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# Preeclamptic serous retinal detachment without hypertension: A case report☆

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ABSTRACT

Preeclampsia is a disease of pregnancy classically defined by the development of new-onset hypertension and proteinuria. Serous retinal detachment is a rare complication of severe preeclampsia that is associated with a high incidence of morbidity and mortality. We present the case of a 24-year-old primigravida who was diagnosed with preeclamptic serous retinal detachment at 30 weeks of gestation that occurred in the absence of hypertension. The patient was delivered by cesarean section for fetal malpresentation and she had complete recovery of her vision by three months postpartum. Providers should exercise vigilance for preeclampsia in women presenting with new-onset visual symptoms, even in the absence of hypertension.



## 1. Introduction

Preeclampsia is a disease of pregnancy that is classically characterized by new-onset hypertension and proteinuria occurring after 20 weeks of gestation and continuing through to the postpartum period [1,2]. Symptoms involving the central nervous system (including visual disturbances), gastrointestinal tract, and lungs develop in some patients affected by preeclampsia in addition to renal and hepatic lab anomalies.

Patients with the aforementioned findings in the absence of either proteinuria or hypertension are considered to have an atypical variant of preeclampsia [3]. We describe a rare case of a woman presenting with serous retinal detachment who was diagnosed with preeclampsia in the absence of hypertension.

## 2. Case Presentation

A 24-year-old primigravida presented to Labor & Delivery triage at 30 weeks of gestation for evaluation of a new-onset headache behind the right orbit associated with central blurred vision in that eye. Her blood pressure was 106/60 mm Hg on presentation and her other vital signs were unremarkable. A focused physical examination revealed no abnormalities and her fetal monitoring was reassuring.

Because her symptoms raised the suspicion of preeclampsia, a laboratory evaluation was performed that included a complete blood count, and determination of liver enzyme and serum creatinine levels. Additionally, proteinuria was assessed via a protein/creatinine ratio (PCR). Her laboratory results were notable only for proteinuria, with a PCR of 1.22 (Table 1). In the absence of hypertension, she did not meet criteria for the classic definition of preeclampsia and was discharged home later that day with a collection device to measure her 24 h urine protein excretion and an acute outpatient ophthalmology evaluation scheduled for the following morning. Additionally, she was instructed to return the next day for a repeat evaluation of blood pressure and follow-up assessment of her proteinuria.

At her ophthalmology appointment, the patient reported resolution of her headache but persistence of the visual disturbance in her right eye. She was normotensive. Funduscopic examination revealed a serous retinal detachment of the right eye.

The patient was admitted to Labor & Delivery for further management. While under inpatient observation she remained normotensive on serial blood pressure assessment, and had reassuring fetal monitoring and no additional complaints beyond her visual changes. Her 24-h urine protein collection was elevated at 450 mg, confirming the PCR results and the diagnosis of atypical preeclampsia. Corticosteroids were administered to accelerate fetal lung development and she received an infusion of magnesium sulfate for fetal neuroprotection and to reduce

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**Table 1**
Blood pressures and labs.

| | BP (mm Hg) | Proteinuria | Hgb. (g/dL) | Plts. (x$10^3$/uL) | Cr. (mg/dL) | AST (units/L) | ALT (units/L) | LDH (units/L) |
|---|---|---|---|---|---|---|---|---|
| Initial presentation | 106/60 | 1.22 (protein/creatinine) | 12.3 | 161 | 0.62 | 50 | 52 | 818 |
| Admission for delivery | 116/69 | 450 mg/24 h | 11.2 | 153 | 0.58 | 31 | 36 | 369 |
| Postpartum | 130/70 (max) | N/A | 9.7 | 142 | 0.63 | 28 | 34 | 476 |

the risk of an eclamptic seizure. She was delivered via an uncomplicated classical cesarean section under spinal anesthesia at 30 weeks and 5 days of gestation due to her clinical picture and breech presentation.

The patient remained normotensive throughout her postpartum course. Serial laboratory assessments were notable only for a mild elevation of her aspartate aminotransferase level, which peaked at 50 units/l. She was discharged four days after delivery with ongoing outpatient follow-up with her obstetrician and ophthalmologist. Her retinal detachment was conservatively managed and had completely resolved by three months postpartum.

## 3. Discussion

Serous retinal detachment is a rare manifestation of preeclampsia, occurring in less than 1% of cases. The incidence is increased in women with a particularly virulent form of the disease known as HELLP syndrome [4,5]. Retinal detachment is caused by accumulation of serous fluid in the subretinal potential space. Proposed mechanisms of action include local necrosis of the choriocapillaris and retinal pigment epithelium secondary to arteriolar vasoconstriction, chronic occlusive changes of arterioles and choriocapillaris, and hyperpermeability of the choroid [6]. The presence of serous retinal detachment constitutes a severe form of preeclampsia [1]. Reattachment surgery is not effective in the management as there is no full-thickness retinal tear. Instead, treatment should focus on eliminating the underlying cause, which in the context of preeclampsia involves maternal stabilization and delivery [7].

Our patient's clinical presentation was unusual in that her preeclamptic serous retinal detachment developed in the absence of hypertension. In a review of the literature, we identified 43 case reports and case series documenting serous retinal detachment during pregnancy. Our review included 97 women diagnosed with preeclampsia with a median gestational age at presentation of 31.9 weeks (range 20–40 weeks) [5,7–46]. Of cases with blood pressure data reported (90 of 97), only one patient was normotensive. In contrast to our patient's relatively benign clinical presentation, that patient developed HELLP syndrome and required platelet transfusion and emergency cesarean section [40].

Indeed, our review of the literature confirms the profound morbidity and mortality associated with preeclamptic serous retinal detachment. Over half of patients developed HELLP or partial HELLP syndrome, and there were two reported maternal and six fetal deaths. The cesarean delivery rate was 68%, with the most common indications being eclampsia remote from delivery, non-reassuring fetal status, and suspected placental abruption. However, as the multisystem impact of preeclampsia is likely mediated by a complex process rather than by pure hypertension, some authors anticipate a disparity between the occurrence of retinal detachment and the severity of the clinical presentation [8].

This case and the accompanying review of the literature underscore the importance of prompt recognition of serous retinal detachment in patients with preeclampsia to optimize maternal and fetal outcomes through stabilization and delivery. Even in the absence of hypertension, obstetricians, primary care providers, optometrists, and ophthalmologists should exercise vigilance for preeclampsia when evaluating gravid patients presenting with new-onset visual symptoms.

## Contributors

All authors equally contributed to the preparation of this case report, and read and approved the final manuscript.

## Conflict of Interest

All authors declare that they have no conflict of interest regarding the publication of this case report.

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## Patient Consent

Informed consent was obtained from the subject of this case report.

## Provenance and Peer Review

This case report was peer reviewed.

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