Simultaneous Bilateral Peripapillary Choroidal Neovascular Membranes

Abstract: Peripapillary choroidal neovascular membranes (CNVM) are rare and often asymptomatic if not involving the macula. Here is a case of a 60-year old male with simultaneous bilateral peripapillary CNVMs and no visual or ocular symptoms.

I. Case History: A 60-year old Caucasian male presented for a routine diabetic eye exam. His only complaints were seasonal itchy and watery eyes and systemic allergies. He denied ocular medications, injuries and surgeries. His last eye exam 1.5 years ago was unremarkable. His medical history is significant for Type 2 diabetes for 13 years controlled with insulin, with a recent hemoglobin A1C of 8.7%. He also has chronic Stage III kidney disease with history of renal cell carcinoma and subsequent right nephrectomy without metastasis.

II. Pertinent findings: Clinical examination revealed acuities of 20/20 in each eye uncorrected. Pupils, motility, and confrontation fields were normal. Anterior segment exam showed mild papillary reaction and watery discharge OU. Intraocular pressures were 16 mm hg right eye and 17 mm hg left eye. Dilated fundus exam of the right eye showed mildly elevated retina directly adjacent to the nasal disc margin from 9:00 to 11:00 without disc involvement and no hemes. In the left eye there was moderate retinal elevation nasal to the disc from 6:00 to 11:30 partially obscuring the nasal disc margin with 4 large blot hemes nasal to the nerve. Spontaneous venous pulsation was present. There were no other retinal abnormalities. We acquired fundus photos and RNFL OCTs which showed normal nerve fiber layers with subretinal fluid nasal to both nerves with an appearance suspicious for choroidal neovascularization. Macular OCTs were unremarkable. A 2 week follow-up revealed no change.

III. Differential diagnosis: Based on clinical and OCT findings, we diagnosed bilateral peripapillary choroidal neovascular membranes. Differential diagnosis includes polypoidal choroidal vasculopathy (PPCV), a condition more common in Asians and African Americans, causing peripapillary lesions in 4.5% of patients. PPCV can be differentiated from peripapillary CNVMs by fluorescein angiography (FA) or indocyanine green angiography leakage patterns. However neither was performed due to the patient’s poor renal status. Our patient’s demographic and clinical exam were not consistent with the typical orange-red polyp appearance of PPCV however we cannot rule it out without further testing.

IV. Diagnosis and discussion: According to the literature, peripapillary CNVMs occur within 1 disc diameter of the optic nerve with no normal retina separating the disc margin from the membrane. They are rare and most commonly associated with age-related macular degeneration (45%). About 39% are idiopathic. Less common associations
include polypoidal choroidal vasculopathy, inflammatory choroiditis, angiod streaks, ocular histoplasmosis, and optic nerve drusen. Bilateral involvement occurs in about 20% of patients within 2 years however simultaneous bilateral presentation as in this case is rare.\textsuperscript{2} Cases are usually asymptomatic if the macula is not involved. In our case, the findings are most likely idiopathic or possibly associated with PPCV. Fortunately, in our case the nasal location of the CNVMs suggests that the macula will not become involved though we will continue to observe the patient periodically and instructed him to return promptly if visual changes occur.

V. Treatment, management: Peripapillary CNVMs are monitored with observation if the macula is not involved, as in our case. Only vision-threatening CNVMs are treated. Treatment options include laser photocoagulation, photodynamic therapy, anti-VEGF intravitreal injections and surgical extraction of neovascular membranes.\textsuperscript{1}

VI. Conclusion: The literature is limited with respect to bilateral simultaneous peripapillary CNVMs and most isolated case reports cite other obvious clinical findings such as macular degeneration, optic drusen, or angiod streaks. Additional testing such as FA or indocyanine green angiography can help differentiate etiologies in more challenging cases. OCT is helpful for further visualization and for monitoring purposes. Regardless of etiology it is most important to distinguish whether treatment is indicated based on the location and risk of vision loss.

References: