




Case of severe preeclampsia

Kalina Razlozhka¹, Vasilen Gitsov¹, Tatyana Bodurska-Petkova², Nadya Stancheva¹,
Konstantin Gospodinov¹, Georgi Dotsinski¹, Snezhanka Tisheva-Gospodinova¹

¹ Medical University of Pleven, Pleven, Bulgaria

² Medical Center Clinical Institute for Reproductive Medicine, Pleven, Bulgaria

Corresponding author: Kalina Razlozhka (krazlozhka@gmail.com)

Summary

We present a case of a 25-year-old primiparous woman with eclampsia imminens and hemolysis, elevated liver enzymes, and low platelet count (HELLP) syndrome, requiring a cesarean section. Through efficient collaboration between obstetricians, neonatologists, cardiologists, resuscitators and neurologists, a successful therapeutic outcome was achieved for both the mother and the newborn.

Key words: Cerebral oedema, childbirth, eclampsia, HELLP syndrome, preeclampsia

Introduction

Hypertensive disorders of pregnancy are an important and potentially life-threatening complication of pregnancy, affecting 10% of pregnant women worldwide (Siu and Silversides 2019). It represents a major cause of maternal and foetal morbidity and mortality, with a higher incidence in low and middle-income countries due to disparities in prenatal care (Regitz-Zagrosek et al. 2018; McEvoy et al. 2024). Almost 25% of pregnant women are expected to develop preeclampsia, which requires close monitoring of the condition (Baroutis et al. 2025). According to the current classification, it can be divided into chronic hypertension, gestational hypertension, antenatal unclassifiable hypertension, and preeclampsia (Honigberg et al. 2024; Friis et al. 2025). Preeclampsia is gestational hypertension accompanied by one of the following:

- proteinuria (>0.3 g/day or ≥ 30 mg/mmol ACR);
- maternal organ dysfunction, including acute kidney injury, liver dysfunction, neurological complications, haematological complications (Plt < 150000/ μ L, DIC, hemolysis);
- uteroplacental dysfunction (Honigberg et al. 2024; Friis et al. 2025).

Risk factors for the development of preeclampsia include manifestations of preeclampsia in previous pregnancies, chronic hypertension, diabetes, multiple pregnancy, antiphospholipid syndrome, obesity (BMI over 30), systemic lupus



Academic editor: Galya Stavreva

Received: 20 August 2025

Accepted: 5 October 2025

Published: 27 November 2025

Citation: Razlozhka K, Gitsov V, Bodurska-Petkova T, Stancheva N, Gospodinov K, Dotsinski G, Tisheva-Gospodinova S (2025) Case of severe preeclampsia. Journal of Biomedical and Clinical Research 18: 283–291. <https://doi.org/10.3897/jbcr.e169349>

Copyright: © Kalina Razlozhka et al.
This is an open access article distributed under terms of the Creative Commons Attribution License (Attribution 4.0 International – CC BY 4.0).

erythematosus (SLE), previous stillbirth, primiparous women, and age over 35–40 years (Siu and Silversides 2019; Baroutis et al. 2025).

The cause of preeclampsia is not fully understood, but endothelial dysfunction is a proven contributing factor, which causes abnormal remodelling of the spiral arteries of the placenta. Hypertension is only one manifestation of diffuse endothelial dysfunction, associated with vasospasm, reduced organ perfusion, and activation of the coagulation cascade (Baroutis et al. 2025).

Preeclampsia can be classified as early-onset (before 34 gestation weeks), late-onset (after 34 weeks), preterm (before 37 weeks), and term (after 37 weeks) (Siu and Silversides 2019).

