

Anesthetic Management of an Obstetric Patient with Severe Right Ventricular Outflow Tract Obstruction after Truncus Arteriosus Repair Undergoing an Elective Cesarean Section

Nour El Hage Chehade MD, Adeeb Oweidat MD, Chelsea Skinner MD, Monica Cheriyan MD, MPH, Marco Maurtua MD

Department of Anesthesiology and Pain Management , Cleveland Clinic Foundation

Introduction

Right ventricular outflow tract obstruction (RVOT) is the most common late complication after Truncus Arteriosus (TA) repair . The anesthetic management of a pregnant patient who required an elective cesarean section suffering from severe RVOT obstruction remains controversial and inconclusive.

Case Presentation

- 25-year-old G3P2 at 37 weeks of gestation admitted for elective scheduled cesarean section
- Past cardiac history of TA repaired early in life.
 - followed by serial homograft replacement procedures at the age of 4 months and 7 years due to right atrial-pulmonary artery (RA-PA) conduit stenosis
 - Required Melody valve placement with stent of the conduit at the age of 20 for restenosis
 - Past medical history : gestational hypertension, type II diabetes mellitus, and morbid obesity (BMI 52).

TEE third Trimester

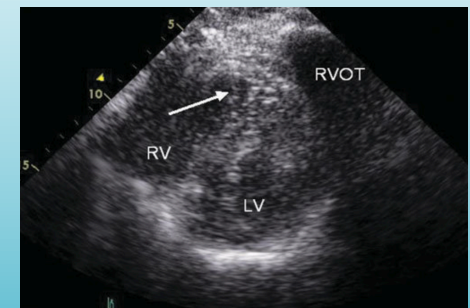


Figure. 1 showing the following:

- Status post Melody valve and RVOT stent 12/2016. Severe stenosis, exact level could not be determined. Vmax 4.3 m/s for peak / mean 75 / 44mmHg
- Preserved EF

Anesthetic Management of an Obstetric Patient with Severe Right Ventricular Outflow Tract Obstruction after Truncus Arteriosus Repair Undergoing an Elective Cesarean Section

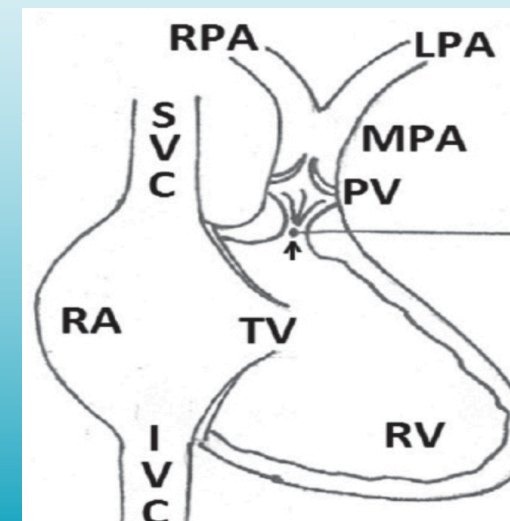
Nour El Hage Chehade MD, Adeeb Oweidat MD, Chelsea Skinner MD, Monica Cheriyan MD, MPH, Marco Maurtua MD

Department of Anesthesiology and Pain Management , Cleveland Clinic Foundation

Case Presentation

- Monitors: ASA standard monitors, pre-induction arterial line to closely monitor our patient's hemodynamic parameters.
- Primary anesthetic plan :Combined spinal Epidural with low dose spinal. 9 mg of hyperbaric bupivacaine, 20 mcg of fentanyl, and 100 mcg of morphine. Epidural was not dosed. Adequate T4 level was achieved
- Pressor: A low-dose phenylephrine infusion was titrated immediately after the administration of the spinal anesthetic, to maintain normotension and preserve uterine blood flow.
- The case was successfully completed without any reported complications or need for inotropic support.
- The patient was then transferred to the general ward and discharged several days later.

Figure 2: Illustrating the location of the stenosis



Anesthetic Management of an Obstetric Patient with Severe Right Ventricular Outflow Tract Obstruction after Truncus Arteriosus Repair Undergoing an Elective Cesarean Section

Nour El Hage Chehade MD, Adeeb Oweidat MD, Chelsea Skinner MD, Monica Cheriyan MD, MPH, Marco Maurtua MD

Department of Anesthesiology and Pain Management , Cleveland Clinic Foundation

Learning Points

- The presence of congenital heart disease in parturients tends to complicate pregnancy and delivery outcomes.¹ Our patient suffered from an RVOT obstruction due to stenosis post-surgical correction of her congenital cardiac disease, TA. Patients suffering from these conditions require a multidisciplinary approach and careful anesthetic planning.
- RVOT obstruction can mimic pulmonic stenosis and therefore carries mild to moderated risk maternal risk.²
- In our patient, the use of a combined spinal-epidural technique with a low dose bupivacaine (9mg) achieved successful surgical anesthesia and analgesia without producing hemodynamic instability that allowed us to obtain excellent neonatal and maternal outcomes.
- Our anesthetic goals were to avoid tachyarrhythmias, maintain normal right ventricular preload and myocardial contractility to keep an adequate pulmonary blood flow.