South Health and Policy. 2025; 4:342
doi: 10.56294/shp2025342

CASE REPORT

Puerperal eclampsia in the immediate postoperative period of cesarean section: a critical obstetric emergency

Eclampsia puerperal en el posoperatorio inmediato de cesárea: una emergencia obstétrica crítica

Laura Pamela Mamani Manzaneda[1], Jose Antonio Uzeda Peredo[1], Jhossmar Cristians Auza-Santivañez[2], Albert Brayam Monasterios Blanco[3], Daniel Ramiro Elías Vallejos-Rejas[4], Camila Tassoula Egüez-Pereira[4], Carmen Julia Salvatierra-Rocha[5], Marlon Carbonell González[6]

[1]Hospital Petrolero de Obrajes - Caja Petrolera de Salud. La Paz, Bolivia.
[2]Ministerio de Salud y Deportes. Instituto Académico Científico Quispe-Cornejo. La Paz, Bolivia.
[3]Ministerio de Salud y Deportes. La Paz, Bolivia.
[4]Facultad de Medicina. Universidad Privada del Valle Bolivia. Santa Cruz, Bolivia.
[5]Seguro Social Universitario Santa Cruz. Clínica Foianini. Santa Cruz, Bolivia.
[6]Hospital Clínico Quirúrgico Miguel Enríquez. Unidad de Cuidados Intensivos. La Habana, Cuba.

Cite as: Mamani Manzaneda LP, Uzeda Peredo JA, Auza-Santivañez JC, Monasterios Blanco AB, Vallejos-Rejas DRE, Egüez-Pereira CT, et al. Puerperal eclampsia in the immediate postoperative period of cesarean section: a critical obstetric emergency. South Health and Policy. 2025; 4:342. https://doi.org/10.56294/shp2025342

Submitted: 24-01-2025 **Revised:** 04-05-2025 **Accepted:** 14-08-2025 **Published:** 15-08-2025

Editor: Dr. Telmo Raúl Aveiro-Róbalo

Corresponding author: Jhossmar Cristians Auza-Santivañez

ABSTRACT

Eclampsia is a serious and potentially life-threatening complication of hypertensive disorders of pregnancy, characterized by the onset of new-onset seizures (tonic-clonic, focal, or multifocal) in the absence of other identifiable neurological causes. Most cases of eclampsia manifest postpartum, with the first 48 hours being the highest risk period. Recent literature has documented the emergence of atypical forms of eclampsia, in which seizures can occur in the absence of hypertension or proteinuria. The unpredictable nature of these cases makes timely diagnosis and management difficult. A 29-year-old female patient at approximately 40,6 weeks presented to the emergency department with prodromes of labor. An obstetric ultrasound was performed, and given the diagnosis of risk of loss of fetal well-being, an emergency segmental cesarean section was performed. Approximately four hours after the cesarean section, the patient presented two generalized tonic-clonic seizures. Anticonvulsant treatment was administered, a diagnosis of puerperal eclampsia was established, and her transfer to the Intensive Care Unit (ICU) was coordinated. The therapeutic plan in the ICU included an infusion of phenytoin as an anticonvulsant, antihypertensive management with alpha-methyldopa, hemodynamic support, correction of fluid and electrolyte imbalance, and empirical antibiotic therapy due to suspected urinary tract infection. Her subsequent evolution was favorable, remaining afebrile, hemodynamically stable, and without recurrence of seizures. The unusual presentation of puerperal eclampsia in the immediate postoperative period, in the initial absence of the classic diagnostic criteria of hypertension and proteinuria, is significant and of academic value. This case underscores the importance of maintaining a high level of clinical suspicion for eclampsia in the immediate postpartum period, even without prior criteria for preeclampsia. Early recognition and the timely use of magnesium sulfate are essential to reduce maternal morbidity and mortality.

Keywords: Puerperal Eclampsia; Postpartum Seizures; Atypical Presentation; Hypertensive Disorders of Pregnancy.

