Case Report

Perimortem Caesarean Section : A Guideline-based Management of Maternal Cardiac Arrest

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Maternal Cardiac Arrest is a rare event and Perimortem Caesarean Section (PMCS) has an established role in concurrence with maternal resuscitation to save the life of a dying mother as per various International Guidelines. Despite being a lifesaving procedure, this procedure has not yet gained acceptance amongst Obstetrician. Present case is first reported case of PMCS of this country where an out of Operation Theatre Perimortem Caesarean Section was performed with a positive maternal and foetal outcome.

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Cardiac arrest in pregnancy is a rare event with an incidence of around 1 in 36,000 pregnancies[1]. Perimortem Caesarean Section (PMCS) or Resuscitation Hysterotomy has been endorsed by various International Groups and should be performed as early as possible as it has maternal survival rate up to 40% and fetal survival rate up to 60-70%, if performed within 5 minutes of Cardiac arrest[2]. Rationale for this time limit is that a pregnant lady develops hypoxic injury more quickly because of certain physiological changes in pregnancy. Traditionally it has been said that maternal survival is best if Perimortem Caesarean Section is initiated as early as 4-minutes past Cardiac arrest called as "4 minutes rule", however, both maternal and neonatal survival have been reported even if it is performed at 10-15 minutes past arrest.[3]

Editor's Comment :

- All current guidelines for management of cardiac arrest in pregnancy agree on role of delivering the baby at earliest if there is no response to correctly performed CPR and proper manual displacement of uterus.
- Every Obstetrician should know the importance of Perimortem Caesarean Section to assist maternal resuscitation for pregnancies above 24 weeks.

Case Report

We report a case of 32-year-old second Gravida with 37 weeks period of Gestation. She was a known case of Hypertension at first visit during late first trimester and was started on tablet Labetalol 100mg twice a day for the same since 6 months before the pregnancy by a Physician as she was planning pregnancy, on which her Blood Pressure was well controlled. Her first trimester Echocardiography was normal with an ejection fraction of more than 60%. Her BP records remained normal on tablet Labetalol 100mg twice a day, throughout the course of antenatal visits. Because of COVID she could not come for Antenatal visit during second trimester and was advised to get a repeat Echocardiography at 34 weeks which she did not get done. She reported at 37 weeks of pregnancy for routine antenatal checkup but was admitted for a detailed workup in view of her chronic hypertensive status, her BP on admission was 130/80 mm Hg and urine albumin was 1+ by Urostix Test. Her Liver Function Test (LFT) and Renal Function Test (RFT) reports were normal. Her NST was also normal. Next day she started having mild uterine contractions and sudden onset of breathlessness with a surge in BP to 160/104 mmHg. On Examination her both side of chest was full of crepts and a bed side ECG showed features of Cardiac failure. She was immediately given a loading dose of intravenous Lasix and was attended by an Anaesthetist, who Intubated her as she was not maintaining O_2 saturation even on high flow of Oxygen by mask. She was then shifted to ICU where her BP started to fall abruptly and she went into Cardiac arrest. CPR was started with a simultaneous manual displacement of uterus. As CPR did not prove out to be beneficial to her, a decision was taken to perform a Perimortem Caesarean Section on ICU bed itself with a sterile scalpel, baby could be taken out within 5 minutes of initiation of Cardiopulmonary Resuscitation (CPR) and was handed over to paediatrician with a palpable heartbeat. There was a sudden improvement in maternal condition after the baby was taken out. She responded well to resuscitative measures and started maintaining her BP on Ionotropic drugs. After 48 hours she could be extubated and was shifted to General Care Ward after 72

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hours of PMCS. Her post Caesarean Echocardiography was done on next day which showed features of dilated Cardiomyopathy with ejection fraction of <15% for which she was managed by Cardiologist. On day 11 she was discharged from hospital in a good condition. On the other side baby remained intubated for 5 days followed by a further NICU stay of around 15 days. Both mother and baby were doing well past one month of PMCS.

Discussion

Role of Perimortem Caesarean Section after a failed CPR, has been established since 1980's.[4] An enlarged gravid Uterus beyond 24 weeks of pregnancy results in considerably reduced venous return due to aorta canal compression further compromising a failing Heart, in addition to it enlarged gravid Uterus interferes in performing efficient Chest compressions. PMCS helps in relieving both of these factors, considering it,all current guidelines recommend performing PMCS at the earliest to empty the Uterus[2].

PMCS should be performed at the site of event without spending time to shift the patient to Operation Theatre.[5] The only essential instrument which is required to performed this procedure is a scalpel. The choice of incision depends on Surgeon's preference. As the role of PMCS has been found to be very beneficial for maternal survival it is prudent only to carry out more and more drills and training courses to orient clinicians regarding this life saving procedure. To our best knowledge this is probably the first case in India where an out of Operation Theatre PMCS was performed with a positive maternal-fetal outcome. To conclude it is the quick decision making and immediate support from multidisciplinary team which can be a game changer while managing a case of an unexpected Maternal Cardiac Arrest.

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