CASE REPORT

Bilateral exudative retinal detachment in preeclampsia with HELLP syndrome: A case report and literature review

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SUMMARY

Preeclampsia (PE) and haemolysis, elevated liver enzymes, and low platelet count (HELLP) syndrome are severe hypertensive disorders of pregnancy that can lead to significant systemic complications, including ocular manifestations such as bilateral exudative retinal detachment (ERD). ERD, though rare, can cause significant visual morbidity. Management primarily focuses on treating the underlying hypertensive disorder and controlling blood pressure, typically resulting in a favourable visual outcome. We present a case of bilateral ERD associated with severe PE and HELLP syndrome in a 37-year-old postpartum female. The patient presented with sudden, painless bilateral visual acuity reduction one day following an emergency caesarean section performed due to severe PE complicated by HELLP syndrome. Fundus examination revealed bilateral ERDs. The patient was managed conservatively with strict blood pressure control and optimization of her systemic condition. At one-month follow-up, her best-corrected visual acuity improved to 6/6 bilaterally. Despite the conservative management of ERD, this case emphasizes the crucial role of prompt recognition and control of severe hypertensive disorders of pregnancy in preserving visual function.

INTRODUCTION

Hypertensive disorders of pregnancy remain a leading cause of maternal and perinatal morbidity and mortality globally.[1] The International Society for the Study of Hypertension in Pregnancy (ISSHP) defines PE as the development of hypertension (blood pressure ≥140/90 mmHg) after 20 weeks of gestation, accompanied by proteinuria or other signs of end-organ dysfunction.[1] A particularly severe complication of Preeclampsia (PE) is haemolysis, elevated liver enzymes, and low platelet count (HELLP) syndrome, a critical obstetric emergency.[1] While the primary focus of management is on mitigating maternal and fetal complications, the effects of these disorders can extend to various organ systems, including the eyes.

Exudative retinal detachment (ERD) is a recognized ocular complication of severe PE and HELLP syndrome, characterized by the accumulation of subretinal fluid between the neurosensory retina and the retinal pigment epithelium, without the presence of a retinal tear.[2] This fluid build-up is a result of vascular leakage and increased permeability, which are hallmarks of the systemic vasculopathy observed in hypertensive disorders.[2,3] Given the retina's highly vascular nature, it is particularly susceptible to these systemic vascular changes, potentially leading to vision-threatening complications. We report a case of bilateral ERD in the setting of severe PE complicated by HELLP syndrome, highlighting the importance of prompt recognition and systemic control in achieving visual recovery.

CASE PRESENTATION

A 37-year-old female, para 2, with a significant antenatal history of gestational diabetes mellitus and maternal obesity managed with dietary control, underwent an emergency caesarean section due to severe PE complicated by HELLP syndrome. Her blood pressure ranged from 123–156/70–96 mmHg throughout admission, with proteinuria of 2+. Blood investigations revealed haemoglobin of 10.5 g/dL, platelet count of 45 × 10^9/L, and aspartate aminotransferase of 68 U/L. The coagulation profile remained within normal limits.

One day post-operatively, the patient reported a sudden onset of painless, bilateral blurred vision, accompanied by visual field defects. Her best-corrected visual acuity (BCVA) was 6/30 in both eyes. There was no relative afferent pupillary defect (RAPD). Confrontation visual field testing revealed binasal field defect. Slit-lamp examination of the anterior segment was unremarkable. Dilated fundus examination revealed bilateral temporal ERDs with macular involvement (Fig.1). There was a shallow detachment from 7-11 o'clock in the right eye. The left fundus showed bullous retinal detachment from 1-7 o'clock, accompanied by a shallow diffuse detachment from 11-1 o'clock. No retinal tears or holes were identified.

The patient was managed conservatively with strict blood pressure control, optimization of her systemic condition, and close monitoring of her renal and hepatic function. At one-month follow-up, her BCVA improved to 6/6 bilaterally, with complete resolution of bilateral ERDs (Fig. 2). Her blood pressure and laboratory parameters, including liver enzymes and platelet count, had returned to normal ranges.