Preeclampsia complicated by neurological symptoms is called eclampsia and is a life-threatening complication of pregnancy. Seizure symptoms are diagnostic of eclampsia, caused by abnormal, excessive or synchronous neuronal activity in the brain. Prolonged seizures can lead to significant brain damage and subsequent brain dysfunction (Siu and Silversides 2019). Possible neurological complications of preeclampsia can include:

- cerebral oedema – due to increased hydrostatic pressure at the capillary level, as well as hyperperfusion, extravasation of plasma and erythrocytes (Siu and Silversides 2019);
- intracranial haemorrhage – intracerebral haemorrhage, subarachnoid haemorrhage and, rarely, subdural hematoma;
- posterior reversible encephalopathy syndrome (PRES);
- cortical blindness.
- traumatic injuries associated with the seizures, e.g., aspiration pneumonia, status epilepticus (rare), coma, prolonged disorientation;
- ischaemic stroke;
- brain venous thrombosis;
- persistent neurological deficit, e.g., cognitive dysfunction, motor deficit, visual disturbances.

Hemolysis, elevated liver enzymes, and low platelets (HELLP syndrome) is an emergency requiring termination of pregnancy. It is characterised by the occurrence of hemolysis in the presence of liver function disorders (elevated serum transaminases and LDH > 1000 U/L) and coagulation disorders – a decrease in platelet count <100,000/ μ L, and schizocytes on the blood smear. Although it usually occurs fulminantly, HELLP syndrome can also have an atypical manifestation. A falsely benign form with an initial mild clinical manifestation is seen in women with borderline thrombocytopenia, mild deviations from normal serum transaminases, normal or slightly elevated blood pressure, and a mild or no renal dysfunction. However, this seemingly mild form can progress rapidly and lead to fulminant disease within 24–48 hours (Santulli et al. 2025).

Case presentation

We present a 25-year-old patient, admitted to the Obstetrics and Gynaecology (OB&Gyn) Clinic of Georgi Stranski University Hospital in Pleven on June 21, 2024. The patient had stayed in the Neurology Clinic of the same hospital for

treatment of Bell's palsy from June 13 to June 21, 2024. During the hospital stay, due to difficult-to-control arterial hypertension, she was consulted with an ObGyn specialist and referred to the High-Risk Pregnancy Department. This pregnancy was the patient's first one. On admission to the ObGyn Clinic, the foetus was of size and development corresponding to its gestational age, live, biparietal diameter (81 mm, abdominal circumference 274 mm, femur length 62 mm, estimated fetal weight (EFW) 1899 g, corresponding to 32 + 2 gestation weeks. The maturity grade of the placenta was 0, in an LA position, of normal quantity; the maximum vertical pocket was 59 mm. The foetal heart rate was 144 bpm.

Upon admission to the Department for High-Risk Pregnancy, the patient complained of headache and blurred vision. Her blood pressure (BP) was 180/100 mm Hg (despite regular intake of Methyldopa 250 mg, 6 tablets daily). Tests conducted in the Neonatology ICU revealed proteinuria. The patient denied any concomitant diseases.

Physical examination

Upon admission to the ObGyn Clinic, the patient was allo- and auto-oriented, with pale skin and visible mucous membranes body weight – 65 kg, height – 162 cm (BMI 24.8). No wheezing in the lungs was detected on auscultation. Regarding the cardiovascular status, the patient had rhythmic heart activity, a respiratory rate of about 65/min, and BP of 180/100 mm Hg on both arms, as measured three times. No perimalleolar oedema was noticed.

Paraclinical tests

The laboratory tests conducted upon admission to the ObGyn Clinic revealed a moderate anaemic syndrome and mild thrombocytopenia. The coagulation status tests showed elevated values of aPTT and D-dimer. Biochemistries revealed hypoproteinemia with hypoalbuminemia, elevated uric acid and insignificantly elevated ASAT (Tables 1–3).

Table 1. Complete blood count results upon admission to the Obstetrics and Gynecology Clinic.

Laboratory test	Normal range	Value
Leucocytes	3.5–10.5	7.5
Erythrocytes	3.7–5.3	2.93
Hemoglobin	120–160	89
Hematocrit	0.36–0.48	0.238
MCV	82–96	81.2
MCH	27–33	30.6
MCHC	300–360	376
Platelets	130–360	127

Electrocardiography showed a sinus rhythm, a heart rate of 58 bpm, and LVH without repolarisation changes (Fig. 1).

