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Case Report

Management of traumatic brain injury with atypical eclampsia in late preterm gestation with compound presentation in a young primigravida

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ABSTRACT

Traumatic brain injury (TBI) during pregnancy is rare but life-threatening. Coexisting obstetric complications such as atypical eclampsia further complicate diagnosis and management. A 19-year-old primigravida at late preterm gestation presented with multiple seizure episodes following a fall from stairs. She had no prior seizure disorder and was not booked for antenatal care. Clinical findings suggested antepartum atypical eclampsia with foetal distress associated with neuroimaging suggestive of extradural haematoma (EDH), intraparenchymal haemorrhage and un-displaced frontal bone fracture. Emergency caesarean section was performed. A live male neonate was delivered successfully. This case report highlights the importance of timely diagnosis and coordinated multidisciplinary management in patients presenting with concurrent obstetrics and traumatic neurological emergencies.

Keywords: Epidural haematoma, Extradural haematoma, Intraparenchymal haemorrhage, Atypical eclampsia, Late preterm gestation

INTRODUCTION

Trauma during pregnancy is a significant cause of maternal and foetal morbidity and mortality worldwide, complicating approximately 6–7% of all pregnancies. It represents one of the leading non-obstetric causes of maternal death, with traumatic brain injury (TBI) being among the most severe forms.[1]

Physiological changes during pregnancy, such as increased circulating blood volume, reduced systemic vascular resistance, and altered coagulation status, may influence both the presentation and progression of traumatic injuries. These changes can mask early signs of hypovolemia and delay diagnosis, thereby increasing the risk of adverse maternal and foetal outcomes.[1]

TBI in pregnancy presents unique diagnostic and therapeutic challenges, as clinicians must balance maternal stabilization with foetal well-being. Neuroimaging, particularly computed tomography (CT), remains the gold standard for diagnosing intracranial injuries and should not be delayed when clinically indicated, despite concerns regarding foetal radiation exposure.[4]

Eclampsia is defined as the occurrence of generalized tonic–clonic seizures in a woman with preeclampsia and remains a major cause of maternal and perinatal morbidity, especially in developing countries.

However, atypical eclampsia refers to cases where seizures occur in the absence of classical features such as hypertension or proteinuria, making diagnosis more difficult and often delayed.[2] The coexistence of trauma and atypical eclampsia further complicates the clinical picture, as both conditions can independently present with seizures. Differentiating between neurological causes and obstetric causes becomes critical for appropriate management.[3]

Herein we report a rare case of a 19-year-old primigravida at 36 weeks of gestation who presented with recurrent

seizures following a fall from stairs. The patient was diagnosed with atypical eclampsia in association with traumatic brain injury, with neuroimaging revealing epidural hematoma and intraparenchymal haemorrhage.

She underwent emergency lower segment caesarean section (LSCS) due to foetal distress and compound presentation, followed by successful multidisciplinary management. This case highlights the importance of early recognition, prompt intervention, and coordinated care in managing concurrent obstetric and neurological emergencies.[6]

CASE REPORT

A 19-year-old primigravida at 36 weeks of gestation presented to the emergency department with recurrent convulsive episodes. According to attendants, the patient experienced 8–9 episodes of generalized tonic–clonic seizures associated with tongue bite and up rolling of eyes followed by fall from stairs. She did not receive antenatal care and had no prior history of epilepsy, neurological illness, head trauma prior to the current event or significant medical or surgical comorbidities. She developed multiple contusions over the abdomen and back.

On arrival, the patient was in a post-ictal state. She presented with hypotension (BP 90/60 mmHg) and tachycardia (pulse 120/min) with no fever. Systemic examination (CVS and respiratory system), no abnormality detected. Per abdomen uterus of size 36 weeks with fetus in longitudinal lie with cephalic presentation with presenting part high up not well engaged with foetal heart rate 80 bpm on auscultation followed by NST suggestive of acute bradycardia indicating pathological NST.

Local examination identified bluish-reddish contusions over the abdomen and back. On per speculum examination: cervical os open with leaking appreciated, suggestive of premature prelabor rupture of membranes. On per vaginal examination fetal hand alongside vertex was felt. For further investigating complete blood count was done (Table 1).

Table 1: Complete blood count.

Complete blood count	Range
Haemoglobin	9.4 g/dl
TLC	15.95×10^3µl
Neutrophils/lymphocytes	90%/6%
RBC count	3.87 million/µl
Platelets	196×10^3/ µl
MCV/MCH/MCHC	78 fl/29.3 pg/31.1 g/dl

Other routine blood investigation revealed to be normal. Patient was taken up for emergency LSCS in view of compound presentation with acute bradycardia with antepartum atypical eclampsia. A live male baby with delivered with immediate cry after birth handed over to paediatrician. Postoperatively patient was managed conservatively, on anticonvulsants (injectable Levetiracetam), magnesium sulphate, broad spectrum antibiotics and supportive care. Urgent eFAST was done which showed normal findings. Urgent neurosurgical consultation done, advised NCCT (Figures 1a-e) and to continue anticonvulsants, plasmalyte along with other supportive care, no active intervention required. On postoperative day 2 patient was taken up for psychiatric opinion in view of postoperative depression, advised to start anxiolytics with supportive care. Patient was discharged on post-operative day 8 and to review after one week for the regular postpartum and other department assessment.

