Anesthetic Challenges in Management of Parturient With Congenitally Corrected Transposition of Great Arteries Complicated With Complete Heart Block and Hypothyroidism for Elective Cesarean Section

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INTRODUCTION

Congenitally corrected transposition of the great arteries is a rare congenital heart defect in which the heart’s lower two chambers and atrioventricular valves are reversed in their positions. Right ventricle (RV) battles to function as the ventricular pump against the substantial systemic vascular resistance. As the age increases, these parturients tend to develop primitive ventricular dysfunction [1]. CCTGA has a prevalence of 0.4–0.6% of all congenital heart disease cases and complete heart block develops in cases of 30% CCTGA [2]. In these parturients the physiological cardiovascular changes of pregnancy may expedite the rate of ventricular failure. We describe anesthetic challenges in management of parturient with CCTGA associated with hypothyroidism and complete heart block posted for elective caesarean section.

CASE REPORT

32 year old antenatally unregistered primigravida with 37 weeks of gestation, body mass index 19.2kg/m² known case of hypothyroidism on Tab. Eltroxin month of delivery and temporary pacing in case of unstable hemodynamics. Parturient with congenitally corrected transposition of the great arteries (CCTGA) have tendency to develop cardiac dysrhythmias and left ventricular failure during intraoperative and postoperative period. Successful anesthetic management during perioperative period in a case of parturient with CCTGA posted for elective caesarean section is explained in this case report. We would like to highlight the anesthetic challenges and advantages of epidural anesthesia in maintaining hemodynamic stability during caesarean section.

Key Words: Anesthetic Challenges, CCTGA, Complete heart block, Hypothyroidism, Elective caesarean section.

CASE REPORT

Patient was anaesthetized uneventfully with epidural anesthesia. Epidural with basal crepitations. Airway and spine examination normal. Laboratory parameters suggestive of: Hemoglobin 11.2gm/dl, platelet count 188000/μL, White blood cell 11,000/μL, Prothrombin time 14.6sec, INR 1.1, Liver and renal function tests were within normal limits. Thyroid function test showing T3 -2.55 (1.5-4.1)pg/ml, T4-0.87( 0.8-1.4)ng/dl and TSH -9.3(0.3-5.5).

Patient and relative counselling was done. High risk consent and need of post operative ICU stay was explained. OT preparation was done; emergency drugs, temporary pace maker and defibrillator were kept ready. She was premedicated with anti-aspiration prophylaxis of inj.metoclopramide 10mg iv and inj.ranitidine 50mg iv slowly. For infective endocarditis prophylaxis inj.ceftriaxone 1gm and inj.gentamycin 80mg iv given 30 min prior to surgery. Monitors were attached as per ASA guidelines, electrocardiograms (ECGs), pulse oximetry, temperature probe. For beat to beat measurement of blood pressure Invasive blood pressure monitoring was used and central venous catheter was inserted for emergency transvenous pacing.

Patient was anesthetised uneventfully with epidural anesthesia. Epidural catheter was placed in L3-4 space with all aseptic precautions. Test dose of

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Lignocaine 2% 3cc given. Patient was turned to supine position, with a wedge placed under the right hip. Patient continued to receive supplemental oxygen at 4L/min by ventimask. After 3min lignocaine 2% 4cc followed by hyperbaric bupivacaine 5% 6cc was given and T6 level was achieved. Four episodes of severe hypotension were listed intraoperatively, which were managed with injection phenylephrine 40 mcg IV boluses. Slow iv infusion of inj. Oxytocin 20 units was started immediately after delivery of baby. Intraoperatively judicious fluid management was done with ringer lactate. Urine output was 50 ml in the first hour but subsequently increased to 200 ml after administration of IV inj. furosemide 20 mg. Epidural infusion of 0.125% bupivacaine with fentanyl was given for post-operative analgesia. Post operatively patient was shifted to critical cardiac care unit for close monitoring and had uneventful recovery period.

She was prescribed tab. lasilactone50mgOD and tab.eltroxin25ug OD .For further management cardiologist was consulted and she was discharged from the hospital on the 8th day postpartum.

DISCUSSION
Congenitally corrected transposition of the great arteries (CC-TGA) is once in a blue moon defect. It is non-cyanotic congenital heart defect characterized by ventricular inversion resulting in a amalgamation of atrioventricular (AV) discordance in which the right atrium(RA) corresponds with the mitral valve(MV) and left ventricle (LV) and the left atrium(LA) corresponds with the tricuspid valve(TV) and right ventricle (RV) and ventriculoarterial discordance in which the pulmonary artery originates from the left ventricle(LV) and aorta originates from the right ventricle(RV)[3-5].

Figure 2) Anesthetic management of parturient with CCTGA associated with hypothyroidism and complete heart block requires discerning of its physiological adaptations and drugs that can change magnitude of ventricular function

ANESTHETIC CONCERNS
- proclivity to arrhythmias
- liability to develop ventricular failure
- conduction abnormalities
- risks associated with pacemaker insertion

ANESTHETIC GOALS
- Judicious fluid therapy
- maintain pulmonary vascular resistance
- maintain afterload
- avoid hypoxia and hypothermia
- Avoid hyper carbia and acidosis. [7]

ANAESTHESIA MANAGEMENT
The cardiovascular changes associated with labor and vaginal delivery, including a further increase in cardiac workload and oxygen consumption were thought to be too hazardous to attempt induction of labor. So, Elective caesarean section was planned with Epidural anesthesia.

Epidural anesthesia helped to accomplish these goals. The more gradual sympathetic blockade helped to maintain preload and venous return. Spontaneous respiration helped in maintaining venous return and pulmonary pressure.

Advantages of epidural anesthesia over general anesthesia to avoid the pressor response during tracheal intubation, avoid polypharmacy and the myocardial depressive effects of anesthetic drugs.

CONCLUSION
Before planning anesthetic management in a parturient with coexisting intracardiac lesions, dysrhythmias and ventricular dysfunctions are the main concerns.

In our case report we portrayed anesthetic challenges and management in case of primigravida with CCTGA associated with hypothyroidism and completes heart block with good maternal and fetal outcome.

REFERENCES