Obstetric Management of a Patient with Situs Inversus and Fontan Physiology

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Background

Situs Inversus

- 1 in 10,000 live births¹
- 3-4% of these births are associated with congenital heart defects¹

Fontan Procedure and Physiology

- Performed to manage complex congenital heart defects (hypoplastic left heart, tricuspid atresia, double outlet right ventricle)
- Redirects venous blood directly to pulmonary arteries - results in passive pulmonary blood flow





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Case

21-year-old female, G1P0 with situs inversus totalis and history of DORV s/p Fontan procedure presenting at 37w6d for induction of labor, ultimately requiring urgent cesarean delivery for prolonged fetal deceleration

Preop	Intraop	Postop
 OB anesthesia consult 1 week prior to induction POCUS to assess volume status Arterial line placed prior to epidural placement, 10cc of 0.0625% bupivacaine + fentanyl 2mcg/mL given as bolus 	 Satisfactory level with 15 mL of 2% lidocaine with epi Satisfactory uterine tone and standard blood loss. Received prophylactic methylergonovine 	• Monitored in CCU prior to being discharged home on POD3



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Teaching Points

Situs Inversus:

 Makes routine things slightly trickier assessing IVC with POCUS, EKG placement, uterine displacement²

Fontan Physiology:

- Patients are preload-dependent; maintaining venous return is crucial
- Epidural anesthesia is preferred for its ability to allow gradual titration, minimizing hemodynamic fluctuations - consider arterial line and/or central line³
- Positive pressure ventilation and valsalva maneuvers during labor can reduce preload and cause dramatic drop in cardiac output³

Multidisciplinary Approach:

Collaboration among obstetricians, anesthesiologists, cardiologists, and neonatologists is essential for optimal outcomes in patients with complex heart disease

3. McCabe M, An N, Aboulhosn J, et al. Anesthetic management for the peripartum care of women with Fontan physiology. International Journal of Obstetric Anesthesia. 2021;48

^{2.} Gávai M, Hupuczi P, Berkes E, et al. Spinal anesthesia for cesarean section in a woman with Kartagener's syndrome and a twin pregnancy. International Journal of Obstetric Anesthesia. 2007;16(3):284-287.