

Regional Anesthesia in Pregnant Woman with Pulmonary Hypertension and Thrombocytopenia

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Introduction

Maternal mortality in the United States is 22.3 deaths per 100,000 live births. Conditions such as pulmonary hypertension contribute to this and require careful planning for safe delivery.

Case Presentation- Pre Delivery

- 28 year old G2P1 female with a history of diet controlled pre-gestational diabetes presented at 32 weeks and 4 days with new onset dyspnea and a new oxygen requirement
- Workup including EKG, TTE, and right heart catheterization confirmed pulmonary hypertension
- Pulmonary hypertension was likely longstanding, but unmasked by pregnancy and etiology is possibly St. John's Wort
- Patient was transferred to a different hospital to be medically optimized prior to delivery and have access to multidisciplinary team
- Started on IV epoprostenol and lasix 40mg BID. The decision was made to proceed with delivery after requiring escalating doses of epoprostenol
- Patient's platelets were 51,000, thus she received 1 pack platelets and rose to 70,000. However, platelets dropped to 64,000 at the next lab draw, so patient was given another pack and rose to 77,000
- The decision was to use neuraxial anesthesia with cesarean delivery and she was given 1 additional pack of platelets
- C section also included micropuncture cannulation to femoral artery and vein

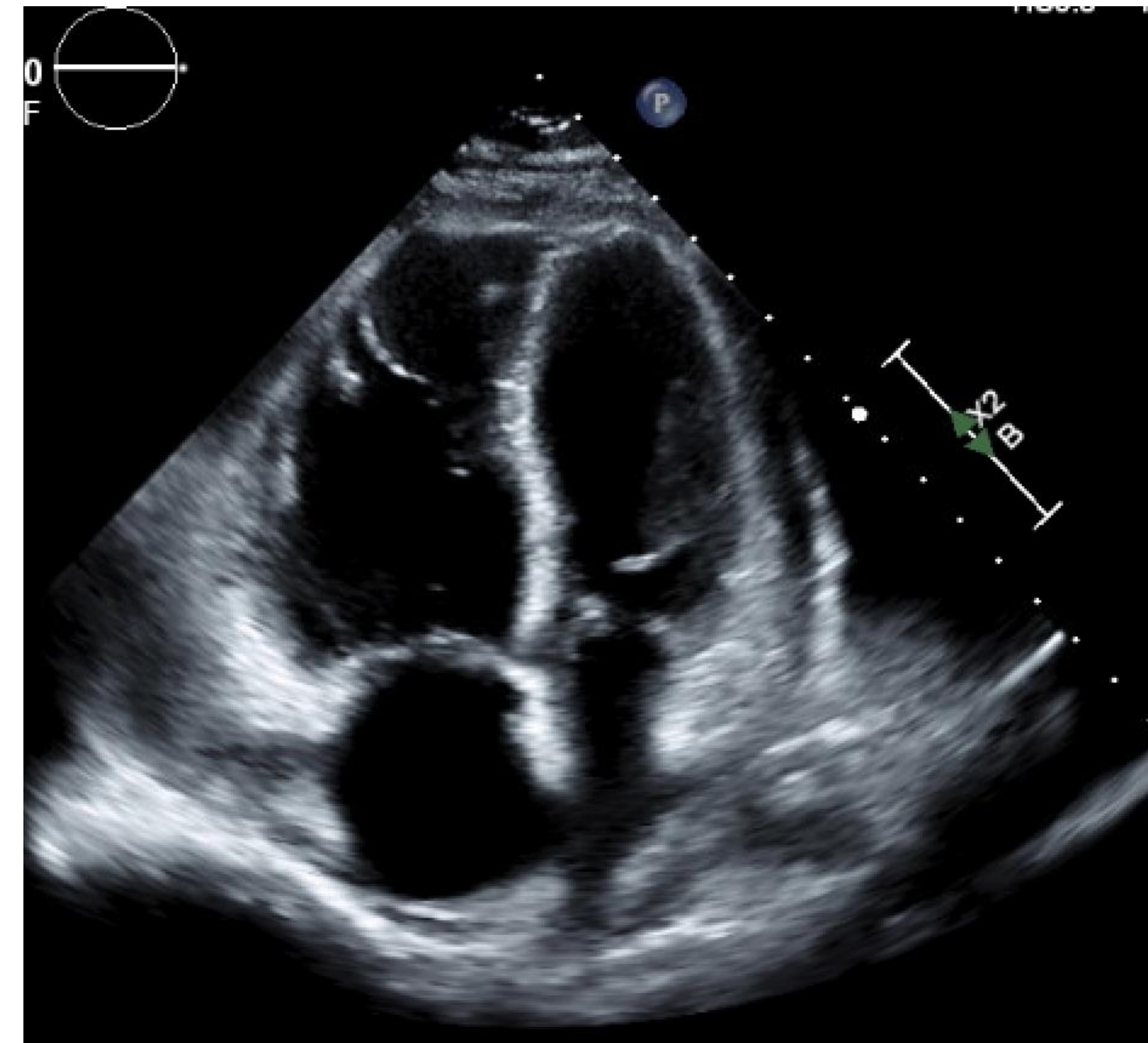


Figure 1: Echo When Patient Presented to Hospital

Case Presentation- Post Delivery

- Two days post delivery she was on dopamine, epoprostenol, lasix 200mg BID with SCVO2 readings in the 40s
- Norepinephrine and vasopressin was started for treatment of mixed shock and two units of blood were given for a drop in hemoglobin
- The patient was placed on VA ECMO and experienced cardiac arrest after attempting to transition to VV ECMO. She suffered a neurological event and later passed away

Discussion

- This case demonstrates the challenges with optimization for delivery in patients with pulmonary hypertension.
- Cardiovascular disease is the leading cause of maternal mortality and morbidity for pregnant women in the United States. Pulmonary hypertension
- These patients need to be optimized and a delivery framework needs to consider who the patient is in terms of risk, what is going to be the method of delivery, when should they deliver, where should they deliver to get the support needed, and how should they deliver to be safe
- General anesthesia is dangerous in pregnant women and neuraxial anesthesia should be chosen instead when possible
- Dangers of general anesthesia during delivery include aspiration, failed intubations, venous thromboembolism, and hemodynamic changes
- This patient's platelets were 51 making neuraxial anesthesia dangerous due to risk of epidural hematoma. Neuraxial anesthesia is also dangerous due to possibility of abrupt sympathectomy therefore it must be carefully titrated.
- Cost benefits must be weighed and there was shared decision making with the family to proceed with neuraxial anesthesia even with platelets between 50-70, however this patient did achieve platelets greater than 70,000 before delivery

References

Guglielminotti J, Landau R, Li G. Adverse Events and Factors Associated with Potentially Avoidable Use of General Anesthesia in Cesarean Deliveries. Anesthesiology. 2019 Jun;130(6):912-922. doi: 10.1097/ALN.0000000000002629. PMID: 30789362; PMCID: PMC9922091. American Heart Association. Anesthetic care of the pregnant patient with cardiovascular disease: A scientific statement from the American Heart Association. Circulation. 2023;147(11):e422-e450. doi:10.1161/CIR.0000000000001121