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EARLY-ONSET ANTEPARTUM ECLAMPSIA COMPLICATED BY INTRACRANIAL HAEMORRHAGE REQUIRING DECOMPRESSIVE CRANIECTOMY: A RARE MATERNAL NEAR-MISS CASE REPORT

Obstetrics & Gynaecology

Dr Shweta Sonawane Junior Resident, Department of Obstetrics & Gynaecology, GMCH Chhatrapati Sambhajinagar

Dr Prashant Bhingare Associate Professor, Department of Obstetrics & Gynaecology, GMCH Chhatrapati Sambhajinagar

Dr Shrinivas Gadappa Professor and Head of the Department, Department of Obstetrics & Gynaecology, GMCH Chhatrapati Sambhajinagar

Dr Anurag Sonawane Associate Professor, Department of Obstetrics & Gynaecology, GMCH Chhatrapati Sambhajinagar

Dr Sakshi Sharma Senior Resident, Department of Obstetrics & Gynaecology, GMCH Chhatrapati Sambhajinagar

Dr Shubham Gujare Junior Resident, Department of Obstetrics & Gynaecology, GMCH Chhatrapati Sambhajinagar

ABSTRACT

Intracranial haemorrhage is a rare but life-threatening neurological complication of hypertensive disorders of pregnancy and contributes significantly to maternal morbidity and mortality. Early-onset antepartum eclampsia presenting before fetal viability with intracranial haemorrhage requiring neurosurgical intervention is extremely uncommon. We report a case of a 19-year-old primigravida at 24 weeks gestation who presented with generalized tonic-clonic seizures and severe hypertension with significant proteinuria. Neuroimaging revealed intracranial haemorrhage with midline shift requiring decompressive craniectomy following termination of pregnancy by hysterotomy for maternal indication. Multidisciplinary management resulted in complete neurological recovery without residual deficit. This case highlights the importance of early neuroimaging, timely termination of pregnancy in severe maternal disease, and coordinated multidisciplinary care in improving outcomes in early-onset eclampsia complicated by intracranial haemorrhage.

KEYWORDS

Antepartum eclampsia, intracranial haemorrhage, decompressive craniectomy, midline shift, hysterotomy, maternal near miss

INTRODUCTION

Hypertensive disorders of pregnancy remain a leading cause of maternal morbidity and mortality worldwide, particularly in low- and middle-income countries. Eclampsia represents the most severe manifestation of preeclampsia and is defined by the occurrence of generalized tonic-clonic seizures in a woman with preeclampsia without an alternative neurological cause.[1] Early-onset eclampsia before fetal viability is uncommon and presents significant challenges in management due to the need to balance maternal stabilization with fetal considerations.

Intracranial haemorrhage is one of the most serious neurological complications associated with hypertensive disorders of pregnancy and accounts for a substantial proportion of maternal deaths related to eclampsia.[2] Pregnancy-associated intracranial haemorrhage most commonly occurs during the third trimester or postpartum period, whereas occurrence in early second trimester is rare.[3] Prompt neuroimaging, aggressive blood pressure control, seizure prophylaxis with magnesium sulphate, and timely multidisciplinary intervention including neurosurgical management when indicated are essential for improving maternal outcomes. We report a rare case of antepartum eclampsia at 24 weeks gestation complicated by intracranial haemorrhage requiring decompressive craniectomy with favourable maternal neurological recovery.

CASE REPORT

A 19-year-old primigravida with history of 6 months of amenorrhea and was brought to the labour room in a semiconscious and disoriented state following two episodes of generalized tonic-clonic convulsions 6 hours back in the morning at home. According to the history provided by her parents, she had amenorrhea for approximately six months, following which a urine pregnancy test was performed and found positive. On the following day she developed two episodes of generalized tonic-clonic convulsions in the morning time. after which she was referred to our tertiary care centre for further management.

On admission, the patient was disoriented with a blood pressure of 170/110 mmHg, pulse rate of 78 beats per minute, respiratory rate of 20 breaths per minute and oxygen saturation of 97% on room air. Urine examination revealed 3+ proteinuria. Obstetric examination revealed a uterus corresponding to 24 weeks gestational size with fetal heart rate of 147 beats per minute and a closed cervical os. Based on the clinical presentation of seizures, severe hypertension and significant proteinuria, a diagnosis of antepartum eclampsia at 24 weeks gestation was made.

The patient was immediately started on antihypertensive therapy with intravenous labetalol and seizure prophylaxis with magnesium sulphate according to the Zuspan regimen. In view of worsening neurological status and pre-viable gestational age, termination of pregnancy was undertaken for maternal indication and emergency hysterotomy was performed under general anaesthesia.400 gm of abortous was found. The patient was subsequently shifted to the trauma intensive care unit for close monitoring and further management.

On postoperative day 2, non-contrast computed tomography of the brain revealed intracranial haemorrhage with significant mass effect causing approximately 1.5 cm midline shift towards the right side. Urgent neurosurgical consultation was obtained and decompressive craniectomy was planned. Preoperative evaluation revealed thrombocytopenia with platelet count of 70,000/mm^3. The patient received eight units of random donor platelets and one unit of single donor platelets following which platelet count improved to 1,00,000/mm^3 and decompressive craniectomy was performed on postoperative day 3. Intra operatively left sided parenchymal expansion and Left high parieto occipital contusion noted. The procedure was uneventful and the patient was shifted back to intensive care unit on ventilatory support.

