Abstract # 243

**Cardiac Arrest during Cesarean Delivery – To “Air” is Human!**

Abstract Type: Case Report/Case Series  
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**Introduction:** Venous air embolism (VAE) is entrapment of air into the venous system producing signs and symptoms of obstructed pulmonary artery blood flow. The incidence during cesarean delivery ranges from 10-97% depending on surgical position or diagnostic tools. (1) Symptoms include tachypnea, chest pain, and gasping. We present a case of cardiac arrest presumably due to VAE in a morbidly obese parturient undergoing cesarean delivery.

**Case Report:** A 38 y/o African American female with past medical history of hypertension, DM II, morbid obesity (BMI 51), asthma and depression, presented in labor and an epidural was placed. She developed a non-reassuring FHR tracing with late decelerations and a cesarean delivery was performed. Following delivery of the fetus, the uterus was exteriorized for closure of the hysterotomy. Four minutes after the uterus was returned to the abdomen, the patient became bradycardic (HR 28), and progressed to asystole. Chest compressions were started and endotracheal intubation was difficult but successful. Additional IV access and a radial arterial line were secured. Chemical and mechanical resuscitation were successful after 15 minutes. She was discharged to home ten days after delivery.

**Discussion:** Cardiac arrest during cesarean section is rare; knowing the etiology may aid the resuscitative efforts. The differential includes VAE, PE, AFE, local anesthetic toxicity, acute MI, total spinal, and anaphylaxis. VAE is well documented during cesarean delivery, but is responsible for only 1% of all maternal deaths. (2) Left lateral tilt may cause a subatmospheric venous pressure gradient between the right atrium and the uterine incision. (3) Trendelenberg position and exteriorization of the uterus during closure augment this gradient, (4) bringing the open venous sinuses even higher than the heart. We hypothesize that trendelenberg position, exteriorization of the uterus, and an already large pannus contributed to entrapment of air in our patient. Returning the uterus to the abdomen forced the air into the right heart and pulmonary circulation. External cardiac compressions may have broken up locked air aiding its dissipation for a successful resuscitation.

VAE may be diagnosed using precordial Doppler monitoring, TEE, or by aspirating air from a right heart catheter. Goals of management are prevention of further gas entry (optimum patient positioning, flooding surgical site with saline), removal of entrained gas, and aggressive resuscitation.

Our patient had no lasting sequellae, unlike PE, AFE, or acute MI. Oxygenation after resuscitation was normal and she did not develop DIC or heart failure. Although local anesthetic toxicity or total spinal are in the differential, she had a working epidural without evidence of intravascular or intrathecal migration.

**References:**  