**Electronic Journal of Medical and Dental Studies**
2023, 13(1), em0102
e-ISSN: 2753-2658
https://www.ejmds.com

MODESTUM

**Case Report** **OPEN ACCESS**

# Endogenous endophthalmitis by *Candida glabrata*: An unusual complication of digestive surgery

Salma Ben Hmida [1]*, Dorra Lahiani [1], Ichrak Bougharriou [1], Hana Chaabouni [1], Emna Elleuch [1], Jamel Feki [2], Salma Gargouri [2], Mounir Ben Jemaa [1]

[1] Department of Infectious Diseases, Hedi Chaker University Hospital, Sfax, TUNISIA
[2] Department of Ophthalmology, Habib Bourguiba University Hospital, Sfax, TUNISIA
***Corresponding Author:** salmabenhmiida@gmail.com

**Citation:** Ben Hmida S, Lahiani D, Bougharriou I, Chaabouni H, Elleuch E, Feki J, Gargouri S, Ben Jemaa M. Endogenous endophthalmitis by Candida glabrata: An unusual complication of digestive surgery. ELECTR J MED DENT STUD. 2023;13(1):em0102. https://doi.org/10.29333/ejmds/12639

**ARTICLE INFO**

Received: 24 Jan. 2022

Accepted: 01 Nov. 2022

**ABSTRACT**

Endogenous fungal endophthalmitis (EFE) rarely occurs after surgery. The lack of clinical suspicion and the empiric use of corticosteroids without antifungal coverage increases the risk of visual loss. We report a rare case of EFE secondary to digestive surgery. Blood cultures were negative. Fungal cultures of the vitreous puncture revealed *Candida glabrata*. The patient was successfully treated with oral and intravitreal voriconazole injections without vitrectomy.

**Keywords:** endophthalmitis, *Candida*, complication, surgery

## INTRODUCTION

Endogenous fungal endophthalmitis (EFE) after gastrointestinal surgery is a rare but vision-threatening infection, which must bee suspected early to have a better visual prognosis. It is commonly caused by *Candida* through hematogenous dissemination. Here, we report a case of EFE secondary to *Candida glabrata* arising as a complication following digestive surgery. In our case, the retinal lesion regressed, and vision was restored.

## CASE REPORT

A 39-year-old woman had a subtotal colectomy with the placement of ileostomy pouch for an ulcerative colitis, which had treated initially with immunosuppressant for three years. 12 days postoperatively, she suddenly developed decreased visual acuity in her right eye associated with conjunctival hyperemia and eye pain, without fever. She had no history of ocular disease or trauma. On physical examination, the patient was apyretic. The ostomy pouch was uninflamed. The rest of the somatic examination was normal. There was no biological inflammatory syndrome. Ophthalmology review revealed reduced visual acuity in the right eye only. Fundus examination revealed vitreous inflammation, vitreous hemorrhage, and fibro-vascular veils (**Figure 1** and **Figure 2**).

Examination of the left eye was completely normal. The blood cultures as well as the peripheral mycological samples (ear, mouth, armpits, groin fold, and ileostomy pouch) were negative. Transthoracic echocardiography was normal. The

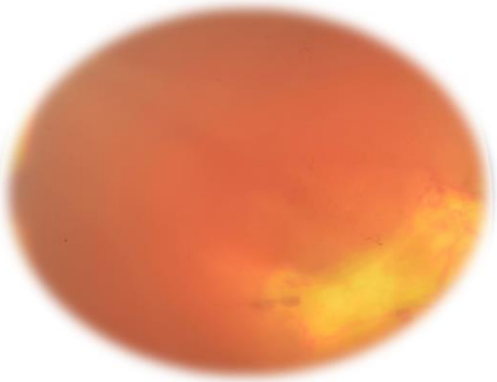

**Figure 1.** Fundus examination demonstrating vitreous hemorrhage and papillary edema (Source: Authors, reprinted with permission of the patient)

