

Clinicopathologic Correlation of Histoplasmosis Postoperative Endophthalmitis

Neil B. Bishop¹, Paula E. Pecan, MD², Mark S. Dacey, MD³, Alan G. Palestine, MD²

¹ University of Colorado School of Medicine, ² University of Colorado Department of Ophthalmology, ³ Colorado Retina Associates

Abstract

Histoplasmosis is a common and typically asymptomatic fungal infection endemic to much of the central and eastern United States. This report presents a case of postoperative histoplasmosis endophthalmitis with multimodal imaging and histopathology. Although intraocular histoplasmosis infection is almost always endogenous and associated with signs of disseminated histoplasmosis, this patient was not from an endemic area and did not show signs of systemic infection. Diagnostic and treatment methods which led to improved and preserved visual function are discussed.

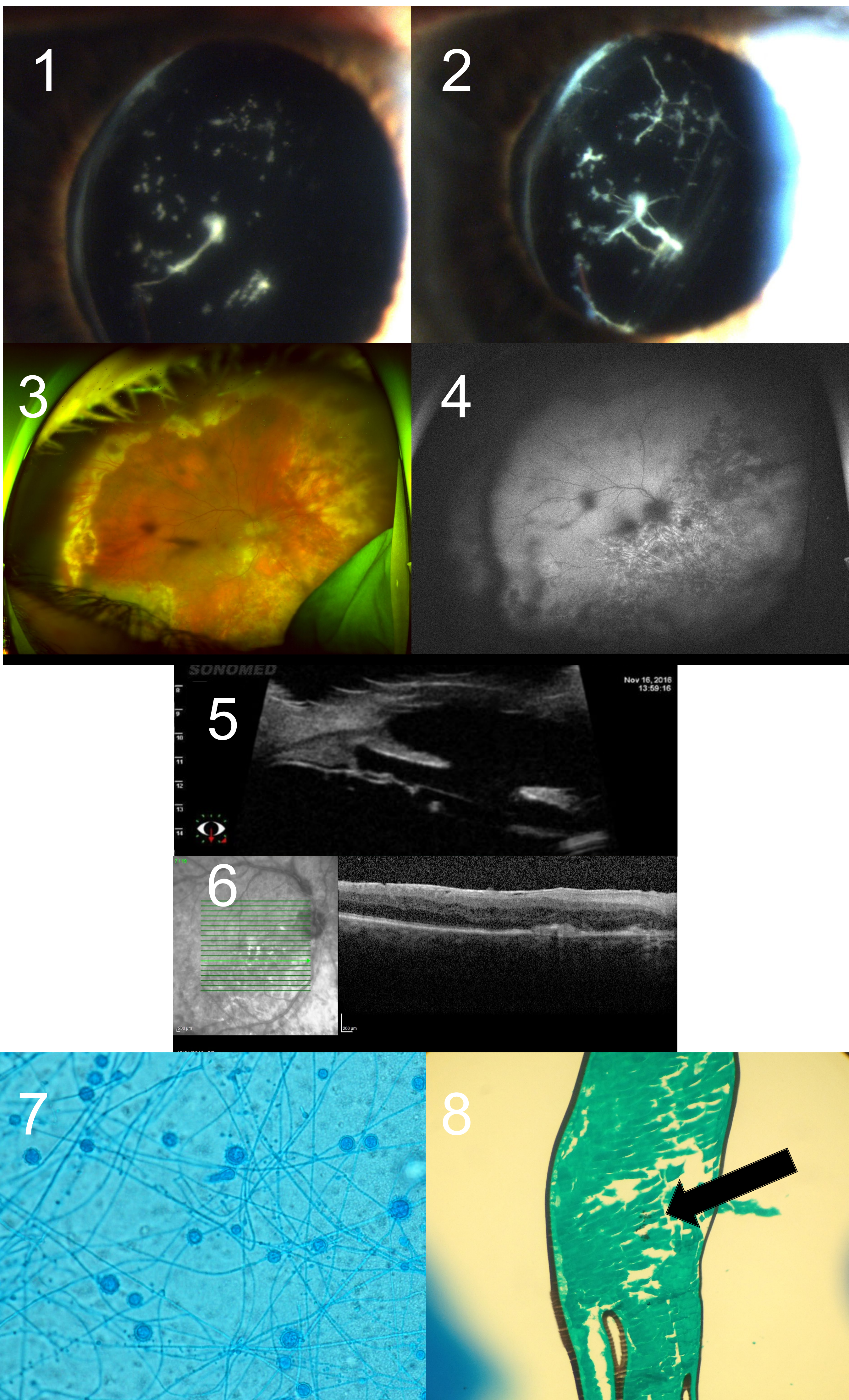
Case Report

A 70-year-old white male presented in September 2016 with a history of chronic panuveitis in the right eye following bilateral cataract surgery, secondary glaucoma following multiple steroid injections, Ahmed valve placement, and vitrectomy with vitreous biopsy. Prior to initial exam at our institution, the patient had tested normal for syphilis, tuberculosis, herpes, Varicella, interleukin 6 and 10. Viral polymerase chain reaction (PCR), and bacterial cultures were all negative. The patient was started on valacyclovir, oral prednisone, and topical prednisolone.

