

# Neuraxial Anesthesia for Dilation and Curettage in a Patient with Fontan Circulation



Robin Pham, DO; Joo Hyun Shin, MD; Hannah Burcham, MD

Department of Anesthesiology and Pain Management, UT Southwestern Medical Center, Dallas, TX

UT Southwestern  
Medical Center



## INTRODUCTION

- **Congenital heart defects (CHD)** are the most common birth defects.
- Incidence of CHD estimated to be 81 out of every 10,000 births.
- Over the last 30 years, survival to adulthood has improved to rates of 85% due to advances in surgical management.
- As survival rates improved, more patients with CHD reach reproductive age.
- **Fontan circulation** is type of palliation seen in patients with single ventricle defect.

## CASE PRESENTATION

19-year-old female G2P0A1 presented to the hospital with a first trimester demise requiring D&C. OB anesthesiology and cardiology consulted for pre-op evaluation.

### PRE-OPERATIVE

Past medical history:

- Complex CHD (inlet left ventricle, double outlet right ventricle, subaortic stenosis, and multiple VSD's)
- S/p patch repair for her coarctation of aorta; Norwood, Glenn, and Fontan procedures; and mitral valve repair.
- TTE: LVEF 51%, fenestrated lateral tunnel Fontan with right-to-left flow, and no significant valvular abnormalities.

- Chronic dyspnea on exertion with baseline saturations at 88-94%

### INTRAOPERATIVE

- Pre-procedure arterial line placed.
- Bolus of IV fluids given with in-line air filter.
- **Combined spinal-epidural performed.** Phenylephrine infusion started preemptively.
- Intrathecal dose (0.8 ml 0.75% bupivacaine, 20 mcg fentanyl), which did not achieve adequate surgical block.
- 15 ml of 2% lidocaine given through the epidural with a successful block.

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## CASE PRESENTATION

### INTRAOPERATIVE (CONT.)

- Phenylephrine infusion was discontinued prior to the surgical start as the patient remained hemodynamically stable.
- Spontaneous ventilation was maintained.
- The case ended without any complications.

## DISCUSSION

- In **Fontan circulation**, the right ventricle becomes the systemic ventricle, taking the role of the LV to become the main “pump” by delivering oxygenated blood to the rest of the body. Venous blood from the SVC and IVC are directly connected to the pulmonary circulation.
- **Pulmonary circulation is driven by passive venous return, which is dependent on adequate preload and low pulmonary vascular resistance.**
- These patients are high-risk, especially during pregnancy, and management requires multidisciplinary planning and communication.

