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An Unknown Pregnancy Presenting as Vision Loss: A Case Report

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Introduction

Preeclampsia is a disease of pregnancy characterized by hypertension and proteinuria. It is defined as systolic blood pressure above 140 mmHg or diastolic blood pressure above 90 mmHg and proteinuria of greater than 300 mg/day after 20 weeks gestation. This condition usually occurs in the third trimester of pregnancy and can result in end-organ damage.[1] Maternal complications include eclampsia, stroke, liver failure, and increased risk of death.[2,3] Ophthalmic manifestations are seen as well, and visual symptoms occur in 25-40% of patients. Symptoms include decreased vision, diplopia, scotoma, or photopsia.[1] Exam findings reveal retinal manifestations similar to non-pregnancy-related hypertensive retinopathy, including focal arteriolar spasms, arteriolar attenuation, retinal hemorrhage, retinal edema, and papilledema.[4] Preeclampsia can also result in visual symptoms by causing vasogenic cerebral edema in the occipital lobes in a condition known as posterior reversible encephalopathy syndrome (PRES). [5,6] Ophthalmic exams in these patients are generally normal, though they may present with papilledema, retinal hemorrhage, and exudate.[6]

Normal pregnancy can manifest with visual changes as well, which are caused by ocular surface, corneal stromal, and lenticular thickness changes. These changes are due to expected hormonal variations and result in a myopic shift, usually less than 1 diopter. Retinal changes are not expected, thus differentiating these physiologic shifts from ocular disturbances caused by preeclampsia.[1]

Management of visual impairment is directed towards controlling the abnormal vital signs and metabolic abnormalities. Magnesium sulfate is given for seizure prophylaxis, and induction of labor is advised as soon as possible for a definitive treatment.[1]

This case report describes a patient who was unaware of her pregnancy and presented with markedly decreased vision in both eyes. Her ocular manifestations were secondary to preeclampsia during the third trimester, and she underwent induction of labor. Her ocular symptoms resolved weeks later. The aim of this report is to emphasize the need for careful workup of women of child-bearing age, as pregnancy-related ophthalmic manifestations are generally mild and reversible. Ophthalmologists do not usually consider pregnancy-related disease in patients who are not known to be pregnant.

Case Report

A 23-year-old woman presented to our eye clinic with three days of progressively decreasing vision in her right eye followed by markedly decreased vision in her left eye. Her visual symptoms were associated with a dull, intermittent, frontal headache. She had no history of trauma, and no new medication exposures. She had no past medical or surgical history. Her family history was only significant for diabetes. There was no known history of pregnancy.

Her visual acuity was counting fingers in both eyes, with no afferent pupillary defect, motility disturbance, or intraocular pressure abnormalities. She was unable to perform confrontational visual fields or color plate testing due to the poor visual acuity. Anterior segment examination was normal with no evidence of inflammation in the anterior chamber or anterior vitreous. Fundus examination demonstrated multiple discrete serous retinal detachments throughout the macula and midperiphery. The caliber and course of the retinal vessels were normal.

Spectral-domain macular ocular coherence tomography (OCT) showed a large serous retinal detachment affecting the central macula along with massive intraretinal edema (Figure 1). The image findings prompted further workup for infectious or autoimmune etiologies. Rapid plasma reagin (RPR), human immunodeficiency virus (HIV), angiotensin converting enzyme (ACE), lysozyme, antineutrophil cytoplasmic antibodies (ANCA), antinuclear antibody (ANA), human leukocyte antigen (HLA) B27, Toxoplasma immunoglobulin M (IgM), QuantiFERON gold, and a chest x-ray were all negative. However, the patient had a greatly elevated erythrocyte sedimentation rate (ESR) at 108, a significant acidosis with mild kidney dysfunction, and a mildly elevated white blood cell count at 11.9. Due to concern for systemic pathology, the patient was referred to the emergency department. There, the patient’s blood pressure was found to be 200/110 mmHg. Further laboratory investigations confirmed acute kidney injury and acidosis.

