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Donor-derived *Scedosporium* infection following deceased donor kidney transplantation presenting as endogenous endophthalmitis

Ryan Duong [a,*], Alden Doyle [b], Arthi Venkat [a]

[a] University of Virginia Dept of Ophthalmology, 1300 Jefferson Park Ave, Charlottesville, VA, USA
[b] University of Virginia Dept of Medicine Division of Nephrology, 1300 Jefferson Park Ave, Charlottesville, VA, USA

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ABSTRACT

Purpose: To describe a novel case of donor-derived scedosporium infection following kidney transplantation presenting as endogenous endophthalmitis.

Observations: A 69 year-old male presented with right eye pain and redness for 3 days following deceased donor kidney transplant one month prior. Initial exam showed counting fingers vision, 4+ anterior chamber cell, hypopyon, dense vitritis, and a large white macular lesion. A vitreous tap and inject was performed with intravitreal vancomycin, ceftazidime, and voriconazole. The patient was admitted to the for systemic antimicrobials where infectious workup revealed a psoas abscess and a perinephric donor kidney fluid collection with biopsy of the fluid yielding positive *Scedosporium* spp. Given his multifocal systemic infection, recent transplantation, and immunosuppression requirements, a review of the donor history was performed and revealed evidence of systemic *Scedosporium* infection. A diagnosis of donor-derived *Scedosporium* infection was made. The other transplant centers where the other organs from this donor were used were contacted and each of their recipients were screened, however, no other donor-derived infections were found.

Conclusions and importance: Donor derived scedosporium infections can have devastating ophthalmologic and systemic complications in solid organ transplant recipients. Further efforts are warranted to better screen for the risk for deceased donor fungal infections during transplant organ evaluation.

1. Introduction

Endogenous endophthalmitis (EE) is a devastating intraocular infection derived via hematogenous spread of a microorganism and most commonly seen in at-risk patients such as those with a history of IV drug use, immunosuppression, or chronic indwelling IVs or catheters.[1] Transplant patients represent a unique cohort who are at risk for EE based on their requirements for maintenance immunosuppression as well as the potential for donor-derived infections at the time of organ transplantation. Herein, we present a case of donor-derived *Scedosporium* endogenous endophthalmitis in a recent kidney transplant recipient.[2]

2. Case report

A 69 year-old male with past ocular history of non-proliferative diabetic retinopathy and amblyopia of the left eye (OS) presented to the Ophthalmology clinic with right eye (OD) pain, redness and decreased vision for 3 days. He had recently undergone deceased donor kidney transplantation 1 month prior to presentation for diabetic nephropathy. Relevant medications included exposure to anti-thymocyte globulin (ATG) during his index admission for transplant and maintenance immunosuppression with mycophenolate, tacrolimus, and prednisone. He was also maintained on anti-microbial prophylaxis with daily 400-80mg trimethoprim/sulfamethoxazole and 450mg three times weekly oral valganciclovir.

Ophthalmologic exam showed vision of counting fingers at 2 feet, intraocular pressure of 18 mmHg, and a 0.3log rAPD in the right eye (OD). Anterior exam was significant for diffuse corneal edema, 4+ anterior chamber cell and a 0.3 mm hypopyon. Fundus exam of the right eye showed dense vitritis and a poorly visualized large chorioretinal lesion in the macula extending to the optic nerve [Fig. 1]. B-scan ultrasonography demonstrated the peripaillary lesion with areas of focal surrounding vitritis without retinal detachments [Fig. 2]. The patient underwent a vitreous tap and injection of vancomycin (1mg), ceftazidime (2.25mg), and voriconazole (100mcg) for suspected EE, and the

* Corresponding author. 1300 Jefferson Park Ave, Charlottesville, VA, USA.
E-mail addresses: rtd6bp@uvahealth.org (R. Duong), ad3nb@uvahealth.org (A. Doyle), nnn2fp@uvahealth.org (A. Venkat).

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vitreous sample was sent for bacterial and fungal culture as well as toxoplasma and CMV PCR. He was admitted to the inpatient transplant service for systemic anti-microbials and infectious workup.

During his admission, a systemic workup revealed a positive fungal blood culture for *Scedosporium* spp as well as a large left perinephric donor kidney fluid collection and left psoas muscle abscess [Fig. 3]. The perinephric fluid collection was drained and culture of the fluid confirmed scedosporium infection. He received treatment with on-going intravenous voriconazole with micafungin and terbinafine by the Transplant Infectious Disease team, and was seen for serial ophthalmology exams and intravitreal voriconazole injections. His vitreous culture did not grow any organisms, and vitreous PCR was negative.

