# Anesthetic Management of Labor Analgesia in a Pregnant Woman with Heart Failure with Reduced Ejection Fraction, Thromboembolism and Morbid Obesity.

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## HEART FAILURE IN PREGNANCY

- Heart failure due to dilated cardiomyopathy is the most common cardiovascular complication in pregnancy and post-partum period [1].
- Pregnancy increases cardiac output by 30–50% — dilated cardiomyopathy cannot meet the demand and leads to heart failure.
- Increased sensitivity of myocardium to develop arrhythmias.

## VTE IN PREGNANCY

- Pregnancy being a hypercoagulable state, enhances the risk of thromboembolism [2].
- One study on 1970971 pregnant women showed - 26.7% had VTE
  - 35.5 % PE
  - 64.5% DVT
- Pulmonary embolism mandates treatment with anticoagulation and close monitoring

## MORBID OBESITY IN PREGNANCY

- Reduced FRC, Increased Oxygen demand, Increased Difficult airway risk, and Difficult Neuraxial access can add more challenges.

# Case Profile

**• 36 Y • G5P4 • 37wk • BMI 49.6 (kg/m²)**

- Initial presentation at 17 weeks for LLE DVT
- Suspected PE.
- CC: - Left leg swelling × 3 days,
  - Dyspnea on lying flat.
- LE Doppler Occlusive thrombus

→ left anterior tibial vein

→ left superficial femoral vein

- CTA Chest:

→ PE from distal right main PA

→Right interlobar, middle, lower segmental

- QTc 485 ms, resolved later
- TTE : EF 23% Global Hypokinesis, LVH

On the day of admission for IOL

→ NYHA II, CARPREG 5, >41% MACE risk [3]

→ TTE: EF 26%, LV eccentric hypertrophy and global hypokinesis

**Medications**

- Metoprolol Succinate XL 25 mg Q24H.
- Furosemide 40 mg PRN if leg swelling.
- Enoxaparin 130.5 mg SC Q12H (2 weeks ago)

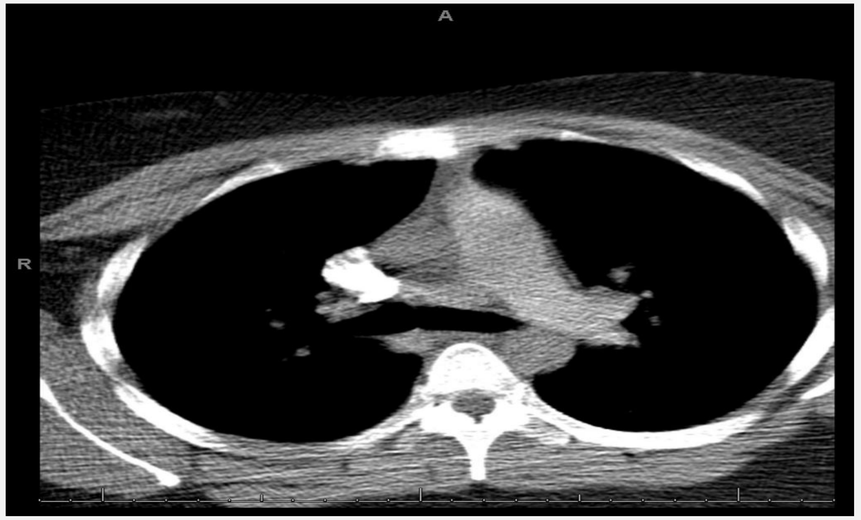


Image 1:CTPA of chest

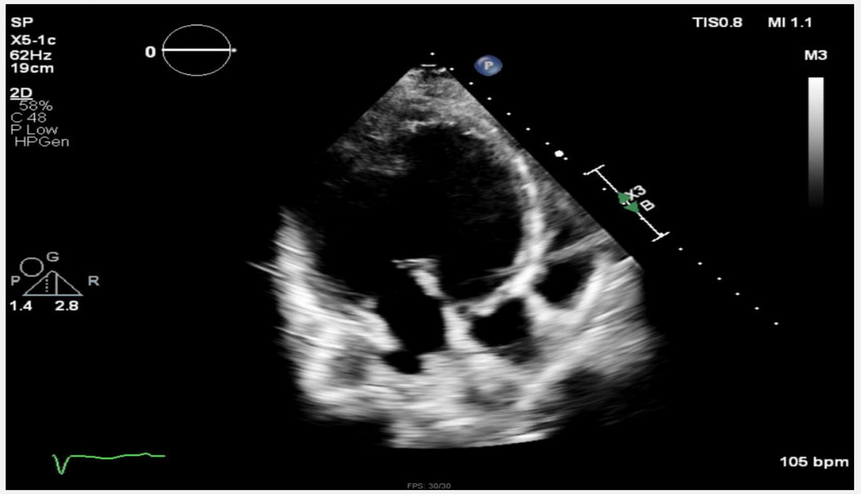


Image 2: TTE LV dilation

| ANESTHESIA PLAN & OUTCOME | |
|---|---|
| **Technique** | L3-L4 Labor Epidural, CEI 0.2% Ropivacaine |
| **Fluid** | Judicious IV fluids |
| **Monitoring** | NIBP, SpO2<br>IBP if hemodynamic unstable |
| **Vasopressor** | Phenylephrine preferred |
| **If C-Section** | CSE — titrated dose LA to T5 level. GA - RSI + video laryngoscope + RAMP position. Careful induction agent selection. |
| **Outcome** | SVD uncomplicated |
| **Post-delivery** | Enoxaparin restarted 24 h after epidural catheter removal. Follow up Cardiology consult. |

# Key Learning Points

## 1. Multidisciplinary Coordination

- Concurrent HFrEF, active PE/DVT, and morbid obesity demands immediate cardiology, MFM, and OB anesthesia collaboration from admission.

## 2. Neuraxial Anesthesia - Preferred Strategy

- Reduces hemodynamic stress, avoids failed intubation risk at BMI 49.6, lowers catecholamine surges, and decreases LV afterload.

## 3. Maintain SVR — Avoid Preload Excess

- HFrEF + grade 2 diastolic dysfunction + Global hypokinesia demand careful fluid titration to avoid acute pulmonary edema.

## 4. QTc Prolongation

- QTc 485 ms mandates protocol review (avoid ondansetron / ephedrine), electrolyte optimization (Mg,K), and avoidance of all QT-prolonging agents if possible.

## 5. Therapeutic LMWH Considerations

- Weight-based LMWH dosing is unreliable in morbid obesity. Anti-Xa monitoring is mandatory.
- Hold ≥ 24 hrs before neuraxial; restart ≥ 4 hr after catheter removal.

## 6. Postpartum Is the Highest-Risk Period

- Postpartum is the highest-risk window: uterine autotransfusion (~300–500 mL) can precipitate acute LV decompensation.
- Postpartum Cardiology follow-up


**References:**

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