EAS Journal of Anaesthesiology and Critical Care
Abbreviated Key Title: EAS J Anesthesiol Crit Care
ISSN: 2663-094X (Print) & ISSN: 2663-676X (Online)
Published By East African Scholars Publisher, Kenya

OPEN ACCESS

Volume-7 | Issue-3 | May-Jun-2025 | DOI: https://doi.org/10.36349/easjacc.2025.v07i03.003

Case Report

Acute Adrenal Insufficiency in a Pregnant Woman at 34 Weeks of Gestation in the Gyneco-Obstetric Intensive Care Unit: A Case Report

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Article History
Received: 05.02.2025
Accepted: 11.03.2025
Published: 24.05.2025

Journal homepage:
https://www.easpublisher.com

Quick Response Code

Abstract: Acute adrenal insufficiency (AAI) is a rare but potentially life-threatening endocrine emergency, particularly challenging in pregnancy due to overlapping symptoms with physiological changes and increased maternal-fetal risks. This report highlights the case of a 35-year-old woman with chronic adrenal insufficiency, presenting at 34 weeks of gestation with acute decompensation. Symptoms included severe abdominal pain and tonic-clonic seizures, confirmed by low cortisol levels and laboratory abnormalities. Prompt administration of hydrocortisone and emergency obstetric care ensured favorable maternal and fetal outcomes. The case underscores the importance of rapid diagnosis, appropriate glucocorticoid therapy, and a multidisciplinary approach to managing AAI in pregnancy. It also highlights the need for vigilant monitoring of pregnant women with chronic adrenal insufficiency to prevent decompensation. Early intervention is critical to reducing maternal and fetal morbidity and mortality.

Keywords: Acute adrenal insufficiency, Pregnancy, 34 weeks of gestation, Corticosteroid therapy, Multidisciplinary management, Maternal-fetal outcomes.

1. INTRODUCTION

Acute adrenal insufficiency, a rare but potentially life-threatening endocrine emergency, occurs when there is a severe deficiency of adrenal cortex hormones. In pregnant women, this condition presents unique challenges due to the physiological changes of pregnancy and the increased risks for both mother and fetus. We report the case of an 8-month-pregnant patient with decompensated acute adrenal insufficiency to highlight the diagnostic and therapeutic challenges in this delicate context.

2. CLINICAL OBSERVATION

This case involves a 35-year-old woman with a history of chronic adrenal insufficiency for two years, on regular treatment, who was hospitalized for acute decompensation at 8 months of pregnancy. She presented with a clinical picture dominated by intense abdominal pain and tonic-clonic seizures, suggestive of acute adrenal insufficiency.

On clinical examination, the patient was conscious, hemodynamically and respiratorily stable, with blood pressure at 151/85 mmHg, heart rate at 91 beats per minute, respiratory rate at 19 breaths per minute, and oxygen saturation of 98% on room air. The abdominal examination was unremarkable. However, laboratory tests revealed a significantly low cortisol level at 8:00 a.m., confirming the diagnosis of acute adrenal insufficiency.

Further laboratory findings included hemoglobin at 12.4 g/dL, white blood cell count at 12,100/mm³, platelets at 31,200/mm³, and sodium levels at 133 mmol/L. The acute decompensation was attributed to an underlying infection that led to premature rupture of membranes, necessitating an emergency delivery.

The patient was treated with hydrocortisone hemisuccinate (Hemoxinat), and emergency corticosteroid therapy was initiated, leading to progressive clinical improvement. A multidisciplinary approach ensured stabilization of the maternal and fetal outcomes.

3. DISCUSSION

Acute adrenal insufficiency (AAI) is a medical emergency, particularly challenging in pregnant women due to its often nonspecific clinical presentation. In our case, the 35-year-old patient presented with severe abdominal pain and tonic-clonic seizures, which are classic but nonspecific symptoms of acute adrenal

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insufficiency. Literature indicates that AAI may manifest with signs such as hypotension, abdominal pain, and neurological disturbances, sometimes mistaken for obstetric conditions like preeclampsia or eclampsia [1, 2]. Accurate differential diagnosis is therefore essential to avoid therapeutic errors.

Our patient exhibited elevated blood pressure (151/85 mmHg), which may appear unexpected as hypotension is more commonly associated with AAI [3]. However, literature reports cases where blood pressure remains normal or slightly elevated, especially in patients on glucocorticoid replacement therapy [4]. This observation aligns with the patient's chronic corticosteroid treatment.

Biologically, the significantly low cortisol level at 8:00 a.m. confirmed the diagnosis, consistent with international diagnostic guidelines [5]. Additionally, moderate leukocytosis (12,100/mm³) and significant thrombocytopenia (31,200/mm³) were observed. Leukocytosis, often seen in response to underlying infection, is a classic marker in cases of acute decompensation associated with adrenal insufficiency [2]. Thrombocytopenia, although less frequently reported, has been described in some case series, likely linked to the underlying infection and physiological stress [2].