Table 2. Coagulation results upon admission to the Obstetrics and Gynecology Clinic.

Laboratory test	Normal range	Value
Prothrombin time	10–15 sec, 70–120%	88%
INR	0.9–1.2	1.19
aPTT	23–32 sec, 0.8–1.2	44 sec
D-dimer	0–0.5	4.67
Fibrinogen	2–4	3.8

Table 3. Biochemistry results upon admission to the Obstetrics and Gynecology Clinic.

Laboratory test	Normal range	Value
Glucose	4.1–6.1	6.28
Urea	2.8–8.1	5.68
Creatinine	53–115	60.25
Total Protein	66–87	41.51
Albumin	35–52	29.84
Total bilirubin	0–21	4.65
Direct bilirubin	0–5	1.75
Uric acid	143–339	524
ASAT	0–40	46
ALAT	0–40	25
GGT	7–32	11
CPK	0–170	547
CK-MB	0–24	46

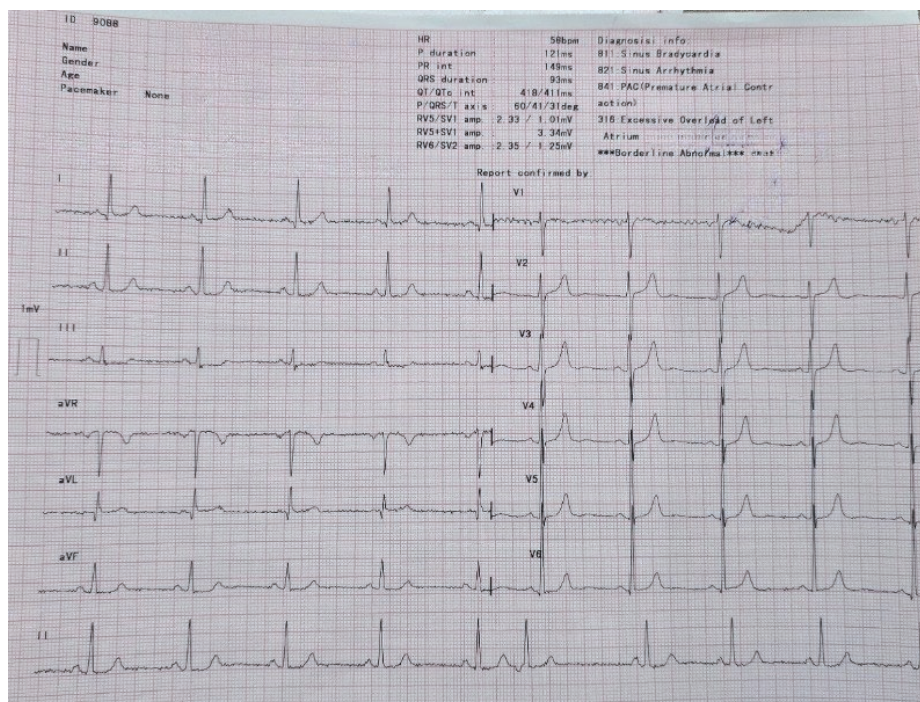


Figure 1. ECG upon admission to the Obstetrics and Gynecology Clinic.

In view of the available clinical and laboratory findings, the hypothesis of eclampsia imminens, HELLP syndrome was accepted, and emergency delivery was initiated at 23:17 hrs on June 06, 2024. The fetus was male, with a birth weight of 1705 g; height: 44 cm, APGAR score 4/4/5, indicating a foetus in critical condition, requiring intensive neonatal monitoring.

Treatment started with sodium chloride 0.9% solution for infusion, antibiotic prophylaxis with Ceftriaxone, anticoagulation with LMWH, administration of osmotic diuretics, corticosteroids, human albumin, vitamin C and B complex, and magnesium sulfate. Hemotransfusions were performed with a total of 3 bags of erythrocyte concentrate and 4 sacs of freshly-frozen plasma. Antihypertensive therapy with Methyldopa 250 mg – 1 tablet 6 times daily was administered. To stop lactation, on June 06, therapy with Cabergoline tab 0.5 mg – 2 tablets b.i.d was initiated (Taylor et al. 2015).

