



Case report

Isolated endogenous *Fusarium* endophthalmitis in an immunocompetent adult after a thorn prick to the hand

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ABSTRACT

Purpose: To report the case of an immunocompetent adult presenting with endogenous *Fusarium* endophthalmitis.

Observations: A woman in her thirties presented with symptoms and signs of a unilateral anterior uveitis. After initial improvement with topical corticosteroids, she continued to develop a panuveitis with an associated drop in vision to counting fingers. A vitreous biopsy confirmed *Fusarium solani* by 18S rRNA fungal gene detection and PCR sequencing. Despite treatment with pars plana vitrectomy, intravitreal amphotericin B and systemic voriconazole her visual outcome was poor. Detailed review of her antecedent history revealed the route of acquisition to be a thorn prick to the hand two weeks prior to presentation.

Conclusions and importance: This patient's endophthalmitis most likely resulted from cutaneous inoculation of *Fusarium solani* with subsequent hematogenous spread. Endogenous *Fusarium* endophthalmitis is well recognized in the immunocompromised but is very rarely seen in the immunocompetent. This case highlights the importance of thorough history-taking and consideration of fungal endophthalmitis in the differential diagnosis of a treatment-refractory uveitis.

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1. Introduction

Fusarium species are ubiquitous in soil and associated with plants, in both tropical and temperate regions. A common cause of fungal keratitis and keratitis-associated fungal endophthalmitis,¹ especially with corneal trauma involving plant matter, *Fusarium* endophthalmitis may also complicate penetrating eye injuries² and cataract surgery.³ *Fusarium* is a rare but recognized cause of endogenous endophthalmitis in the immunocompromised; cases have been reported in individuals with hematologic malignancy and after transplant surgery,⁴ as well as in active intravenous drug users.⁵ Herein, we present a unique case of endogenous *Fusarium* endophthalmitis in an immunocompetent adult following a thorn prick to the hand.

2. Case report

A previously healthy 32-year-old woman presented with a two-day history of gradually worsening vision, pain and photophobia in her right eye. Her visual acuity was 20/60 OD and an acute anterior uveitis was diagnosed. After five days of topical corticosteroids and cycloplegics, the pain and photophobia improved but her vision deteriorated to counting fingers (CF). Examination of her right eye revealed stellate keratic precipitates, a hypopyon and mild conjunctival hyperemia. Her intraocular pressure was 11 mmHg. Posterior segment examination showed a dense vitritis with a focus of retinitis superotemporal to the macula. Examination of her left eye was unremarkable. Differential diagnoses included viral and toxoplasma retinitis. A vitreous sample was obtained and intravitreal foscarnet (2.4 mg/0.1 mL) administered. In addition, oral antivirals (valaciclovir 2 g, t. i.d.) and antibiotics (azithromycin, 500 mg, q. d. and co-trimoxazole 160/800 mg, b. i.d.) were commenced. On day 9, culture of the initial vitreous sample

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isolated a fungus, with an appearance consistent with *Fusarium* species, and oral antifungals (voriconazole 200 mg, b. i.d.) were prescribed. A pars plana vitrectomy and anterior chamber washout was performed to reduce the fungal load. During the vitrectomy white lesions were noted over the macula and superior vascular arcade. On day 16, the patient became systemically unwell and was transferred for inpatient care. On admission, she had a fever (100.6 °F) and tachycardia (110). Her vision was CF OD and 20/20 OS. Biomicroscopy of the right eye revealed a 3 mm hypopyon (Fig. 1) and panuveitis with dense vitritis, retinal infiltrates and multiple intraretinal hemorrhages at the posterior pole (Fig. 2). Her past medical history and medication review were non-contributory. In particular, she denied even minor trauma to the eye. Of note, she had returned from a trip to rural Tanzania two weeks prior to her initial presentation, during which time she had sustained a thorn prick to the palm of her left hand. This injury had been followed by a self-limiting inflammatory reaction associated with localized erythema, edema and pruritus. Given her vitreous culture results and dense vitritis, an intravitreal injection of amphotericin B (10 mcg/0.1 mL) and intravenous voriconazole (360 mg b. i.d. for one day, followed by 240 mg b. i.d. for four days) were administered. A repeat vitreous biopsy confirmed *Fusarium solani* by 18S rRNA fungal gene detection and PCR sequencing. She was discharged on oral voriconazole, in addition to dexamethasone 0.1% and atropine 1% eyedrops. Six weeks into treatment a retinal detachment occurred, with a macular hole, requiring immediate repair and injection of silicone oil (Fig. 3). Her course of medication was completed after four months. At 18 months, her eye remained quiescent with a visual acuity of counting fingers.

