Acute Posterior Multifocal Placoid Pigment Epitheliopathy

Vishal S. Parikh MD; Richard J. Rothman MD

Introduction:

A 28-year-old African American male with a past medical history of asthma presented with a three week history constant blurry and distorted vision in the left eye. He reported associated flashes as well. He had headaches one month prior that had resolved and a history of sinus congestion two months prior that had resolved as well. Our patient denied tinnitus. Prior to presentation the referring provider found optic disc swelling in the left eye and started the patient on 40mg of oral prednisone and had neuroimaging performed. However, the MRI of the orbits and brain were unremarkable. No vision changes in the right eye.

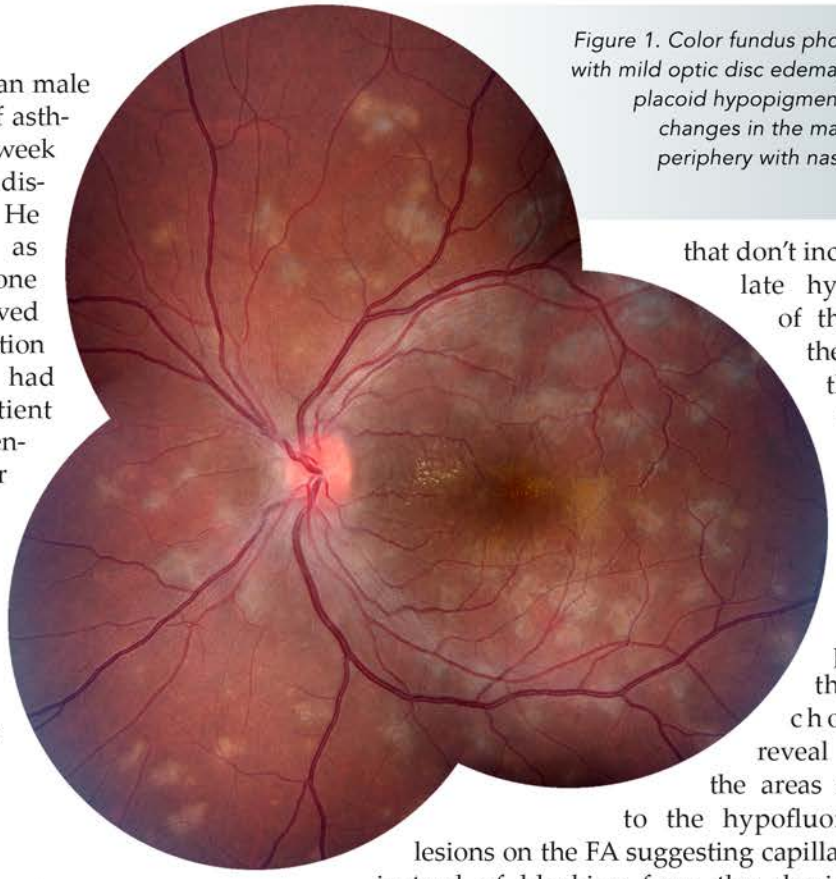

Figure 1. Color fundus photo of the left eye with mild optic disc edema, multifocal deep placoid hypopigmentary chorioretinal changes in the macula and the mid periphery with nasal exudate in the macula.

Exam:

On exam, best corrected visual acuity was 20/30 in the right eye and 20/60 in the left eye. Intraocular pressure was within normal limits. No afferent pupillary defect was noted. Visual fields were full to confrontation. Extraocular movements were full. The anterior segment exam was unremarkable. Fundus examination of the left eye revealed mild optic disc edema, multifocal deep placoid hypopigmentary chorioretinal changes in the macula and the mid periphery with nasal exudate in the macula. (Figure 1) Optical coherence tomography (OCT) of the left eye reveal disruption of the inner/outer photoreceptor segment junction and an irregular RPE in comparison to the right eye. (Figure 2) Fluorescein angiography (FA) shows early hypofluorescence in the arterial, laminar and arteriovenous phases of the left eye. There is late hyperfluorescence surrounding the areas of hypofluorescence that don't increase in size and late hyperfluorescence of the optic disc in the late phase of the angiogram of the left eye compared to the right eye. (Figure 3) Optical coherence tomography angiography (OCTA) of the choroid and choriocapilaris reveal lack of flow in the areas that correspond to the hypofluorescent placoid lesions on the FA suggesting capillary nonperfusion instead of blocking from the chorioretinal placoid lesions. (Figure 4)

Discussion:

