MMRIA MOCK CASE: CARDIOMYOPATHY CASE NARRATIVE

She died with cause of death listed on the death certificate as cardiogenic shock secondary to peripartum cardiomyopathy due to non-ST elevated myocardial infarction (NSTEMI), six weeks after delivery. Medical history was significant for developing heart failure and asthma after her delivery in 2005. Pre-pregnancy body mass index (BMI) was 33.8. Her family medical history was significant for having a brother who passed away from cardiac disease at age 19.

Entry into prenatal care was at 36 weeks with four visits at a hospital clinic with an obstetrician (OB). Prenatal history was significant for late entry into care and anemia. There were no referrals made during the prenatal period. This sentinel pregnancy was her 6th pregnancy. She had a past OB history of 4 preterm births and one first trimester termination of pregnancy. There were no noted health events prior to delivery. She presented to hospital at 38.3 weeks' gestation for induction/augmentation of labor. On admission, she requested that her sister adopt infant and a social service consult was made.

Delivery was by an OB, method was spontaneous vaginal delivery (SVD) with epidural anesthesia. No obstetric complications noted. Infant was 38 weeks' gestation and weighed 7 lbs., 2 oz., Apgar scores were 9 and 9. Day after delivery, she developed dry cough, chest x-ray (CXR) was negative. Social service consult completed for adoption request but due to potential for lengthy paternity legal issues, adoption plans were to be formalized after discharge. Mother and infant were discharged to home.

She had scheduled early postpartum visit at 2 weeks. At visit, she complained of (c/o) being tired and still having pain. Edema noted in lower extremities, and she was encouraged to ambulate more and quit smoking. Advised to continue with Motrin every 6 hours for pain and to call if pain does not go away.

Two days later, she presented to emergency department (ED) (same as delivery facility) with complaints of right-sided chest pain and shortness of breath x 2 hours. Studies negative for pulmonary embolus. CXR and computed tomography (CT) scan noted cardiomegaly consistent with postpartum state. EKG noted sinus tachycardia. Pain relieved with narcotics, and she was discharged home with instructions to follow up with her primary care physician (PCP).

Three weeks later, she presented to a different ED c/o shortness of breath (SOB) and chest pain. She was diagnosed with NSTEMI and cardiogenic shock and admitted to intensive care unit (ICU). Seven hours after admission, she was transferred out to higher level cardiac care. Cardiac catheterization was completed. Cardiac support given but she died seven days after admission. The case was not referred to the medical examiner (ME) and no autopsy was performed.

Prenatal Care

Screening was performed for substance use and was negative. Screening was performed for domestic violence and was positive. She had restraining order against father of baby (FOB).

The pregnancy was complicated by late entry into care and anemia. There were no referrals during the prenatal period. Diagnostic procedures during pregnancy included ultrasound at first visit for dates.

Abnormal labs during pregnancy include hemoglobin (Hgb) 10.1 and hematocrit (HCT) 31. No abnormal vital signs noted during pregnancy. During the sentinel pregnancy she was on prenatal vitamins. At routine visit at 38 weeks she was noted to be dilated and sent to labor and delivery (L&D) for induction of labor.

Labor and Delivery

On admission, she requested that infant be adopted to her sister. Admission screening noted smoker, positive domestic violence with restraining order against FOB, low hemorrhagic risk, low risk deep venous thromboses (DVTs). She had Pitocin induction for advanced dilatation with early labor delivering four hours after admission. She delivered via spontaneous vaginal delivery by an OB under epidural at a Level 1 hospital. Medications administered during labor and delivery or postpartum included Pitocin for labor augmentation. Infant weighed 7 lbs., 2 oz. with Apgars of 9 and 9.

Late decelerations were noted and desaturation during labor resolving with use of a face mask postpartum period significant for dry cough. Due to remote history heart failure/asthma, CXR ordered and was negative per radiologist. Social service consult completed with translator line re: adoption request. Process to be completed after discharge as adoption dependent on FOB legal release of paternity. Community resource information given. She was discharged home on day two. Vitals signs at discharge included T 36.5, heart rate (HR) 90, respiratory rate (RR) 18, and blood pressure (BP) 113/79. She was instructed to follow up (f/up) with OB in two weeks. Discharge education included warning signs postpartum: fever, extreme sadness, breast care.

Postpartum Care

She presented for scheduled postpartum visit two weeks after delivery. Weight was 195 pounds. BP 110/80, HR 98, RR 18. Edema noted in extremities. Per sister as interpreter, she c/o being very tired and still c/o pain. Told to continue Motrin and call if pain does not go away. States still smoking. Encouraged to quit and ambulate more. Family planning discussed.

