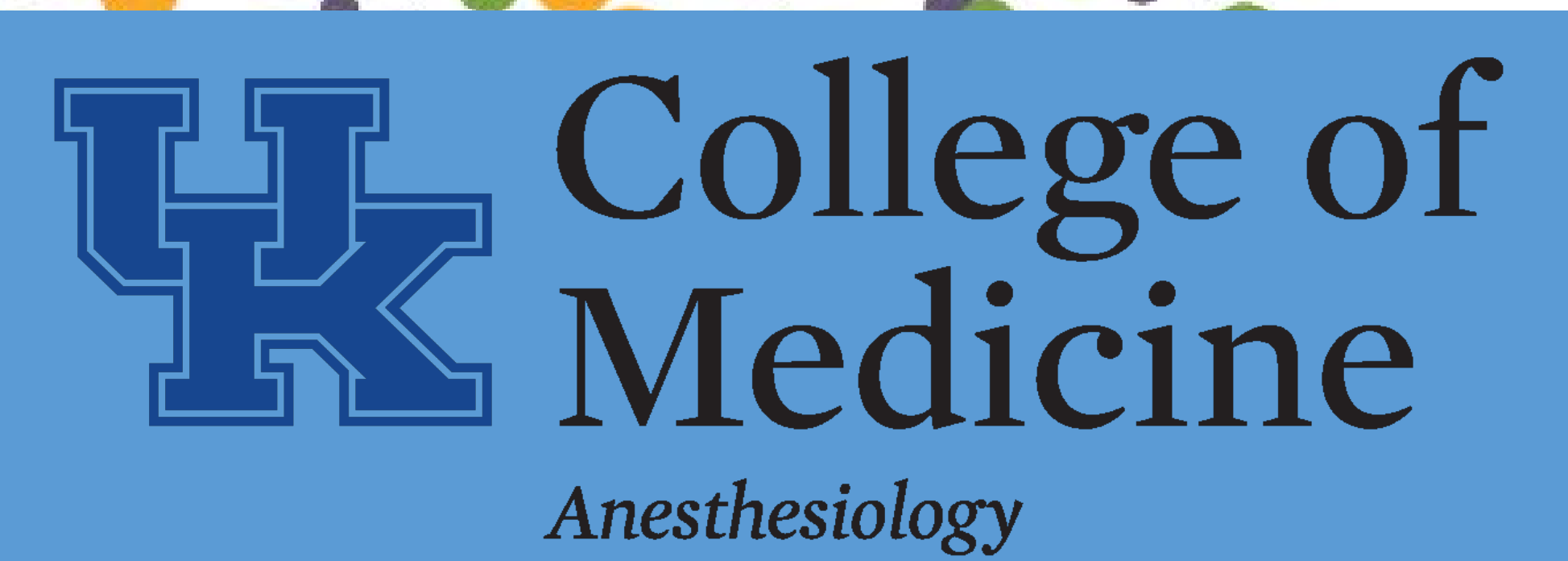




Cardiovascular Collapse During Urgent Cesarean Delivery: A Case Report

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The Case:

- 36 yo G6P3023 at 32.4 weeks gestation
- Obstetric History: SVD x 3 (one c/b preeclampsia), elective abortion x 1, spontaneous abortion with D&C x 1
- Past Medical History: obesity (BMI 30), chronic hypertension, anxiety/panic attacks
- Past Surgical History: D&C
- Family History: after surgery patient reported that her mother had died of sudden cardiac arrest at age 31
- Current pregnancy: c/b di-di twins, advanced maternal age, cHTN. Monitored with weekly NSTs.
- Patient sent to hospital for fetal monitoring, BP management, and tocolysis due to late decelerations on NST exam.
- On hospital day 8, due to worsening contractions and late decelerations with increasing depth, duration and frequency, decision made to proceed with urgent cesarean delivery.

