



Case report

Hypertensive crisis with massive retinal and choroidal infarction: A case update

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ABSTRACT

Purpose: We report an update on a recently published case of uncontrolled hypertension secondary to immunoglobulin A (IgA) nephropathy resulting in massive bilateral retinal and choroidal infarction.

Observations: In our previous report, we presented a 30-year old female with end-stage renal disease who complained of painless vision loss after many missed hemodialysis. The patient was found to be in hypertensive crisis resulting in massive retinal and choroidal infarction with severe vision loss in both eyes. The patient was treated with pan-retinal photocoagulation (PRP) with intravitreal Bevacizumab and was subsequently lost to follow-up. In this update, we report the complications that followed. After many months, she presented to clinic with a blind painful right eye. She was found to have a further decrease in vision with neovascular glaucoma in the right eye and a tractional retinal detachment in the left eye. The patient ultimately elected for enucleation of her right eye. Immunohistopathology revealed IgA deposition, confirming the presumed diagnosis of IgA nephropathy, previously unconfirmable through renal biopsy.

Conclusions and Importance: There is a strong association between severity of retinopathy and level of kidney function. Although a rare presentation, hypertensive retinopathy is a common complication of end-stage renal disease and can be a devastating process as emphasized by this report. Those with auto-immune renal disease, such as IgA nephropathy, are at higher risk for retino-choroidal complications. It should remind all ophthalmologists and clinicians on the necessity of closer eye examinations for these patients, particularly for those with auto-immune renal disease.

1. Introduction

Chronic Kidney Disease (CKD) affects more than 27 million Americans.¹ There is a strong association between severity of retinopathy and level of kidney function.² Those with auto-immune renal disease, such as IgA nephropathy, are at higher risks of retinal complications, particularly from hypertensive retinopathy.³ Over 40% of patients with IgA nephropathy will have secondary hypertension at presentation.³ We present an update on a recently published case of end stage hypertensive retinopathy secondary to IgA nephropathy with massive bilateral retinal and choroidal infarction.⁴

2. Case report

In our previous report, we presented a 30-year old female with end-stage renal disease who complained of painless vision loss after many

missed hemodialysis. Upon presentation, the patient was in hypertensive crisis with blood pressure of 225/115 mmHg. Visual acuity was hand motion (HM) in the right eye and counting fingers (CF) in the left eye. Funduscopic examination revealed disc swelling, diffuse retinal hemorrhages, and sclerotic and attenuated vessels with sheathing in both eyes (Figs. 1 and 2). Optical Coherence Tomography (OCT) and Fundus Fluorescein Angiography (FFA) aided in a final diagnosis of massive retinal and choroidal infarction from a severe case of hypertensive crisis. Blood pressure normalized with hemodialysis and anti-hypertensive medication, but visual acuity did not improve. The patient was treated with PRP with intravitreal Bevacizumab and was subsequently lost to follow-up.

In this update, we report the significant morbidity that followed. After many months, she presented to clinic with a blind painful right eye. Visual acuity in the right eye demonstrated no light perception with an intraocular pressure of 65 mmHg. Vision in the left eye had

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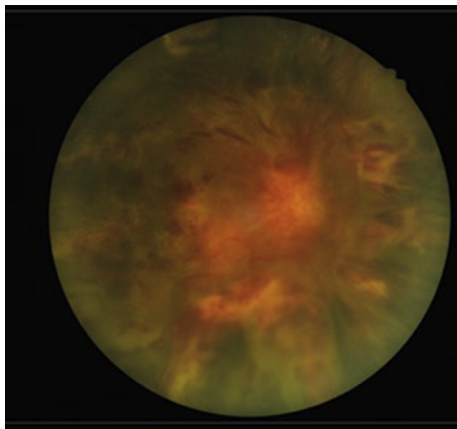


Fig. 1. Fundus photo of the right eye demonstrating disc swelling with diffuse retinal hemorrhages and sheathed vessels.

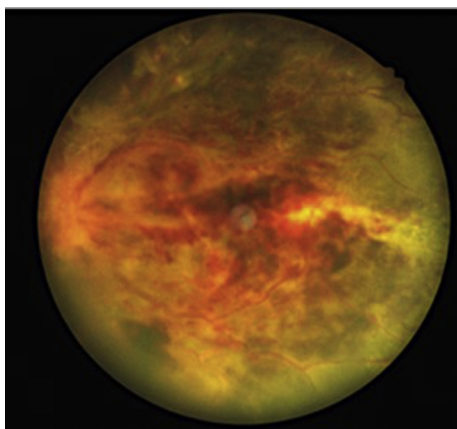


Fig. 2. Fundus photo of the left eye demonstrating disc swelling with diffuse retinal hemorrhages and sheathed vessels.



