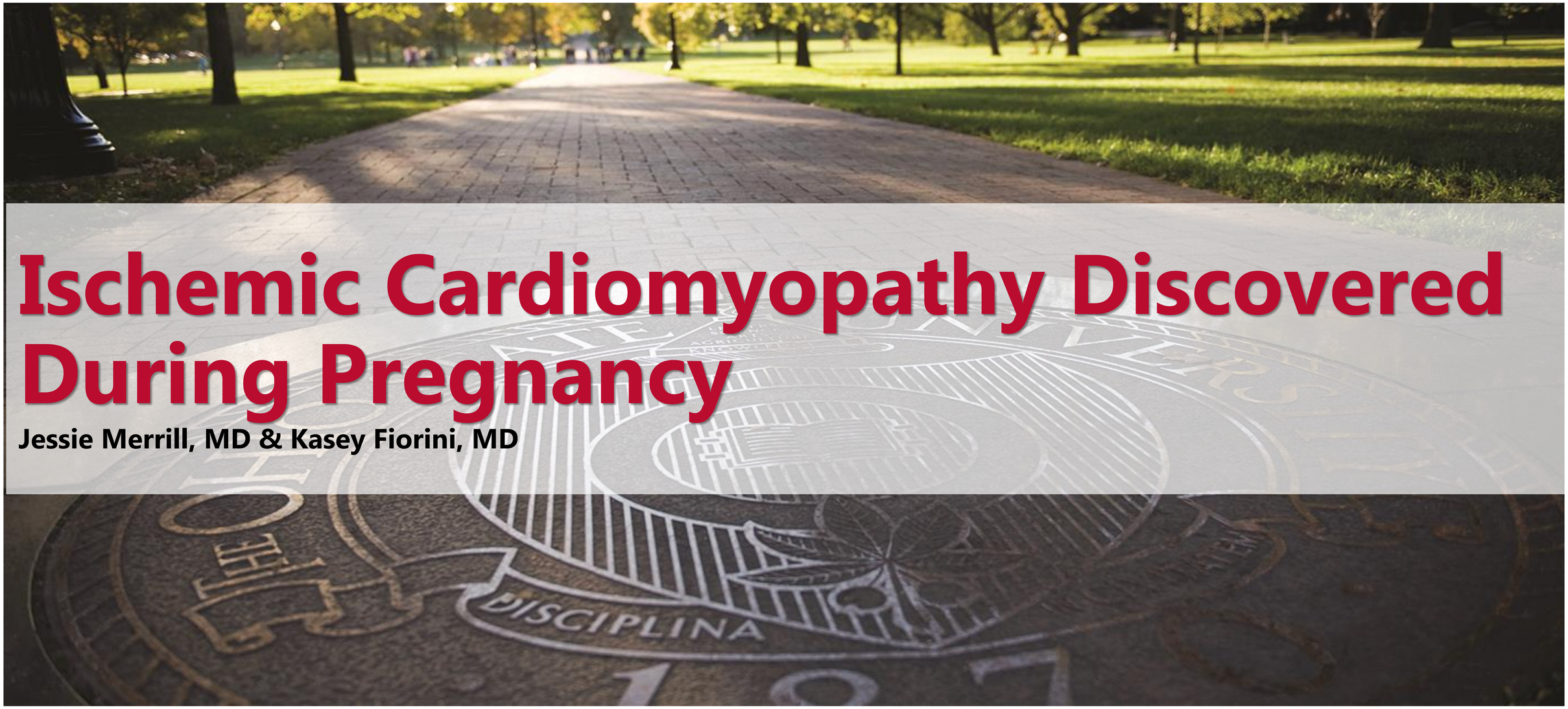

Ischemic Cardiomyopathy Discovered During Pregnancy

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Case Presentation

24w5d

43 year old G3P1 with PSA (meth, opioid) presented with CP, SOB, severe HTN and **left CVA** symptoms. TTE with **EF 20-25%**, global hypokinesis and **LV thrombus**. EKG with minimal ST changes V2/V3. Normal troponin. CT head with left parietal, frontal and occipital lobes. **Gross volume overload** on exam.