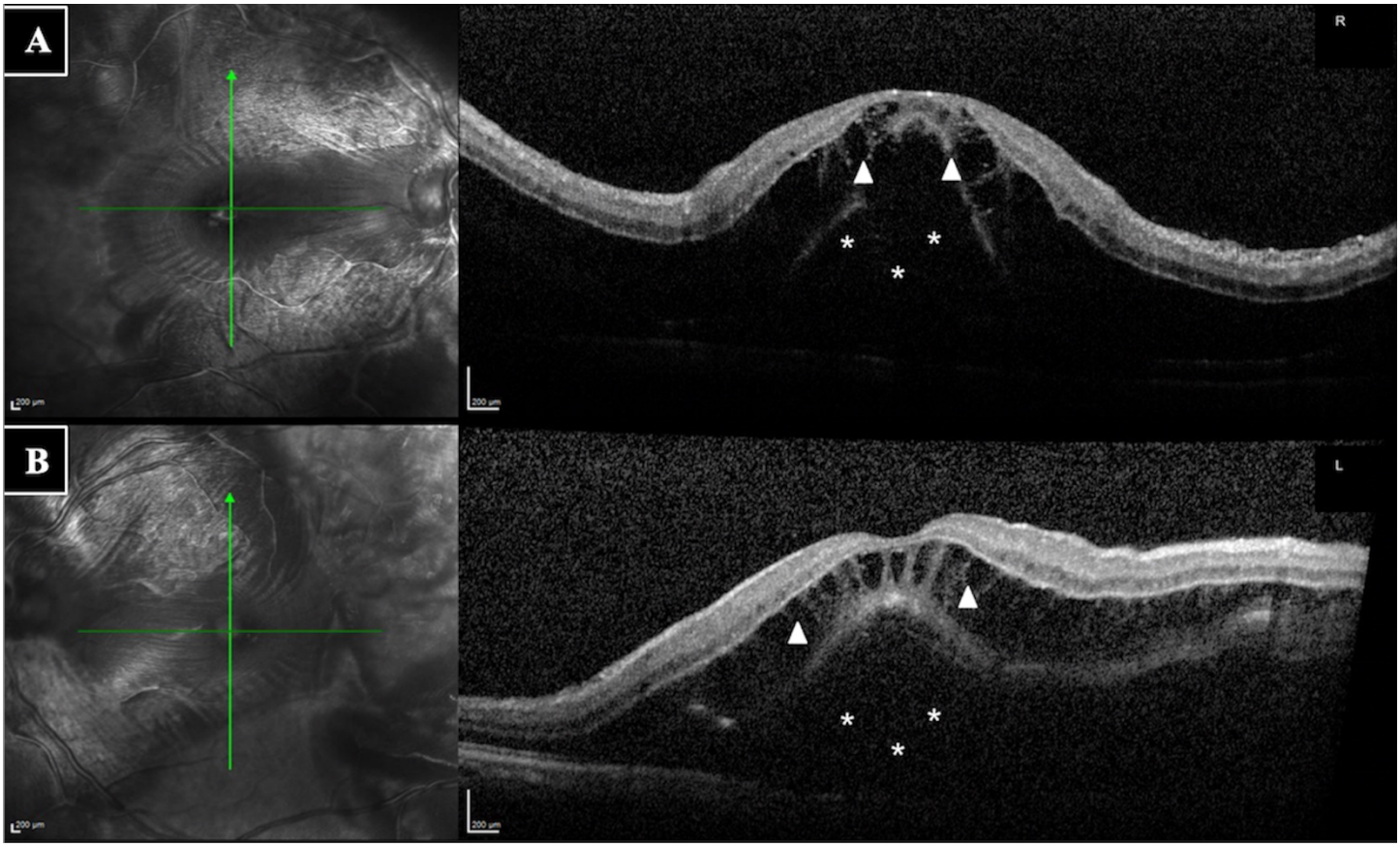

Figure 1. Macular OCT of right (A) and left (B) eyes demonstrate large serous retinal detachments (asterisks) affecting the central macula and marked intraretinal edema (arrowheads).

Renal and bladder ultrasonography was performed to evaluate renal causes of hypertension. Although it did not demonstrate evidence of hydronephrosis, the ultrasound revealed a partially visualized fetal head. Subsequent ultrasound of the uterus demonstrated an intrauterine pregnancy at approximately 35 weeks gestational age, previously unknown to the patient. Beta human chorionic gonadotropin (hCG) was also elevated. The patient was pregnant and diagnosed with preeclampsia with severe features.

