Retinal Manifestations of Preeclampsia

Prompt evaluation of pregnant women with blurry vision is important, as serious and even life-threatening conditions may be present.

BY EUGENE W. NG, MD, MBA; KARL WAITE, MD; AND MICHAEL BENNETT, MD

In this issue of Retina Today, *Eugene W. Ng, MD, MBA; Karl Waite, MD; and Michael Bennett, MD, discuss clinical pearls for managing preeclamptic retinal findings in pregnant patients.*

We extend an invitation to readers to submit pearls for publication in Retina Today. *Please send submissions for consideration to Dean Eliott, MD (deliott@doheny.org); or Ingrid U. Scott, MD, MPH, (iscott@psu.edu). We look forward to hearing from you.*

—Dean Eliott, MD; and Ingrid U. Scott, MD, MPH

It is important to remember that pregnant women may develop unusual and potentially serious retinal and associated systemic conditions that may warrant urgent care. In this Pearls article, we describe a woman who presented with preeclamptic retinal findings that progressed rapidly to eclampsia with serious systemic complications. Prompt management resulted in a favorable outcome for this patient.

BACKGROUND

Pregnancy can affect the visual pathways, from the anterior segment to the visual cortex. Posterior segment complications include worsening of diabetic retinopathy, and development of central serous chorioretinopathy, hypertensive retinopathy, retinal vascular occlusion, and retinal complications of preeclampsia-eclampsia syndrome.[1,2] Preeclampsia-eclampsia syndrome may result in life-threatening complications. In fact, the maternal mortality rate in preeclampsia and eclampsia is up to 1.8% in developed countries.[3]

Preeclampsia is defined by the development of proteinuria in a patient with gestational hypertension. Preeclampsia has an incidence of approximately 5% and typically occurs after 20 weeks gestation.[4] Eclampsia is heralded by the onset of seizures in the setting of preeclampsia. Preeclampsia-eclampsia syndrome is a multisystem disorder that can include cardiovascular changes, hematologic abnormalities, hepatic and renal impairment, and neurologic or cerebral manifestations.

Ocular sequelae are observed in 30% to 100% of patients with preeclampsia-eclampsia syndrome.[5] Blurred vision is the most common visual complaint, and focal or generalized arteriolar narrowing is the most common ocular finding in preeclampsia-eclampsia syndrome. Areas of nonperfusion or arterial and venous occlusive disease may also develop.[1,2]

Preeclampsia and eclampsia have been associated with severe retinopathy similar to hypertensive retinopathy, with serous retinal detachments, yellow, opaque retinal pigment epithelial (RPE) lesions, and cortical blindness.[6] Choroidal dysfunction, primarily choriocapillaris ischemia, is the underlying mechanism which leads to the serous retinal detachments and yellow RPE plaques.[7]

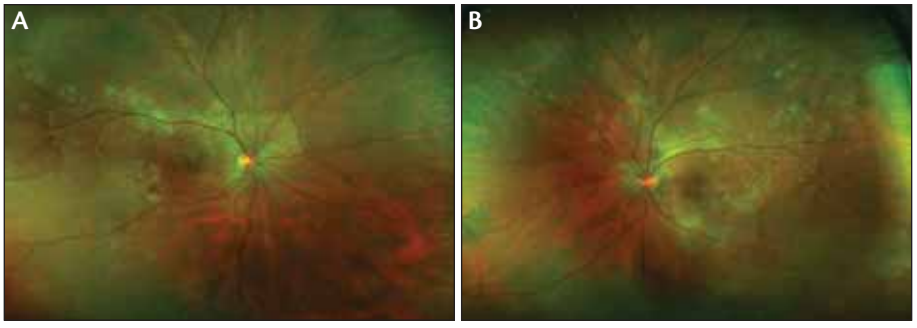

Figure 1. Wide-angle fundus photos of right (A) and left (B) eyes showing inferior serous retinal detachment, multiple yellow RPE plaques, and scattered intraretinal hemorrhages.

