

Endogenous *Alternaria alternata* Endophthalmitis in an HTLV-1 Patient: The Necessity of PCR for Fungal Diagnosis

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Background

Endogenous endophthalmitis is a vision-threatening intraocular infection, characterised by inflammation of the vitreous and/or aqueous humour, derived from haematogenous seeding of bacteria or fungi to the eye.

Alternaria alternata is a fungus typically associated with the development of asthma and allergic rhinitis.

Here we present a case of endogenous *Alternaria alternata* endophthalmitis superimposed on a chronic Human T-lymphotropic virus type 1 (HTLV-1) infection.

References

Durand M. L. (2017). Bacterial and Fungal Endophthalmitis. Clinical microbiology reviews, 30(3), 597–613. <https://doi.org/10.1128/CMR.00113-16>

Percopo, C. M., Ma, M., Mai, E., Redes, J. L., Kraemer, L. S., Minai, M., Moore, I. N., Druey, K. M., & Rosenberg, H. F. (2020). *Alternaria alternata* Accelerates Loss of Alveolar Macrophages and Promotes Lethal Influenza A Infection. Viruses, 12(9), 946. <https://doi.org/10.3390/v12090946>

Case Details

A 50-year-old female patient presented following a **3-day history of blurred vision and 'spider-web'-like floaters** in the right eye.

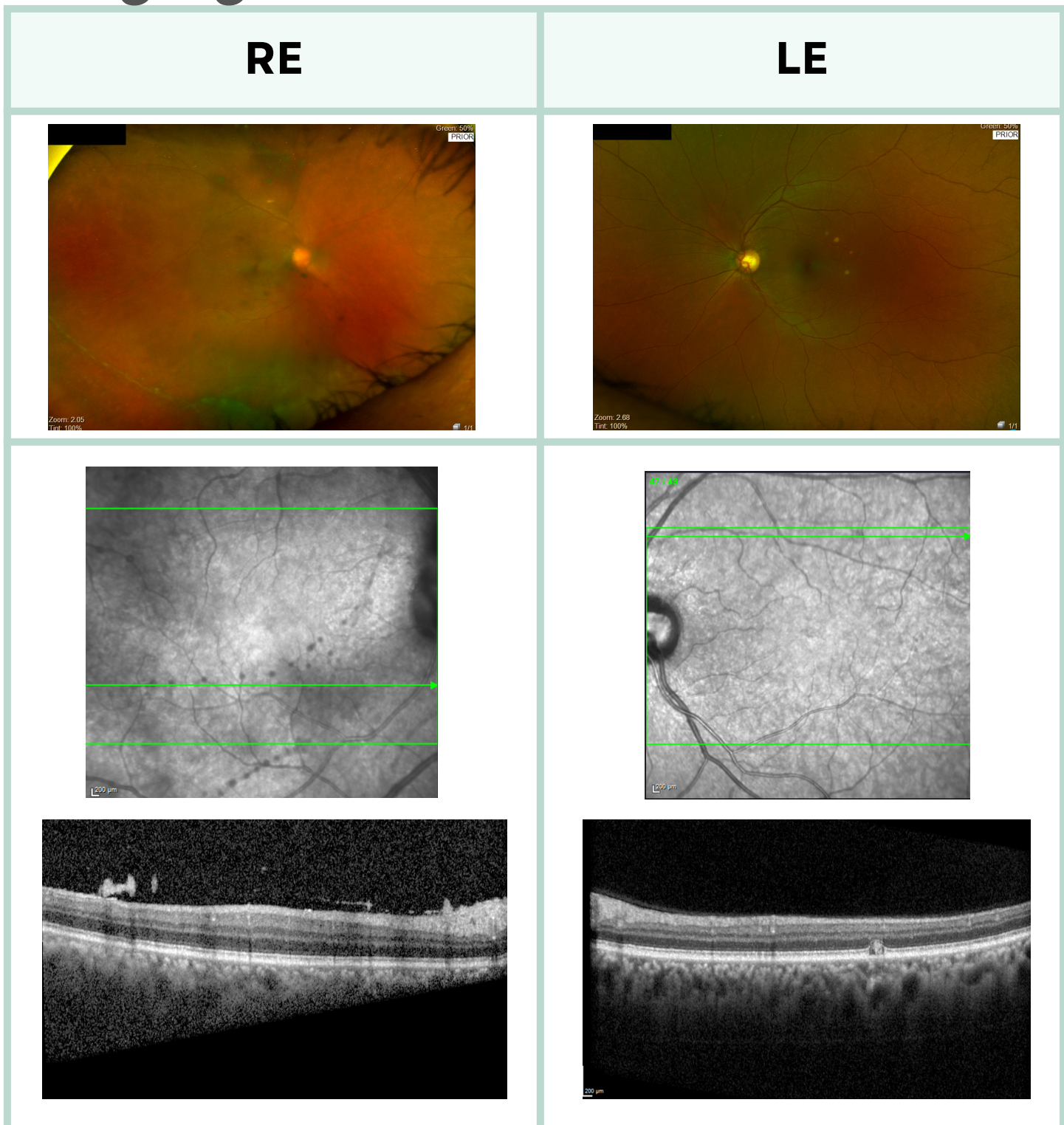
Patient background:

