

Anesthetic Management of A Parturient with Aortic Aneurysm: A Case Report

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Introduction

- Aortic dissection is the third most common cause of cardiovascular death in pregnancy. Aortic dissection occurs in 4 to 5 per 1,000,000 pregnancies.
- We present a 27-year-old pregnant female with a history of methamphetamine use and hypertension who delivered via cesarean section at 27 weeks, 4 days gestation due to uncontrolled hypertension with superimposed pre-eclampsia with severe features.
- Prior to delivery, she presented as a transfer for further surgical assessment due to a 4.5 cm thoracic ascending aortic aneurysm discovered on transthoracic echocardiogram (TTE) at an outside hospital. A cardiac magnetic resonance imaging (MRI) scan obtained after the TTE showed a non-aneurysmal 4.2 cm thoracic aorta.



Peripartum Course

- She was committed for urgent cesarean delivery, in the setting of worsening volume overload and pulmonary edema, rising brain natriuretic peptide, worsening serum creatinine, declining oxygen saturations, and blunting of the costophrenic angles on chest radiograph. She received a low-dose combined spinal epidural for anesthesia. Surgery was uneventful. She received oxytocin for uterotonics.
- On post-operative day 9, after discharge, she developed acute substernal chest pain, and her vital signs showed uncontrolled hypertension. CT angiogram showed a dissecting flap of the proximal ascending thoracic aorta with origin at the aortic root and extension to the brachiocephalic artery. She was taken emergently to the operating room with cardiothoracic surgery for ascending aortic arch replacement.
- She was then taken to the intensive care unit intubated but without vasopressor support. On post-operative day 2, she was successfully extubated. The remainder of her post-operative course was uneventful.

Discussion

- Circulatory changes, as well as changes in the biochemical structural of connective tissues, help explain the increased incidence of aortic dissection in pregnancy. A dissection is most likely to occur in the third trimester (50%) or in the early postpartum period (33%).
- Outside of heritable thoracic aortic disease and congenital heart disease, risk factors for aortic dilation include hypertension and advance maternal age.
- Pregnancy increases the risk of aortic dissection by 4 to 25 times. In patients with an ascending aorta less than 40 mm, a vaginal delivery is safe. In patients with an ascending aorta greater than 45 mm, a cesarean delivery is recommended. For patients with an ascending aorta size between 40 and 45 mm, choice of assisted second stage vaginal delivery or cesarean delivery is available.
- Decreasing aortic wall stress is primary preventative goal. Beta-blockers are first line therapy to decrease shear stress to the aorta and decrease the rate of aneurysmal expansion.

References:

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