RESUMEN

La eclampsia es una complicación grave y potencialmente mortal de los trastornos hipertensivos del embarazo, caracterizada por la aparición de convulsiones de nuevo inicio (tónico-clónicas, focales o multifocales) en ausencia de otras causas neurológicas identificables. La mayor parte de los casos de eclampsia se manifiestan en el postparto, siendo el primer periodo de 48 horas el de más alto riesgo. la literatura reciente ha documentado la emergencia de formas atípicas de eclampsia, en las que las convulsiones pueden ocurrir en ausencia de hipertensión o proteinuria. La naturaleza impredecible de estos casos dificulta el diagnóstico y el manejo oportunos. Paciente femenina de 29 años de aproximadamente 40,6 semanas que acude al servicio de urgencias por presentar pródromos de trabajo de parto, se realizó una ecografía obstétrica y ante el diagnóstico de Riesgo de Pérdida de Bienestar Fetal, se decidió realizar una cesárea segmentaria de emergencia. Aproximadamente cuatro horas después de la cesárea, la paciente presentó dos convulsiones tónico-clónicas generalizadas. Se administró tratamiento anticonvulsivo, se estableció el diagnóstico de Eclampsia Puerperal y se coordinó su traslado a la Unidad de Terapia Intensiva (UTI). El plan terapéutico en la UTI incluyó la infusión de fenitoína como anticonvulsivante, manejo antihipertensivo con alfametildopa, soporte hemodinámico, corrección del desequilibrio hidroelectrolítico y antibioticoterapia empírica ante la sospecha de una infección del tracto urinario. Su evolución posterior fue favorable, manteniéndose afebril, hemodinámicamente estable y sin recurrencia de las convulsiones. la presentación inusual de eclampsia puerperal en el posoperatorio inmediato en ausencia inicial de los criterios diagnósticos clásicos de hipertensión y proteinuria, es de significativo y de valor académico. Este caso subraya la importancia de mantener un alto índice de sospecha clínica de eclampsia en el posparto inmediato, incluso sin criterios previos de preeclampsia. El reconocimiento temprano y el uso oportuno de sulfato de magnesio son fundamentales para reducir la morbimortalidad materna.

Palabras clave: Eclampsia Puerperal; Convulsiones Posparto; Presentación Atípica; Trastornos Hipertensivos del Embarazo.

INTRODUCTION

Eclampsia is a serious and potentially fatal complication of hypertensive disorders of pregnancy, characterized by the onset of new-onset seizures (tonic-clonic, focal, or multifocal) in the absence of other identifiable neurological causes.[1] It affects approximately 2-8 % of pregnancies worldwide[2,3] and occurs in 2-3 % of patients with preeclampsia.[4] As one of the leading causes of maternal and perinatal mortality, its timely diagnosis and immediate management, including seizure control with magnesium sulfate and appropriate termination of pregnancy, are crucial to mitigate maternal and fetal complications. Most cases of eclampsia occur in the postpartum period, with the first 48 hours being the highest risk period. [1]Classically, preeclampsia and, by extension, eclampsia have been defined by the concomitant presence of significant hypertension and proteinuria. In fact, most women who develop these conditions exhibit these signs between 20 weeks of gestation and 48 hours postpartum. However, recent literature has documented the emergence of atypical forms of eclampsia, in which seizures can occur in the absence of hypertension or proteinuria.[1] These atypical presentations account for approximately 8 % of eclampsia cases, and studies have found that up to 38 % of eclampsia convulsions occur before these signs are documented.[2,5] The unpredictable nature of these cases makes timely diagnosis and management difficult.[5] This case report of a primigravida patient who developed generalized tonic-clonic seizures four hours after a cesarean section, with no history of hypertension or proteinuria at baseline, although mild hypertension and slight proteinuria were subsequently identified.