- **Ethnicity:** African
- **Ocular History:** None; No history of intraocular surgery
- **Medical History:** No known systemic autoimmune disease; inpatient under neurology (6-month hx: progressive fatigue, myalgia, and neurological symptoms)

Examination:

	RE	LE
Cornea	Clear	Clear
Anterior Chamber	1+ cells, 1+ flare	Deep and quiet
Lens	Mild nuclear cataract	Mild nuclear cataract
Vitreous	3+ vitritis; String of pearls distribution of vitreous deposits along posterior hyaloid	No vitritis
Retina	No findings noted	Subretinal drusenoid-like deposits in macula area (?infectious choroidal deposits)

Imaging:



Based on clinical suspicion, a diagnosis of **suspected RE endogenous fungal endophthalmitis (EFE)** was made.

Treatment:

- Immediately started on oral voriconazole
- Intravitreal injection of voriconazole the next day

Investigations:

- Right vitreous tap sent for MC&S; fungal and viral PCR
- Blood and urine cultures
- Infectious diseases referral

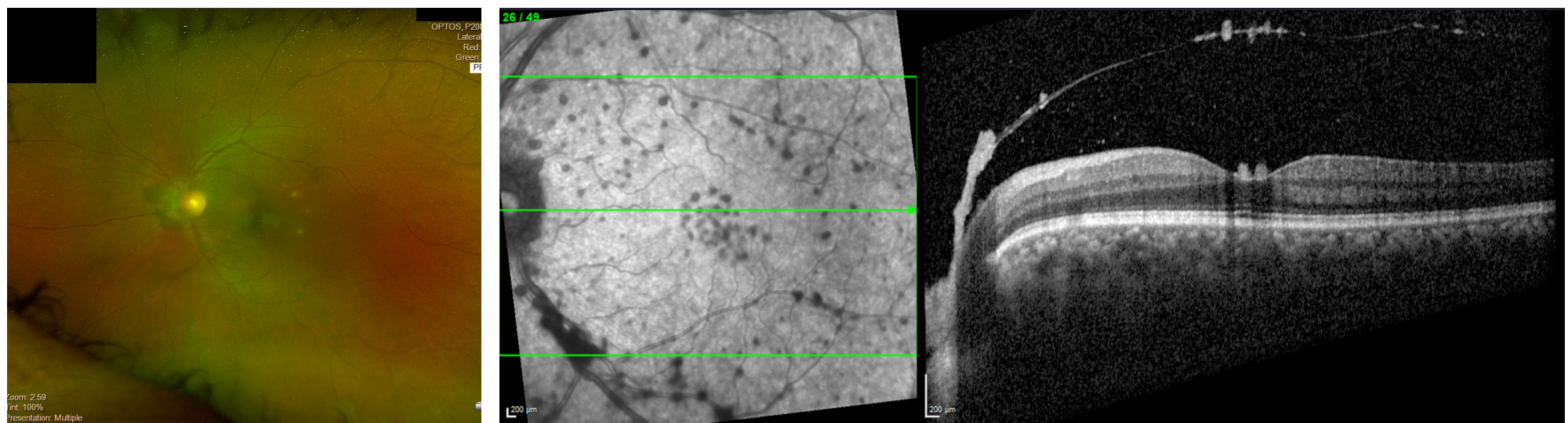
2 week follow-up

Clinical picture was largely unchanged.

All routine initial vitreous investigations were **reported negative** and **therapeutic vitrectomy was held due to diagnostic uncertainty**.

2 months follow-up

New floaters and blurred vision in LE; o/e had developed very similar vitreous opacities.



Voriconazole had been discontinued due to deranged LFTs. The patient had also received a **new diagnosis of HTLV-1 infection** as the underlying cause of her ongoing systemic symptoms.

Previous RE vitreous sample sent for **nuclear ribosomal repeat region sequencing**. This confirmed the presence of ***Alternaria alternata* DNA**, which had been missed on all previous investigations.

Diagnosis of **bilateral EFE** confirmed.

Referred for urgent **bilateral pars plana vitrectomy, vitreous biopsy** and **intravitreal voriconazole**. Both biopsies returned **negative** PCR and MC&S.

14 months post-op

Clinical course remains favourable, with stable vision, **no recurrence of symptoms**, and unchanged retinal findings.



Discussion

To our knowledge, this is the **first reported case of endogenous *Alternaria alternata* endophthalmitis**.

Although clinical features were suggestive of fungal involvement, conventional laboratory investigations failed to provide confirmation.

Definitive diagnosis was only achieved retrospectively through metagenomic sequencing (via specialised nuclear ribosomal repeat region PCR), prompted by the new diagnosis of HTLV infection and resulting immunocompromised status.

Learning Points

- **HTLV-1** can cause acquired immunosuppression and contribute to **atypical infectious presentations**.
- **Fungal endophthalmitis may be missed on routine MC&S and standard PCR**. Rare ocular pathogens should remain in the differential; multidisciplinary input is often essential.
- **Metagenomic sequencing markedly improves diagnostic yield** in suspected infectious intraocular disease and supports more accurate management.