

Severe Antepartum Eclampsia Complicated by Intrauterine Fetal Demise and Pulmonary Edema: A Case Report

Abdinasir muhadin Abdulle¹, Abdiwali Mohamed Hussein¹, Mariam Mohamed Mohamud Adawe², Fahmo Hussein Ibrahim², Nasteho Mohamud Mudei², Hamdi Abdi Ali³

¹Department of ICU, Dr. Sumait Hospital, SIMAD University, Mogadishu, Somalia; ²Department of Obstetrics & Gynecology, Dr. Sumait hospitals, SIMAD University, Mogadishu, Somalia; ³Department of Anesthesia, Dr. Sumait Hospital, SIMAD University, Mogadishu, Somalia

Correspondence: Abdinasir muhadin Abdulle, Department of ICU, Dr. Sumait Hospital, SIMAD University, Mogadishu, Somalia, Email naasirgaraad1@gmail.com

Background: Eclampsia remains a leading cause of maternal mortality in low-resource settings, particularly among adolescent primigravida with limited antenatal care. This report describes the management of severe eclampsia complicated by intrauterine fetal demise (IUFD) and multiorgan dysfunction in a 17-year-old primigravida at 35 weeks gestation in Mogadishu, Somalia.

Case Presentation: A 17-year-old primigravida presented with generalized tonic-clonic seizures, Oxygen saturation of 78% (SPO₂), blood glucose of 47 mg/dL, and elevated blood pressure of 140/90 mmHg. Initial findings included generalized edema, absent fetal heart rate, proteinuria (+++), acute kidney injury (creatinine 1.76 mg/dL), borderline thrombocytopenia (platelets $152 \times 10^9/L$ at admission, declining to $113 \times 10^9/L$ by Day 2), and transaminitis (AST 527 U/L, ALT 370.2 U/L). Obstetric ultrasound confirmed IUFD. Following resuscitation, magnesium sulfate seizure prophylaxis, intubation, and mechanical ventilation, she underwent emergency cesarean section delivering a macerated stillborn fetus weighing 2.13 kg. Chest radiography showed bilateral pulmonary opacities consistent with pulmonary edema. Postoperative intensive care included broad-spectrum antibiotics, furosemide and gradual ventilatory weaning. She was extubated on day 5 and discharged in stable condition on day 7.

Conclusion: Multidisciplinary critical care enabled maternal survival despite severe physiological derangements, highlighting the need for enhanced emergency obstetric and ICU capacity in Somalia.

Keywords: eclampsia, adolescent pregnancy, intrauterine fetal demise, maternal critical care, low-resource setting, Somalia

Introduction

Eclampsia, a new-onset generalized tonic-clonic seizures in the context of preeclampsia, without another neurological cause represents the most severe end of the hypertensive disorders of pregnancy (HDP) spectrum.¹ Globally, it complicates approximately 0.3% of pregnancies, rising to 0.5% in low- and middle-income countries (LMICs), and carries a case-fatality rate of up to 18.4% in East Africa.^{2,3}

Somalia ranks among the countries with the highest maternal mortality ratios worldwide.⁴ Structural barriers including low antenatal care (ANC) coverage, limited skilled birth attendance, and critically constrained emergency obstetric capacity create conditions in which eclampsia frequently presents late and in its most severe form.^{4,5} A facility-based study in Mogadishu identified eclampsia among the leading causes of maternal near-miss morbidity, with absent ANC and delayed care-seeking as key determinants.⁴

Young primigravidas carry a disproportionate burden: up to one-third of eclampsia cases occur in women under 20 years of age, a group already at elevated risk for preterm birth, intrauterine growth restriction (IUGR), and stillbirth.^{1,6} When eclampsia in this population is further complicated by intrauterine fetal death (IUFD) and pulmonary edema, the clinical management demands simultaneous resuscitation across multiple organ systems, a formidable challenge even in well-resourced settings.^{7,8}

The pathophysiology centers on defective trophoblastic invasion leading to placental ischemia, systemic endothelial dysfunction, and disruption of blood-brain barrier integrity, which together precipitate the seizure threshold and enable rapid multiorgan deterioration.^{1,7}

Delivery is the only definitive treatment with carefully timing alongside aggressive maternal stabilization.¹

This case presents a 17-year-old primigravida at 35 weeks who developed severe antepartum eclampsia complicated by IUFD and pulmonary edema in Mogadishu. The educational value lies in three areas: the diagnostic challenge of managing concurrent life-threatening derangements in a resource-limited setting, the decision-making around delivery timing under hemodynamic instability, and the coordinated multidisciplinary approach that achieved a favorable maternal outcome. This report aims to highlight the clinical challenges and to contribute to the limited literature on eclampsia management in Somalia.

