

Anesthetic management of a pregnant patient with coronary artery disease undergoing Cesarean Section. A case report.

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Introduction

- Cardiovascular disease (CVD) is the leading cause of maternal mortality in the United States, accounting for over 25% of maternal deaths.
- Physiologic changes of pregnancy with preexisting Coronary Artery disease can lead to decompensation.
- Neuraxial anesthesia for Cesarean Delivery is recommended if there is no Obstructive cardiac pathology.

Case Summary

- A 39-year-old second gravida, at 30 weeks' gestation, with breech presentation for cesarean Section.
- Medical History** - Hypertension, Diabetes mellitus, **Left circumflex and right coronary artery with stents in situ**, **>50% stenosis of left anterior descending artery**, Recurrent Heart failure exacerbations, on DVT prophylaxis.
- Echocardiography** showed ejection fraction (55-60%) with increased LV mass. **Hemoglobin 8.0 g/dL**, **NYHA class II** with a **CARPREG score of 5**.
- Medications** - Labetalol, Insulin, Bumetanide, and prophylactic Enoxaparin. Magnesium sulfate infusion, Insulin infusion (Glucose 278 mg/dL).
- Anesthesia Plan:** Pre-op radial **arterial line** placement, Intra-op standard ASA monitoring, **CSE with Intrathecal Bupivacaine 0.75% (1.6 mL)**, **Fentanyl 15 mcg**, **Morphine 150 mcg**, **Epidural Lidocaine 2% with Epinephrine 5 mcg/ml supplementation**. A **phenylephrine** infusion to keep MAP >65mm of Hg.

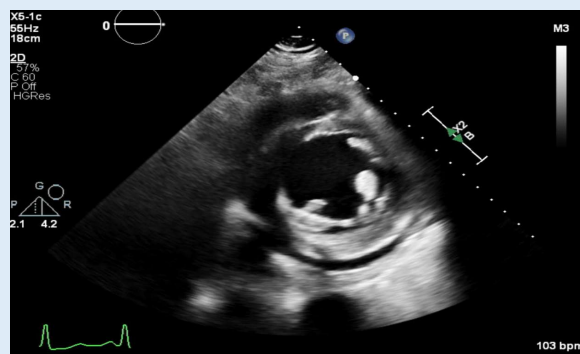


Image 1: TTE of the patient.

Table 1: CARPREG (Cardiac Disease in Pregnancy) risk score

Predictors of cardiovascular events	Points
Prior cardiac events or arrhythmias	3
Baseline NYHA 3-4 or cyanosis	3
Mechanical Valve	3
Systemic ventricular dysfunction LVEF<55%	2
High-risk aortopathy	2
Coronary artery disease	2
No prior cardiac intervention	1
Late pregnancy assessment	1

Primary cardiac event risk: score=1, 5% risk, score=2, 10% risk, score=3, 15% risk, score=4, 22% risk, **score>4, 41% risk**. NYHA=New York Heart Association

Key Points and Discussion

- Risks with CAD and pregnancy:** Myocardial Infarction, Arrhythmias, ACS, Heart Failure, Sudden Coronary Artery Dissection, Cardiac Arrest due to increased myocardial oxygen demand and mismatch, especially during stress and labor. Postpartum risk of heart failure due to increased pre-load from uterine involution and release of pressure from IVC.
- Management goals Recommended by AHA:** Maintain normal sinus rhythm, heart rate, coronary perfusion, and cardiac output.
- Neuraxial anesthesia** with vigilant hemodynamic monitoring and maintaining MAP close to baseline blood pressure with vasopressors (Phenylephrine) is recommended.[1,2]
- General anesthesia** is a choice for patients with severe cardio-respiratory compromise and presence of neuraxial anesthesia contraindications. **Rapid sequence induction with cricoid pressure.** [2]
- MAC of inhalation agents** should be titrated considering uterine tone. Appropriate multimodal pain management. (Acetaminophen, Opioids, non- opioids and regional Block)

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