Based on the clinical findings, suspicion is high for acute posterior multifocal placoid pigment epitheliopathy (APMPPE), one of the white dot syndromes. Other white dot syndromes on the differential include multiple evanescent white dot syndrome, serpiginous choroiditis (especially in chronic, recurrent cases), relentless placoid choroiditis, multifocal choroiditis and panuveitis, punctate inner choroidopathy, birdshot chorioretinopathy and Vogt Koyanagi Harada syndrome. The differential diagnosis also includes infectious uveitis (tuberculosis, syphilis), choroidal metastases, and lymphoma that should be ruled out with

appropriate tests if clinical suspicion high. The patient underwent systemic work-up and revealed a normal CBC and CMP, non-reactive RPR, negative quantiferon gold, non-reactive HIV antibody, negative Lyme Ab, negative ANA screen, negative ANCA. Prior MRI brain and orbits was unremarkable.

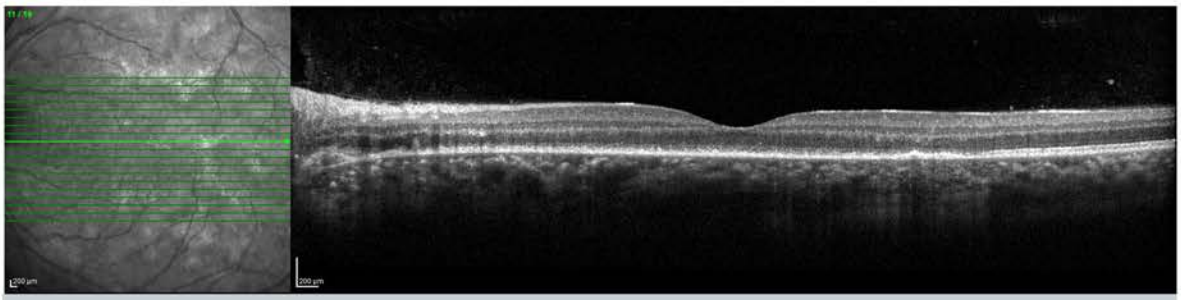

Figure 2. Optical coherence tomography (OCT) of the left eye reveal disruption of the inner/outer photoreceptor segment junction and an irregular RPE in comparison to the right eye.

APMPPE is a white dot syndrome which was first described by Gass in 1968. APMPPE is usually bilateral but asymmetric, however unilateral cases have been reported. It affects both women and men and occurs between the 2nd to 4th decades. Patients present with blurred vision with central or paracentral scotomas ranging with a visual acuity from 20/40 to count fingers vision. Photopsias have been reported prior to vision loss. Approximately one-third to half of APMPPE patients report symptoms of a viral flu-like prodrome. APMPPE has been associated in cases of thyroiditis, erythema nodosum, granulomatosis with polyangiitis, polyarteritis nodosa, nephritis, sarcoidosis, scleritis, ulcerative colitis, central nervous system (CNS) vasculitis, and post-vaccination. Other infectious associations include group A streptococcus, adenovirus-5, influenza, hepatitis B, Lyme disease, mumps, and tuberculosis.

On exam, the anterior segment is usually unremarkable. Vitiris is observed in half of cases. Fundoscopic examination typically shows multiple bilateral yellow-white placoid lesions at the level of RPE. The lesions gradually fade over the course of 2 weeks. New lesions may appear in the periphery up to 3 weeks following onset (radially or linearly). Papillitis may occur. Older lesions are replaced with RPE atrophy or hyperpigmentation. There are reports of associated retinal vasculitis, vein occlusion, subhyaloid hemorrhage, retinal neovascularization, exudative retinal detachment, and rare choroidal neovascular membrane formation.

