

Continuous Spinal Anesthesia for Cesarean Delivery in a Parturient with Severe Cardiomyopathy, Pulmonary Hypertension, and Wolff–Parkinson–White Syndrome

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BACKGROUND

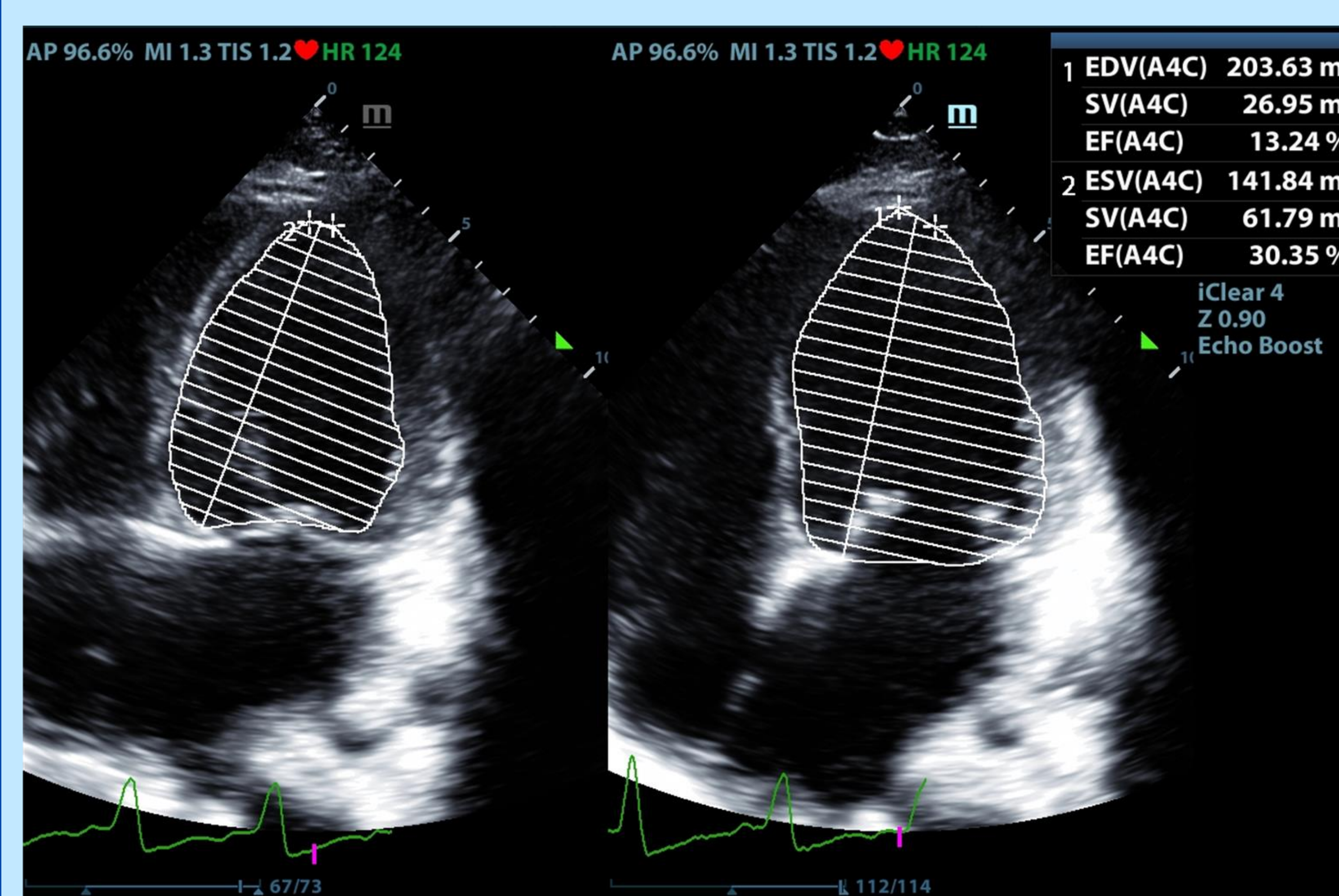
- Cardiovascular disease is recognized by the American Heart Association as a leading cause of pregnancy-related mortality in the United States.
- Among the spectrum of cardiovascular diseases in pregnancy, pulmonary hypertension (PH), confers one of the greatest risks, with an approximately 85-fold increase in maternal mortality compared with patients without PH.
- Administration of anesthesia to pregnant patients with severe cardiac comorbidities poses significant challenges and increases intraoperative risks.

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CASE PRESENTATION

- ❑ 20 year old G1 with Dichorionic-Diamniotic Twin Gestation at 28 WGA presented to the ED with chest pain, shortness of breath and palpitations.
- ❑ Cardiac history included dilated cardiomyopathy and Wolff-Parkinson-White syndrome status post failed ablation.
- ❑ Admitted to ICU due to decompensated HF.
- ❑ Patient was started on IV diuresis and Toprol dose was reduced to 12.5mg.
- ❑ After consultation with Cardiology, patient was scheduled for C- Section due to maternal worsening.



Transthoracic echocardiography (TTE), apical four-chamber view. LVEF 30–35%, severe eccentric LV hypertrophy, diastolic dysfunction, severe LA enlargement.

- ❑ Echo findings consistent with dilated cardiomyopathy, pulmonary hypertension (mPAP 32), severe MR, and elevated filling pressures.

Intraoperative Management:

- ❑ CSA to provide gradual onset sympathectomy and hemodynamic stability.
- ❑ Standard ASA monitoring, including an arterial catheter and external defibrillator pads.
- ❑ Intrathecal catheter placed with initial bolus of 2.5mg of 0.75% bupivacaine with 25µg of fentanyl
- ❑ Additional 1.5mg of 0.75% bupivacaine was given. Phenylephrine infusion to maintain SVR.
- ❑ Twins were delivered successfully and transferred to the neonatal ICU.
- ❑ Patient transferred to the MICU postoperatively without complication. Discharged of POD#6 with GDMT and LifeVest.

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TEACHING POINTS

☐ CSA advantages in high-risk cardiac patients:

- Incremental dosing permits controlled sympathectomy
- Stable preload and afterload
- Predictable, dense neuraxial block

☐ Compared to alternatives:

- Single-shot spinal: risk of abrupt hypotension
- Epidural: less reliable, slower onset
- General Anesthesia risk of:
 - Laryngoscopy-induced tachycardia
 - Arrhythmias
 - Myocardial depression

☐ Key management principles:

- Maintain SVR with phenylephrine infusion
- Prevent increased pulmonary vascular resistance
- Avoid tachycardia and arrhythmias due to WPW
 - Avoid AV nodal blockers which may increase conduction through accessory pathway
 - If unstable tachycardia: Synchronized Cardioversion is safe in pregnancy