The objective is to highlight the unusual presentation of puerperal eclampsia in the immediate postoperative period in the initial absence of the classic diagnostic criteria of hypertension and proteinuria, which is of significant academic and clinical value. This case underscores the need to maintain a high index of clinical suspicion and consider the diagnosis of eclampsia even in the absence of typical features, given that early recognition is critical for the prevention of maternal and neonatal morbidity and mortality.[6]

CLINICAL CASE

A 29-year-old female patient, primigravida, from and residing in La Paz, Bolivia, with a relevant personal medical history of moderate anemia in childhood, treated intermittently with ferrous sulfate. In December 2024, she was diagnosed with fungal colpitis, for which she was prescribed treatment with vaginal clotrimazole, which she did not complete. She reports no allergies, tobacco, alcohol, or drug use. Her gynecological and obstetric history includes menarche at age 15 with regular menstrual cycles (28/4 days), onset of sexual activity at age 17, nulliparous (G0), nulliparous (P0), null abortions (A0), and no cesarean sections (C0). Her

last menstrual period (LMP) was on April 29, 2024. The estimated gestational age at admission was 40,6 weeks. The patient denied using contraception and had no history of sexually transmitted infections. Her last cervical smear was in 2013, with normal results. She had 10 adequate prenatal checkups.

The patient presented to the emergency department with prodromal labor, with a clinical picture of progressively intense contractile abdominal pain radiating to the lumbar region, accompanied by the expulsion of a mucous plug. On physical examination upon admission, the following vital signs were recorded: blood pressure 100/70 mmHg, heart rate 102 beats per minute (bpm), respiratory rate 20 breaths per minute (rpm), temperature 37 °C, and oxygen saturation 93 %.

An obstetric ultrasound was performed, which reported a pregnancy of 37,2 weeks according to fetal biometry, with a single live fetus in cephalic presentation, estimated fetal weight of 3 556 g, and pathological findings of severe oligohydramnios (amniotic fluid index: 2 cm) and an altered fetal Doppler profile. Given the diagnosis of risk of fetal distress, an emergency segmental cesarean section was decided. During the surgical procedure, a live female newborn was delivered, weighing 3 030 g and measuring 50 cm, with no immediate neonatal complications. The estimated intraoperative blood loss was 350 ml. Approximately four hours after the cesarean section, while in the recovery room, the patient had two generalized tonic-clonic seizures without sphincter relaxation. Intravenous midazolam was administered as immediate treatment. Based on the clinical picture, a diagnosis of puerperal eclampsia was established, and her transfer to the intensive care unit (ICU) was coordinated. Upon admission to the ICU, the patient was in a stable neurological state (Glasgow Coma Scale 15/15), with no signs of neurological focalization. Blood pressure readings of 135/90 mmHg were documented, with a subsequent peak of 145/90 mmHg. Initial laboratory studies showed mildly impaired renal function (creatinine: 1,1 mg/dL), mild hyponatremia (133 mmol/L), mild anemia (hemoglobin: 9,7 g/dL), and proteinuria on urine examination. No criteria for HELLP syndrome were found.

The therapeutic plan in the ICU included the infusion of phenytoin as an anticonvulsant, antihypertensive management with alphamethyldopa, hemodynamic support, correction of electrolyte imbalance, and empirical antibiotic therapy for suspected urinary tract infection. In addition, two units of packed red blood cells and three units of fresh frozen plasma were transfused due to anemia and an initial alteration in coagulation parameters. After 48 hours of management and stabilization in the ICU, the patient was transferred to the postpartum ward. Her subsequent evolution was favorable, remaining afebrile, hemodynamically stable, and without recurrence of seizures. Oral antihypertensive treatment was continued, and progressive improvement in laboratory results was observed. Neurologically, she remained alert, oriented, and without deficits. Finally, she was discharged with instructions for outpatient follow-up by the Gynecology and Obstetrics service.

