of intravenous methylprednisolone sodium succinate daily for 3 days, she died. Autopsy was refused.

Comment. To our knowledge, only 2 other studies have reported death secondary to cerebrovascular complications of APMPPE.2,3 In our case, like the 2 other reports, death occurred when oral prednisone was rapidly tapered to a dose of 20 mg/d. From a review of 9 patients with APMPPE who had strokes, patients were less likely to have a second stroke or die if they received high-dose corticosteroids (60 mg prednisone equivalent or greater) followed by a prolonged, gradual taper or initiation of a steroid-sparing agent.4

The choroidal inflammatory lesions of APMPPE have been associated with systemic necrotizing vasculitides, such as Wegener granulomatosis and polyarteritis nodosa, that require aggressive, prolonged immune suppression to prevent significant morbidity or death.5 Both angiographic and histopathologic evidence of granulomatous cerebral vasculitis has been demonstrated in patients with cerebrovascular complications from APMPPE.3

We recommend a low threshold for neurologic and rheumatologic consultation and initiation of high-dose corticosteroids. Once steroids are initiated, they should not be tapered until quiescence of choroidal inflammation and resolution of the neurologic symptoms, as these may represent active vasculitic disease. Therefore, we recommend tapering corticosteroids according to expert guidelines proposed for other ocular inflammatory disorders.6 In these rare circumstances, a cautious corticosteroid taper with close monitoring of systemic adverse effects may avoid cerebrovascular complications and death.

Ahmed El Sanhouri, MD
Robert A. Sisk, MD
Michael R. Petersen, MD, PhD

Author Affiliations: Cincinnati Eye Institute, Cincinnati, Ohio.

Correspondence: Dr Sisk, Cincinnati Eye Institute, 1945 CEI Dr, Cincinnati, OH 45242 (rsisk@cincinnatieve.com).

Author Contributions: Drs Sisk and Petersen had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

Financial Disclosure: None reported.


Orange Pigment Sediment Overlying Small Choroidal Melanoma

Lipofoacin-laden macrophage accumulation can occur over benign and malignant choroidal tumors.1 The presence of overlying lipofoacin pigment has been demonstrated with choroidal nevus, choroidal hemangioma, benign reactive lymphoid hyperplasia, intraocular lymphoma, choroidal metastasis, and, most often, choroidal melanoma.2 Lipofoacin pigment typically appears as fine or granular deposits over the surface of a thin choroidal mass. Accretion of lipofoacin layered as sediment is extremely rare. Furthermore, a PubMed search for keywords “lipofoacin,” “sediment,” “orange,” “melanoma,” “nevus,” “choroid,” “uvea,” and “eye” produced no cases of lipofoacin sediment overlying choroidal melanoma and 1 case overlying nevus.3 Herein, we describe a small choroidal melanoma with orange pigment (lipofoacin) sediment.

Report of a Case. A 30-year-old man had blurred vision in the left eye for 2 weeks. On examination, visual acuity was 20/20 OD and 20/25 OS. Anterior segment examination findings were unremarkable in both eyes. Fundus examination findings in the right eye were unremarkable. Fundus examination of the left eye revealed a pigmented choroidal mass in the macular area, with a tumor base of 6 mm and a thickness of 2 mm by ultrasonography, consistent with small choroidal melanoma. There was subretinal fluid with profound lipofoacin appearing as dispersed orange pigment overlying the melanoma and forming subretinal orange sediment (Figure). The sediment displayed bright hyperautofluorescence and blocked fluorescein dye on angiography. Optical coherence tomography demonstrated subretinal fluid and confirmed subretinal debris consistent with lipofoacin deposition.

The small choroidal melanoma was treated with iodine 125 plaque radiotherapy. At 4 months’ follow-up, visual acuity was 20/20 OS, subretinal fluid had resolved, and orange pigment had reduced (Figure). At 8 months’ follow-up, visual acuity was 20/20 OS, the melanoma had regressed to a thickness of 1.2 mm, and there was minimal residual orange pigment clinically and by autofluorescence.

Comment. Histochemical and electron microscopic studies have characterized orange pigment in the subretinal space overlying choroidal tumors as representing aggregates of macrophages with lipofoacin pigment (periodic acid–Schiff positive) and melanin from damaged retinal pigment epithelium.4 It is speculated that choroidal tumors disrupt overlying retinal pigment epithelium and interfere with lipofoacin metabolism, resulting in orange pigment.

