Curvularia infection presenting as recurrent conjunctival erosion overlying a scleral-fixated intraocular lens suture

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1. Introduction

Curvularia is a dematiaceous, black septate mold commonly found in tropical climates. 1-3 The characteristic deep pigmentation stems from the melanin stored in its hyphae. Fungal keratitis is the most common ocular manifestation, and is commonly associated with trauma involving plant/vegetable matter or dirt. 2 A few prior reports have described Curvularia endophthalmitis after an open globe injury, with often delayed diagnosis, marked inflammation, and usually poor visual outcome. 1-5

Herein, we describe a case of a 38-year old male presenting with a metallic intraocular foreign body (IOFB), who underwent ruptured globe repair, lensectomy, vitrectomy, and IOFB removal. Given subsequent aphakia, he underwent Gore-Tex sutured scleral fixated MX60E intraocular lens surgery 3 months after the initial injury. The patient enjoyed 20/25 vision but five months following the IOL placement he developed recurrent conjunctival erosion overlying the Gore-Tex suture. The conjunctival defect was associated with exposed suture pigmentation. Further investigation revealed Curvularia infection necessitating the scleral-fixated lens removal. The patient has retained best-corrected vision (BCVA) 20/20 vision. To our knowledge, this is the first case describing chronic, indolent Curvularia fungal infection presenting with conjunctival erosion and suture exposure in the setting of a sutured scleral-fixated IOL.

2. Case report

A 38- year old mechanic with no significant past medical or ocular history presented with a ruptured globe OS after using an air-hammer two days prior. His best-corrected visual acuity (BCVA) was 20/20 in the right eye (OD) and count fingers OS. Intraocular pressure was 14 mmHg in both eyes (OU). Exam of the right eye was unremarkable whereas examination of the left eye was significant for corneal laceration, white traumatic cataract and IOFB as confirmed by CT scan. Of note, there was no evidence of endophthalmitis on presentation or during the surgical repair. After the corneal laceration repair, pars plana lensectomy, pars plana vitrectomy, and IOFB removal, the patient was left aphakic, was tapered off all his drops, and had an uneventful postoperative course. A Gore-Tex sutured scleral fixated intraocular lens (MX60E) was implanted in a standard fashion three months after the initial surgery with an uneventful intraoperative and immediate postoperative period. No evidence of inflammation was noted pre-, intra-, and postoperatively.

Five months after the placement of the scleral-fixated sutured IOL, the BCVA was 20/20 and the patient was asymptomatic. However, the temporal conjunctiva was noted to erode over the Gore-Tex suture without any evidence of overlying inflammation. At this point, it was presumed that the suture exposure stemmed from an overly mobile suture. The patient was started on topical antibiotic drops, and underwent...
surgical intervention involving creation of a scleral groove to tuck the suture in. It was reinforced with a corneal graft. During surgical exploration of the area 1 mm black spherical foreign body was noted, which was presumed to be rust or mechanical debris and it was removed from the surgical field.

One month later, the suture had intact conjunctiva overlying it with a pinpoint area of black debris (Fig. 1A). The area was cultured with no bacterial or fungal growth. The patient was observed and five months following the graft, the suture became again exposed with a pinpoint area of black material on the suture, without any overlying inflammatory changes or any patient symptoms (Fig. 1B). The remainder of the exam was stable with BCVA of 20/20 and no evidence of intraocular inflammation. There was concern that there was again excess mobility to the suture and the patient was taken back to the operating room to culture the area and secure the suture with 10-0 prolene and an overlying tutooplast. While exploring the area, two dark skip lesions were noted on the suture, which were cultured for bacterial and fungal growth. The fungal culture grew out rare Curvularia species (Figs. 2 and 3). Following the positive culture results, the patient was started on oral voriconazole and returned to the operating room for both suture and intraocular lens removal. During the suture removal, the temporal suture was cut so that none of the extraocular suture portions travelled intraocularly, and the entirety of the suture and intraocular lens was removed. An indirect examination revealed a small cluster of temporal small white ciliary body plaques, which were treated with laser photocoagulation. Intravitreal voriconazole was administered at the conclusion of the case. The vitreous, suture, and IOL cultures taken during this operation remained negative. Nine months after the last surgery, the patient’s BCVA with a contact lens remains 20/20.

3. Discussion

Phaeohyphomycosis are rare infections caused by dematiaceous fungi, including Curvularia. They can often lead to a localized, deeply pigmented area from the melanin containing fungi. The melanin is thought to provide a protective mechanism against oxidative injury.

Cases of ocular surface phaeohyphomycosis have been described with pigmented lesions on the conjunctiva, cornea and sclera, often with marked inflammation, which revealed dark fungi after surgical excision of the tissue. In particular, scleral infections of Curvularia have been reported in conjunction with sclerocorneal tunnels after cataract surgery and scleral buckle placement. Intraocular involvement of Curvularia infection, such as endophthalmitis, have been reported following open globe injuries as well as intraocular surgeries, including cataract surgery. In the majority of the cases pronounced intraocular inflammation is reported.

Our case differs from those published previously in that the surface inflammation was mild to none with no intraocular inflammation noted. The presentation was significant for conjunctival erosion over the pigmented Gore-Tex suture used to secure the IOL. The pigmentation was actually initially thought to be mechanical debris, given the patient’s occupation. Only upon intraoperative exploration, pigmented skip lesions were appreciated along with small white collections on the ciliary body. The lack of intraocular inflammation despite the fact that the infected suture communicated directly with vitreous cavity could possibly be related to prior vitrectomy. The nidus for the Curvularia infection in our case is not clear. It could be from the foreign body injury at the time of globe rupture. Less likely it could have been introduced during the insertion of the scleral-fixated intraocular lens, or from debris associated with the patient’s occupational hazards.

To our knowledge, this is the first case of Curvularia infection presenting with conjunctival erosion and underlying suture exposure in the setting of a sutured scleral-fixated intraocular lens. While the differential for erosion of the conjunctiva includes mechanical etiologies, an occult infection should also be suspected, even in cases of minimal inflammation. In our case, prior debulking of the vitreous and removal of the foreign body may have relieved the infectious burden, as shown in prior studies. However, we suspect that the infected suture had direct communication with the vitreous cavity in this case. Prior reports have shown that filamentous fungal biofilms can form on manmade substrates, such as our suture, providing a communication from the source.
of intraocular infection. In cases such as these, it may be prudent to remove all hardware from the eye and treat the ciliary body collections with laser photocoagulation, which has been successfully demonstrated to treat ciliary body plaques in bacterial infections.

4. Conclusions

Even asymptomatic recurrent conjunctival erosion in cases of secondary sutured scleral fixated IOLs, should prompt evaluation for possible infection. Fungal infections, such as Curvularia, can present as pigmented skip lesions of foreign bodies such as sutures and can have minimal associated inflammation. Removal of all hardware and careful examination of other sites of infections, such as ciliary body plaques, is recommended.

Patient consent

Consent to publish this case report has been obtained from the patient(s) in writing.

Financial Support

AVR: AGTC (G), Alcon (C), Appelis (G), Genentech (C, G, S), Novartis (G), Regeneron (S), Zeiss (C). C – consulting; S – speaker; G-grant support

Authorship

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

Declaration of competing interest

SRA: None.
JG: None.
AVR: None.

Acknowledgements and Disclosures

None.

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