After the delivery, the patient was in a poor general condition, presenting with pale yellowish skin and pale visible mucous membranes, accompanied by facial oedema, BP of 185/100 mm Hg in both arms. Her abdomen was soft, slightly painful to palpation, allowing deep palpation. The uterus had contracted, with good involution. The surgical wound was calm, and lochia cruenta was present. The ankles were edematous.

Due to the inability to control the BP values and deterioration in the condition of the patient (at the time relaxed and sleepy), a cardiological consultation was sought on 23.06, during which the patient was bradypsychic, with difficult verbal contact, responding to pain irritation, and had persistent high BP values around 180/100 mm Hg, with mild perimalleolar oedema. During the consultation, an echocardiographic evaluation was performed, from which data of preserved left ventricular systolic and diastolic function, and intact valve apparatus were obtained (Fig. 2).



Figure 2. Two-dimensional echocardiography during the first cardiology consultation.

According to the recommendations given by the cardiologist, treatment was initiated to lower the BP below 160 mm Hg systolic BP and 105 mm Hg diastolic BP within 150–180 (Taylor et al. 2015). Therapy with a centrally acting antihypertensive drug (Clonidine tab 0.15 mg – dosage, as necessary) was prescribed. In order to exclude cerebral oedema, a native CT scan of the brain was recommended.

On 23.06, an ophthalmological consultation revealed slightly blurred borders of the papilla of the right eye, and a neurological examination found bilateral hyperreflexia with expanded reflexogenic zones, without anisoreflexia. The recommendation for a CT scan of the brain was confirmed by the neurologist and duly performed. It showed diffuse cerebral oedema with a tendency to form cortical ischemia (Fig. 3).



Figure 3. Native CT scan of the head – 23.06.2024.

This necessitated the transfer of the patient to the Department of Anesthesiology and Intensive Care for further treatment.

On June 24, a second consultation with a neurologist was conducted. Neck rigidity was found, the pupils were moderately dilated, sluggishly reacting to light, with laterally deviated left eyebulb. A fronto-orbicularis reflex was absent bilaterally. No active movements of extremities were established. The muscle tone was diffusely suppressed. The patient reacted with a withdrawal reflex to painful stimuli. The signal-to-noise ratio test revealed bilateral hyperreflexia with expanded reflexogenic zones. The Babinski reflex was positive bilaterally. The patient was in a sopor. Nimodipine 10 mg/50 ml, administered daily at a rate of 5 ml/h, was added to the therapy on June 24, 2024.

As a result of the treatment measures carried out, a significant positive dynamic was observed in the state of the patient, and according to a neurological consultation on June 27, the patient was, as of 27th June allo- and auto-oriented, able to participate in verbal contact, without persistent signs of meningo-radicular irritation. MRI was recommended. It revealed bilateral vasoconstrictive oedema and bilateral optic perineuritis.

In order to specify the antihypertensive therapy for continuing treatment at home, additional cardiological consultations were conducted on June 28.06 and July 1. At that time, suboptimal control of the BP values had been achieved – 150/90 mm Hg. No pathological auscultatory findings in relation to the lungs and heart were noted.

The patient was discharged on July 3, 2024 with prescription for therapy at home, as follows: Furosemide tab 40 mg – one tablet daily in the morning, Spironolactone tab 25 mg – one tablet daily in the morning, Nebivolol tab 5 mg – one tablet daily in the morning, Lisinopril tab 10 mg – one tablet daily in the morning, and Methyldopa tab 250 mg – one tablet six times daily with a gradual reduction of the dose to one tablet two times daily.