Given the patient's recent transplantation and evidence of multifocal systemic infection, a retroactive review of the patient's deceased donor record was performed and identified to have evidence of disseminated *Scedosporium* infection in the blood and CNS as well as a history of IV drug use. At the time of transplantation, donor fungal culture had not yet yielded any microorganisms, and the donor family was not able to be reached for complete behavioral history assessment. The patient ultimately underwent donor nephrectomy for source control and was discharged on a prolonged course of systemic antifungals. Unfortunately, while his vitritis improved with treatment, his vision progressed to no light perception and his chorioretinal abscess involuted into an area of fibrosis [Fig. 4]. The other recipients from the deceased donor in this case were screened without evidence of fungal infection.

3. Discussion

Scedosporium is a rare fungal organism identified soil, sewage, polluted water, or decaying vegetation.[3] It is a rare cause of infection in immunocompromised patients mortality commonly affecting the lungs, sinuses, bones, joints, eyes, and brain 4. In cases of disseminated infection, mortality is as high as 52 %.[3] While there are few case reports of scedosporium associated endophthalmitis in immunocompromised patients in the literature,[5–7] the present case represents a donor-derived *Scedosporium* infection (DDSI) presenting as endogenous endophthalmitis.

Donor derived infections of any organism are rare but known complications following solid organ transplant with an incidence of about 0.2–1.7 %.[2] DDSI specifically are more commonly found in kidney transplant patients and in donors who died from drowning or near drowning accidents via a proposed mechanism of permeation of the fungi through the donor's respiratory system followed by rapid dissemination into the CNS.[4] DDSI's in kidney transplant patients, have been inked to high rates of allograft loss (83 %) and increased risk for death (17–20 %).[8–10]

Current national guidelines defined by the United Network for Organ Sharing (UNOS) and the Organ Procurement & Transplantation Network (OPTN) dictate that the donor Organ Procurement Organization (OPO) is responsible for screening of a potential donor with respect to the donor's medical/behavioral history, blood typing, and infectious screening which includes blood cultures and serologic testing for HIV, Hep C, CMV, etc.[11] Based on the donor OPO evaluation, potential organs are categorized as "high" or "low" risk and offered to the patient, but the specific details of the donor or organ cannot be disclosed. In many instances, complete blood culture results are not available or donor behavioral information such as IV drug use is not known at the time of evaluation, and transplantation may still proceed as "high risk". Often many of the details surrounding the donor and the immediate circumstances surrounding their death are not fully known. Due to the slow growing nature of fungal species on culture media and lack of more expedient serologic testing for fungal organisms, screening for donor derived fungal infections remains a challenge.

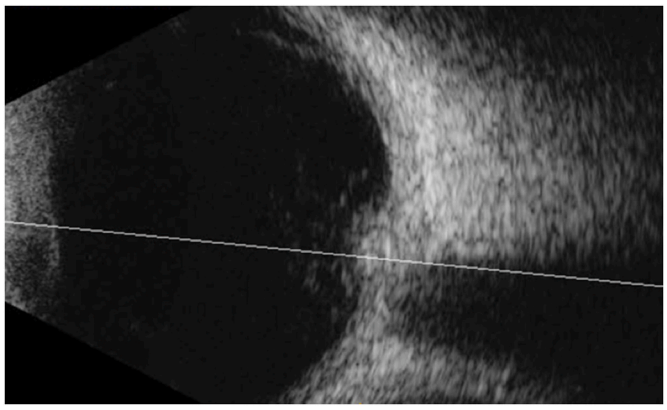

Fig. 2. – Presenting B-scan ultrasonography of the right eye (horizontal axial view) demonstrating a peripapillary chorioretinal lesion and overlying vitritis.

In conclusion, we present a unique case of *Scedosporium* endogenous endophthalmitis derived via donor-derived infection following kidney transplantation. While the 1,3-Beta-D-Glucan assay has frequently been used to screen for fungal elements while waiting for growth growth on culture media and PCR-based molecular testing is currently being investigated for rapid detection of scedosporium infections specifically, neither are currently standard of practice for screening potential donor organs.[12,13] Further efforts are warranted to better screen for the risk for deceased donor fungal infections which can lead to devasting consequences in recipients of their organs, especially if they go unrecognized initially.

