Short communication

Keratitis caused by *Absidia corymbifera* in an immunocompetent male with no corneal injuries

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**Abstract**

Case report: A healthy 55-year-old male underwent emergency treatment due to a white infiltrate in the left eye without corneal trauma which partially responds to antibiotic treatment. The infiltrate worsened by the use of topical steroids. Direct microscopic evaluation and Gram staining are valuable diagnostic tools for the detection of *Absidia* filaments. There is a successful treatment with amphotericin and posaconazole.

Discussion: Keratitis caused by Zygomycetes is unusual. This is a rare condition in healthy patients with no corneal trauma. The treatment with amphotericin and posaconazole are synergistic against filamentous fungi.

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**Key words:**
Fungal keratitis
*Absidia corymbifera*
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**Resumen**

Queratitis por *Absidia corymbifera* en paciente inmunocompetente sin traumatismo corneal previo

Caso clínico: Varón sano de 55 años sin antecedente de traumatismo corneal acude a urgencias por un infiltrado en el ojo izquierdo que responde parcialmente a tratamiento antibiótico tópico. Tras la introducción de corticoterapia tópica presenta un importante empeoramiento de la úlcera. El examen directo y la tinción de Gram permiten un rápido diagnóstico de las hifas de *Absidia*. Presenta buena respuesta al tratamiento combinado de amfotericina y posaconazol.

Discusión: Las queratitis por Zygomycetes son raras. Es rara la afectación de pacientes sanos sin antecedentes de traumatismo corneal. El tratamiento combinado de amfotericina y posaconazol ejerce un efecto sinérgico contra hongos filamentosos.

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Introduction

Fungal keratitis caused by non-septed filamentous fungi of the Zygomycetes class (Mucor, Rhizopus and Absidia) are rare. Absidia corymbifera is the only Absidia species which is pathogenic for humans. It affects immunodepressed subjects, the main risk factor being traumatism with material contaminated with spores.

Clinic case

Healthy male, 55, who visited the emergency ward due to blurry vision and pain in the left eye (LE) with 3 days onset. The patient did not recall any previous ocular traumatism. Best corrected visual acuity (BCVA) was of hands movement and in exploration exhibited diffuse central corneal infiltrate with peripheral fluorescein-staining finger-shaped extensions (Fig. 1).

Treatment was prescribed with reinforced eyedrops (vancomycin 50 mg/ml and ceftazidime 50 mg/ml) every hour. Initially, evolution was positive with the progressive closure of the ulcer, for which reason topical corticoids previous treatment (FML®) was added in increasing pattern.

One week after introducing the topical corticoid, the patient visited again with a large ulcer and dense whitish infiltrate (Fig. 2). Corneal samples were taken for microbiology which revealed hyphae with Gram staining (Fig. 3). Accordingly, intensive therapy was prescribed with 1% voriconazole eyedrops and oral systemic voriconazol 200 mg every 12 h.

Cultures identified non-septed, branched hyphae compatible with Absidia corymbifera. Treatment was modified according to fungogram sensitivity to 0.15% amphotericin eyedrops and oral posaconazole (Noxafil®) 10 ml every 12 h, maintained during 8 weeks. After ulcer closure, dense central leukoma remained. Anterior lamellar transplant was considered, such as deep anterior lamellar keratoplasty (DALK) with antifungal coverage (0.15% amphotericin eyedrops) to avoid post-surgery relapses. Six months after the transplant, the patient exhibited BCVA of 0.4 with the transplanted graft and gradual withdrawal of suture for astigmatic control (Fig. 4).

Discussion

Absidia corymbifera (also denominated Lichtheimia corymbifera) belongs to the Zygomycetes class, within the order of the Mucorales. It affects immunodepressed subjects (cell immunodepression and those with systemic hemosiderosis). It is transmitted by inhaling/ingesting spores or by traumatism with contaminated material (vegetal or metallic). Generally, involvement is cutaneous, rhinocerebral or systemic, with ocular involvement being rare.

A clinic case of keratitis due to Absidia corymbifera is presented. The patient was healthy, without ocular traumatism history. Intensive use of antibiotics and topical corticoids could have favored growth and mycotic stromal invasion, which could account for the fungal keratitis of this patient.
without previous risk factors. An additional virulence factor was intrinsic proteolytic activity. Similar to the degrading action of scalp keratin by Absidia cylindrospora, Absidia corymbifera might have the ability to pass through healthy corneal epithelium.1

A direct examination of the sample provided a wealth of information for early diagnostic. Non-septed, branched, broad hyphae were observed, leading to a suspected diagnostic involving the Zygomycetes class, although the identification of the species was carried out subsequently through culture. This enabled an empirically more focused and earlier treatment.

The Zygomycetes class exhibits high sensitivity to 0.15% topical amphotericin B and to posaconazole.5,6 In addition, it exhibits resistance to imidazole and 5-fluorocytosine. The literature describes cases of effect enhancement with combined therapy of amphotericin with itraconazole or posaconazole.7

The importance of early treatment of this type of fungal infections must be emphasized due to the devastating effects which can occur if not controlled efficiently. Clinical suspicion is crucial even in the absence of risk factors. Poor response to antibiotic treatment and clinical worsening with the use of topical corticoid therapy must give rise to suspected fungal lesion. The characteristics of hyphae in direct examination help to pinpoint diagnostic and enable specific treatment.

It is also important to emphasize the positive therapeutic results obtained in the present clinic case with the combined use of amphotericin and posaconazole, a therapeutic option which should always be considered in the presence of ocular mucormycosis with poor response to amphotericin treatment on its own.

**Conflict of interest**

No conflict of interest has been declared by the authors.

**REFERENCES**