Thai J Ophthalmol 2564;35(1):25-29.

Case Report

Bilateral Infectious Keratoconjunctivitis, A Way to Recognize Microsporidial Keratitis: A Case Report

รายงานผู้ป่วยกระจกตาติดเชื้อ Microsoridia ทั้งสองข้าง

Phantaraporn Tangtammaruk, MD[1]
พันธราภรณ์ ตั้งธรรมรักษ์, พ.บ.

Varintorn Chuckpaiwong, MD[1]
วรินทร จักรไพวงศ์, พ.บ.

Abstract

Purpose: To report a young immunocompetent patient who presented with bilateral microsporidial keratitis at Ramathibodi hospital, Thailand.

Design: A case report study.

Method: A case presentation with bilateral keratoconjunctivitis was recorded. History taking and ophthalmic examinations were noted. The patient was sent for anterior segment photography and corneal scraping was performed to confirm the diagnosis. Subsequent treatment with topical moxifloxacin followed by combination moxifloxacin and dexamethasone phosphate eye drops were prescribed. At every follow up visit the patient was re-evaluated by slit-lamp examination and anterior segment photography.

Result: We herein report a rare case of bilateral microsporidial keratitis in an HIV-negative young Thai male patient. He presented with keratoconjunctivitis in the right eye followed by the left eye after 4 days. Corneal scrapping with gram-chromotrope staining identified microsporidial organisms. The patient was treated successfully with topical 0.5% moxifloxacin four times a day for 3 days followed by moxifloxacin dexamethasone phosphate four times a day for 1 week.

Conclusion: Microsporidial Keratitis can present as a bilateral disease in immunocompetent patient, although it is a quite rare presentation. It is characterized by red eyes and blurred vision with acute or subacute presentation. Slit-lamp findings typically shows multifocal bizarre shape subepithelial corneal infiltrations. Early recognition and proper treatments can result in good visual recovery.

Keywords: microsporidia, keratoconjunctivitis, moxifloxacin

Financial Support: None

Financial Disclosure: None

Address for correspondence: *Phantaraporn Tangtammaruk, MD, Department of Ophthalmology, Ramathibodi Hospital, Mahidol University, Bangkok 10400, Thailand. Tel: (66)-2-201-2729. Fax: (66)-2-201-1516. E-mail: pp.phantaraporn@gmail.com*

[1]Department of Ophthalmology, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand.

Introduction

Microsporidia is a spore-forming, obligate protozoa.[1] In 1990, Orenstein et al.[2] reported several cases of microsporidial keratoconjunctivitis associated with HIV infection. However, Chan et al.[3] reported several cases of ocular microsporidial infection in HIV-negative patients in 2003. Furthermore, many studies have also reported microsporidial cases in immunocompetent patients with prolonged topical steroids, contact lens use, swimming in pools and post-operative laser-assisted in situ keratomileusis (LASIK) patients.[4-6] Ocular microsporidiosis has two distinct clinical manifestations; deep corneal stromal infection in immunocompetent patients and chronic keratoconjunctivitis in patients with acquired immunodeficiency syndrome (AIDS).[7] Bilateral microsporidial keratitis is a rare presentation and usually associated with HIV infection.[8] One immunocompetent case with history of bathing in a local pond was report by Curry et al.[9] Microsporidia-related ocular symptoms are photophobia, foreign body sensation, and blurred vision.[10] There are many different treatment regimens including topical fumagillin, dibromopropamidine isethionate, fluoroquinolone and systemic albendazole and itraconazole.

In Ramathibodi hospital, we reported a Thai male immunocompetent healthy patient with bilateral microsporidial keratoconjunctivitis.

Case Report

A 23-year-old Thai medical student with no underlying medical conditions complained of 3 days history of right ocular discomfort and redness. He had no systemic symptoms and had not been exposed to contaminated water. There was no history of trauma or previous ocular surgery. At the first visit, his best-corrected visual acuity (BCVA) was 20/50 in the right eye and 20/20 in the left eye. Slit-lamp examination showed mixed papillary and follicular conjunctivitis and superficial keratitis characterized by multiple diffuse subepithelial infiltration in bizarre shapes at central corneal in right eye and mild conjunctival