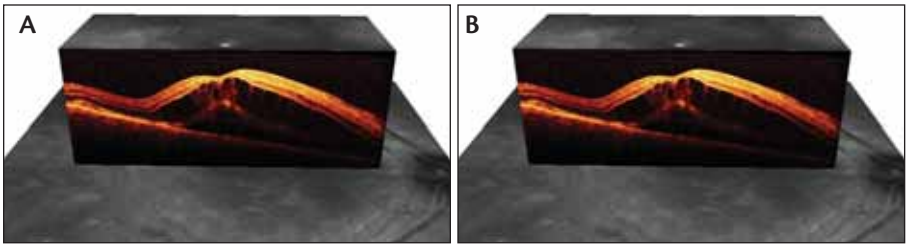

Figure 2. Spectral domain optical coherence tomography (SD-OCT) of right (A) and left (B) eyes showing florid cystoid macular edema.

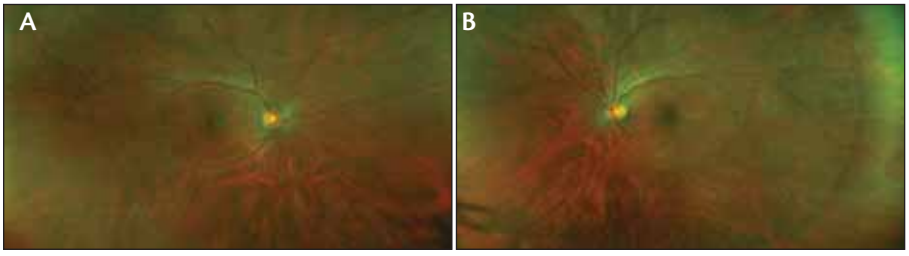

Figure 3. Wide-angle fundus photos of the right (A) and left (B) eyes showing complete reattachment of the retina, improvement of intraretinal hemorrhages, and areas of RPE mottling where yellow RPE plaques had resided.

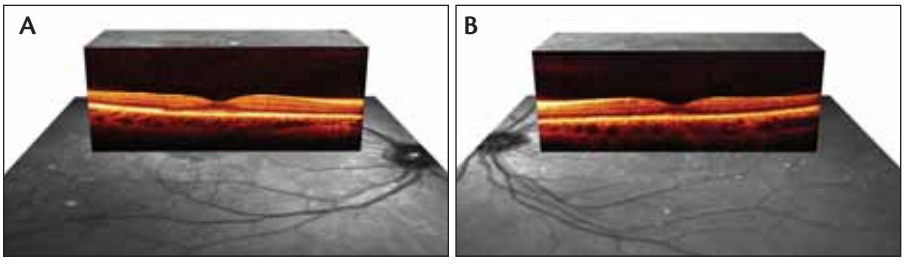

Figure 4. SD-OCT of right (A) and left (B) eyes showing complete resolution of cystoid macular edema.

While most patients recover normal vision within a few weeks of delivery, some have residual RPE changes in the macula that appear as Elschnig spots or that mimic macular dystrophy or tapetoretinal degeneration.[8] Although rare, optic atrophy may develop if chorioretinal atrophy is widespread. Permanent blindness from retinal vascular changes is rare, and cortical blindness is generally reversible.[9]

CASE PRESENTATION

An optometrist called our practice regarding a 43-year-old pregnant woman who had blurry vision in both eyes for 3 days. We requested that the patient come to our office immediately.

The patient stated that she was 20 weeks pregnant, had delivered three children without any previous pregnancy-related complications, and had not received prenatal care during this pregnancy.

On examination, visual acuity with correction was 20/80 in her right eye and 20/400 in her left eye. Anterior segment examination was unremarkable. Dilated fundus examination disclosed bullous, inferior, serous retinal detachments in both eyes. Multiple yellow retinal pigment epithelial plaques, scattered intraretinal hemorrhages, and florid cystoid macular edema were also present (Figures 1 and 2). The patient's blood pressure was 261/140. We also noted pitting edema of her ankles.

We diagnosed the patient with presumed preeclampsia and suggested that she take an ambulance to the maternity hospital nearby. Soon after she presented to the emergency room, the patient developed convulsions and required immediate airway stabilization. Subsequently, the patient underwent emergent Caesarean section to deliver the baby. It was discovered that the patient was actually 33 weeks pregnant.

The patient was diagnosed with HELLP syndrome and eclampsia. HELLP is an obstetric complication characterized by hemolysis, elevated liver enzyme levels and a low platelet count. During the seizure, the patient bit her tongue and thus required admission to the intensive care unit for airway management on a ventilator. A cranial computed tomography scan showed cerebral ischemia in the watershed zone of her occipital lobes.

