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Contact lens-related bilateral and simultaneous Acremonium keratitis

Ceratite bilateral e simultânea por Acremonium relacionada ao uso de lentes de contato

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Abstract

This is a case of bilateral and simultaneous Acremonium keratitis related to intermittent and alternating eye soft contact lens use, which has a delayed diagnose, presented amphotericin B resistance with persistent hypopyon and had a positive response to topical natamycin. Besides the unusual presentation, there was no history of trauma or contact with vegetable matter, usually associated to the majority of cases of keratomicosys by filamentous fungi.

Keywords: *keratitis; Acremonium; Mycoses; Cornea; Case reports*

Resumo

Trata-se de um caso de ceratite bilateral e simultânea por Acremonium relacionada ao uso intermitente e sem respeitar a lateralidade do uso de lentes de contato gelatinosas. Houve diagnóstico tardio, apresentando resistência a anfotericina B e hipópio persistente, com resposta positiva a natamicina tópica. Além da forma incomum de apresentação, não houve histórico de trauma ou contato com material vegetal, associado à maioria dos casos de ceratite por fungos filamentosos.

Descritores: Ceratite; Acremonium; Micoses; Córnea; Relatos de caso

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Introduction

The filamentous fungi Acremonium sp. is an uncommon cause of fungal keratitis. They are isolated from plant debris and soil and appear as hyaline, septate mycelial elements with branched or intertwined hyphae. [1]

Most case reports of Acremonium keratitis are related to corneal injury, usually because of contact with a fungus contaminated plant material. There are four cases reported associated with laser-assisted keratomileusis (LASIK) that were performed in the same operating room, at different times, with different surgeons. [2] Another case is reported after herpetic keratitis and bandage contact lens use. [3]

We report in this paper a case of bilateral and simultaneous Acremonium keratitis related to contact lenses use without history of trauma or contact with vegetable matter. Informed consent was obtained from patient and all procedure was in accordance with Declaration of Helsinki.

Case Report

A 68-year-old caucasian woman presented to evaluation complaining of progressing decreased vision, redness and ocular pain in both eyes for 2 months. She has been previously examined three months before with complains and signs of mild dry eye and blepharitis and had 20/20 vision acuity in both eyes and was treated with lubricants an eyelid hygiene. She reported that at the beginning of the symptoms of ocular hyperemia and discomfort, two months ago, she has been diagnosed at another ophthalmology service as having a bilateral corneal lesion and had a prescription of oral valaciclovir, oral prednisone and moxifloxacin and tobramycin eye drops hourly. Some days after, she had a prescription of topical steroids and was referred to a corneal specialist, that changed prescription to vancomicine drops 3/3h, dexamethasone 0,.005% drops, metilcelulose 0,.5% and oral doxycycline.

A clinical evaluation by an immunologist showed positive IgG for Herpes Zoster, IgG and IgM positive for toxoplasmosis and CMV and non-reagent VDRL. She was treated for systemic toxoplasmosis, including the use of oral corticosteroids, without improvement of the ocular complains.

As we questioned her, she revealed intermittent use of 1 year-old colored soft contact lenses in both eyes, and stated she never payed attention to the laterality of the lens, alternating the use of lenses in both eyes, even during this eye treatment period.

Patient's medical history was relevant for an episode of ophthalmic herpes zoster in the right eye 15 years ago and Diabetes Mellitus diagnosis in treatment with systemic metformin, glimepiride and liraglutide.

At presentation, distance corrected visual acuity (DCVA) was 20/100 (0,.2) in both eyes. Examination showed palpebral edema in both eyes, a whitish mucous discharge, intense conjunctival injection and epiphora. Slit-lamp examination revealed bilateral corneal ulcer with white infiltrates. Epithelial defect was 3,.0 x 5,.0mm paracentral nasal in OD and 4,.0 x 4,.5mm paracentral temporal in OS, with a central dense thick and elevated white infiltrate with mild surrounding corneal edema and 3+ cells in anterior chamber in both eyes. Fungal infection was suspected and vancomycin and steroids drops were suspended, topical atropine 1% BID and preservative free lubricant (0,.2% sodium hyaluronate) were prescribed and patient oriented to return on next day for corneal scraping and culture.

Corneal ulcers were scraped for Gram and Giemsa staining and cultured on blood, chocolate and Sabouraud agar plate surfaces and thioglycollate. Gram and Giemsa revealed hyphae and antifungal therapy was initiated with 0,.5% amphotericin B drops hourly and oral itraconazole 100mg daily. Atropine 1% drops BID was continued.

A week after there was slight epithelization on ulcer margins, but no reduction on infiltrates and a hypopyon appeared in both eyes (Figure 1). After twelve days of amphotericin drops and oral itraconazole, visual acuity was counting fingers 50cm in the right eye and counting fingers at 1 meter on left eye and culture isolated Acremonium spp. Amphotericin B was substituted by hourly 5.0% natamycin drops. Cornea was scraped again to improve antifungal penetration. Itraconazol was suspended due to gastric intolerance (nausea, vomiting and diarrhea).