Case Presentation

A 17-year-old primigravida at 35 weeks of gestation was brought to the emergency department following a sudden onset of generalized tonic-clonic seizures associated with decreased level of consciousness. She was from the outskirts of Mogadishu. According to her husband, she had a five-day history of persistent headache, insomnia, bilateral lower limb edema, and absence of fetal movements. There was no known history of chronic medical illness, including hypertension, renal disease, or neurological disorders. Relatives reported that she had been in her usual state of health prior to this acute event.

On admission, the patient was critically ill. Vital signs were as follows: blood pressure 140/90 mmHg, pulse rate 130 beats per minute, respiratory rate 28 breaths per minute, oxygen saturation (SpO₂) 78% on room air, and temperature 36.5°C. Capillary blood glucose was 47 mg/dL.

On general examination, the patient was unconscious with a Glasgow Coma Scale (GCS) score of 10/15 (E3V3M4). She had generalized edema and conjunctival pallor. No jaundice or cyanosis was observed.

Abdominal (obstetric) examination revealed a symphysis-fundal height of 34 cm. The fetus was in cephalic presentation. Fetal heart sounds were absent, and no uterine contractions were palpated. Vaginal examination revealed no evidence of bleeding, and the cervix was closed. Initial resuscitation included oxygen administration via a non-rebreather mask at 15 L/min. Intravenous 5% dextrose (20 g) was administered, resulting in correction of blood glucose to 121 mg/dL.

Laboratory investigations showed leukocytosis ($12.23 \times 10^9/L$), elevated serum creatinine (1.76 mg/dL), and marked transaminitis (AST 527 U/L; ALT 370.2 U/L). Urinalysis revealed significant proteinuria (+++) (Table 1).

Obstetric ultrasound demonstrated a single intrauterine fetus with absent cardiac activity and no fetal movements, consistent with intrauterine fetal demise (IUFD). The fetus was in cephalic presentation with right lateral positioning, corresponding to 35 weeks of gestation, with a fetal weight of 2518 ± 381 g. The placenta was anterior with grade 1 calcification, and moderate oligohydramnios was noted.

Chest radiography revealed mild cardiomegaly with bilateral pulmonary opacities and vascular congestion, suggestive of pulmonary edema (Figure 1). Electrocardiography showed sinus tachycardia. Transthoracic echocardiography demonstrated normal cardiac chamber size and function, with no evidence of valvular abnormalities.

Based on the diagnosis of severe eclampsia complicated by IUFD, the patient underwent an emergency cesarean section as a definitive intervention to prevent further maternal deterioration. A dead, macerated fetus weighing 2.13 kg was delivered. The patient was subsequently transferred to the intensive care unit (ICU) for postoperative management.

In the ICU, the patient remained intubated and mechanically ventilated using synchronized intermittent mandatory ventilation (SIMV) mode with an FiO₂ of 100%. She was kept nil per os and received intravenous maintenance fluids at 100 mL/hour. Sedation and analgesia were maintained with fentanyl and midazolam infusions.

Seizure prophylaxis was continued with magnesium sulfate (4 g loading dose followed by continuous infusion at 1 g/hour). Blood pressure was managed with oral methyldopa 250 mg three times daily. Additional management included broad-spectrum antibiotics, proton pump inhibitors, and intravenous furosemide.

Table 1 Serial Trends in Hematologic, Biochemical, Liver Function, Urinalysis, Arterial Blood Gas, and Ventilatory Parameters Over the Course in Intensive Care Unit

Parameter	Day 1	Day 2	Day 3	Day 4	Day 5
Hematologic/Biochemical					
WBC ($\times 10^9/L$)	12.23	14.18	7.71	5.66	6.5
Hemoglobin (g/dL)	11.7	10.8	10.6	9.8	9.7
Platelets ($\times 10^9/L$)	152	113	137	118	113
Sodium (mmol/L)	143	146	149.7	155	157.5
Potassium (mmol/L)	3.18	3.71	3.42	2.94	3.51
Magnesium (mg/dL)	2.9	2.9	2.9	2.9	2.9
Creatinine (mg/dL)	1.76	2.0	1.89	1.59	0.91
Blood Urea (mg/dL)	19.34	50	60.46	54.9	36.2
ALT (U/L)	370.2	384.3	265.2	166	95
AST (U/L)	527	482.7	161.5	59.1	29
Albumin (g/dL)	—	2.4	2.9	3.2	—
Urine Protein	+++	++	++	+	Trace
Arterial Blood Gas					
pH	7.28	7.32	7.38	7.41	7.43
PaCO ₂ (mmHg)	48	44	40	38	37
PaO ₂ (mmHg)	68	82	91	96	98
HCO ₃ ⁻ (mEq/L)	19	21	23	24	24
Ventilatory Parameters					
FiO ₂	100%	75%	50%	45%	40%
PEEP (cmH ₂ O)	12	10	8	6	6

Serial arterial blood gas analyses remained within normal limits throughout the ICU stay. Ventilatory support was gradually reduced in accordance with clinical improvement, with stepwise reduction in FiO₂ and positive end-expiratory pressure (PEEP) (Table 1).