FOLLOW-UP FINDINGS

A follow-up examination was performed 3 days after admission and delivery while the patient was sedated in the intensive care unit. Conscious sedation precluded testing of visual acuity. Indirect ophthalmoscopy disclosed resolution of the bilateral serous retinal detachments. Bilateral macular edema was still present.

The patient was discharged from the hospital several days later and returned to our office for follow-up 3 weeks after delivery. At this time, visual acuity with correction was 20/20 in each eye. Anterior segment findings were unremarkable. Dilated fundus examination revealed complete resolution of

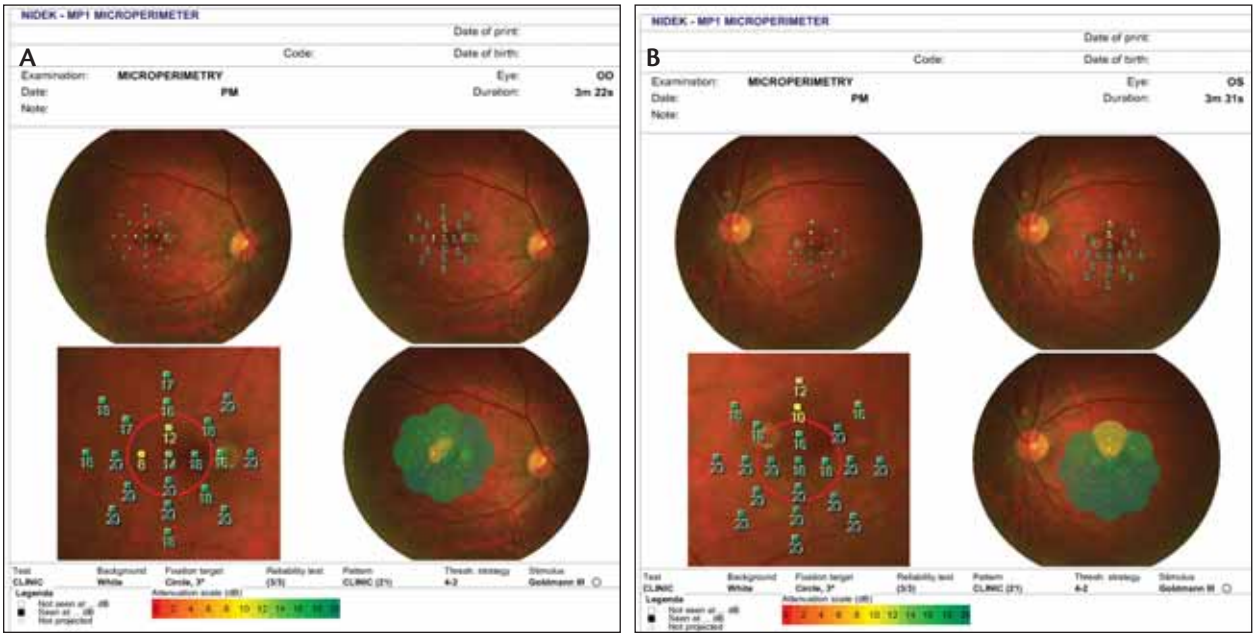

Figure 5. MP-1 of right (A) and left (B) eyes showing subtle macular functional changes at follow-up.

serous retinal detachments and cystoid macular edema (Figures 3 and 4). The scattered intraretinal hemorrhages that were prominent on the original examination had mostly resolved, with only a few remaining. The multiple yellow pigment epithelial plaques had resolved, leaving multiple areas of mottled RPE. The MP-1 MicroPerimeter (Nidek Co., Gamagori, Japan) showed subtle macular functional changes in the right and left eyes (Figure 5).

CLINICAL PEARL

This case illustrates the importance of being vigilant about the rare and serious conditions that may occur in pregnant women with visual complaints. Prompt evaluation may be required. The immediate transfer of care of the patient in this case may have saved the lives of both her and her baby boy. In this patient, prompt treatment of preclampsia-eclampsia syndrome, namely delivery of the fetus, resulted in reversal of the ocular manifestations and visual sequelae associated with this condition. ■

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