DISCUSSION

Eclampsia is classically defined as the onset of seizures in a woman with preeclampsia, without other attributable causes. Traditionally, preeclampsia is associated with hypertension and significant proteinuria. Overall, the modeled incidence of preeclampsia and eclampsia is approximately 4,6 % and 1,4 % of all deliveries, respectively, with wide regional variation. Eclampsia can occur before, during, or after delivery.About one-third of women with eclampsia have their first seizure after the birth of their baby.[4,7] The highest risk of eclampsia occurs in the first week postpartum, with early postpartum eclampsia occurring within the first 48 hours after delivery, as in the case presented. The peculiarity of our case lies in the absence of classic signs of preeclampsia (hypertension or overt proteinuria) before the onset of seizures. The literature has documented that eclampsia can occur without warning.[1] In fact, a significant percentage of women, between 20 % and 38 %, do not show the classic signs of preeclampsia before the convulsive episode. [2] In addition, it has been observed that 21 % of female patients with eclampsia had normal blood pressure (≤140/90 mmHg).[7] This challenges the notion of a linear progression from preeclampsia to eclampsia.[1,2] Our case, where the patient was normotensive and norm us in the prenatal period and only showed a slight elevation in blood pressure and proteinuria after the seizures, is a clear example of this atypical presentation.[1,6] Regarding pathophysiology, it has been debated whether the neurological symptoms of eclampsia are due to vasospasm or cerebral hyperperfusion causing cerebral edema formation. Current evidence suggests that eclampsia is a form of posterior reversible encephalopathy syndrome (PRES), characterized by reversible abnormalities on neuroimaging that are suggestive of cerebral edema.[7] Endothelial cell dysfunction is central to the pathogenesis of preeclampsia, leading to vasospasm, plasma transudation, and ischemia, and in atypical cases, organ involvement may begin with the brain.[2] PRES lesions mainly affect the posterior brain, occipital and parietal cortices, although other areas may also be involved. Interendothelial cell leakage, associated with preeclampsia, develops at much lower blood pressure levels than would normally cause vasogenic edema, and is accompanied by a loss of autoregulation of the upper limit of cerebral blood flow.[11,12] The clinical implications are significant. It is crucial to maintain a high index of clinical suspicion for eclampsia, even in patients who do not present with classic signs of preeclampsia during pregnancy or before delivery. The need for neurological surveillance in the postpartum period, especially in patients without a history of hypertension, is essential for early detection.[13,14] In a post-cesarean context, it

is imperative to consider eclampsia in the differential diagnosis when seizures occur, as timely diagnosis and treatment, such as the administration of magnesium sulfate, are critical to prevent serious maternal and fetal complications.[1] It is important to highlight the flowchart-based approach used in our hospital. (figure 1)