On initial exam at our institution, visual acuity was 20/100 in the right eye with a 3+ afferent pupillary defect. Slit lamp exam showed 4+ anterior chamber cells, whitish scattered plaques between the artificial lens and capsule, 2+ vitreous cells, and 360 degrees of chorioretinal lesions. Repeat viral PCR and bacterial and fungus cultures were negative until a positive *H. capsulatum* result 17 days after biopsy. Posterior capsule biopsy demonstrated *H. capsulatum*, and serum antibodies for *H. capsulatum* were negative.

The patient started oral voriconazole and weekly intravitreal amphotericin injections for 12 weeks. Visual acuity improved to 20/70 with improving physical exam. Lens capsule and Tenon's capsule biopsies at the time of hardware explantation were positive for *H. capsulatum*. Intravitreal amphotericin injections were repeated weekly for four weeks followed by AC tap without growth. A new lens was placed and tap showed no growth. Visual acuity has remained stable at 20/50 with sterile postoperative chronic inflammation on exam following seven months of oral voriconazole and itraconazole and topical prednisolone.

Imaging and Pathology



Figures 1,2. Slit lamp photo showing evolving deposits between posterior capsule and PCIOL one month apart.
Figure 3. Fundus photo with prominent hypopigmented chorioretinal deposits and RPE changes nasally, inferiorly and inferotemporally.
Figure 4. Fundus autofluorescence showing hypoautofluorescence, especially nasally and inferiorly.
Figure 5. OCT showing epiretinal membrane, trace macular edema, and irregular thickening of the retinal pigment epithelium.
Figure 6. Ultrasound biomicroscopy showing membrane growth over the ciliary body spanning from inferior to superotemporal.
Figure 7. *H. capsulatum* growth in mold phase showing macroconidia and septate hyphae.
Figure 8. Gomori Methenamine Silver stain with arrow indicating *H. capsulatum* growth within the lens capsule.

Discussion

With only one other infection of a similar mechanism reported in the literature,¹ this is the first report of postoperative histoplasmosis endophthalmitis which incorporates available multimodal imaging and histopathology that resulted in a relatively positive clinical outcome. It is also the first case to occur outside of an endemic area. While it is unusual to have occurred in an immunocompetent patient, this likely reflects the iatrogenic nature of the introduction of the organism during cataract surgery. This mechanism of organismal spread is confirmed by the presence of *H. capsulatum* within the retained lens capsule.

Conclusions

Endophthalmitis following cataract surgery is a rare complication,² especially with fungal organisms. Clinicians should be aware of how to diagnose and treat this infection. Key points to optimizing visual outcomes include:

- Considering a broad differential diagnosis
- Allowing cultures to grow for longer durations than is typical in order to detect low-grade pathogens
- Committing to an extended course of therapy for better infection resolution
- Removing all intraocular hardware to eliminate it as a possible nidus for infection
- Appreciating globalization of infectious disease due to modern connectivity through travel³

References

1. Pulido JS, Folberg R, Carter KD, Coonan P. Histoplasma capsulatum Endophthalmitis after Cataract Extraction. American Journal of Ophthalmology. 1990;97(2):217-220.
2. Vaziri K, Schwartz SG, Kishor K, Flynn HW Jr. Endophthalmitis: state of the art. Clinical Ophthalmology. 2015;9:95-108.
3. Labonté R, Mohindra K, Schrecker T. The Growing Impact of Globalization for Health and Public Health Practice. Annual Review of Public Health. 2011;263-283.

Statement of Funding/IRB

Supported in part by a Challenge Grant from Research to Prevent Blindness, Inc, New York, NY. The sponsor had no role in the design, execution, analysis or preparation of this study.
Institution does not require COMIRB approval for single-case reports.

Conflict of Interest

Dr. Dacey reports personal fees, non-financial support and other from AbbVie; personal fees, non-financial support and other from Allergan, outside the submitted work. Dr. Palestine, Dr. Pecan, and Neil Bishop have no conflicts of interest to report.