The patient was admitted to the obstetrics service, underwent induction of labor, and had a vaginal delivery. Two weeks postpartum, best-corrected visual acuity improved to 20/50 in the right eye and 20/60 in the left eye. Fundus photographs showed significant resolution of subretinal fluid pockets. There was residual shallow parafoveal and far peripheral subretinal fluid (Figure 2). Macular OCTs demonstrated marked improvement of the serous retinal detachments and intraretinal edema (Figure 3). Four months postpartum, the visual acuity had improved to 20/25 and 20/20 in the right and left eyes with complete resolution of subretinal fluid on OCT.

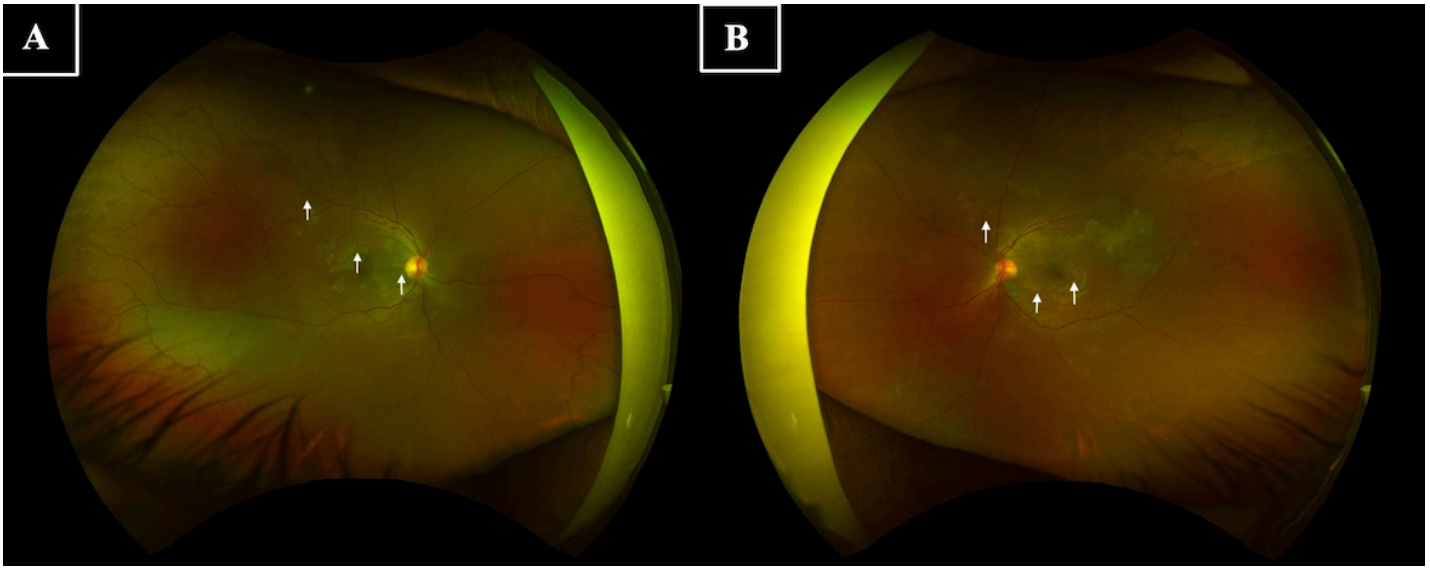

Figure 2. Postpartum fundus photographs of right (A) and left (B) eyes demonstrate mild subretinal fluid (arrows) two weeks after delivery.