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Table I: Summary of published report on ERD complicating severe PE

Author, Year	Age/ Parity/ Gestational Age	Ocular Symptoms	Fundus Findings	Management	Visual Acquity		Recovery time (days)
					Initial	Final	
Zebbache, 2021[4]	25/ Primid 30 weeks POG	Vision loss after wake up from sleep	BE bullous serous detachment with macula involvement	Conservative	PL (BE)	6/6 (BE)	Few days
Benlghazi et al., 2023[6]	26/ Primid 39 weeks POG	Blurred vision, metamorphopsia	BE macular detachment	Conservative	6/7.5 (BE)	6/6 (BE)	30
Phang et al., 2022[5]	30/ Primid 32 weeks POG	Visual fog	BE multifocal serous detachment involving the posterior pole	Conservative	6/60 (BE)	6/6 (BE)	7
Khallouli et al., 2021[7]	32/ Multipara 33 weeks POG/	Blurred vision, metamorphopsia	BE bullous serous detachment with macula involvement	Oral Prednisolon 1.5 mg/kg/day for one week	3/60 (RE)	6/6 (BE)	60
Limon, 2020[8]	24/ - 35 weeks POG	Blurred vision	RE diffuse / LE focal serous detachment	Conservative	CF (RE) 6/9 (LE)	6/6 (BE)	60 (RE) 30 (LE)

Abbreviations: PL, light perception vision; CF, finger counting vision; BE, both eyes; RE, right eye; LE, left eye

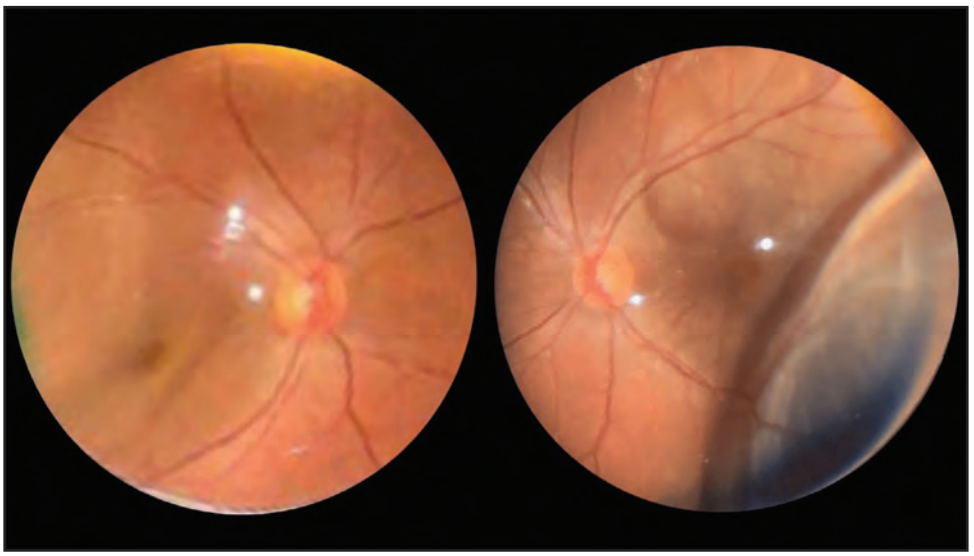

Fig. 1: Bilateral exudative retinal detachments with macular involvement at presentation