Managing acute adrenal insufficiency in pregnant women poses therapeutic challenges due to implications for both mother and fetus. In our case, treatment involved the administration of hydrocortisone hemisuccinate, a reference glucocorticoid for emergency management of acute decompensations [6]. Literature clearly supports that emergency corticosteroid therapy, using rapid-acting glucocorticoids, is essential to stabilize the patient and prevent severe complications such as shock or sudden death [7]. Additionally, substitution corticosteroid therapy must be continued at adjusted doses throughout pregnancy to prevent recurrence of decompensation [2].

Premature rupture of membranes in our patient also posed an urgent obstetric challenge, requiring emergency delivery. This is consistent with observations in the literature, where obstetric infections such as chorioamnionitis are common triggers of decompensation in pregnant women with chronic adrenal insufficiency [8]. Stress induced by infection exacerbates adrenal insufficiency, increasing glucocorticoid demand, thereby necessitating higher therapeutic doses [5].

The multidisciplinary management of the patient, involving endocrinologists, obstetricians, and anesthesiologists, was essential for rapid and coordinated care. This approach is widely supported in the literature, which recommends interdisciplinary collaboration to address the complex aspects of AAI in pregnant patients [9]. Studies have shown that integrated management reduces maternal-fetal complications and improves overall prognosis [10].

In our case, the rapid clinical improvement following hydrocortisone hemisuccinate administration and multidisciplinary care ensured patient stabilization and favorable maternal and fetal outcomes. The prognosis for patients with acute adrenal insufficiency primarily depends on the speed of diagnosis and administration of appropriate treatment. According to Hahner *et al*., delayed management can lead to high maternal mortality rates, reaching up to 15% in severe cases [5]. However, with timely treatment, survival rates exceed 90% [11].

Literature establishes that the majority of patients with acute adrenal insufficiency, when treated appropriately, experience significant clinical improvement with corticosteroids and survive the acute decompensation [8]. In our case, the absence of major maternal or fetal complications, apart from premature rupture of membranes, reflects the effectiveness of management. This aligns with previous studies showing generally favorable fetal outcomes when adrenal crises are promptly managed, with low perinatal mortality rates [2, 10].

Another critical aspect is the long-term management of chronic adrenal insufficiency postpartum. In our case, the patient continued regular follow-up with adjusted corticosteroid doses, as recommended by current protocols [3]. Data indicate that women with chronic adrenal insufficiency require close monitoring during the postpartum period, as they are at risk of relapses or adrenal crises in the months following delivery.

Acute adrenal insufficiency during pregnancy remains a significant challenge due to its often nonspecific presentation and urgent nature. Management should be optimized through close monitoring of pregnant women with chronic adrenal insufficiency, especially in the later stages of pregnancy, where glucocorticoid demands increase significantly. Literature suggests that adjusting corticosteroid doses according to pregnancy trimesters and obstetric stressors, such as infection or labor, is crucial to prevent acute decompensation [12].

Incorporating a multidisciplinary approach in managing these patients, as demonstrated in our case, is also recommended. Coordinated efforts among endocrinologists, obstetricians, and anesthesiologists are essential to minimize maternal-fetal complications and ensure appropriate care during critical events such as delivery [13]. Recent studies indicate that patients receiving multidisciplinary management experience better maternal-fetal outcomes and reduced perinatal complications [14].

Finally, research perspectives include the need for further studies to better understand predictive factors for acute decompensation during pregnancy, as well as optimization of treatment protocols for patients with chronic adrenal insufficiency [15]. Clinical trials could explore the impact of different glucocorticoid regimens on maternal-fetal outcomes to determine the most effective therapeutic approaches for preventing acute adrenal crises during pregnancy.

4. CONCLUSION

Acute adrenal insufficiency during pregnancy is a rare but potentially life-threatening endocrine emergency. The presented case highlights the importance of rapid diagnosis and immediate glucocorticoid treatment to prevent severe complications. Multidisciplinary collaboration is essential to ensure optimal management of these patients. Patient education and close monitoring throughout pregnancy are also necessary to prevent acute decompensations.

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Cite this article: K. El Ouafi, K. Ouahmane, A. Raja, Y. Hafiani, I. El Youssoufi, S. Salmi (2025). Acute Adrenal Insufficiency in a Pregnant Woman at 34 Weeks of Gestation in the Gyneco-Obstetric Intensive Care Unit: A Case Report. *EAS J Anesthesiol Crit Care*, *7*(3), 47-49.