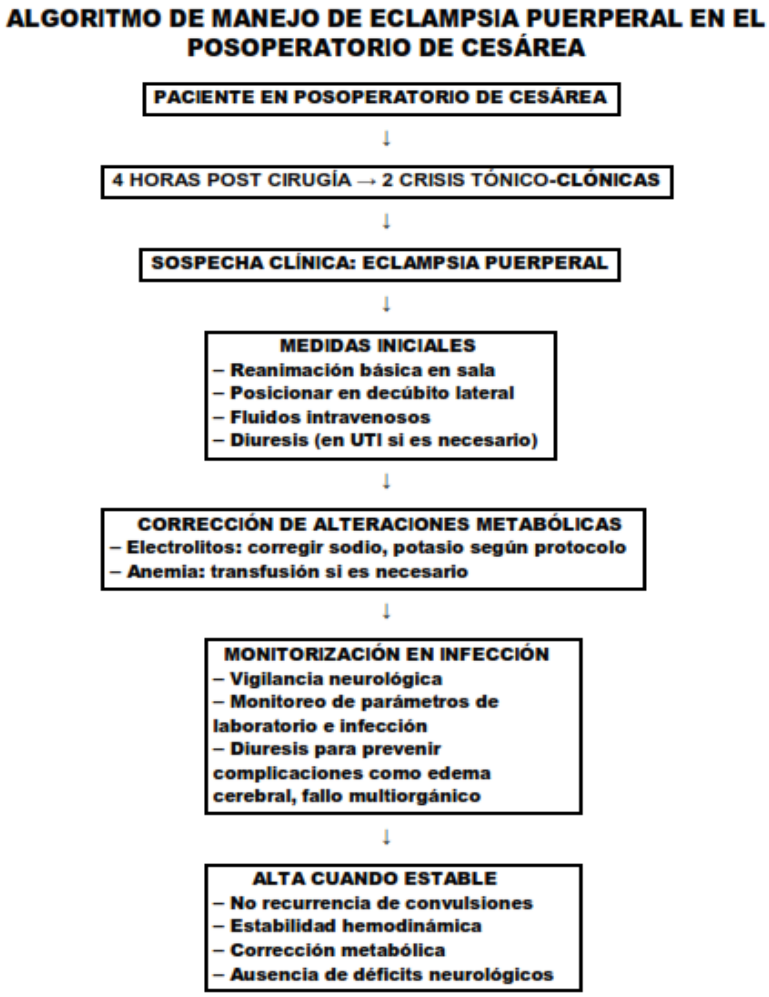

Figure 1. Algorithm for the management of puerperal eclampsia in the postoperative period following cesarean section

CONCLUSIONS

The clinical case describes the onset of generalized tonic-clonic seizures, with no history of hypertension or proteinuria. This presentation challenges the classic profile of eclampsia and aligns with curry evidence indicating that up to 38 % of cases may present without prior diagnosis of hypertension or proteinuria and even with normal blood pressure readings. This case highlights the importance of maintaining a high index of clinical suspicion for eclampsia in the immediate postpartum period, even in the absence of previous criteria for preeclampsia. Assessment of clinical symptoms and blood pressure monitoring remain the most effective methods for diagnosing eclampsia, allowing for early intervention. Close neurological monitoring and the inclusion of eclampsia in the differential diagnosis of any neurological symptoms are also highlighted. Post-seizure treatment includes monitoring and management of potential complications. Early recognition and timely use of magnesium sulfate are essential to reduce maternal morbidity and mortality.

BIBLIOGRAPHICAL REFERENCES

1. Magley M, Hinson MR. Eclampsia. [Updated 2024 Oct 6]. En: StatPearls. Treasure Island (FL): StatPearls Publishing; 2025. Disponible en: https://www-ncbi-nlm-nih-gov.translate.goog/books/NBK554392/?_x_tr_sl=en&_x_tr_tl=es&_x_tr_hl=es&_x_tr_pto=tc

2. American College of Obstetricians and Gynecologists' Committee on Practice Bulletins-Obstetrics. Gestational hypertension and preeclampsia: ACOG Practice Bulletin, number 222. Obstet Gynecol. 2020;135(6):e237-60. Disponible en: http://dx.doi.org/10.1097/AOG.0000000000003891

3. Duley L. The global impact of pre-eclampsia and eclampsia. Semin Perinatol. 2009;33(3):130-7. Disponible en: http://dx.doi.org/10.1053/j.semperi.2009.02.010

4. Pérez Nisperuza MJ, Sarmiento Lombana MV, Gómez Rodríguez RA, Ortega López NP, Ordosgoitia Betín ME, Soto Lara KM, et al. Actualización del manejo de la eclampsia: ¿qué ha cambiado? Cienc Lat. 2024;8(3):220-32. Disponible en: http://dx.doi.org/10.37811/cl_rcm.v8i3.11205

5. Albayrak M, Ozdemir I, Demiraran Y, Dikici S. Atypical preeclampsia and eclampsia: report of four cases and review of the literature. J Turk Ger Gynecol Assoc. 2010;11(2):115-7. Disponible en: http://dx.doi.org/10.5152/jtgga.2010.014

