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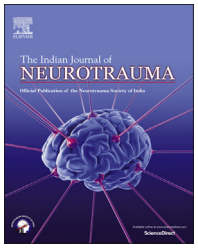

Case Report

Decompressive craniectomy in term pregnancy with combined caesarean section for traumatic brain injury

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ABSTRACT

Over the years the maternal mortality depending on the obstetric causes has reduced whereas there is a relative increase in maternal mortality and morbidity due to non-obstetric causes. Trauma during pregnancy, including head injury, is one of the leading causes of incidental maternal death and morbidity, and complicates 6%–7% of all pregnancies. Furthermore it predisposes two lives at risk and creates unique diagnostic and therapeutic challenges. Because of the physiological hormonal, hemodynamic and anatomical changes associated with pregnancy, certain standard neurosurgical practices may be challenged. We present a case of woman with term pregnancy who sustained moderate head injury requiring urgent caesarean section for pregnancy and decompressive craniectomy in the same sitting in Operation Theater. Issues like screening of mother and feto-maternal monitoring; physiological changes during pregnancy, choice of anaesthesia, intraoperative concerns and fetal monitoring, timing of delivery are discussed with review of pertinent literature.

1. Introduction

Trauma during pregnancy is currently a leading cause of non-pregnancy related maternal death which itself is the most common cause of fetal demise.[1] The most common causes of trauma in pregnancy include road-traffic-accidents (RTA), fall from height, physical assaults, and burns.[2] Women in their reproductive age are among the population at greatest risk for trauma. Over the years the maternal mortality depending on the obstetric causes has declined whereas there is a relative increase in maternal mortality and morbidity due to non-obstetric causes. Trauma during pregnancy, including head

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injury, is one of the leading causes of incidental maternal death and morbidity, and complicates 6%–7% of all pregnancies.[3] Furthermore it predisposes two lives at risk and creates distinct diagnostic and therapeutic challenges.

We present here a case of moderate head injury with left frontal hemorrhagic contusion with left fronto-temporo-parietal acute subdural hemorrhage necessitating urgent surgical evacuation in a lady with term pregnancy. Both caesarean section and craniotomy were performed simultaneously. We felt that both the procedures were feasible simultaneously and facilitated the best outcome for both mother and baby.

2. Case report

The patient was 26-year-old pregnant woman at 36 weeks gestation who was a pillion rider on a two wheeler which sustained head on collision with a car at a high speed. She was not wearing helmet at that time. Her Glasgow Coma Score (GCS) was 11 (E3V3M5) at the accident scene and her left pupil was dilated and nonreactive to light. She also sustained facio-maxillary injuries and her airway was threatened. She was immediately taken to some local hospital where her oxygen saturation was 78% on room air. She was immediately intubated and hemodynamically stabilized and then shifted to our centre. This was her first pregnancy which had been uncomplicated till date.

She arrived at our ED (emergency department) nearly 8 h after the injury. In our ED she was found to have GCS 8 ($E3V^{ET}M5$) with endotracheal tube in situ, pulse 90/min, blood pressure 96/66 mmHg, multiple facial and chest lacerations and abrasions, left pupil dilated and nonreactive to light. Regular uterine contractions of 4 in 10 minutely were noted during palpation of uterus. There was no vaginal bleeding. FAST (focused abdominal sonography for trauma) was negative except for positive finding of gravid uterus. Computed tomography (CT) scan revealed an acute left fronto-temporo-parietal subdural hemorrhage with left frontal contusion with midline shift of 5 mm and effaced sulci and left lateral ventricle (Fig. 1).

Immediately obstetrics consultation was sought and our team consisting of neurosurgeon, obstetrician and anesthetist thoroughly discussed the situation with the patient's family who requested that every possible intervention be attempted in the hope of survival and improvement for both the patient and fetus. The patient was immediately taken to operation theatre whereafter induction of general anesthesia, urgent caesarean section was performed and in the meantime her head was clipped off hair, washed and positioned on horse shoe. The caesarean section got finished in 30 min time and a live baby boy with birth weight of 2980 g was delivered with Apgar score of 6 at 1 min and 9 at 5 min. The baby on delivery was resuscitated and shifted to neonatal intensive care unit. There was no retroplacental clot evident at closure and meticulous hemostasis was done with no oozing from placental surface. By this time the patient head was painted with ether and povidone iodine and draped. She underwent left fronto-temporo-parietal decompressive craniectomy, evacuation of subdural hematoma and contusectomy and lax duraplasty with pericranial graft. Her bone was kept in bone bank. Following this the facial lacerations were debrided and sutured. Post op she was shifted to our dedicated neurosurgery intensive care unit intubated and unreversed with stable vitals.

On reversal from general anesthesia she remained $E2V^{ET}M5$ for two days and started obeying commands on third

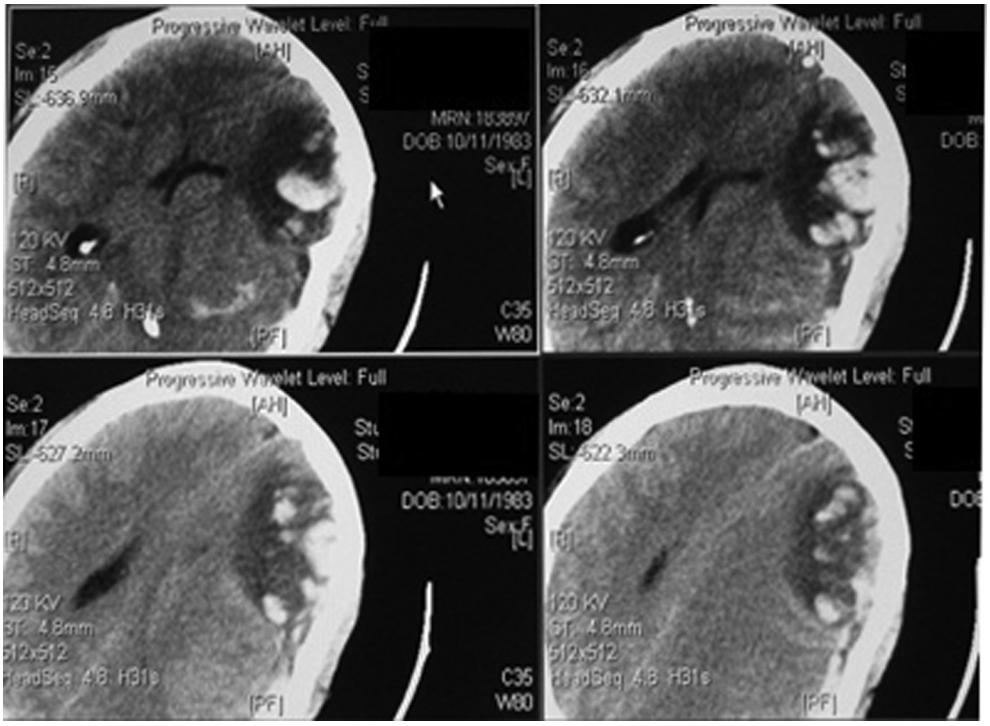

Fig. 1 – NCCT head of patient showing left frontal contusions.