Discussion

Women who have experienced preeclampsia during their first pregnancy are at increased risk of recurrence in subsequent pregnancies. The earlier the hypertension occurs during the first pregnancy, the higher the risk. Women with a history of gestational hypertension or preeclampsia are at increased risk of developing arterial hypertension, ischemic heart disease, and ischemic stroke in later life. Apart from future cardiologic conditions, according to a Swedish register-based cohort study, gestational hypertension, preeclampsia, and eclampsia were associated with an increased risk of migraine, headache, epilepsy, sleep disorder, or mental fatigue during a follow-up time of up to 15 years after giving birth. The strongest association was found to be between eclampsia and future epilepsy (Mancia et al. 2023; McEvoy et al. 2024).

Therefore, it is recommended to conduct a pre-pregnancy consultation in subsequent pregnancies, assessing the course of previous pregnancies, any complications and whether early delivery is necessary. A period of at least 12 months between two pregnancies is encouraged, as well as control of CVD risk factors. In patients at high risk, prophylaxis with Acetylsalicylic acid in low doses from 12–16 gestation weeks, with calcium supplementation of 1–1.5 g/day, is recommended. Regular monitoring of BP and cardiac function, proteinuria (ACR), placental markers (PIGF, sFlt-1), and regular ultrasound monitoring is also necessary. Furthermore, it has been suggested that women who adhere to a DASH diet show 35–45% risk reduction in relation to preeclampsia. Therefore, DASH diet may be an effective strategy for preeclampsia prevention (Cunningham et al. 2022).

Conclusion

Preeclampsia is a serious obstetric condition with the potential for severe complications for both the mother and the foetus. Timely diagnosis and adequate management are key to reducing maternal and perinatal morbidity and mortality. Early recognition of clinical and laboratory signs allows for targeted monitoring, blood pressure control, eclampsia prevention, and timely delivery planning. A rapid and adequate algorithm for target organ assessment plays an important role in the favourable outcome of pregnant and postpartum women with eclampsia. Periodic prenatal care and the use of modern screening methods increase the chance of identifying women at risk as early as the first trimester. An integrated approach of a team of obstetricians, cardiologists, neurologists, and neonatologists is crucial for improving short- and long-term prognoses.

Additional information

Conflict of interest

The authors have declared that no competing interests exist.

Ethical statements

The authors declared that no clinical trials were used in the present study.

The authors declared that no experiments on humans or human tissues were performed for the present study.

The authors declared that no informed consent was obtained from the humans, donors or donors' representatives participating in the study.

The authors declared that no experiments on animals were performed for the present study.

The authors declared that no commercially available immortalised human and animal cell lines were used in the present study.

Use of AI

No use of AI was reported.

Funding

No funding was reported.

Author contributions

All authors have contributed equally.

Author ORCIDs

Nadya Stancheva  <https://orcid.org/0000-0001-6354-2833>

Konstantin Gospodinov  <https://orcid.org/0000-0001-6800-4671>

Snezhanka Tisheva-Gospodinova  <https://orcid.org/0000-0003-3787-5620>

Data availability

All of the data that support the findings of this study are available in the main text.

References

- Baroutis D, Katsianou E, Athanasiou D, Giannakaki AG, Antsaklis P, Theodora M, Daskalakis G, Eleftheriades M (2025) DASH diet and preeclampsia prevention: A literature review. *Nutrients* 17: 2025. <https://doi.org/10.3390/nu17122025>
- Cunningham FG, Leveno KJ, Dashe JS, Hoffman BL, Spong CY, Casey BM (2022) *Williams Obstetrics*. 26th edn. McGraw-Hill Education, New York (NY), 1778–1813.
- Friis T, Bergman L, Hesselman S, Lindström L, Junus K, Cluver C, Escudero C, Wikström AK (2025) Gestational hypertension, preeclampsia, and eclampsia and future neurological disorders. *JAMA Neurology* 82: 142–151. <https://doi.org/10.1001/jamaneurol.2024.4426>
- Honigberg MC, Economy KE, Pabón MA, Wang X, Castro C, Brown JM, Divakaran S, Weber BN, Barrett L, Perillo A, Sun AY, Antoine T, Farrohi F, Docktor B, Lau ES, DeFaria Yeh D, Natarajan P, Sarma AA, Weisbrod RM, Hamburg NM, Ho JE, Roh JD, Wood MJ, Scott NS, Di Carli MF (2024) Coronary microvascular function following severe

