

A Case of Perimortem Caesarean Section

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ABSTRACT

Cardiac arrest after collapse in pregnant women is an uncommon condition with devastating fetal-maternal outcome. We present the case of a 32 week gravid woman who had a cardiac arrest at emergency reception. The aim is to share a daunting experience of maternal cardiac arrest followed by perimortem Caesarean section (PMCS).

Keywords: Cardiovascular; Pregnancy-Related Death, Heart Arrest; Pregnancy Complications, Maternal Mortality.

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INTRODUCTION

Cardiac arrest in pregnancy is uncommon, occurring in approximately 1 in 12,500 pregnancies, with a mortality of 42%.¹ Many obstetricians are unlikely to encounter this disorder more than once in their careers. The leading causes include hemorrhage (45%), amniotic fluid embolism (13%), heart failure (13%), anesthetic complications (8%), and trauma (3%).² Basic life support (BLS) follows the ABCDE approach, with modifications like manual displacement of the uterus to relieve aortocaval compression and specific defibrillator pad placements.² If return of spontaneous circulation (ROSC) is not achieved within four minutes of efficient Cardiopulmonary resuscitation (CPR) and in pregnancies over 20 weeks of gestation, uterine fundus at or above the umbilicus, a perimortem caesarean section (PMCS) should be started within five minutes to improve the fetal-maternal outcomes. Delays in resuscitation can be fatal.

We present a case of a pregnant woman at 32 weeks, who had a cardiac arrest and underwent perimortem caesarean section 20 mins after maternal collapse.

CASE REPORT

A 39-year-old woman at 32 weeks of pregnancy, presented at emergency reception with complaints of hypertension and shortness of breath. On examination she appeared obese, pale, conscious oriented, with stable vitals. Examination revealed a symphysis-fundal height of 30 weeks. Baseline investigations and treatment were initiated. When the patient suddenly

collapsed, Code blue was activated, and CPR was initiated. Endotracheal intubation and oxygen administration (10–15 l/min) were established. Emergency call for an obstetrician and neonatologist was made.

CPR continued with no ROSC, leading to the decision to perform a PMCS. A male baby with a low Apgar score was delivered. Baby was resuscitated by neonatology team and shifted to the nursery. Hemostasis was achieved with clamps, uterotonic agents and antifibrinolytics. Broad-spectrum antibiotics were given. The estimated maternal blood loss was 1,400 ml. The uterus and abdominal cavity were packed, and the CPR continued uninterrupted until ROSC occurred after 8 minutes of PMCS.

The patient was transferred to the operation theatre, where the wound was closed, and a central line was placed. She received 4 packs of red cell components and 6 units of fresh frozen plasma. Postoperatively, the patient was shifted to the surgical Intensive Care Unit with ventilatory support under multidisciplinary care.

On the third postoperative day, the patient remained oliguric and had a second cardiac arrest. She revived after 10 minutes of CPR. Pupils were dilated (8 mm) and unresponsive to light. A brain CT revealed intracranial hemorrhage. On fifth postoperative day she had a third episode of cardiac arrest and could not be revived. However, the baby survived and was discharged two weeks after birth.

DISCUSSION

Maternal collapse is an emergency involving cardiac respiratory or central nervous system dysfunction, leading to altered consciousness or mortality at any stage of pregnancy. Effective CPR and

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timely PMCS are crucial but challenging. Evidence supporting PMCS is limited only to case reports and series.³

The pregnant state increases hypoxia risk due to elevated oxygen demand and reduced circulatory return to heart from aortocaval compression of pregnant uterus (lowering cardiac output to 60%). Emergency fetal delivery relieves great vessel compression, increases cardiac preload, reduces oxygen demand, and hence improves ROSC potential.²

Katz *et al.*, analyzed 38 cases 34% were resuscitated and delays beyond 6 minutes led to maternal hypoxic brain injury.³ In the present case, a 20-minute delay to PMCS contributed to maternal mortality. Einav *et al.*, and other studies have reported similar findings: delayed PMCS reduced maternal survival (54.3%) and increased neurological disability (78.4%).^{4,5}

Fetal survival remains higher (61–80%) with Katz *et al.*, case series when PMCS was performed for in hospital cardiac arrest.³ There is a case of healthy infant being delivered even 30 minutes after cardiac arrest.⁴

Regular training of staff members in life support maternal collapse should be conducted.^{6,7} Moreover, a PMCS emergency box including scalpel, antiseptic solution and cord clamps should be placed in the labor room and emergency department where obstetric patients are commonly seen.

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Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

SP & SW: Data acquisition, data analysis, critical review, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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