Fig. 3. Enucleated right eye of patient demonstrating an eye filled with blood.

decreased further to HM with a tractional retinal detachment. The patient underwent a diagnostic and therapeutic enucleation of her right blind painful eye (Fig. 3). Pathology revealed corneal pannus, replacement of Bowmans membrane with fibrovascular tissue and neovascularization of the iris and angle with complete angle closure (Fig. 4). There was a complete retinal detachment with extensive gliosis (Fig. 5). IgA staining showed significant IgA deposition in histiocytes, confirming her presumed diagnosis of IgA nephropathy (Fig. 6). The patient decided against any further intervention in her left eye. She is

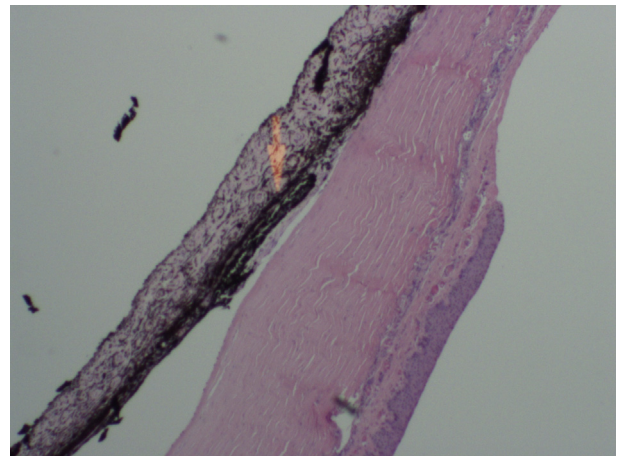


Fig. 4. Photomicrograph demonstrating neovascularization of the iris with complete angle closure.

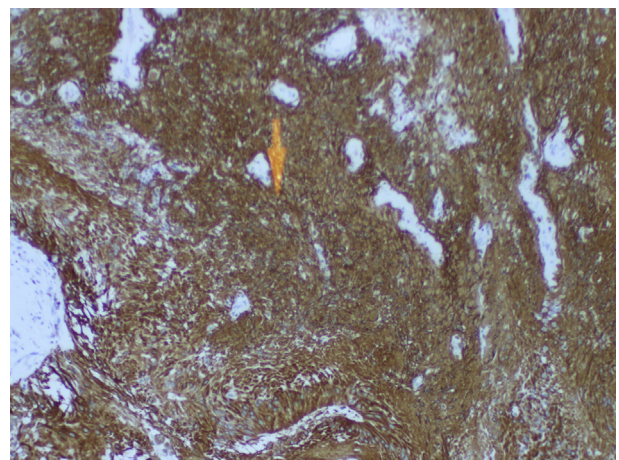


Fig. 5. Photomicrograph demonstrating extensive retinal gliosis.

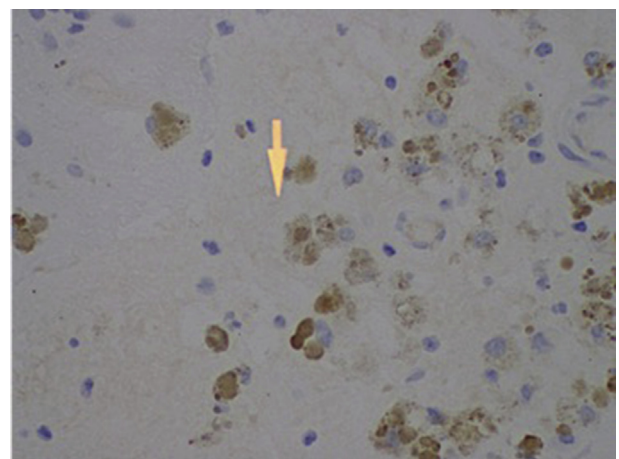


Fig. 6. Photomicrograph demonstrating IgA deposition in histiocytes.

currently awaiting a prosthesis.

3. Conclusion and discussion

We present a case of end stage hypertensive retinopathy from IgA nephropathy resulting in massive retinal and choroidal infarction with severe vision loss in both eyes. IgA nephropathy (also known as Berger's

disease) is a complement-mediated condition characterized by glomerulonephritis and progression to end-stage renal disease in approximately 40% individuals.^{3,5} Initially, this was a presumed diagnosis, made likely by the patient's age and lack of other systemic diseases known to cause kidney disease. Prior renal biopsies had been limited by late stage renal fibrosis. In this case, the significant morbidity of uncontrolled hypertensive retinopathy led to enucleation, which aided in confirming her presumed diagnosis through immunohistopathology. Such severe proliferative retinopathy and neovascular complications are rare for hypertensive retinopathy but it is supported by studies that show the severity of retinopathy is associated with lower kidney function.^{2,3,5,6}

Furthermore, the microvascular changes seen in hypertensive retinopathy are indicators of other end-organ damage as well as future clinical events such as stroke and cardiac events.⁷ Thus, we advocate for routine eye screening in all high-risk patients, particularly those with lower glomerular filtration rates and with renal disease from auto-immune etiology.

4. Conclusion

The devastating sequelae of uncontrolled hypertension emphasized in this report could have been potentially prevented with blood pressure control. Secondary hypertension is a common complication in those with end-stage renal disease. The severity of retinopathy is associated with lower kidney function. Those with auto-immune renal disease, such as IgA nephropathy, are particularly at risk for retino-choroidal complications. It should remind all ophthalmologists and clinicians on the necessity of closer eye examinations for these patients, particularly for those with auto-immune renal diseases.

Patient consent

The patient consented to publication of the case orally.

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Conflicts of interest

The following authors have no financial disclosures: SA, CG, AF.

Authorship

All authors attest that they meet the current ICMJE criteria for authorship.

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