Intraoperative Events and Beyond



- Upon arrival to OR, patient noted to be tachycardic to 140s-160s. IVF bolus initiated. Pt reported severe anxiety over fetal well being. Neuraxial anesthesia performed in lateral position due to FHR decelerations when patient upright. Lumbar epidural catheter placed uneventfully. Negative aspiration and test dose. 2% lidocaine with 1:200K epinephrine administered slowly with appropriately rising sensory level. Normotensive despite persistent tachycardia. BP 120-135/60-80.
- Patient reported feeling “funny.” She denied nausea, lightheadedness, dizziness, and perioral tingling. She then became unresponsive and developed facial twitching and myoclonus of her extremities. NIBP 41/23.
- OB team called to scrub stat. Called anesthesia STAT. Phenylephrine and ephedrine administered. BMV performed. Administered intralipid given apparent aura and myoclonus. Acquired additional venous and arterial access. While all these interventions ongoing, pt noted to be pulseless (PEA). ACLS with chest compressions performed. “Splash” skin prep performed. Uterine incision within two minutes of LOC, delivery of both infants within five minutes. Infants vigorous; taken to NICU for prematurity.
- Upon delivery of twins, patient suddenly regained consciousness. Remained calm, comfortable and hemodynamically stable for remainder of case, though maintained on phenylephrine infusion from time of epidural dosing until closing of fascia. HR 80s-90s, BP 120-135/60-80. EBL 500ml. Taken to ICU postoperatively for monitoring.
- Postop ECHO: LVEF 40-50%, LV longitudinal strain, septal akinesis, “location of wall motion abnormality atypical for CAD, consider stress CM.” ECG normal sinus rhythm with poor r wave progression. Labs relatively unremarkable beyond hyperlipidemia and mild elevation of troponin.
- 6 week followup TTE: LVEF 50%, mild global hypokinesis, increased apical trabeculations concerning for possible noncompaction CM. 14 week follow up cardiac MRI and echo showed normal cardiac function (LVEF 60%, no wall motion abnormalities).
- Cardiology team determined most likely etiology of CV collapse: acute cardiovascular collapse 2/2 stress CM.