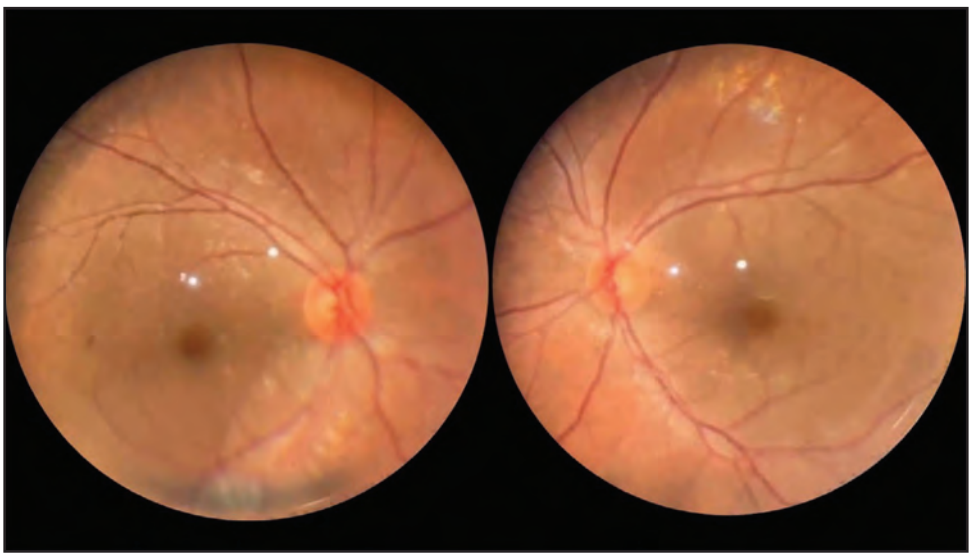

Fig. 2: Complete resolution of bilateral exudative retinal detachments at one-month follow-up

DISCUSSION

ERD is a rare but significant complication affecting 1-2% of severe PE cases and 0.9% of HELLP syndrome cases,[4] that occurs across a broad spectrum of obstetric patients, regardless of parity as illustrated in Table I.[4–8] The consistent finding of bilateral ERD across all cases underscores the systemic nature of the underlying vasculopathy. The abnormal placentation in PE and HELLP syndrome leads to increased systemic vascular resistance and vasospasm, contributing to choroidal ischemia and compromising the integrity of the RPE.[5,6] While HELLP syndrome predominantly occurs during the third trimester, it can manifest or worsen postpartum in up to 30% of cases.[9] Thus, the development of ERD in postpartum PE is a clinically recognized phenomenon. The postpartum presentation of our patient, occurring one day after childbirth, aligns with previous report.[7]

Presenting visual acuity in ERD varies significantly, from perception of light (PL) to near-normal vision.[4–8] Visual field defects are also variable, encompassing curtain defects, scotomas, hemianopia, and total field loss.[2] This is largely influenced by the extent of serous detachment. Diffuse, bullous ERD with macular involvement leads to poorer vision as seen in our case and previous reports,[4,6–8] while small, localized SRF collections in the posterior pole tend to cause visual distortion, such as metamorphopsia[5,7] with less pronounced visual acuity loss.[5,8]

Management of ERD in severe PE and HELLP syndrome is primarily conservative, focusing on strict blood pressure control and optimization of underlying systemic conditions.[2,8] This approach is based on the understanding that ERD in these conditions is a manifestation of systemic vascular changes, similar to hypertensive choroidopathy observed in malignant hypertension.[2,3] Although oral prednisolone has been considered,[7] clinical outcomes are generally comparable to those achieved with conservative management alone.[4–8] ERD secondary to hypertensive disease typically carries a favorable prognosis with good visual outcomes.[3–8] However, severe ERD can lead to geographic chorioretinal atrophy, a potential complication occurring in up to 8.5% of PE cases.[10]

The recovery time for visual acuity varied from a few days to months, with all patients ultimately achieving 6/6 bilaterally.[4–8] If ERDs do not resolve as expected, it is important to rule out other potential causes, such as infective or inflammatory diseases or retinal tears.[2]

This case report, along with the reviewed literature (Table I), emphasizes the importance of awareness among obstetricians, midwives and private practitioners regarding the ocular complications of severe or poorly controlled hypertensive diseases. Prompt recognition and control of severe hypertension are essential for preserving visual function in these high-risk patients. While the role of hypertensive vasculopathy in ERD is recognized, further studies are needed to elucidate additional factors that may contribute to its manifestation in PE and HELLP syndrome. Longitudinal studies exploring the long-term ocular health of these patients are also crucial.

CONCLUSION

This case serves as a reminder of the potential for vision-threatening complications such as ERD in severe hypertensive disorders of pregnancy, including the postpartum period. Even subtle visual disturbances such as metamorphopsia or slight blurry vision warrant a comprehensive ophthalmic examination in any pregnant or postpartum woman presenting with visual complaints. Early detection, prompt intervention, vigilant monitoring and collaborative management between obstetrics and ophthalmology are essential to ensure optimal visual outcomes.

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DECLARATIONS

Consent was obtained from patient prior publication. There is no conflict of interest related to this study. This study was made without any financial support. This manuscript has been read and approved by the named authors.

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