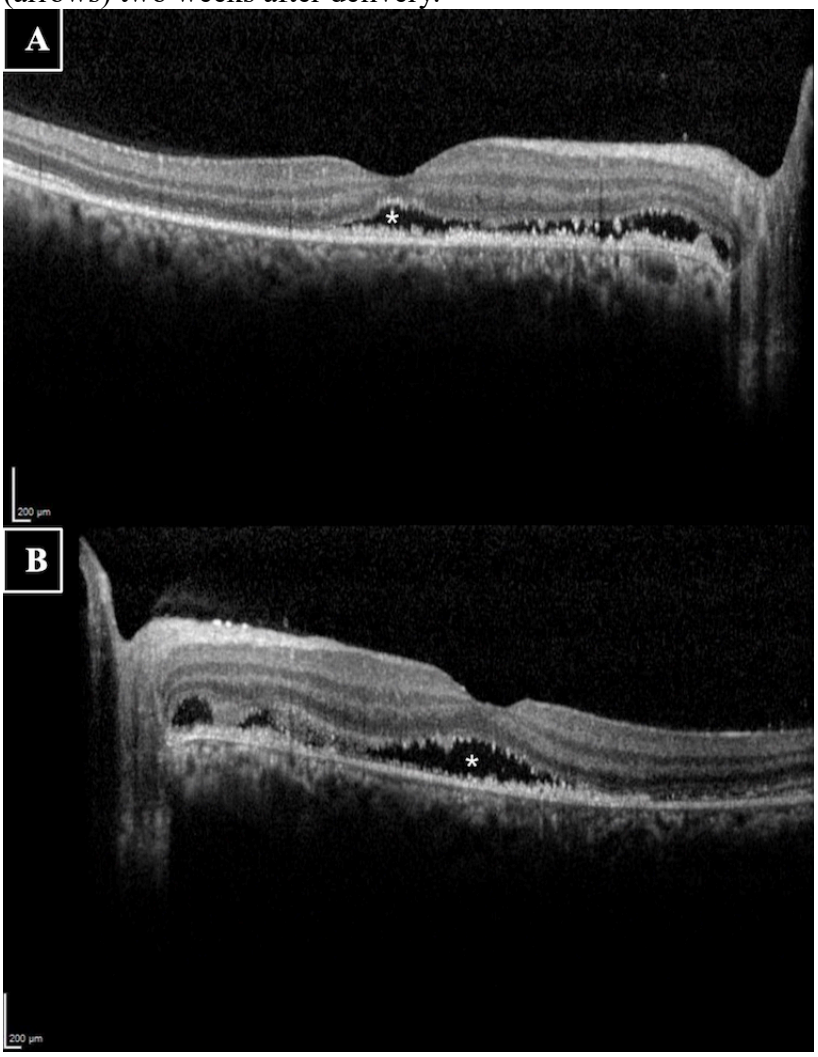

Figure 3. Macular OCT of the right (A) and left (B) eyes demonstrate marked improvement of the serous retinal detachment and intraretinal edema (asterisks) (compared to Figure 1) two weeks postpartum.

Discussion

Hypertensive retinopathy secondary to preeclampsia is important to recognize as preeclampsia and other hypertensive disorders of pregnancy may contribute to increased maternal and fetal morbidity and mortality. Severe preeclampsia is associated with other maternal pregnancy-related complications including progression to eclampsia, stroke, and liver failure, which are associated with increased risk of maternal death. Associated fetal complications include intrauterine growth restriction and prematurity. Childbirth is the only definitive cure for preeclampsia.[2,3] The retinal manifestations can be similar to non-pregnancy related hypertensive retinopathy, with findings such as focal arteriolar spasms, arteriolar attenuation, retinal hemorrhage, retinal edema, and papilledema. These retinal vascular findings mirror placental vascular changes.[4] Exudative retinal detachment is reported in 1% of pre-eclamptic and 10% of eclamptic patients.[7,8] It is hypothesized that serous retinal detachments originate from choroidal ischemia secondary to terminal arteriolar vasospasm which disrupts the retinal pigment epithelium and leads to blood-retinal barrier breakdown.[9] The visual prognosis is generally good, however, with resolution of findings weeks after delivery.[4] This was demonstrated in the patient case presented herein.

Conclusion

Since pregnancy-related ophthalmic manifestations are generally mild and reversible, ophthalmologists do not commonly see such patients in their clinics. Pregnancy-related eye signs are often not first and foremost in differential diagnoses, particularly in patients who are unaware of their pregnancy state as was the case with this patient. As demonstrated here, eyes can manifest pregnancy-related systemic disease with serious systemic implications for both mother and child. Furthermore, common ophthalmic testing and treatments may pose potential risks to the unborn child. For these reasons, ophthalmologists who have a high suspicion for pregnancy-related ocular pathology during work-up and treatment of women of childbearing age will be able to identify a pregnancy which may be unknown to the patient.

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Statement of Ethics

This case report adheres to patient confidentiality and ethical principles in accordance with the guidelines of the Declaration of Helsinki and relevant local regulations. Consent was obtained from the patient for the publication of this case report.

Conflict of Interest Statement

The authors declare no conflicts of interest related to this topic.

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Authorship

We attest that all authors contributed significantly to the creation of this manuscript, each having fulfilled the criteria as established by the ICMJE.