Serial laboratory monitoring demonstrated progressive improvement. White blood cell count decreased to $7.71 \times 10^9/L$ on day 3 and $5.66 \times 10^9/L$ on day 4. Liver enzymes showed a steady decline, with ALT decreasing to 265.2 U/L on day 3, 166 U/L on day 4, and 95 U/L on day 5. AST decreased from 527 U/L on day 1 to 29 U/L on day 5 (Table 1).

By the fourth day of ICU admission, frothy endotracheal secretions had decreased, and oxygen saturation improved. Repeated chest x-ray demonstrated marked resolution of pulmonary opacities and vascular congestion (Figure 2).

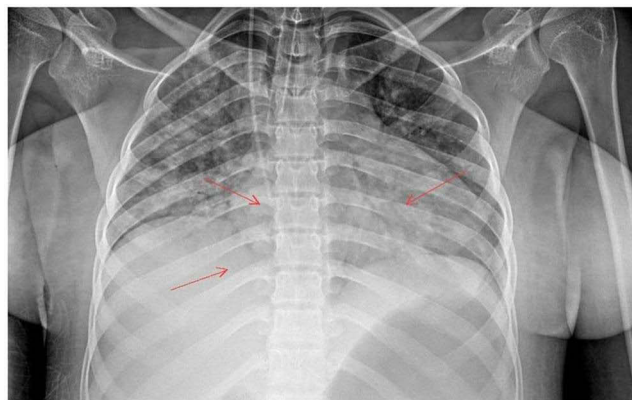


Figure 1 Admission chest radiograph: mild cardiomegaly, bilateral pulmonary opacities, and vascular congestion consistent with pulmonary edema. The red arrows indicate the bilateral perihilar and basal pulmonary opacities with vascular congestion that are consistent with pulmonary edema.



Figure 2 Day 4 chest radiograph: marked resolution of pulmonary opacities and congestion post-ventilation and diuresis; mild cardiomegaly persists. The red arrows indicate the same lung zones shown in Figure 1, now demonstrating marked clearing of the previously noted pulmonary opacities and vascular congestion.

The patient showed sustained clinical recovery. Mechanical ventilation was gradually weaned, and she was successfully extubated on day 5. She was subsequently transferred to the general ward for continued monitoring and supportive care.

Discussion

This case illustrates a fulminant presentation of severe antepartum eclampsia in a 17-year-old adolescent primigravida, characterized by generalized seizures, altered consciousness, proteinuria, acute kidney injury, hepatic injury, and pulmonary edema. Eclampsia represents the convulsive end of the preeclampsia spectrum and may rapidly progress to multiorgan dysfunction even without prior chronic hypertension.¹ The five-day prodrome of headache, lower-limb edema, and absent fetal movement suggests an evolving hypertensive disorder recognized only after severe maternal and fetal compromise had occurred, a pattern consistent with delayed care-seeking and absent antenatal surveillance in this setting.⁴

The IUFD in this case is consistent with profound uteroplacental insufficiency and hemodynamic instability associated with severe eclampsia. Abnormal placentation and endothelial dysfunction lead to uteroplacental insufficiency, while seizures, and hypoxia further compromise fetal perfusion.^{1,7} Although vaginal delivery is generally preferred after fetal demise, emergency cesarean section was justified by the critical neurological status (GCS 10/15), closed cervix, absence of labor, and the need for prompt delivery as definitive treatment for the eclamptic process.¹

Pulmonary edema is a recognized and life-threatening complication of severe eclampsia arising from converging pathophysiological mechanisms.^{7,8} Widespread endothelial dysfunction increases pulmonary capillary permeability, promoting fluid extravasation into the alveolar space. Hypoalbuminemia documented in this patient (albumin 2.4 g/dL on Day 2, Table 1) — reduces plasma oncotic pressure, further favoring alveolar edema. Concurrent renal dysfunction impairs fluid clearance, while elevated systemic vascular resistance increases cardiac afterload, contributing to hydrostatic edema. In this patient, furosemide diuresis combined with mechanical ventilation and PEEP effectively managed the pulmonary edema, with progressive improvement in oxygenation indices reflected in the ventilatory weaning trajectory (FiO₂ 100% on Day 1 to 40% by Day 5, Table 1).