24w6d

Heparin gtt for anticoagulation. Labetalol/hydralzine for BP/HFrEF. Insulin gtt for hyperglycemia (BG 200-300s). Suboxone for opioid withdrawal. IV furosemide for diuresis.

25w3d-26w0

Polymorphic NSVT. Started on lidocaine gtt. After multidisciplinary conversation, LHC/RHC showed **severe CAD** (mLAD 100%, RCA 100%, D1 90%) and **cardiogenic shock** (elevated filling pressure, low cardiac index). Nitroprusside gtt for afterload reduction. Furosemide gtt started.

26w0d-26w3d

Persistent **delirium with c/f cyanide toxicity**. Persistent cardiogenic shock. Not candidate for advanced mechanical therapies given substance abuse.

26w5d

Repeat RHC with PAC left in situ. Persistent volume overload and cardiogenic shock. **Milrinone gtt** for inotropic support (previous held due to risk of ventricular ectopy). Able to wean nitroprusside with improvement in delirium.

27w0d

Repeat LTCS with BTL under GETA with intraop TEE, PAC and arterial line. Remained intubated postop.

POD 1-3

Extubated POD1. Started on GDMT. POD3 all vasoactive meds weaned. No longer in cardiogenic shock. **No further decompensation postpartum**. MRSA bacteremia.

Discharge & Beyond

Left AMA POD 12. Minimal follow-up. Continues to be on GDMT with life vest.

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SOAP Meeting 2023

Discussion Points

For patients with undifferentiated peripartum heart failure, one must consider ischemic cardiomyopathy as possible etiology, especially in patients with multiple risk factors.

- **RF:** tobacco use, DM, HTN, meth/cocaine use, obesity, AMA, hypertriglyceridemia, family history of MI <60 years old
- **Labs/Studies:** q waves/ST changes on EKG, regional wall motion changes, elevated troponin, polymorphic VT
- **Prevalence:** 1:10,000 (ischemic heart disease) 7.5:100,000 (risk of MI in pregnancy)[1]

Physiologic changes of pregnancy can exacerbate underlying cardiac dysfunction.

- **Increased myocardial O2 demand:** ↑ cardiac output ↑ circulating blood volume ↑ oxygen consumption ↑ HR
- maximally increased ~ 34 weeks

Pregnant patients in cardiogenic shock require careful multidisciplinary management.

- **Delivery planning:**
  - **Key Players:** cardiology (EP, heart failure, cardio-obstetrics), CT surgery, MFM, obstetric & cardiac anesthesia, NICU, ICU & L&D nursing
  - **Key Decisions:** mode & timing of delivery, location of delivery and postop recovery, hemodynamic monitoring (TEE, PAC, arterial line, cardiac output)
- **Early discussion of candidacy for advanced therapies:** ECMO, LVAD, heart transplant

For patients with ischemic cardiomyopathy, the postpartum period deserves equal consideration.

- **Highest risk of cardiac decompensation:** ↑ cardiac output ↑ SVR
- **Revascularization:** PCI considered safe during pregnancy, CABG requiring CPB usually deferred until post partum given high risk of fetal demise (20-40%)[2]
- **Breast-feeding:** ARNi (*Entresto*: sacubitril/valsartan) contraindicated, most GDMT safe for lactation but may require special monitoring of infant
- **Family planning**

[1]Davies GAL, Herbert WNP. Ischemic heart disease and cardiomyopathy in pregnancy. J Obstet Gynaecol Can. 2007 Jul;29(7):575-579
[2]van Steenbergen GJ, Tsang QHY, van der Heijden OWH, Vart P, Rodwell L, Roos-Hesselink JW, van Kimmenade RRJ, Li WWL, Verhagen AFTM. Timing of cardiac surgery during pregnancy: a patient-level meta-analysis. Eur Heart J. 2022 Aug 1;43(29):2801-2811