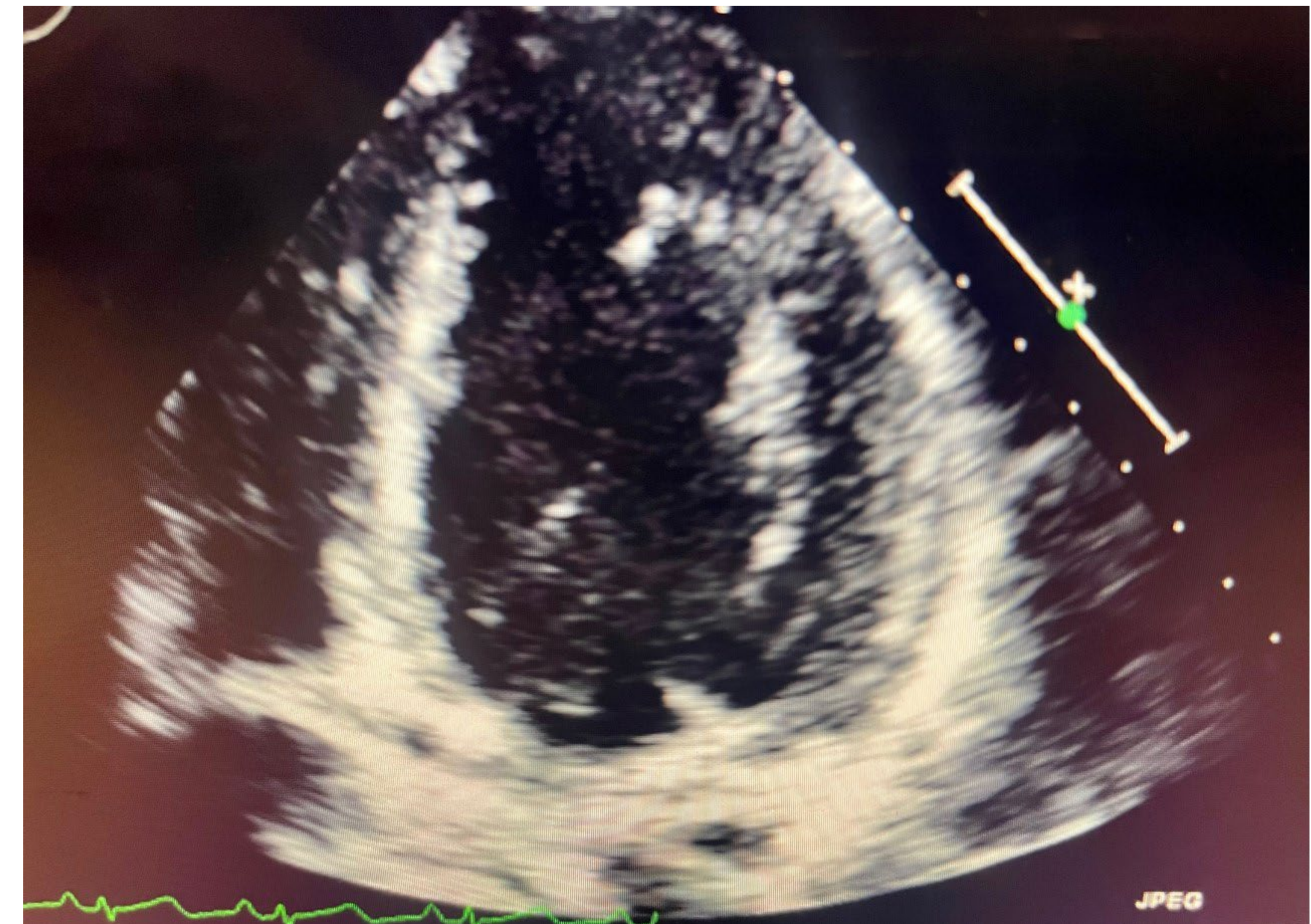
Discussion and References



- Stress cardiomyopathy aka takotsubo CM, broken heart syndrome, or stress induced CM
 - More common in women and elderly patients. Can occur in pregnancy although less common than other types of CM.
 - Unclear etiology: possibly related to excessive catecholamines vs microvascular dysfunction vs coronary artery vasospasm. Leads to ballooned LV- “octopus trap”
 - Sxs: acute chest pain, dyspnea, arrhythmias, syncope, LV systolic dysfunction, heart failure
 - Risk factors in parturients: advanced maternal age, multiple gestations, preterm delivery, cesarean delivery, emotional or physical stress (all present in this patient)
 - Typically full recovery within days up to 3 months
 - Supportive treatment in acute event. Best to perform POCUS TTE to evaluate for LVOT obstruction as management may differ dependent on this. Reverse inciting factors, $\pm$ fluids, $\pm$ inotropes
 - This pt’s CM most likely 2/2 stress CM given risk factors, presentation, rapid resolution of sxs after removal of instigating factors. Exacerbated by peripheral vasodilation from epidural dosing, tachycardia related to anxiety, and aortocaval compression.
- Noncompaction CM: thin, compacted epicardium that surrounds spongy trabecular endocardium. Hereditary, due to failure of embryonic compaction of individual cardiac layers. LV trabeculation sometimes increases in pregnancy in absence of disease. Predisposes patients to arrhythmias, heart failure and thromboembolic events.
- Peripartum CM: the most common type of CM in pregnancy. Usually occurs between third trimester to up to five months PP. Risk factors include HTN, obesity, toxin/drug exposure, multiparity, age >30, multiple gestations, preeclampsia, long term oral tocolysis, African American ethnicity, malnutrition.
- Take away: sudden CV collapse during a cesarean delivery has a broad differential. Thorough history, physical, and consideration of risk factors is important. POCUS skills beneficial in determining treatment pathway.

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Remember for ACLS in pregnancy:

- Relieve aortocaval compression with manual LUD
- Perform chest compressions higher on sternum
- Stop Mg and give calcium if indicated.
- Consider airway edema and reduced FRC
- If no ROSC within 5 min, perform perimortem C/S