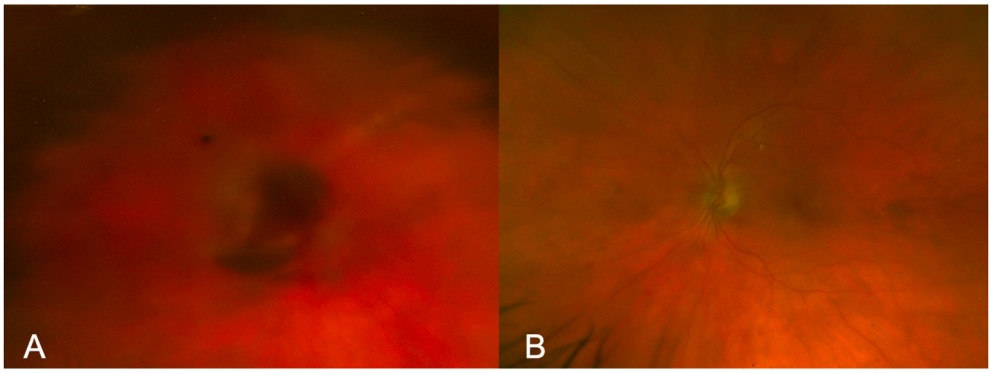

Fig. 1. – Presenting Pseudo-color fundus photography of the right (A) and left (B) eye demonstrating dense vitritis and a poorly visualized underlying chorioretinal lesion adjacent to the optic nerve in the right eye (A) and non-proliferative diabetic changes in the left eye (B). (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)

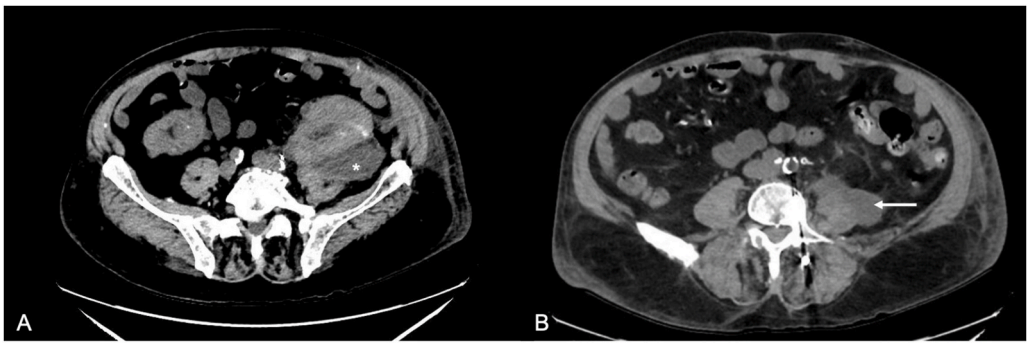

Fig. 3. – CT Abdomen and Pelvis demonstrating left perinephric donor kidney fluid collection (A) as marked with an asterisk and a left Psoas muscle abscess (B) as marked with an arrow.

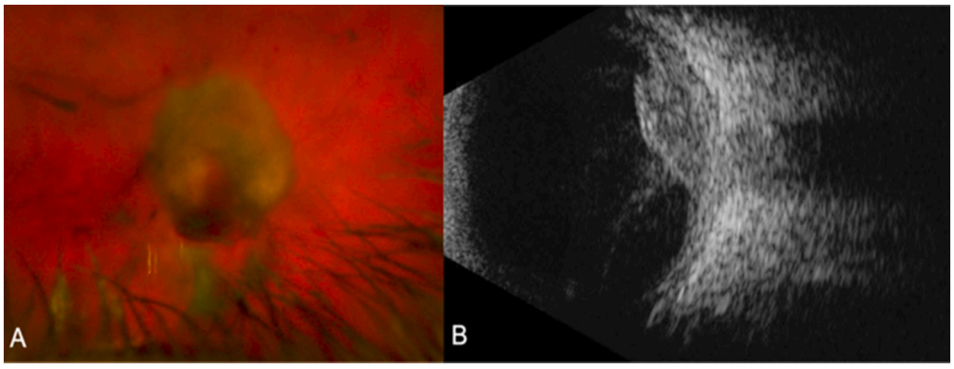

Fig. 4. – Final pseudo-color fundus photography (A) and B-scan Ultrasonography (B) of the Right Eye demonstrating improved vitritis and progression of the chorioretinal lesion into an abscess with areas of fibrosis. (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)

CRediT authorship contribution statement

Ryan Duong: Writing – review & editing, Writing – original draft, Conceptualization. **Alden Doyle:** Writing – review & editing, Writing – original draft, Conceptualization. **Arthi Venkat:** Writing – review & editing, Writing – original draft, Conceptualization.

Patient consent

Written consent to publish this case has not been obtained. This report does not contain any personal identifying information.

Authorship

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

Disclosure

The authors report no real or potential conflicts of interests in this work. There are no prior publications or submissions with any overlapping information, including studies and patients.

Generative AI statement

The use of generative AI tools were not used at any point in the writing of this manuscript.

Declaration of literature search

After conducting a literature review on (March 2, 2025) utilizing PubMed and Google Scholar, and using the key words Scedosporium and Endophthalmitis, we did not find any prior reports of donor derived scedosporium infection presenting as endogenous endophthalmitis.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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