In a clinical and histopathologic study of 107 choroidal tumors,2 lipofoacin pigment was present overlying choroidal melanoma (90 of 100 cases [90%]), choroidal metastasis (5 of 5 cases [100%]), choroidal hemangioma (1 of 1 case [100%]), and benign reactive lymphoid hyper-
plasia (1 of 1 case [100%]). The color of lipofuscin varies and appears orange over brown tumors and brown over yellow or orange tumors.² Autofluorescence studies have demonstrated lipofuscin overlying choroidal nevus, choroidal melanoma, choroidal hemangioma, and retinoblastoma.¹² With regard to choroidal nevus, the presence of orange pigment is a predictor for transformation into melanoma.³

Orange pigment sediment over choroidal melanoma resembles the pseudohypopyon of Best vitelliform macular dystrophy clinically, on fundus autofluorescence, and on optical coherence tomography.⁶ Orange pigment sediment has been previously reported as orange pigment pseudohypopyon in a single case of choroidal nevus in which the lipofuscin disappeared slowly over 3 years.³ Following publication of that case, further follow-up by one of us (C.L.S.) disclosed eventual growth into melanoma.³

Following plaque radiotherapy, lipofuscin might increase related to retinal pigment epithelial disturbance,⁷ but eventually it fades from cell death, as in our case.

Author Affiliations: Ocular Oncology Service, Wills Eye Institute, Thomas Jefferson University, Philadelphia, Pennsylvania.

Correspondence: Dr C. L. Shields, Ocular Oncology Service, Wills Eye Institute, Thomas Jefferson University, 840 Walnut St, 14th Floor, Philadelphia, PA 19107 (carolshields@gmail.com).

Author Contributions: Dr Shields had full access to all of the data in the study and takes responsibility for the integrity of the data and accuracy of the data analysis.

Financial Disclosure: None reported.

Funding/Support: This work was supported by the Eye Tumor Research Foundation, Philadelphia, Pennsylvania (Dr Shields).

Role of the Sponsor: The sponsor had no role in the design and conduct of the study; in the collection, analysis, and interpretation of the data; or in the preparation, review, or approval of the manuscript.

Nonmydriatic Digital Ocular Fundus Photography on the iPhone 3G: The FOTO-ED Study

The widespread use of smartphones provides a unique opportunity for telemedicine. In ophthalmology, smartphones are used for visual acuity assessments and to document examinations, particularly in settings like the emergency department, where the usual ophthalmic tools and photographic services are unavailable. However, to our knowledge, these devices have not been used for systematic, remote review of clinical photographs in ophthalmology as they have in radiology and dermatology. We performed a pilot investigation to compare the quality of nonmydriatic fundus photographs displayed on an iPhone 3G (Apple Inc) vs a desktop computer.

Methods. Three hundred fifty patients with headache, focal neurologic deficit, visual changes, or diastolic blood pressure 120 mm Hg or higher were prospectively enrolled during the Fundus Photography vs Ophthalmoscopy Trial Outcomes in the Emergency Department (FOTO-ED) study. Nonstereoscopic, nonmydriatic, single-field photographs of the ocular fundus were obtained using the Kowa α-D camera. All photographs were stored as JPEG lossy compression images (resolution, 2528 × 1936 pixels; compression ratio, 1:5). Photographs were graded for general quality by 2 neuro-ophthalmologists (C.L. and B.B.B.) on a computer monitor using a pseudorandom sequence and graded on an iPhone 3G (Figure) by both neuro-ophthalmologists. Zoom level could be adjusted on both devices. Photographs were transferred to the iPhone via the wired interface without modification. One year later, 1 neuro-ophthalmologist (C.L.) regraded the same 100 photographs on the iPhone.

Agreement was assessed by quadratic (Fleiss-Cohen) weighted κ. Systematic differences in ratings were assessed by the Bishop, Fienberg, and Holland modification of the McNemar χ² test. P values were Bonferroni corrected.

Results. The quality ratings on the computer display for the 100 randomly selected photographs were the following: 31 photographs, grade 1 (inadequate for any diagnostic purpose); 19 photographs, grade 2; 13 photographs, grade 3; 16 photographs, grade 4; and 21 photographs, grade 5 (ideal quality). There was no difference in quality ratings of photographs with vs without abnormalities. The 2 reviewers had excellent interreviewer and intrareviewer agreement on either the desktop computer or the iPhone display without evidence of systematic differences (κ = 0.93-0.97; 95% CI, 0.68-1.00; χ² ≤ 4.3; P ≥ 0.19) (eTable 1, http://www.archophthalmol.com). The agreements for the same reviewer on the desktop computer vs the iPhone were also excellent (κ = 0.82-0.91; 95% CI, 0.56-1.00). Both reviewers tended to rate an image’s quality on the iPhone as superior to that same image viewed on the computer display (χ² = 36.4-43.1; P < .001) (eTable 1 and eTable 2).

Comment. We expected equal- or lower-quality ratings for photographs displayed on the iPhone compared with the desktop computer, but instead we found that reviewers assigned higher ratings on average for photographs.