- preeclampsia. *Hypertension* 81: 1272–1284. <https://doi.org/10.1161/HYPERTENSIONAHA.124.22905>
- Mancia G, Kreutz R, Brunström M, Burnier M, Grassi G, Januszewicz A, Muiesan ML, Tsioufis K, Agabiti-Rosei E, Algharably EA, Azizi M, Benetos A, Borghi C, Hitij JB, Cifkova R, Coca A, Cornelissen V, Cruickshank JK, Cunha PG, Danser AHJ, Pinho RM, Delles C, Dominiczak AF, Dorobantu M, Doumas M, Fernández-Alfonso MS, Halimi JM, Járαι Z, Jelaković B, Jordan J, Kuznetsova T, Laurent S, Lovic D, Lurbe E, Mahfoud F, Manolis A, Miglinas M, Narkiewicz K, Niiranen T, Palatini P, Parati G, Pathak A, Persu A, Polonia J, Redon J, Sarafidis P, Schmieder R, Spronck B, Stabouli S, Stergiou G, Taddei S, Thomopoulos C, Tomaszewski M, Van de Borne P, Wanner C, Williams B, Zhang ZY, Kjeldsen SE (2023) 2023 ESH Guidelines for the management of arterial hypertension The Task Force for the management of arterial hypertension of the European Society of Hypertension: Endorsed by the International Society of Hypertension (ISH) and the European Renal Association (ERA). *Journal of Hypertension* 41: 1874–2071. <https://doi.org/10.1097/HJH.0000000000003480>
- McEvoy JW, McCarthy CP, Bruno RM, Brouwers S, Canavan MD, Ceconi C, Christodorescu RM, Daskalopoulou SS, Ferro CJ, Gerdtts E, Hanssen H, Harris J, Lauder L, McManus RJ, Molloy GJ, Rahimi K, Regitz-Zagrosek V, Rossi GP, Sandset EC, Scheenaerts B, Staessen JA, Uchmanowicz I, Volterrani M, Touyz RM, ESC Scientific Document Group (2024) 2024 ESC Guidelines for the management of elevated blood pressure and hypertension: Developed by the task force on the management of elevated blood pressure and hypertension of the European Society of Cardiology (ESC) and endorsed by the European Society of Endocrinology (ESE) and the European Stroke Organisation (ESO). *European Heart Journal* 45: 3912–4018. <https://doi.org/10.1093/eurheartj/ehae178>
- Regitz-Zagrosek V, Roos-Hesselink JW, Bauersachs J, Blomström-Lundqvist C, Cifkova R, De Bonis M, Iung B, Johnson MR, Kintscher U, Kranke P, Lang IM, Morais J, Pieper PG, Presbitero P, Price S, Rosano GMC, Seeland U, Simoncini T, Swan L, Warnes CA, ESC Scientific Document Group (2018) 2018 ESC guidelines for the management of cardiovascular diseases during pregnancy: the task force for the management of cardiovascular diseases during pregnancy of the European Society of Cardiology (ESC). *European Heart Journal* 39: 3165–241. <https://doi.org/10.1093/eurheartj/ehy340>
- Santulli G, Kansakar U, Varzideh F (2025) Epidemiology and pathophysiology of preeclampsia: New mechanistic insights. *Hypertension* 82: 800–803. <https://doi.org/10.1161/HYPERTENSIONAHA.124.24117>
- Siu SC, Silversides CK (2019) Pregnancy and Heart Disease In: Zipes DP, Libby P, Bonow RO, Mann DL, Tomaselli GF, Bhatt DL, Solomon SD, Braunwald E (Eds) *Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine*. 11th edn. Elsevier, Philadelphia, 1798–1918.
- Taylor RN, Roberts JM, Cunningham FG, Lindheimer MD (2015) *Chesley's Hypertensive Disorders in Pregnancy*. 4th edn. Elsevier, Philadelphia, 484 pp.