Management of an Urgent Cesarean Section in a Patient with Unknown Severe Pulmonary Hypertension, Obesity, Heart Failure with Reduced Ejection Fraction and Prior Classical Cesarean Section

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College of Medicine
Anesthesiology

Hospital Presentation

- 33 year old G8P1 at 31 weeks transfer for vaginal bleeding and contractions. In the days leading up to her presentation she experienced new onset angina, headache, and vision changes.
- Past medical history: class 3 obesity (BMI 82), HFrEF, COPD on 2 liters home oxygen, HTN, prior classical cesarean delivery, multiple prior MI and PE requiring therapeutic anticoagulation, and limited prenatal care.
- On arrival, she was requiring 5 liters nasal cannula and started on tocolytics while a cardiopulmonary work up was performed. Prior transthoracic ECHO in 2017 revealed LVEF 55%.

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Anesthetic Course

Pre-op

- General anesthesia chosen due to the patient being on therapeutic enoxaparin
- Transthoracic ECHO revealed LVEF 30-35% and RVSP 50-70mmHg
- Chest x-ray revealed enlarged cardiac silhouette
- Pre-induction arterial line and post induction central line was placed as well as large bore peripheral access

Intra-op

- TEE placed revealing severe biventricular dysfunction, severe pulmonary hypertension and severe TR
- Patient started on epinephrine, norepinephrine, vasopressin and milrinone due to TEE findings
- She stabilized after inotropic support and baby was delivered uneventfully
- She was then transferred to the MICU intubated

Post-op

- She became increasingly unstable with worsening oxygenation ultimately requiring peripheral VA ECMO
- POD 1 her arterial cannula became dislodged resulting in a ACLS
- After LV recovery an attempt was made to transition to an RVAD, unfortunately she was unable to wean from RVAD support and was transitioned to comfort care

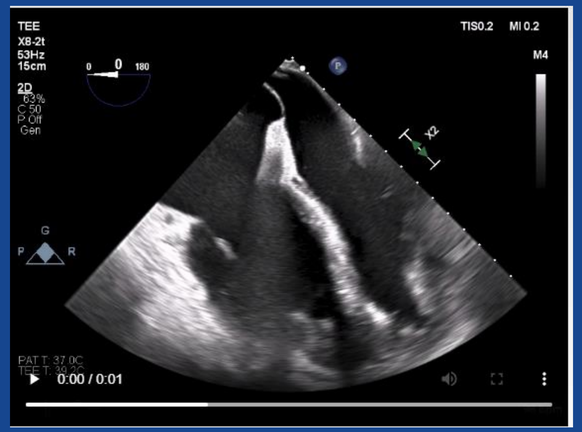

Figure 1: Intra-op Mid-esophageal 4 chamber TEE

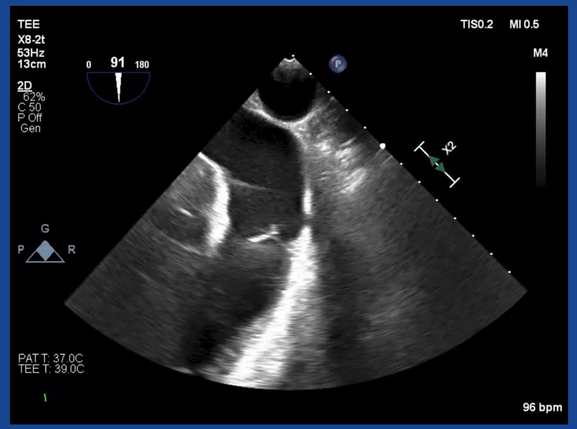

Figure 2: Dilated PA

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Discussion

- Cardiovascular disease is now the leading cause of maternal mortality in developed nations
- Pulmonary hypertension in concurrence with HFrEF has a significantly higher morbidity and mortality in pregnancy than pulmonary hypertension alone
- Due to the urgency of the case, her late presentation and limited prenatal care, we had no opportunity for optimization prior to delivery
- The use of transesophageal ECHO greatly impacted our management by earlier identification of the severity of right heart failure and implementation of inotropic agents
- Epidural is the preferred modality for cesarean delivery in patients with significant cardiovascular conditions

References

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