Postoperatively, the patient received broad-spectrum antibiotics, antiepileptic therapy with levetiracetam, osmotic therapy with mannitol and supportive management. Repeat non-contrast CT brain performed on postoperative day 4 showed reduction of midline shift to approximately 3.4 mm with a left frontoparietal craniectomy defect measuring 12.5×8.3 cm suggestive of adequate decompression.

On postoperative day 6, due to laryngeal edema following prolonged

ventilatory support, tracheostomy was performed. Gradually the patient's general condition improved and she was started on liquid diet on postoperative day 7. Neurological examination revealed right upper limb hemiparesis for which physiotherapy and neurorehabilitation were initiated. Abdominal wound sutures were removed on postoperative day 10 and were healthy. Fundoscopic examination performed during the hospital stay revealed no evidence of hypertensive retinopathy.

Tracheostomy tube was removed on postoperative day 12 and magnetic resonance imaging of the brain showed post-craniectomy changes in the left frontoparietal region without evidence of residual haemorrhage. Foleys catheter was removed on postoperative day 15 and the patient voided spontaneously. Craniectomy sutures were removed on postoperative day 18 and wound healing was satisfactory. With continued physiotherapy and multidisciplinary care, neurological function improved significantly and the patient was discharged on postoperative day 20 in stable condition without residual neurological deficit.

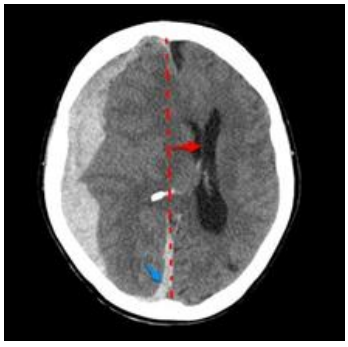

Figure 1: A: CT scan image before carniectomy (midline shift of 1.5 cm to right side)

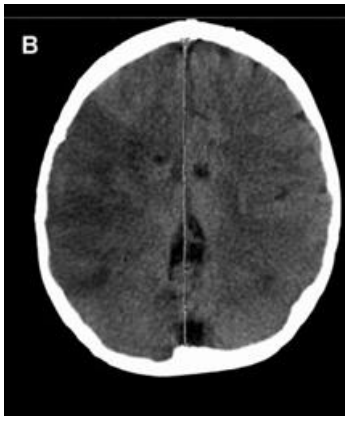

Figure 1: B: CT scan image after carniectomy 9

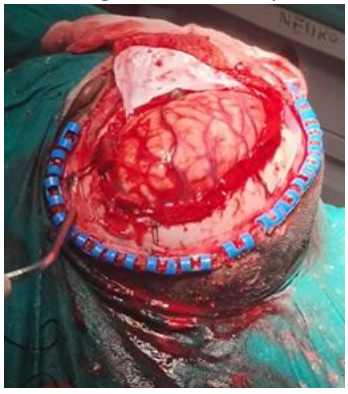

Figure 2: intraoperative carniectomy procedure

DISCUSSION

Intracranial haemorrhage is a rare but devastating complication of hypertensive disorders of pregnancy and accounts for a significant proportion of maternal mortality associated with eclampsia. Cerebral vascular autoregulatory failure due to severe hypertension leads to endothelial injury and rupture of intracranial vessels resulting in haemorrhage and mass effect.

Pregnancy-associated intracranial haemorrhage most frequently occurs during the third trimester or postpartum period, while early-gestation occurrence is uncommon and associated with increased maternal risk. Early-onset eclampsia before fetal viability presents a major management challenge, and termination of pregnancy remains the definitive treatment when maternal condition deteriorates.

Neuroimaging plays a crucial role in patients with persistent neurological deficits or altered sensorium following seizures. Computed tomography remains the preferred initial imaging modality for detection of intracranial haemorrhage and midline shift requiring urgent neurosurgical intervention.

Decompressive craniectomy is indicated in patients with intracranial haemorrhage associated with significant mass effect and midline shift of 1.5cm to right side and neurological deterioration and has been shown to improve survival and neurological recovery when performed promptly. Multidisciplinary management involving obstetricians, intensivists, neurologists and neurosurgeons is essential in improving maternal outcomes in such complex cases.[9,10]

Early recognition, aggressive blood pressure control, seizure prophylaxis with magnesium sulphate and timely neurosurgical intervention contributed to favourable maternal outcome in the present case.

Kaundinya AP et al also mentioned in their case report that ICH although rare is an important cause of morbidity and mortality in pregnancy. Treatment decisions should be based on the same principles as those of non-pregnant patients with due cognizance of the influence that pregnancy has on certain conditions.[11]

CONCLUSION

Intracranial haemorrhage is a rare but life-threatening complication of antepartum eclampsia, particularly in early gestation. Early neuroimaging, prompt termination of pregnancy for maternal indication and timely neurosurgical intervention combined with multidisciplinary intensive care management can significantly improve maternal outcomes. Awareness of such rare presentations is essential for early diagnosis and life-saving management.

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