

Anaesthetic Management of a Pregnant Parturient With Intraventricular Tumour for Emergency Caesarean Section: A Report

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Abstract: The emergency operative management of a parturient with a brain tumour can be quite challenging to the neurosurgeon, obstetrician and the anaesthetist alike as there is a very fine line between maternal and foetal safety. We describe here the case of a 19 year old parturient with an intraventricular tumour who had to undergo an emergency caesarean section under general anaesthesia with consensus between the neurosurgeon, neurologist, obstetrician and the anaesthetist. Anaesthetic plan was individualized for her keeping in mind both maternal and foetal well being.

Keywords: Intraventricular tumour, emergency caesarean section, general anaesthesia.

INTRODUCTION

The incidence of primary central nervous system (CNS) tumours in pregnant females is 6 in 100,000, which is less compared to their age matched non pregnant counterparts [1]. Because of the inherent risks associated with both the mothers as well as fetal well being, continuation or termination of pregnancy in the face of neurological deterioration can be a unique challenging question for the neurosurgeon, obstetrician and the anaesthetist alike [2]. The literature is generally unaccommodating with respect to evidence-based neuroanesthetic management for the pregnant patient and so planning and decision-making must be based largely on general principles of neurosurgical and obstetric anesthesia [3]. In this formal report, we present to you the anaesthetic management of a 32 weeks parturient with an Intraventricular tumour posted for emergency caesarean section.

CASE REPORT

A 19 year old pregnant patient, weighing 52 Kg presented to the Emergency department with complaints of multiple generalized seizures since the last 2 weeks followed by vomiting for the last 7 days. There was no history of any head trauma, loss of consciousness following seizure episodes. Obstetric ultrasound and examination revealed a single live fetus of 30 weeks gestation. MRI examination showed a heterogeneously enhancing lesion (38 mm * 25 mm * 24 mm) in the posterior third ventricle with evidence of hydrocephalus (Figure 1). She was conscious, oriented to time, place and person but slightly drowsy. Respiratory and cardiovascular system examinations did not show any abnormality. Routine blood investigations were within normal limits.

After consultation with the obstetricians, neurosurgeons and the neurologists, the patient was conservatively managed with injection Phenytoin, mannitol, furosemide and dexamethasone to prolong her pregnancy till term. However, at 32 weeks gestation, the consciousness of the patient deteriorated with marked

decrease in sensorium and blurring of vision. Examination revealed bilateral pedal edema and fundoscopy showed papilledema. After a long multidisciplinary consultation and debate amongst the obstetricians, neurosurgeons and the anesthesiologists, the patient was planned for emergency caesarean section.

Preoperatively, after securing a large bore IV line, patient was given injection ranitidine 50 mg IV and metoclopramide 10 mg IV as acid aspiration prophylaxis. After all standard monitors were connected, pelvic tilt of 15 degrees to the left was given to minimize aortocaval compression by means of a hip wedge. Preoxygenation with 100% oxygen was given for 3 minutes and rapid sequence induction was carried out with injection thiopentone sodium 300 mg. Injection lignocaine 60 mg was administered to attenuate the stress response to laryngoscopy and intubation. The patient was intubated with a polyvinyl chloride endotracheal tube of 7.5 mm ID following injection Rocuronium 7 mg. The baseline heart rate was 70/min and blood pressure was 124/80 mm of Hg before

intubation. Post intubation, the haemodynamic response was minimal with a heart rate of 80/min and a blood pressure of 130/80 mm of Hg. Maintenance of anaesthesia was achieved with sevoflurane (1%), oxygen, air and intermittent boluses of injection Vecuronium. Depth of anaesthesia was monitored using Bispectral index and temperature was monitored using nasopharyngeal temperature probe. End tidal carbon dioxide (Et CO₂) was maintained between 25-30 mm of Hg. The right radial artery was cannulated for arterial pressure monitoring and frequent blood gas sampling. Central venous catheter was placed in the right subclavian vein.

Fetal heart rate was monitored preoperatively continuously by obstetricians by using a cardioplograph attached to the patient's anterior abdominal wall prior to incision by the obstetrician. The intraoperative vitals of the patient were normal. A healthy baby with APGAR score of 8, 8, 9 at 1, 5 and 10 minutes was delivered following lower segment caesarean section. Following delivery of the baby, the mother was given injection fentanyl 100 mcg and midazolam 1 mg IV followed by injection Oxytocin 10 U in IV fluid. The patient was reversed on the OT table and extubated. She was observed in the high dependency unit for 2 hours after which was shifted toward without any complications.



Fig-1: CEMRI study of the brain showing heterogeneously enhancing lesion (38*25*24 mm) in posterior third ventricle with evidence of hydrocephalus

DISCUSSION

The time of delivery is of prime significance to infant viability. In the past, delivery was postponed until after 36 to 38 weeks of pregnancy to decrease the likelihood of respiratory distress syndrome. During the past decade, changes in the medical management of premature infants have lowered the threshold of potential viability to 23–24 weeks of gestation[4].

The timing of the surgery needs to be individualized based on the neurological status of the mother, possibility of preterm labour, gestational age of the foetus and foetal lung maturity. We decided to terminate the pregnancy after weighing the risks to the foetus in the face of deteriorating neurological condition of the mother. Anaesthetic technique should be designed to avoid foetal hypoxia, hypercarbia and hypotension. Neuroprotective measures such as hyperventilation or induced hyperosmolarity should be used with caution because hypocarbia reduced uterine perfusion and foetal hyperosmolarity or dehydration pose serious threats to the foetus. Neuroanaesthetic

technique must, therefore, strive to offer optimal care for the mother and minimize risks to the foetus while also ensuring the shortest possible exposure to anaesthetic drugs [5].

In view of the raised intracranial pressure, general anaesthesia was preferred over regional anaesthesia. Opioids were also not used initially as they may cause neonatal respiratory depression, apnea and chest wall rigidity [6]. Due care was taken to attenuate the pressor response to laryngoscopy and intubation with lignocaine premedication and full dose of thiopentone sodium. Rocuronium was preferred to suxamethonium for rapid sequence intubation owing to its good maternal and foetal adverse effects profile [7]. Preoperative cardiography with electronic foetal monitor (EFM) helped us in vigilant monitoring of the foetal heart rate and uterine contractions. Preserving both cerebral and uteroplacental perfusion was paramount for the wellbeing of the mother and the foetus for which we tried to maintain haemodynamic stability through appropriate fluid administration and

resuscitation, avoidance of aortocaval compression and invasive BP monitoring[8]. Aortocaval compression was avoided with a wedge under the hip. Intra-arterial blood pressure monitoring aided us during induction of anesthesia as any haemodynamic fluctuations were carefully observed and anaesthetic drugs were titrated likewise. We maintained the EtCO₂ between 25-30 mm of Hg to avoid any increase in ICP. Oxytocin was preferred over methylergometrine for contraction of the uterus as the latter may cause rise in ICP [6]. Manual massage of the uterus by the obstetrician helped in proper uterine contraction along with oxytocin.

CONCLUSION

Operating on a parturient with a brain tumour can be a challenging situation for the neurosurgeon, obstetrician as well as the anaesthetist, more so in case of an emergency. Administration of anaesthesia to such a patient needs to take into account the mode of anaesthesia with good haemodynamic stability so as not to increase the intracranial pressure as well as maintain adequate uteroplacental perfusion for good foetal outcome.

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