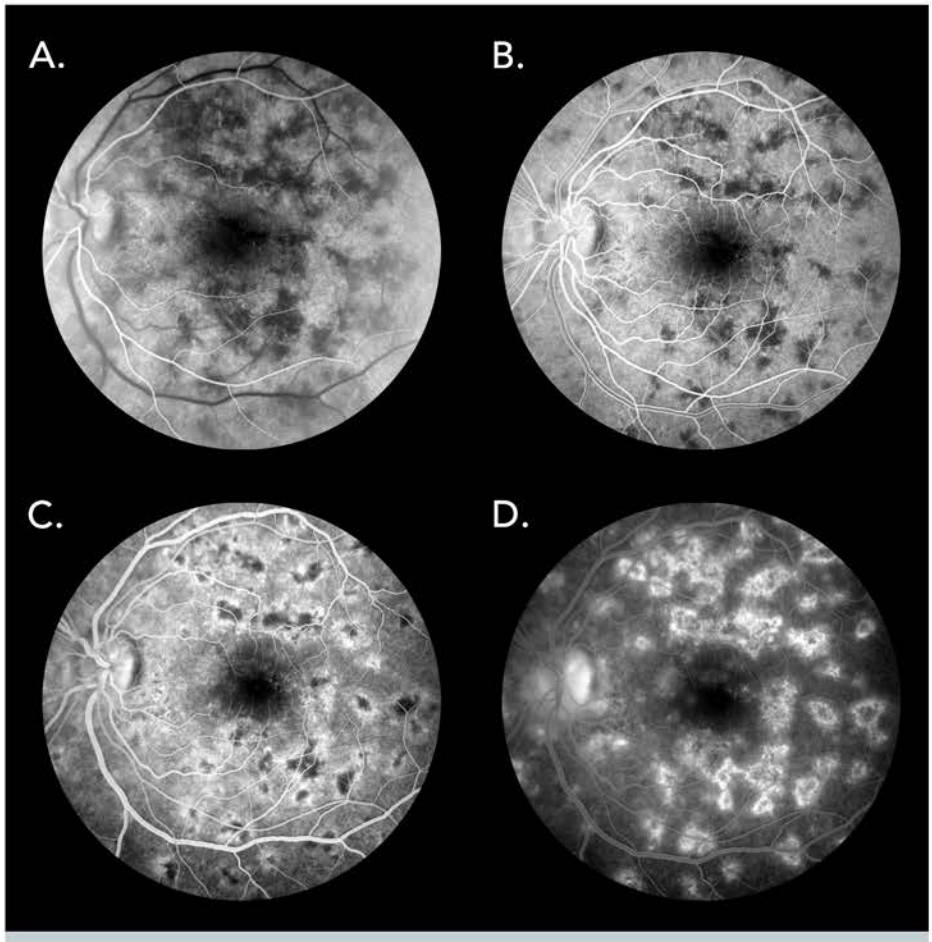

Figure 3. Fluorescein angiography (FA) shows early hypofluorescence in the (A) arterial, (B) laminar, and (C) arteriovenous phases of the left eye. There is late hyperfluorescence surrounding the areas of hypofluorescence that don't increase in size and late hyperfluorescence of the optic disc in the (D) late phase of the angiogram of the left eye compared to the right eye.

OCT shows hyperreflectivity from the outer plexiform layer to the RPE with normal retinal thickness in acute lesions. Hyperreflectivity of outer layers resolve along with resolution of the lesion. FA shows early hypofluorescence corresponding to the placoid lesions followed by late, irregular hyperfluorescent staining surrounding the areas of hypofluorescence. OCTA has shown that there is reduced choriocapillaris and choroid flow in the areas corresponding to hypofluorescence suggesting nonperfusion instead of blocking by the placoid lesion. Fundus autofluorescence usually has hypoautofluorescence corresponding to the placoid lesions in the acute phase.