ER Visits and Hospitalizations #1

Two days after postpartum visit with OB she presented to Level 1 facility (same as delivery facility) with right-sided chest pain radiating down right arm and shortness of breath for two hours. Her weight was 195 pounds, T 96.7, BP 121/76, HR 109, RR 16, and oxygen saturation (sat) 96% on room air. Medical history noted as negative except for history smoker x 15 years. Social history significant for English as a second language with sister acting as translator. She had +1 edema in extremities and noted on admission as appearing “distressed.” CT scan was negative for pulmonary embolus. Her pain 10/10 increased with deep breaths. She was given oral Vicodin and then Morphine IV after she vomited. CXR significant for cardiomegaly which radiologist considered “normal for her postpartum state.” Steroids and Albuterol treatment given for her respiratory distress. (**Abstractor note:** No documentation found that her OB was consulted regarding her presentation). Her sister cared for her newborn in ED while all procedures were done. Three hours after arrival, she requested to go home as she felt better. Vital signs (VS) at discharge were T 97.8, HR 90, RR 16, sat 98% on room air. She was considered stable for discharge and instructed to follow up with her PCP for any issues.

ER Visits and Hospitalizations #2

Six weeks postpartum, she presented via family car to the ED at a Level 3 trauma center. She was noted as self-pay. Her chief complaint was SOB, cough, congestion, and chest pain (10/10). She stated having symptoms for three weeks and was seen in another ED last week for same symptoms that have not improved. Chief complaints include pain treated with Motrin for with little relief, can't lie down to sleep, and coughing all night. C/o chest pressure with nausea and vomiting.

Her weight on admission was 199 and her presenting vital signs were: T 98, BP 84/64, , HR 94, RR 26, O2 sat 98% on non-re-breather mask (NRBM). In nurses' admission notation, social history deferred screening due to language barrier and patient medical condition.

Physical examination on admission found:
CARDIOVASCULAR: systolic murmur, (regular rate and rhythm (RRR)
RESPIRATORY: few crackles at bilateral lung bases, no retractions, and +3 edema lower extremities bilaterally.

Labs performed included complete blood count (CBC), comprehensive metabolic panel (CMP), liver enzymes, cardiac enzymes and urine drug screen with some abnormal findings noted including cardiac enzymes. Diagnostic tests performed included with the following abnormal findings noted: electrocardiogram (EKG): NSTEMI, CXR: cardiomegaly, bases with fluid (difficult to read due to body habitus), CAT scan chest negative for pulmonary embolism (PE), echocardiogram (ECHO): ejection fraction (EF) 20-30% severe mitral regurgitation, annulus is dilated, severe tricuspid regurgitation, dilated and hypokinetic right ventricle. Her diagnosis was severe postpartum cardiomyopathy/congestive heart failure (CHF) and 2 ½ hours later she was admitted to ICU for stabilization and consideration for transfer to tertiary care center for possible cardiac cath/heart transplant work up. Intermittent runs of ventricular tachycardia were noted. She was started on cardiac medications and given diuretics.

ER Visits and Hospitalizations: Terminal Event

Seven hours after admission to ICU, she was ground-transported to higher level of care at a regional trauma center for cardiac catheterization and transplant evaluation. Vital Signs on Transfer: T 97.1-98, BP 100/72, RR 24, Oxygen saturation 93%. Cardiac catheterization was done and treatment options were considered limited due to her small common femoral arteries compromising her distal circulation, history of ventricular tachycardia, and concerns for her overall long-term ability for compliance with medical therapy given the advanced state of disease. After intra-aortic balloon pump placement, she experienced drop in hemoglobin. CT abdominal scan negative for bleeding in pelvis or lungs. She developed pneumonia and started on antibiotics. Her sister was unable to stay with her due to childcare issues. Seven days after admission she had a respiratory arrest requiring intubation and was pronounced same day. (**Abstractor Note:** No records available regarding sequence of events leading up to demise or family contact after her death.) The case was not reported to the medical examiner/coroner. Autopsy was not performed.

Demographics
She was 30 years old, Black-Haitian (born in Haiti), homemaker with a high school education. She had Medicaid insurance.

Social Determinants of Health
Life course issues significant for chronic smoker, single mom (living with sister), separated from husband (with restraining order against him), Creole speaking requiring a translator, desire to place infant for adoption with sister.