6. Ghadiali T, Nguyen MT, Lee RH, Sasso EB. Atypical eclampsia in a normotensive patient with altered mental status and severely elevated transaminases: case report and review. Int J Gynaecol Obstet. 2024;164(2):476-81. Disponible en: http://dx.doi.org/10.1002/ijgo.14975

7. Cipolla MJ. Cerebrovascular function in pregnancy and eclampsia. Hypertension. 2007;50(1):14-24. Disponible en: http://dx.doi.org/10.1161/hypertensionaha.106.079442

8. Acosta Aguirre Y, Bosch Costafreda C, López Barroso R, Rodríguez Reyes O, Rodríguez Yero D. Preeclampsia y eclampsia en el período gravídico y puerperal en pacientes ingresadas en cuidados intensivos. Rev Cuba Obstet Ginecol. 2019;45(1):14-24. Disponible en: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0138-600X2019000100014&lang=es

9. Abalos E, Cuesta C, Grosso AL, Chou D, Say L. Global and regional estimates of preeclampsia and eclampsia: a systematic review. Eur J Obstet Gynecol Reprod Biol. 2013;170(1):1-7. Disponible en: http://dx.doi.org/10.1016/j.ejogrb.2013.05.005

10. Diaz V, Long Q, Oladapo OT. Alternative magnesium sulphate regimens for women with pre-eclampsia and eclampsia. Cochrane Database Syst Rev. 2023;10(10):CD007388. Disponible en: http://dx.doi.org/10.1002/14651858.CD007388.pub3

11. Cunningham FG, Leveno KJ, Bloom SL, Dashe JS, Hoffman BL, Casey BM, et al. Williams Obstetrics. 26th ed. New York: McGraw-Hill; 2022.

12. Hassan H, Zaarour M. Case of postpartum eclampsia in a patient with isolated proteinuria. Int J Case Rep Images Obstet Gynecol. 2019;5:1. Disponible en: http://dx.doi.org/10.5348/100053z08hh2019cr

13. Anandan S, Rajendran SS, Kumar JP, Shajee DS. Late postpartum eclampsia with “normal” blood pressure. J Assoc Physicians India. 2024;72(10):e37-8. Disponible en: https://japi.org/article/japi-72-10-e37

14. Norwitz E. Eclampsia. UpToDate. 2025. Disponible en: https://www.uptodate.com/contents/eclampsia

FUNDING

The authors did not receive funding for the implementation of this study.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHOR CONTRIBUTION

Conceptualization: Laura Pamela Mamani Manzaneda, Jhossmar Cristians Auza-Santivañez.
Formal analysis: Jose Antonio Uzeda Peredo, Camila Tassoula Egüez-Pereira.
Research: Laura Pamela Mamani Manzaneda, Marlon Carbonell González.
Methodology: Daniel Ramiro Elías Vallejos-Rejas, Jhossmar Cristians Auza-Santivañez.
Project management: Marlon Carbonell González.
Supervision: Albert Brayam Monasterios Blanco.
Visualization: Carmen Julia Salvatierra-Rocha, Camila Tassoula Egüez-Pereira.
Writing – original draft: Laura Pamela Mamani Manzaneda, Jose Antonio Uzeda Peredo, Jhossmar Cristians Auza-Santivañez, Albert Brayam Monasterios Blanco, Daniel Ramiro Elías Vallejos-Rejas, Camila Tassoula Egüez-Pereira, Carmen Julia Salvatierra-Rocha, Marlon Carbonell González.

Writing – revision and editing: Laura Pamela Mamani Manzaneda, Jose Antonio Uzeda Peredo, Jhossmar Cristians Auza-Santivañez, Albert Brayam Monasterios Blanco, Daniel Ramiro Elías Vallejos-Rejas, Camila Tassoula Egüez-Pereira, Carmen Julia Salvatierra-Rocha, Marlon Carbonell González.

https://doi.org/10.56294/shp2025342 ISSN: 3072-7677