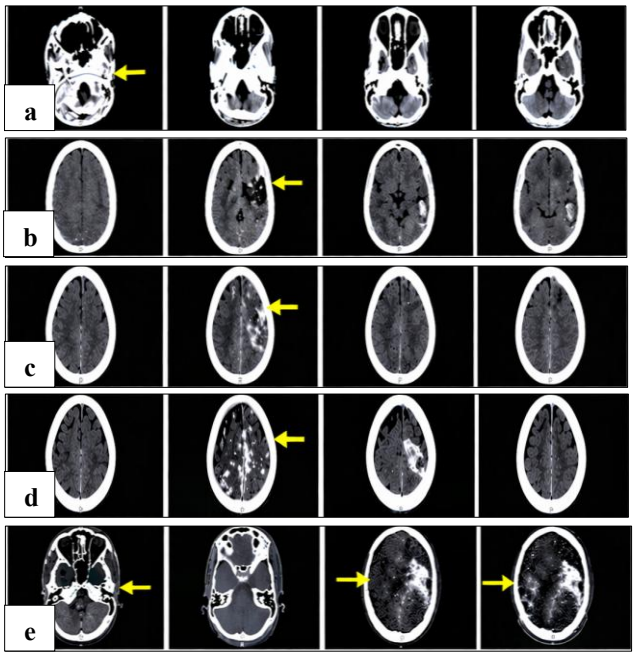

Figure 1: Non-contrast computed tomographic results, (a) left frontal linear undisplaced skull fracture, (b) left-sided epidural hematoma, (c) left intraparenchymal haemorrhage, (d) multiple hemorrhagic contusions, and (e) combined traumatic findings with mass effect.

DISCUSSION

Trauma during pregnancy remains a significant contributor to maternal and foetal morbidity, with TBI being one of the most serious complications. The physiological changes of pregnancy may alter the clinical presentation and severity of intracranial injuries.[1]

In the present case, the patient sustained a fall followed by recurrent seizures, creating a diagnostic dilemma between primary neurological injury and obstetric causes such as eclampsia. Eclampsia classically presents with hypertension and proteinuria; however, atypical eclampsia may occur in the absence of these features, making diagnosis challenging.[2]

The absence of documented hypertension and proteinuria in this patient supports the diagnosis of atypical eclampsia. Similar cases have been reported where seizures occur without classical signs, emphasizing the need for a high index of suspicion.[3]

The coexistence of TBI and eclampsia complicates management, as both conditions independently predispose to seizures. Neuroimaging revealed epidural hematoma and intraparenchymal haemorrhage, which are recognized consequences of blunt head trauma.[4] Epidural hematoma can rapidly progress and may require surgical intervention; however, conservative management is appropriate in hemodynamically stable patients without neurological deterioration, as seen in this case.[5]

From an obstetric perspective, the presence of foetal distress and compound presentation necessitated immediate delivery. Emergency LSCS is often indicated in such situations to improve foetal outcome.[6]

Magnesium sulphate remains the gold standard for seizure management in eclampsia, including atypical cases, and was appropriately used in this patient.[7] Concurrent administration of antiepileptic agents such as levetiracetam is beneficial when seizures may have a neurological origin.[8]

This case emphasizes the importance of differentiating between neurological and obstetric causes of seizures and highlights the role of multidisciplinary management in achieving favourable maternal and foetal outcomes.[1]

CONCLUSION

This case highlights the rare and complex coexistence of traumatic brain injury and atypical eclampsia in late preterm pregnancy, presenting with recurrent seizures and acute foetal compromise. The absence of classical features of preeclampsia created a significant diagnostic challenge, emphasizing the importance of maintaining a high index of suspicion for atypical eclampsia in pregnant patients presenting with seizures, even in the setting of trauma.

Prompt maternal stabilization, timely neuroimaging, rapid obstetric intervention, and coordinated multidisciplinary management involving obstetricians, neurosurgeons, radiologists, anaesthesiologists, and neonatologists were crucial in achieving favourable maternal and neonatal outcomes. Conservative management of the epidural hematoma with vigilant monitoring proved successful in this hemodynamically stable patient. This case underscores the need for early recognition and individualized management strategies in concurrent obstetric and neurological emergencies to reduce maternal and perinatal morbidity and mortality.

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