Serum sodium rose progressively from 143 to 157.5 mmol/L over five ICU days (Table 1), constituting clinically significant hyponatremia by Days 4 and 5. This was likely driven by insensible free-water losses from mechanical ventilation combined with loop diuretic use in the absence of adequate free-water replacement. Potassium fell to 2.94 mmol/L on Day 4, consistent with furosemide-induced urinary losses, requiring supplementation. These electrolyte derangements are important and underappreciated considerations in mechanically ventilated obstetric patients receiving loop diuretics, warranting close serial monitoring.⁹ Serum magnesium was maintained at 2.9 mg/dL throughout the admission, reflecting therapeutic monitoring during magnesium sulfate infusion; this value is below the commonly cited therapeutic range of 4–7 mg/dL and warrants careful interpretation in the context of local monitoring protocols.

Management adhered to accepted principles for severe eclampsia: airway protection, seizure control with magnesium sulfate, antihypertensive therapy, and expedited delivery.¹ Magnesium sulfate remains the cornerstone of seizure prophylaxis and treatment.¹ This case reinforces three clinical lessons: eclampsia must be considered in any pregnant woman with new-onset seizures and altered consciousness even when admission blood pressure is not severely elevated; fetal demise does not diminish the urgency of maternal resuscitation and delivery; and coordinated obstetric-critical care management is essential for survival in resource-limited settings.^{4,5}

The favorable maternal outcome, despite multiple poor prognostic features including reduced consciousness, severe hypoxia, pulmonary edema, renal impairment, hepatic injury, and fetal death, may have been facilitated by rapid escalation to multidisciplinary critical care, prompt surgical delivery, and structured postoperative ICU management. This is consistent with Mogadishu-based data suggesting that early ICU escalation can mitigate mortality in eclamptic women.⁵

This case involved a patient from the outskirts of Mogadishu with no antenatal care, reinforcing the critical importance of community-based obstetric surveillance. Studies from Mogadishu have identified absent ANC, rural residence, and delayed care-seeking as major determinants of severe obstetric morbidity.⁴ Strengthening antenatal screening for high-risk primigravidas and expanding rural referral pathways remain essential system-level priorities.

Limitations

This case report has several limitations. First, findings from a single case cannot be generalized. Second, serial blood pressure measurements during the ICU stay were not consistently available in the medical record, limiting detailed assessment of hemodynamic trends and antihypertensive treatment response. Third, no coagulation studies (PT, aPTT, fibrinogen, D-dimer) were obtained despite a high risk of DIC, representing a significant diagnostic gap. Fourth, the serum magnesium values recorded (2.9 mg/dL) fall below the standard therapeutic range for magnesium sulfate therapy, and the absence of toxicity monitoring data limits interpretation. Fifth, no microbiological data were obtained to exclude an infectious contribution to the observed leukocytosis. Sixth, the progressive hypernatremia was clinically monitored but explicit free-water replacement documentation was absent from the record. Finally, no post-discharge follow-up data are available to assess long-term renal, hepatic, or neurological recovery.

Conclusion

This case demonstrates successful maternal management of severe antepartum eclampsia complicated by intrauterine fetal death, pulmonary edema, and multiorgan dysfunction in a 17-year-old primigravida from a resource-constrained setting. Despite multiple poor prognostic features including seizures, reduced consciousness, severe hypoxia, acute kidney injury, and hepatic injury, a coordinated multidisciplinary approach achieved full maternal recovery.

This case offers several practical clinical insights; Early ICU escalation and airway protection are critical in eclampsia presenting with altered consciousness. Pulmonary edema should be managed with a combination of furosemide diuresis and mechanical ventilation with PEEP, with oxygenation guided by serial ABG monitoring. Clinicians must anticipate and actively monitor for ICU-related complications, particularly hypernatremia and hypokalemia, in mechanically ventilated patients receiving loop diuretics. Fetal demise does not reduce the urgency of maternal resuscitation, and expedited delivery remains the definitive treatment regardless of fetal outcome.

At the system level, this case underscores the need to strengthen antenatal screening for high-risk primigravidas, expand rural referral pathways to emergency obstetric care, and build ICU capacity for managing hypertensive disorders of pregnancy in Somalia. These remain priorities, though broader conclusions are limited by the single-case nature of this report.