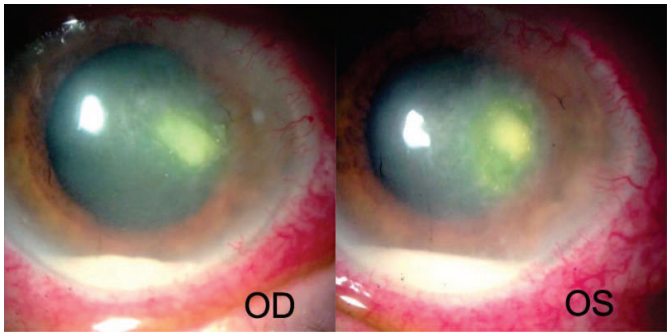

Figure 1. White infiltrate and hypopyon in both eyes

A week after natamycin use, a reduction of the palpebral edema and hyperemia was observed and patient related pain relief. Biomicroscopy showed a reduction in the size of the epithelial defect in both eyes, measuring 2,.0 x 1,.5mm in right eye and 3,.0 x 1,.5mm in left eye. Ulcer edges were well defined with less surrounding edema. Despite the reduction in lesion size, hypopyon still remained, 1mm with blood in the right eye and worsened for 1,.5mm in the left eye, with a fibrin reaction on anterior chamber. Fundoscopy was not possible, though a USG revealed attached retina and a raise in vitreous echogenicity in both eyes. As corneal lesions were responding to the topical treatment but hypopyon did not have decreased, the possibility of natamycin toxicity or Acremonium intraocular invasion was considered. Natamycin drops was tapered to 3/3h and oral fluconazole was associated, considering intraocular injection of voriconazol as an alternative in case the response would not have been favorable. Fortunately, after reducing natamycin frequency, infiltrates decreased and the hypopyon reduced in follow-up appointments. Oral fluconazol was used for 14 days.

Natamycin was gradually tapered over the next 3 weeks until suspension, completing 6 weeks of treatment. Conjunctival hyperemia and infiltrate disappeared and there was no more epithelial defect. After resolution of epithelial defect, intraocular pressure was 32 mmHg in both eyes. The patient remained in use of lubricants and hypotensor drops were added with a good effect in pressure control.

A month after natamycin suspension, best corrected visual acuity was 20/60 in the right eye and 20/30 in the left eye. Biomicroscopy revealed clear conjunctivas and pigmented keratic precipitates on the endothelium of both eyes without anterior chamber inflammation, a corneal haze with stromal fibrosis

from nasal to central cornea and moderate thinning and nuclear cataract, with significant posterior synechiae on left eye (Figure 2). Potential acuity was 20/20 in both eyes measured with super pinhole. There was no signs of recurrence four months after the resolution of the infection.

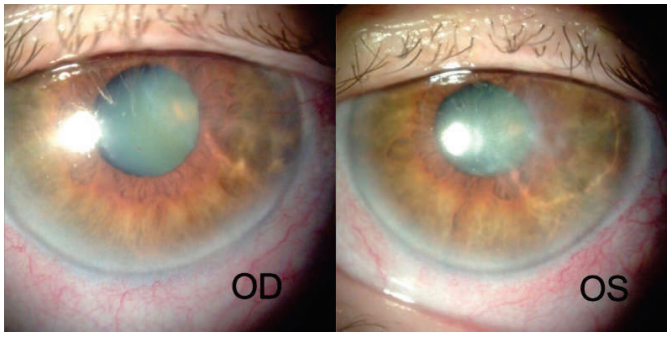

Figure 2. Corneal scar in both eyes one month after resolution.

Discussion

The pathogens that are most commonly involved in fungal keratitis are Candida, Fusarium and Aspergillus. Acremonium is very rare cause of mycotic keratitis. [3,4] It is a filamentous fungus that comprises more than 150 species that are morphologically very similar to each other. As the species are difficult to identify, in most of the cases the agent is reported as Acremonium species (spp). [1] Our laboratory was not able to classify the Acremonium specie. Filamentous fungi live as saprobes in soil and plants. Therefore, corneal trauma with vegetable matter is the most important risk factor for the development of keratitis from this agents. [1,5]

In the case we report, the patient lived at an urban area and had no history of ocular injury. Some corneal infection predisposing factors were present, which are more often associated with bacterial or yeast infections, like ocular surface disease as dry eye, blepharitis and intermittently use of soft contact lenses, not respecting replacement schedules, with poor hygiene and maintenance of contact lenses case, and even not respecting laterality – what could explain bilaterality of the infection. Besides the high risk of contamination of the lenses and case, the noncompliance on care of contact lenses can reduce the natural resistance of the cornea to infection, compromising integrity and impairing wound healing.[6] Fungal infections appear to develop more commonly in association with soft lenses use, more commonly by Fusarium. [3,7] Indeed, our patient has a story of topical and systemic steroid use, which is another risk factor for fungal infections. [8]

As an unusual condition, there are a few cases of Acremonium keratitis reported in literature. Seong-Jae Kim et al made a retrospective study of Acremonium keratitis between January 2006 and August 2012 reporting 5 cases and all patients had a history of corneal trauma with vegetable matter.[1] Fincher et al. made a review of Acremonium keratits reported in literature and found 17 cases between 1965 and 1991, 12 of them had a history of trauma.[4] There are four cases reported associated with laser-assisted keratomileusis (LASIK) that were performed in the same operating room, at different times, with different surgeons. [2] Another case is reported after herpetic keratitis and bandage contact lens use.[3] The case we report is remarkable because there is no history of trauma and is the only case of bilateral and simultaneous Acremonium keratitis described.

In conclusion, we reported an unusual case of bilateral and simultaneous Acremonium keratitis related to intermittent and alternating eye soft contact lens use, which had a delayed diagnostic, amphotericin B resistance, persistent hypopyon and finally responded to natamycin. We would like to emphasize the importance of corneal scraping for early identification of the pathogen and stablishing an effective and specific treatment in order to minimize ocular morbidity and blindness from cornea infection.

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