

The Conundrum of Pulmonary Hypertension: Safe Delivery of Anesthesia When Pregnancy is Contraindicated

Andrew Hallmark, Mehran Ebadi-Tehrani
Department of Anesthesiology, University of Michigan, Ann Arbor, MI

Introduction

Pulmonary Hypertension in pregnancy is a mWHO class IV condition

- 7-28% mortality rate
- Termination is recommended when evaluated before viability
- Eisenmenger syndrome absolute contraindication to pregnancy

Modified WHO Class IV Conditions
Pulmonary arterial hypertension
Severe LV dysfunction
Previous peripartum cardiomyopathy with residual impairment of LV function
Severe left heart obstruction
Marfan syndrome with aortic dilation >45mm
Bicuspid aortic valve with aortic dilation >50mm

Patient Presentation

27 y.o. G3P0 at 19 w gestation presents to OSH with SOB, chest pain, and palpitations

- No past medical history
- Symptoms developed 3 years prior, worsened by pregnancy
- 3 L/min → 8 L/min oxygen requirement prior to transfer

Diagnostics

- TTE: mod-to-severe RV dysfunction, large ASD with right-to-left shunt
- RHC: elevated PA pressures (130/50), pre-capillary etiology
- Cardiac MRI: 2 cm secundum ASD, Q_p/Q_s 1.3-1.6

