



ORIGINAL RESEARCH PAPER

Anaesthesiology

ANAESTHETIC MANAGEMENT OF A PRIMIGRAVIDA DIAGNOSED WITH CORTRIATRIATUM UNDERGOING ELECTIVE LOWER SEGMENTAL CAESAREAN SECTION

KEY WORDS: Pregnancy; Cortriatriatum; General Anaesthesia

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ABSTRACT

Anaesthetic management of cardiac anomalies is a challenge for any anaesthesiologist. Cor-triatriatum is a rare congenital malformation of the heart resulting in a fixed low cardiac output state. The anaesthetic management of a pregnant patient who has a congenital cardiac anomaly is not only challenging, but also rare. This report describes the anaesthetic management of a primigravida patient who was diagnosed with Cor-triatriatum of the Left atrium while she was admitted for safe confinement of pregnancy and delivery of the baby. We attempted at describing the anaesthetic consideration in a cardiac anomaly patient who was also pregnant thus the need to take into consideration both the fetal and the maternal well-being. Although caesarean section is a widely performed in patients with heart diseases, the anaesthetic management requires a multi-faceted approach with much needed mindfulness regarding the peri-operative and post-operative complications.

INTRODUCTION

Cor triatriatum sinister, first described by Church in 1868, is a rare congenital cardiac malformation in which a fibromuscular membrane divides the left atrium into two chambers. The condition is often found to co-exist with other cardiac anomalies. An isolated Cor-triatriatum is a very rare occurrence. Even more rare is the progression into adulthood without any prior symptoms.

This case report is descriptive of one such patient. Cor triatriatum presents in association with other congenital cardiac defects such as tetralogy of Fallot, atrial septal defect, ventricular septal defect partial anomalous pulmonary venous connection, and represents only 0.1% to 0.4% of all congenital abnormalities. The membrane may be complete or may contain one or more fenestrations of differing size. Patients are usually in risk of pulmonary venous hypertension, right heart failure, low cardiac output. Atrial fibrillation may cause thrombus formation. Clinical symptoms are dyspnoea, orthopnea, exercise intolerance and Shortness of breath.

CASE REPORT

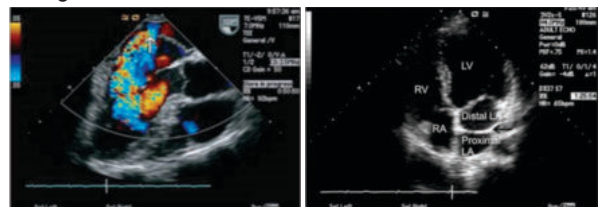
25-Year-Old Primigravida admitted to obstetric ward for safe confinement. There was no significant symptoms of heart disease. She had no known co-morbidities and routine pre-operative evaluation yielded no significant findings. She was a NYHA Class I patient. No features of right heart failure, Blood Workup such as CBC, Renal function tests and liver function tests were within normal limits. Upon examining the airway, there was Adequate Mouth Opening, Grade 3 of Modified Mallampatti Score, TMD 6.5 cm, Normal Neck Movements with no restrictions.

Electrocardiogram was insignificant except for deviation of the axis to the right. Echocardiography mild pulmonary hypertension (RV end-systolic pressure, 35 mmHg), a slightly thickened mitral valve (MV), enlarged LA with a clear membrane across the LA. LVEF = 60% and no RWMI

Patient was classified under ASA Grade II
Pre-operative vitals: BP: 110/70, HR 96/min, SpO2: 96% in Room air; 100% with 2L O2 Via Nasal prongs.

Induction and maintenance of General Anesthesia

Pre-medication - Glycopyrrolate 0.2mg, Induction - Thiopentone (4mg/Kg), Succinylcholine (1.5mg/kg). ETT - 7.0. Cricoid pressure was given throughout the procedure. VCV Mode - Vt - 450mL and RR - 12b/min. Once airway was secured, incision made, a live baby was delivered which cried immediately at birth. Agent: Sevoflurane - 1.5v.w%, O₂: Air at 1L:1L flow. NDMR - Atracurium was given. (0.3mg/Kg bolus followed by 0.1mg/kg sos). Post-placental delivery, an oxytocin drip was started and titrated at a rate of 3-5 units per hour infusion to prevent tachycardia and profound hypotension. Analgesia - Paracetamol 1gm and IV bolus of Fentanyl administered after delivery of the Baby. Post procedure patient was extubated after adequate recovery from general anaesthesia and neuromuscular blockade.



DISCUSSION

The fibromuscular septum between the left atrial cavity does not allow adequate left ventricular filling thus creating a low cardiac output state. While anaesthetising a patient with a low cardiac output state, where determination of where the ventricles reside on their pressure stroke volume curves is essential for determining the optimal ventricular filling pressure². There is no correlation between right atrial and left atrial pressures, making it even more challenging to determine the optimal filling pressure for the LV. Administering volume and objectively assessing the response provides some indication of where the ventricles reside on their pressure stroke volume curve².

A prompt decrease in heart rate, or increase in venous oxygen saturations or invasive blood pressure immediately following volume administration indicates that preload reserve is present, and that the ventricles are operating on the ascending portion of their pressure stroke volume curves³. The lack of a response suggests that the ventricles are residing on the flat portion of their function curves. In this

case, preload reserve is exhausted and inotropic and/or afterload reducing agents are indicated to improve stroke volume and cardiac output⁴.

Another strategy to improve cardiac output is to reduce ventricular afterload. The benefits of afterload reduction increase as systolic function, improving contractility reduced dependency on rate and thus prevents incidence of arrhythmias. Vasomotor paresis is characterized by a pathologic decrease in vascular tone, which increases venous capacitance and decreases SVR. Several agents may be used to restore adequate vascular function⁴. Thus, the choice of vasopressors may range from centrally acting noradrenaline, arginine vasopressin to newly emerging milrinone might be given.

The maintenance of said hemodynamic goals is important to prevent the build up of pulmonary hypertension and diuretic resistant volume overload⁵. Steroid prophylaxis was not administered in this patient owing to the absence of any cardiac symptoms that would point towards catecholamine resistance.

There have been very few reports regarding cor-triatritium, and even fewer regarding anaesthetic management of an adult with cor-triatritium undergoing non cardiac surgery. Elective post operative ventilation was also a strategy if there was any hemodynamic fluctuations during the procedure. PPV increases intrathoracic pressure and in doing so decreases systemic ventricular afterload, which is of particular benefit to patients with impaired systemic ventricular systolic dysfunction or in patients experiencing exaggerated negative pressure breathing, as is seen in pulmonary edema or airway disease. Another benefit of PPV results from the mechanical unloading of the respiratory muscles when cardiac output is limited¹².

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