3. Discussion

The proposed routes of entry for invasive fusariosis include (i) inoculation, causing superficial skin infections, and (ii) inhalation of spores, with subsequent hematogenous dissemination. In the absence of antecedent keratitis, ocular trauma, intravenous drug use or systemic disease, it seems most likely that our patient developed endophthalmitis from hematogenous spread after inoculation via the thorn prick to her hand. Endogenous *Fusarium* endophthalmitis in an otherwise healthy individual is exceptionally rare, but has been reported before in a 45-year-old woman who was

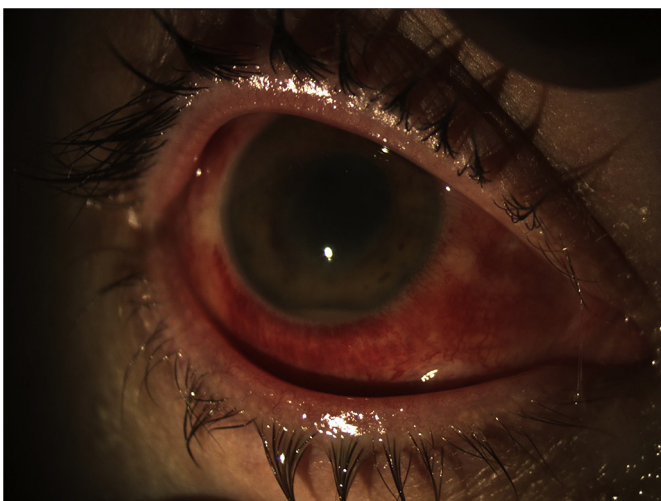


Fig. 1. Photograph of the patient's right anterior segment on inpatient admission. Slitlamp photograph of the patient's right eye revealing conjunctival hyperemia, mild purulent discharge on the eyelashes and a hypopyon. Note the patient's clear cornea and absence of keratitis.

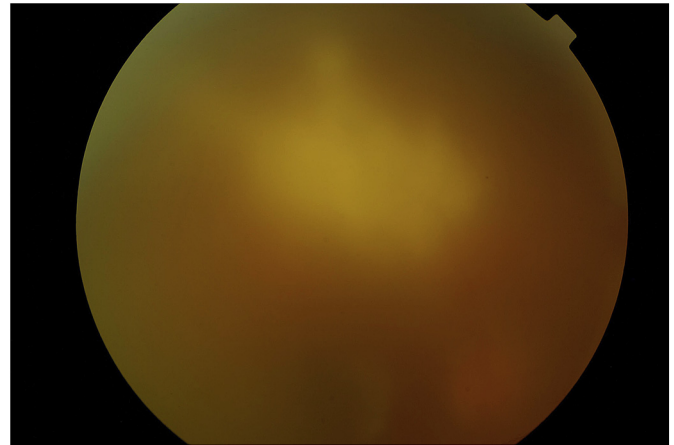


Fig. 2. Fundus photograph on inpatient admission. Color fundus photograph of the patient's right eye illustrating a dense vitritis with a large retinal infiltrate involving the superior arcade. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

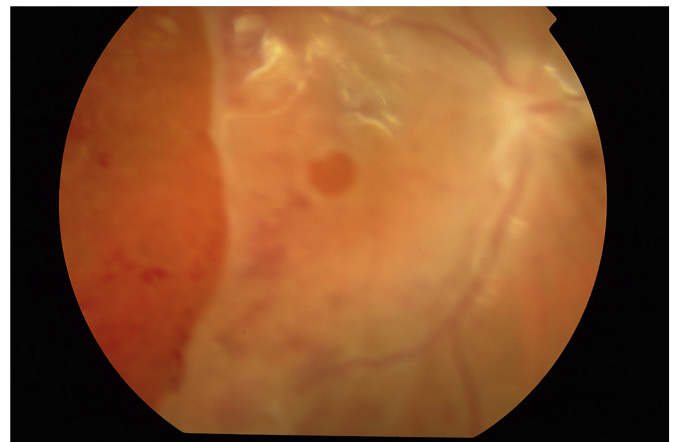


Fig. 3. Fundus photograph after therapeutic vitrectomy. Color fundus photograph of the patient's right eye showing retinal detachment six weeks into treatment. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

thought to have inhaled *F. solani* spores from her contaminated house plants.⁶ Cases of cutaneous *Fusarium* inoculation leading to disseminated disease have been reported,^{7,8} but primarily in immunocompromised individuals. This is, to our knowledge, the first report of *F. solani* endophthalmitis complicating a minor skin injury in an immunocompetent individual. It highlights the relevance of systems review and travel history when evaluating new-onset uveitis that is refractory to conventional treatment. In addition, it underlines the challenge of diagnosing and managing fungal endophthalmitis, which despite early and intensive treatment, will often lead to disappointing visual outcomes.

Patient consent

Written consent to publish case details including photographs was obtained from the patient.

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Authorship

All of the authors attest that they meet the current ICMJE criteria for authorship.

Conflict of interest

All of the authors report no financial disclosures.

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