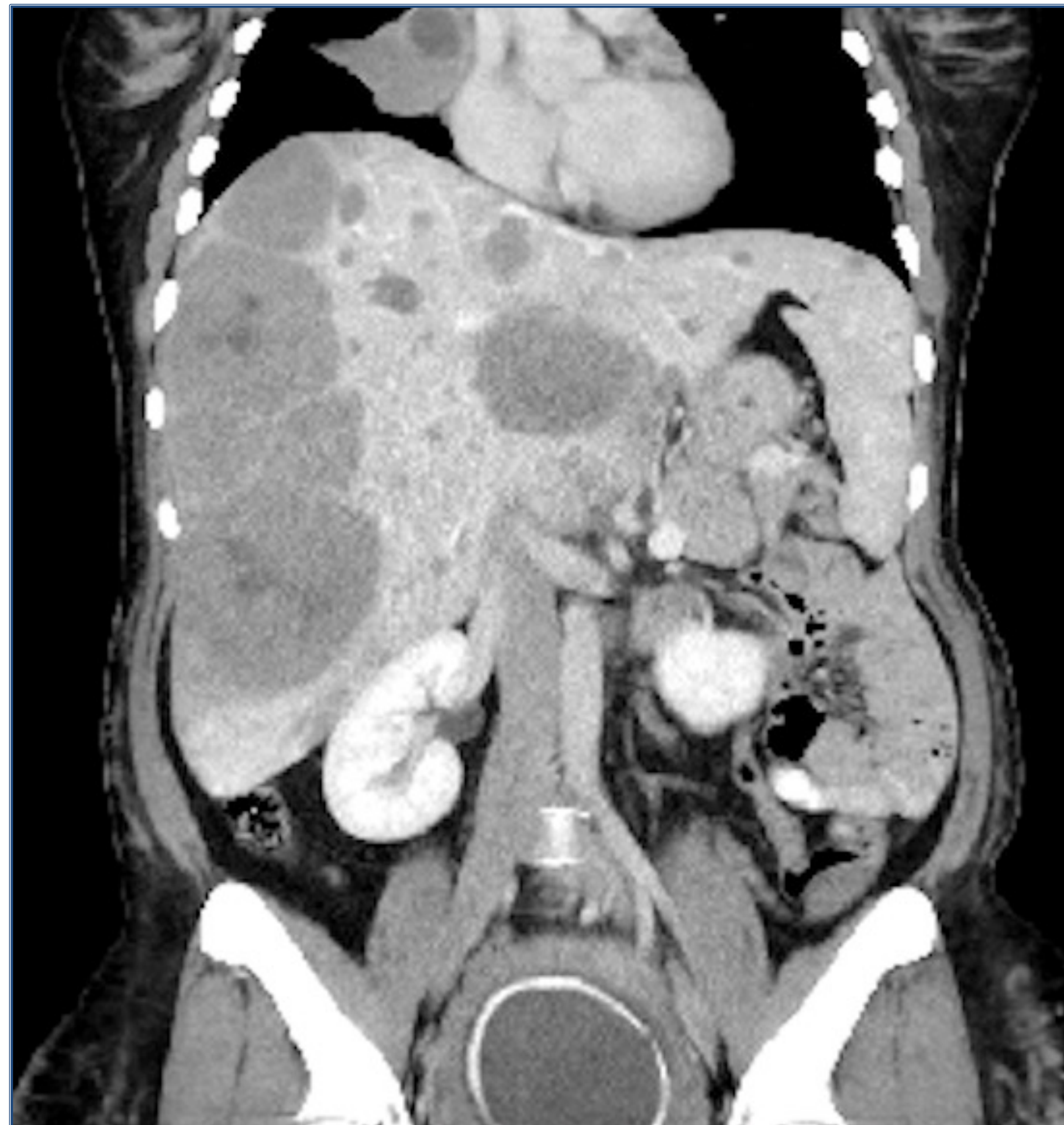


Figure 2. Preoperative MRI.

AMM IN PREGNANCY

- **High risk for:**
 - airway obstruction
 - cardiovascular collapse
 - rapid and profound desaturation
 - severe hypotension
- **All efforts to avoid:**
 - high spinal
 - hemodynamic instability
 - unanticipated conversion to general anesthesia

ANESTHETIC MANAGEMENT

- **Interdisciplinary approach**
 - MFM, OB ANESTHESIA, CV SURGERY
- **Low-dose combined spinal-epidural (CSE)**
- Phenylephrine infusion with invasive blood pressure monitoring
- Femoral sheaths for rapid initiation of extracorporeal membrane oxygenation (ECMO)
- **Rescue equipment:**
 - fiberoptic bronchoscope
 - transesophageal echocardiography (TEE) probe
 - reinforced endotracheal tube
 - cardiac resuscitation drugs
 - stretcher for prone rescue positioning

RISK STRATIFICATION

- **Preoperative risk assessment** is paramount with AMM
 - complications associated with severity of symptoms at presentation¹
- ECMO cannulation
 - ensure oxygenation/perfusion in patients at highest risk for complications
 - should occur **prior to induction of anesthesia**²
- Additional peripartum concerns:
 - fluid shifts
 - autotransfusion of the placenta
 - aortocaval compression
 - potential for massive hemorrhage

LOW RISK	Asymptomatic or mildly symptomatic; without postural symptoms or radiographic evidence of significant compression of structures
INTERMEDIATE RISK	Mild to moderate postural symptoms, tracheal compression < 50%
HIGH RISK	Severe postural symptoms, stridor, cyanosis, tracheal compression > 50% or tracheal compression with associated bronchial compression, pericardial effusion, or SVC syndrome

Figure 3. Risk stratification for ECMO support.

CSE

- **Reliable, dense, titratable** sensory blockade
 - Lower catheter failure rate than traditional epidural technique³
 - Does **not** delay epidural catheter failure detection³
 - More uniform sensory blockade than epidural alone⁴
 - CSF visualization confirms midline placement at appropriate catheter depth⁵
- **Safely performed** in patients with significant tracheal compressive effects from AMM⁶
- A need for **strict hemodynamic control** does **not** obviate the use of spinal or CSE

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