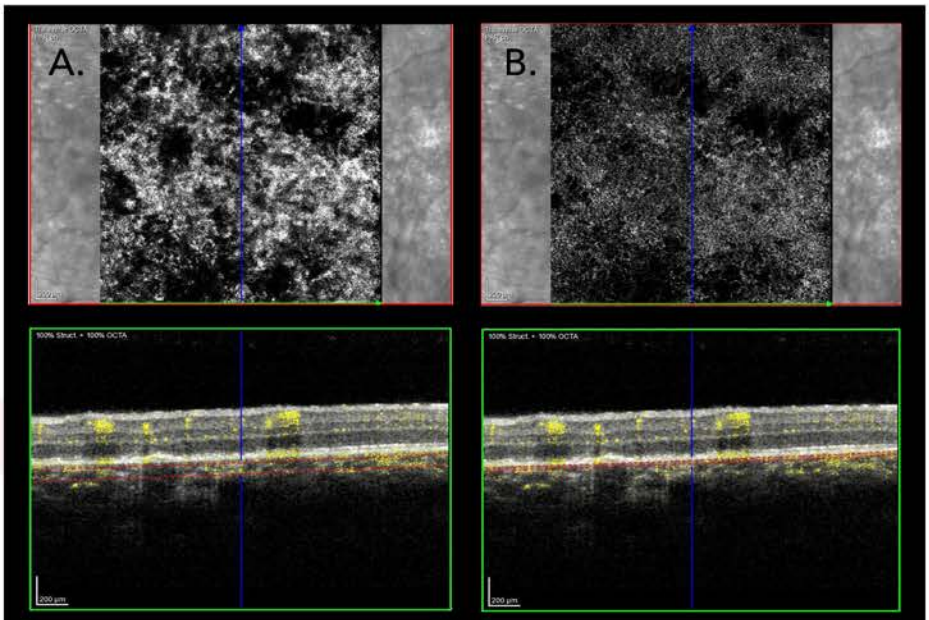

Figure 4. Optical coherence tomography angiography (OCTA) of the (A) choroid and (B) choriocapillaris reveal lack of flow in the areas that correspond to the hypofluorescent placoid lesions on the FA suggesting capillary nonperfusion instead of blocking from the chorioretinal placoid lesions.

APMPPE is self-limiting with a good prognosis. Fiore el al. analyzed 183 articles related to APMPPE and found 25% of patients had a visual acuity of 20/50 or worse. Visual recovery typically takes 4 weeks, but can extend to 6 months in some patients. However, foveal involvement confers a worse visual prognosis. There is no consensus on treatment although steroids have been utilized and reported to be beneficial in cases of foveal involvement and associated CNS vasculitis. Any APMPPE patient with headaches should be referred promptly to an emergency department for neurology work-up and imaging to evaluate for CNS vasculitis.

Our patient returned two weeks later and had an improvement in his best-corrected visual acuity to 20/30 in the left eye and is continuing on 20mg oral prednisone at this time. He will follow-up in 2 weeks.

References:

1. Fiore T, Iaccheri B, Androudi S, Papadaki TG, Anzaar F, Brazitikos P, et al. Acute posterior multifocal placoid pigment epitheliopathy: outcome and visual prognosis. Retina. 2009;29(7):994-1001.

2. Gass JD. Acute posterior multifocal placoid pigment epitheliopathy. Arch Ophthalmol. 1968;80(2):177-85.

3. Heiferman MJ, Rahmani S, Jampol LM, Nesper PL, Skondra D, Kim LA, et al. Acute Posterior Multifocal Placoid Pigment Epitheliopathy . on Optical Coherence Tomography Angiography. Retina. 2017;37(11):2084-94.

4. Klufas MA, Phasukkijwatana N, Iafe NA, Prasad PS, Agarwal A, Gupta V, et al. Optical Coherence Tomography Angiography Reveals Choriocapillaris Flow Reduction in Placoid Chorioretinitis. Ophthalmol Retina. 2017;1(1):77-91

5. Maamari RN, Stunkel L, Kung NH, Ferguson CJ, Tanabe J, Schmidt RE, et al. Acute Posterior Multifocal Placoid Pigment Epitheliopathy Complicated by Fatal Cerebral Vasculitis. J Neuroophthalmol. 2019;39(2):260-7.

6. Mirza RG, Jampol LM. Relentless placoid chorioretinitis. Int Ophthalmol Clin. 2012;52(4):237-42.

7. O'Halloran HS, Berger JR, Lee WB, Robertson DM, Giovannini JA, Krohel GB, et al. Acute multifocal placoid pigment epitheliopathy and central nervous system involvement: nine new cases and a review of the literature. Ophthalmology. 2001;108(5):861-8.

8. Pagliarini S, Piguet B, Ffytche TJ, Bird AC. Foveal involvement and lack of visual recovery in APMPPE associated with uncommon features. Eye (Lond). 1995;9 (Pt 1):42-7.

9. Quillen DA, Davis JB, Gottlieb JL, Blodi BA, Callanan DG, Chang TS, et al. The white dot syndromes. Am J Ophthalmol. 2004;137(3):538-50.

10. Spaide RF. Autofluorescence imaging of acute posterior multifocal placoid pigment epitheliopathy. Retina. 2006;26(4):479-82.

11. Steiner S, Goldstein DA. Imaging in the diagnosis and management of APMPPE. Int Ophthalmol Clin. 2012;52(4):211-9.

Case of the Month Supported by: RRDF & Retina Research & Development Foundation

THE RETINA INSTITUTE
1600 S. Brentwood Blvd., Suite 800
St. Louis, MO 63144
(314) 367-1181
tri-stl.com

Kevin J. Blinder, MD
Sabin Dang, MD
Alia K. Durrani, MD
Nicholas E. Engelbrecht, MD
M. Gilbert Grand, MD

Daniel P. Joseph, MD, PhD
Thomas K. Krummenacher, MD
Richard J. Rothman, MD
Gaurav K. Shah, MD
Bradley T. Smith, MD