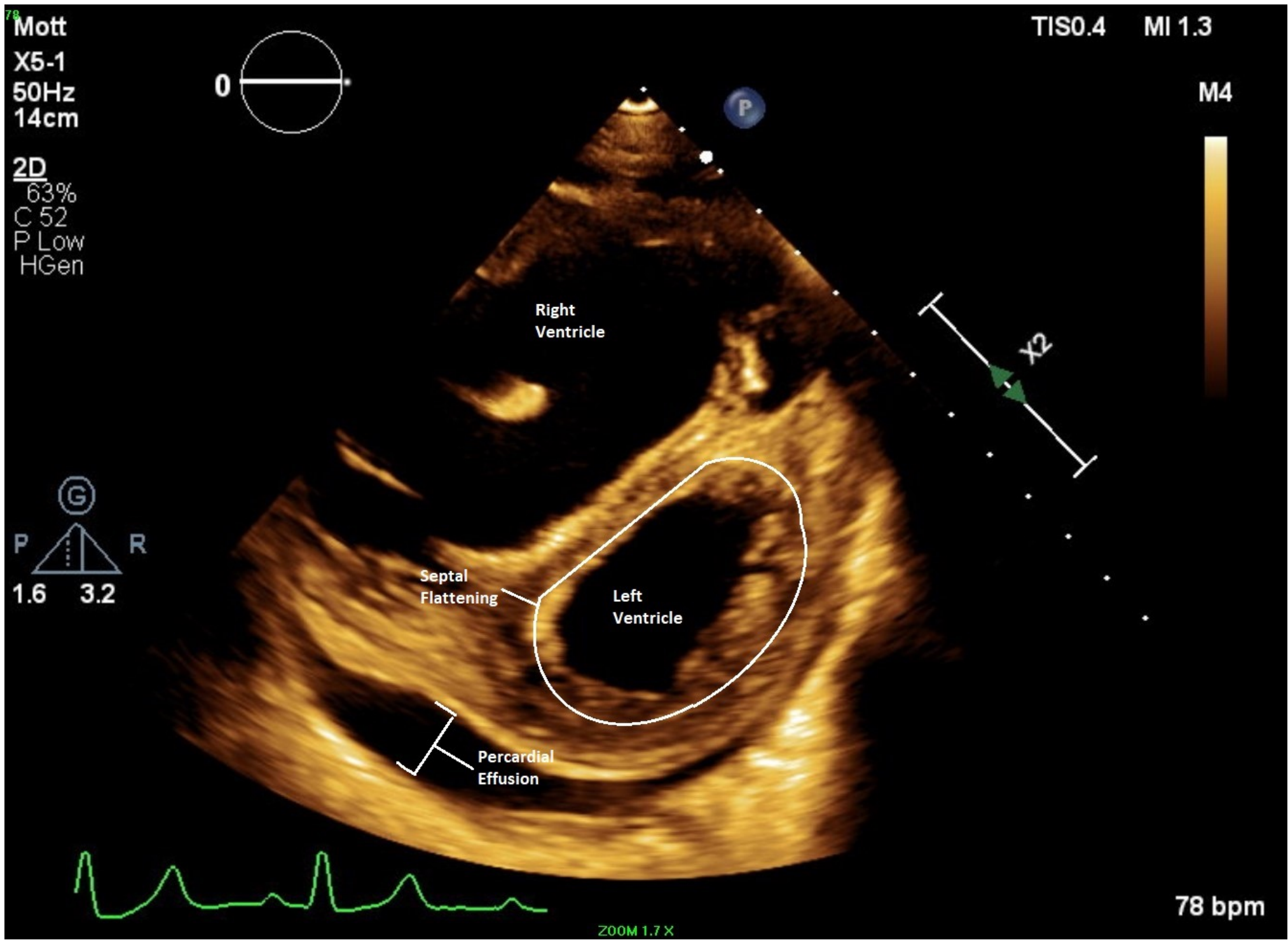


Figure 1. Parasternal short axis view showing dilated RV, septal flattening

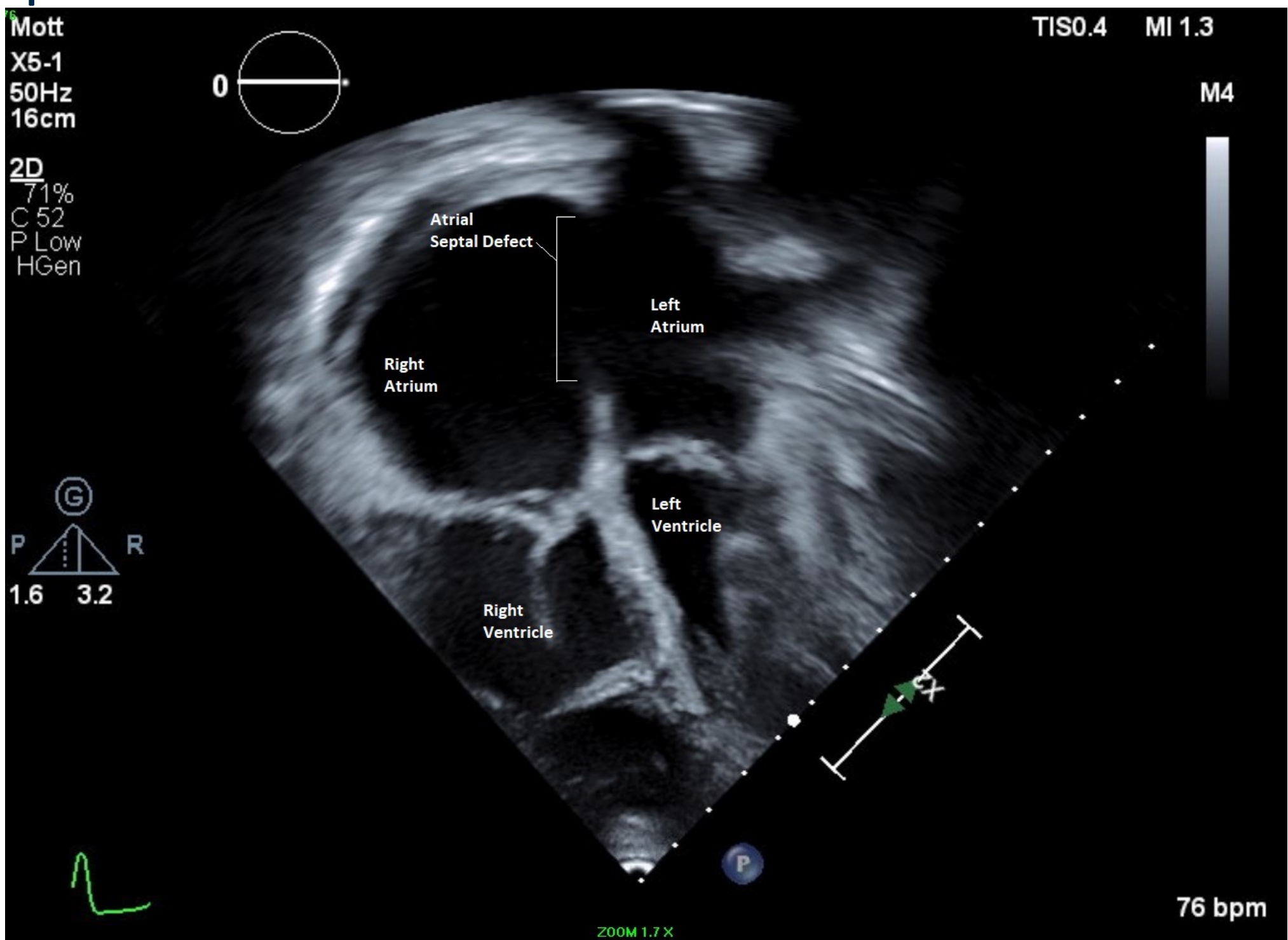


Figure 2. Apical four chamber view showing large ASD

van Hagen IM, Roos-Hesselink JW. (2020) Heart 106:1853–1861

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Anesthetic Management

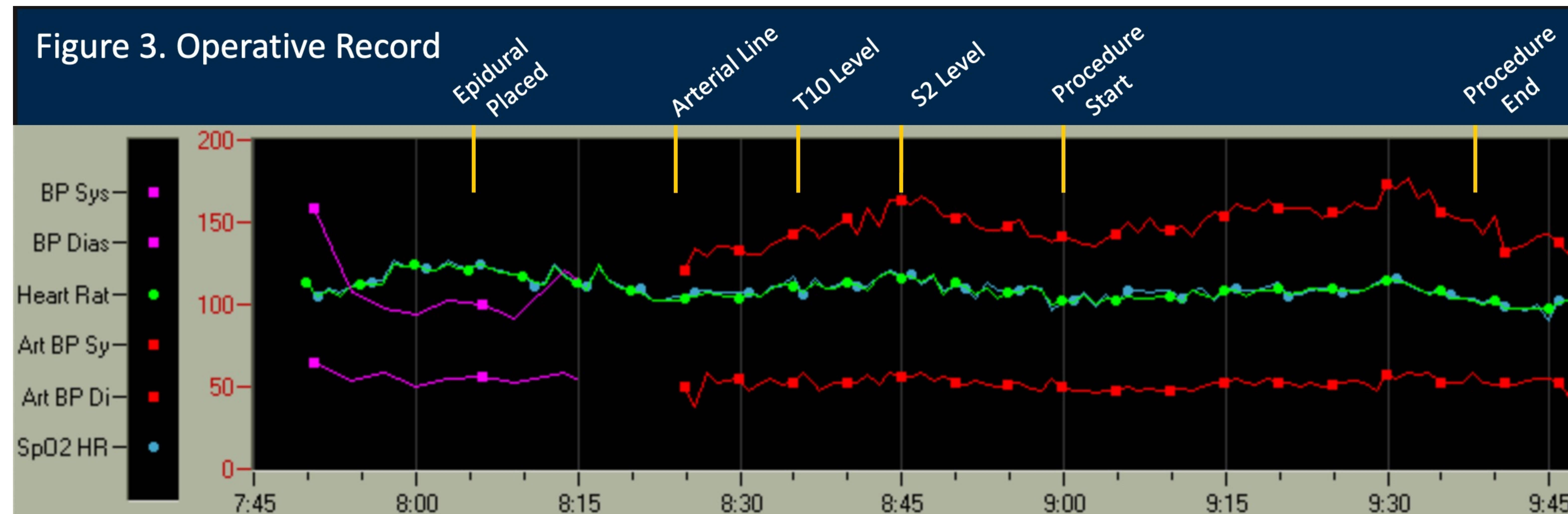
Admitted to Cardiac ICU

- Chose to pursue termination after thorough counseling
- Weaned to room air following 5 days of Sildenafil therapy
- Able to tolerate supine positioning for expected length of procedure

Laminaria placed under MAC in operating room

D&E

- 18 hours following Laminaria placement
- L2/L3 epidural placed, loss of resistance to saline
- Standard test dose negative
- T10 level after incremental doses of 2% lidocaine
- S2 level confirmed by surgeon following lithotomy positioning
- Uneventful procedure under mild sedation with low-dose propofol



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Discussion

mWHO Class IV patients should be cared for at Level IV Maternal Care center

- Medicine subspecialists available for preoperative optimization
- Surgical subspecialists available for mechanical support/transplant evaluation
- Anesthesiology subspecialists with expertise in obstetric and cardiac anesthesiology available for preoperative and operative management

Preoperative Evaluation

- Assessment of volume status and appropriate diuresis
- Pulmonary vasodilators
- Tolerate supine/lithotomy for duration of procedure while awake?

Anesthesia Considerations

- Slow-onset epidural *safe and preferred* for cardio-obstetric population
 - Loss of resistance to saline for patients with sepal defects
 - Invasive BP monitoring

Emergency Preparedness

- VA ECMO on standby
- Uterotonic plan
 - Prefer Oxytocin, Cytotec, Bakri balloon
 - Avoid Methergine, Hemabate

Meng, Arendt. (2021) Anesthesiology 135: 164–183