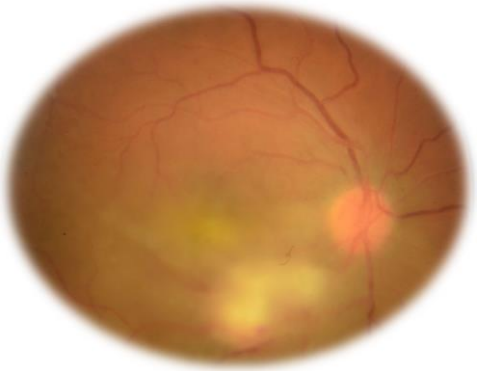

**Figure 2.** Fundus examination demonstrating vitreous inflammation and fibro-vascular veils (Source: Authors, reprinted with permission of the patient)

patient was managed with corticosteroids topically and systemically. However, there was no clinical improvement. Therefore, the patient underwent a vitreous puncture for microbiological studies which allowed the identification of a *Candida glabrata*. This pathogen was susceptible to voriconazole, amphotericin B, five flucytosine and caspofungin and resistant to fluconazole. On the basis of this data, the diagnosis of EFE has been maked and the patient was treated by 400 mg per day of oral voriconazole with weekly intravitreal injections of voriconazole (100 mg/0.1 mL) for six weeks. The evolution was marked by clinical improvement with reduction of inflammation and vitreous hemorrhage. After five weeks of treatment, the eye symptoms resolved, and the visual acuity improved.

## DISCUSSION

EFE is a devastating ocular infection, due to blood borne spread of a fungal agent from infected organs to the eye. *Candida albicans* is the predominant species of EFE [1], but all *Candida* species have been described [2]. *Candida glabrata*, the second cause of candidemia after *Candida albicans*, seem to have less potential for invading the retinal [3]. Ocular candidiasis develops within days to weeks of fungemia. Although EFE is associated with a high frequency of candidemia, there is a subgroup of patients who do not show signs of systemic candida infection. Our patient fell into this category of presumed localized intraocular infection without clinical or culture evidence of disseminated disease. In our case, a history of immunosuppressant use and recent digestive surgery was noted. In fact, ocular complications in colorectal surgery are rare [4] and the risk of a hospitalized patient developing endophthalmitis from fungemia appears to be low overall. However, immunodepression and digestive surgical is described among the risk factors of EFE [5]. Systemic immunosuppression is not sufficient for the development of intraocular candidiasis, but in the presence of candidemia, immunosuppression is likely to increase the risk and severity of the ocular infection. We found only one case report of EFE following digestive surgery in our literature review: Megan Wood and *al*. reported a case of EFE arising as a complication of fungal septicemia three months following gastrointestinal surgery, and subsequent treatment with endoluminal vacuum therapy [4]. In this case, the patient was treated with multiple courses of intravenous antibiotics and blood culture was positive to *Candida albicans* [4]. In our case, diagnosis of EFE was difficult because we had not clinical data in favor of candidiasis and blood culture were negative. In fact, negative blood cultures cannot exclude EFE because they are presumed to be in the setting of transient or intermittent fungemia [3]. Cultures of intraocular fluids aid in the diagnosis of patients with negative blood cultures but vitreous cultures are limited by low sensitivity [6]. In fact, for more accurate diagnosis, diagnostic vitrectomy is recommended in suspicious cases since diagnostic vitrectomy shows a higher positive culture rate [7]. Moreover, RT-PCR is more sensitive than culture, but more expensive and might be unavailable [8]. In our case, the diagnosis of EFE was supported by culture of the vitreous.

According to a review [9], an appropriate treatment of EFE is systemic medication with good intravitreal penetration, such as voriconazole and fluconazole, accompanied by intravitreal injection of amphotericin B or voriconazole in sight-threatening conditions and severe vitritis. Candin agents are not recommended for the treatment of EFE because of their poor penetration into the eye [9].

According to [6], the main drawback of fluconazole is its lack of activity against some non-albicans *Candida* species including *Candida glabrata.* In such situations, voriconazole is the treatment of choice. Intravitreal therapy in fungal endophthalmitis relies on the use of intravitreal amphotericin B or intravitreal voriconazole. While both are effective against fungal endophthalmitis, intravitreal voriconazole is associated with a lower risk of retinal toxicity, has a wider spectrum, and is currently the drug of choice [6]. In our case, appropriate antifungal treatment led to good visual outcome.

## CONCLUSION

EFE after digestive surgical is a rare infection. In fact, our case may have presented with a more advanced endophthalmitis because of a delay in diagnosis with clinically unsuspected candida infection. Clinicians should be aware of this possible complication even without obvious clinical signs of fungal infection. Early detection by ocular sampling and timely treatment can lead to better visual prognosis.

**Author contributions:** All authors have sufficiently contributed to the study and agreed with the results and conclusions.

**Funding:** No funding source is reported for this study.

**Ethical statement:** The authors stated that the case report did not require ethics committee approval. Informed consents were obtained from the patients.

**Declaration of interest:** No conflict of interest is declared by authors.

**Data sharing statement:** Data supporting the findings and conclusions are available upon request from the corresponding author.

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