Acute posterior multifocal placoid pigment epitheliopathy (APMPPE) is a posterior uveitis included in the spectrum of white dot syndromes. It usually affects young healthy individuals who develop photopsias, paracentral scotomas, and decreased vision. Clinically, APMPPE presents with multiple, bilateral, gray-white, placoid lesions that evolve over several weeks, leaving foci of hypopigmentation and pigment clumping. We describe an analysis of multimodal imaging of APMPPE using both ultra-wide-field imaging (200Tx; Optos) and adaptive optics (AO) imaging (rtx1; Imagine Eyes).

Report of a Case | A 25-year-old white man with bilateral blurred vision for several weeks was diagnosed as having APMPPE in both eyes based on characteristic funduscopic findings. Best-corrected visual acuity was 20/400 OU on presentation, improving to 20/25 OU over 16 weeks of follow-up. Multimodal imaging at baseline and subsequent visits (Figure 1 and Figure 2) showed 3 types of lesions:

- Type 1: white on color photographs, hypofluorescent early and isofluorescent late on fluorescein angiography (FA), and isoautofluorescent on fundus autofluorescence (FAF). These lesions were mostly located anterior to the equator at baseline and disappeared over time.

- Type 2: white on color photographs, hypofluorescent early and staining late on FA, and hypoautofluorescent on FAF. These lesions became atrophic.

- Type 3: pigmented on color photographs, hypofluorescent early and late on FA, and hyperautofluorescent on FAF. These pigmented lesions were located at the margins of the placoid lesions in the left eye and occurred more centrally in the right eye. Over time, they appeared to migrate from the periphery into the center of the placoid lesions.

Numerous discrete dark spots were detected on AO imaging and analyzed through multimodal imaging. They were brownish on color photographs. Some were hyperautofluorescent on FAF. They were distributed along the choroidal vasculature on AO imaging (Figure 2).

Discussion | The primary chorioretinal layer involved in APMPPE has yet to be elucidated. Although Gass1 originally described the placoid lesions occurring at the level of the retinal pigment epithelium (RPE), Deutman et al2 hypothesized that acute inflammation of the choriocapillaris might be the initial insult and the RPE changes might be a subsequent manifestation. Integrated data from FAF imaging and other imaging modalities have demonstrated that the choroidal lesions on FA and indocyanine green angiography are more numerous and widespread than the RPE lesions on FAF imaging.3 As a consequence, the RPE appears to be affected secondarily to the choroidal lesions.

The first P of APMPPE stands for posterior, but our case shows numerous placoid lesions anterior to the equator (type...
Multimodal imaging 4 weeks after presentation, including adaptive optics imaging. As compared with Figure 1, note the disappearance of the peripheral lesions on color photographs (A and B). The persistent lesions appear more pigmented in both eyes (B and C). The pigmented lesions show hyperautofluorescence and the nonpigmented lesions show hypoauteofluorescence on fundus autofluorescence imaging (C and D). The area in the white squares (A and C) has been analyzed with adaptive optics imaging. Color photographs show pigmented spots (E), some of which are hyperautofluorescent on fundus autofluorescence imaging (F). These spots correspond to the numerous dark spots detected on adaptive optics imaging, which are distributed along the choroidal vessels (G).

1. If these lesions were at the level of the RPE, one would expect them to be visualized on FAF imaging. However, they were completely silent on FAF imaging, suggesting that they may be located deeper than the RPE, at the level of the choriocapillaris. We distinguished 3 types of lesions based on their multimodal imaging characteristics in APMPPE. Type 1 lesions seem to be located at the level of the choriocapillaris and are transient. Type 2 and 3 lesions are at the level of the RPE and are permanent.

The pigmented lesions were distributed along the choroidal vasculature on AO imaging (Figure 2). They may correspond to pigment-laden macrophages or accumulation of pigmented vesicles and may indicate a secondary reaction at the level of the RPE induced by an inflammatory process at the level of the choroidal vasculature. Their size and shape were not consistent with RPE cells.

Acute posterior multifocal placoid pigment epitheliopathy is characterized by prominent RPE changes, but the permanent RPE damage (type 2 and 3 lesions) may be secondary to an acute transient choroidal inflammatory process (type 1 lesions).

Sarah Mrejen, MD
Roberto Gallego-Pinazo, MD
Kenneth J. Wald, MD
K. Bailey Freund, MD

Corresponding Author: K. Bailey Freund, MD, Vitreous Retina Macula Consultants of New York, 460 Park Ave, New York, NY 10022 (kbfnyf@aol.com).


Author Contributions: Mrejen had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. Study concept and design: Mrejen, Gallego-Pinazo, Freund. Acquisition of data: All authors. Analysis and interpretation of data: Mrejen, Gallego-Pinazo, Freund. Drafting of the manuscript: Mrejen, Freund. Critical revision of the manuscript for important intellectual content: All authors. Study supervision: Gallego-Pinazo, Wald.

Conflict of Interest Disclosures: None reported.

Funding/Support: This work was supported by The Macula Foundation, Inc.


Vismodegib as Eye-Sparing Adjuvant Treatment for Orbital Basal Cell Carcinoma

Orbital invasion of basal cell carcinoma (BCC) may lead to disfigurement, blindness, or even death. Orbital exenteration, although disfiguring and blinding, is often the only option for cure when incompletely excised medial canthal tumors extend into the orbit. The US Food and Drug Administration has recently approved a hedgehog pathway inhibitor5 with an adequate safety profile,4 vismodegib (Erivedge), for oral treatment of basal cell nevus syndrome2 and locally advanced or metastatic BCC.6 We describe a patient with BCC invading the orbit that was treated with oral vismodegib and successfully resolved the basal cell.

Vismodegib is an oral small-molecule inhibitor of the human androgen receptor that selectively binds to the G965 residue in an autoinhibitory conformation of the receptor. Vismodegib inhibits the Hedgehog signaling pathway, which is thought to be an important mechanism of tumor growth in basal cell carcinoma. In a phase II study, vismodegib showed tumor responses across a broad spectrum of patients with advanced BCC, including those with orbital and periorbital disease.6,7 In those patients, vismodegib treatment led to clinical improvement and a decrease in tumor volume.

In this patient, oral vismodegib resulted in an effective treatment for advanced BCC.

Sarah Mrejen, MD
Roberto Gallego-Pinazo, MD
Kenneth J. Wald, MD
K. Bailey Freund, MD

Author Affiliations: Vitreous Retina Macula Consultants of New York, New York (Mrejen, Gallego-Pinazo, Freund); L’Esther T. Mertz Retinal Research Center, Manhattan Eye Ear and Throat Hospital, New York, New York (Mrejen, Gallego-Pinazo, Freund); Department of Ophthalmology, New York University School of Medicine, New York (Wald, Freund); Department of Ophthalmology, University and Polytechnic Hospital La Fe, Valencia, Spain (Gallego-Pinazo); Retina Associates of New York, New York (Wald).