Abbreviations

ABG, Arterial Blood Gas; ANC, Antenatal Care; ALT, Alanine Aminotransferase; AST, Aspartate Aminotransferase; BID, Twice Daily; DIC, Disseminated Intravascular Coagulation; ET, Endotracheal Tube; FHR, Fetal Heart Rate; FiO₂, Fraction of Inspired Oxygen; GCS, Glasgow Coma Scale; HCO₃⁻, Bicarbonate; ICU, Intensive Care Unit; IUFD, Intrauterine Fetal Demise; IV, Intravenous; LMIC, Low- and Middle-Income Country; NPO, Nil Per Os; OD, Once Daily; PaCO₂, Partial Pressure of Carbon Dioxide; PaO₂, Partial Pressure of Oxygen; PEEP, Positive End-Expiratory Pressure (cmH₂O); SFH, Symphysiofundal

Height; SIMV, Synchronized Intermittent Mandatory Ventilation; SpO₂, Peripheral Oxygen Saturation; TDS, Three Times Daily; WBC, White Blood Cell.

Data Sharing Statement

The data supporting this case report's findings are available from the corresponding author upon reasonable request.

Ethical Approval and Consent

Ethical approval for this case report was obtained from the institutional ethics committee of Dr. Sumait Hospital, SIMAD University, Mogadishu, Somalia. Written informed consent for publication of this case report and any accompanying images was obtained from the patient's father as her legal guardian, given her age of 17 years. Assent was also obtained from the patient on Day 6 of admission, when she had regained full orientation and cognitive capacity, and prior to discharge. All procedures were conducted in accordance with the ethical standards of the institutional and national research committee and the Declaration of Helsinki.

Acknowledgments

We want to express our sincere gratitude and deep appreciation to the Center of Research and Development, SIMAD University, for their guidance and recommendations.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Funding

The authors received institutional support from SIMAD University, Mogadishu, Somalia.

Disclosure

As authors, we declare no financial or conflicts of interest in this case report.

References

1. Magley M, Hinson MR. Eclampsia. In: *StatPearls*. StatPearls Publishing; 2024.
2. Kidanemariam R, Teka H, Tadesse H, et al. Prevalence, clinical presentations, and feto-maternal outcomes of eclampsia in a teaching hospital setting in Tigray region, Ethiopia: a five-year review. *PLoS One*. 2025;20(10):e0332620. doi:10.1371/journal.pone.0332620
3. Vousden N, Lawley E, Seed PT, et al. Incidence of eclampsia and related complications across 10 low- and middle-resource geographical regions: secondary analysis of a cluster randomised controlled trial. *PLoS Med*. 2019;16(3):e1002775. doi:10.1371/journal.pmed.1002775
4. Dahie HA. Determinants of maternal near miss events among women admitted to tertiary hospitals in Mogadishu, Somalia: a facility-based case-control study. *BMC Pregnancy Childbirth*. 2022;22(1):658. doi:10.1186/s12884-022-04987-3
5. Hilowle NM, Ahmed SA, Ali KY, et al. Outcomes of women with preeclampsia and eclampsia admitted in the intensive care unit at a tertiary care hospital in Mogadishu, Somalia. *Anesthesiol Res Pract*. 2023;2023:6641434. doi:10.1155/2023/6641434
6. Uzunov AV, Secara DC, Mehedințu C, Cîrstoiu MM. Preeclampsia and neonatal outcomes in adolescent and adult patients. *J Med Life*. 2022;15(12):1488–1492. doi:10.25122/jml-2022-0264
7. Bartal MF, Sibai BM. Eclampsia in the 21st century. *Am J Obstet Gynecol*. 2022;226(2S):S1237–S1253. doi:10.1016/j.ajog.2020.09.037
8. Ngene NC, Moodley J. Preventing maternal morbidity and mortality from preeclampsia and eclampsia particularly in low- and middle-income countries. *Best Pract Res Clin Obstet Gynaecol*. 2024;94:102473. doi:10.1016/j.bpobgyn.2024.102473
9. Goldenberg RL, Jones B, Griffin JB, et al. Reducing maternal mortality from preeclampsia and eclampsia in low-resource countries-what should work? *Acta Obstet Gynecol Scand*. 2015;94(2):148–155. doi:10.1111/aogs.12533

International Journal of Women's Health**Publish your work in this journal**

The International Journal of Women's Health is an international, peer-reviewed open-access journal publishing original research, reports, editorials, reviews and commentaries on all aspects of women's healthcare including gynecology, obstetrics, and breast cancer. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/international-journal-of-womens-health-journal>

Dovepress
Taylor & Francis Group