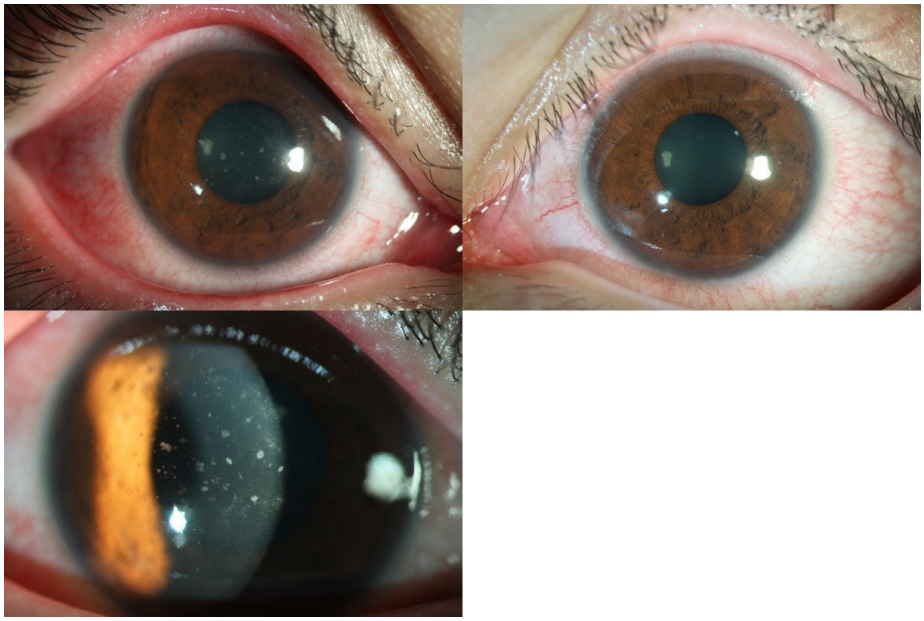

Figure 1 Cornea, right eye, showing subepithelial infiltrates in bizarre shape and left eye, showing mild redness without infiltration.

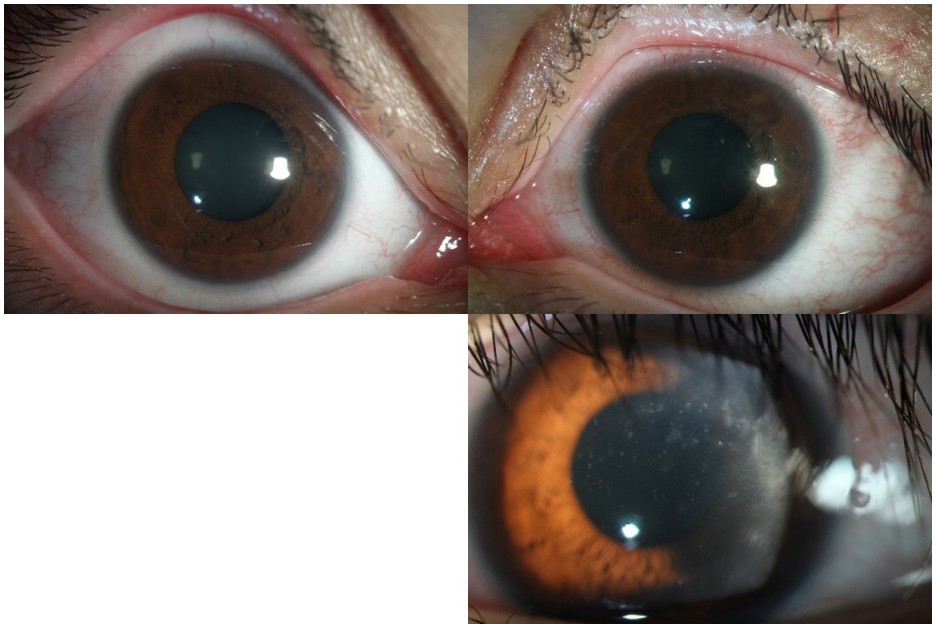

Figure 2 Cornea, right eye, showing fainting subepithelial infiltrates and left eye, showing new multiple elevated, round spots at a supepithelial level.

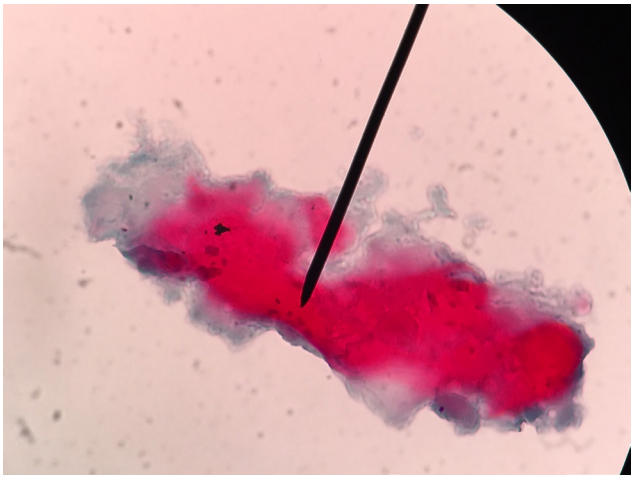

Figure 3 Gram-chromotrope, showing microsporidial organisms.

redness without corneal infiltration in left eye (Figure1). Anterior chamber examination was unremarkable in both eyes. A corneal scraping from right eye was performed with gram-chromotrope staining.

Initially, the patient was treated with 0.5% moxifloxacin four times daily on the right eye. After 3 day of treatment, the right eye showed significant improvement with the reduction of subepithelial infiltrates. However, in the left eye he subsequently developed ocular pain and blurred vision and slit-lamp examination revealed similar multiple elevated and round subepithelial spots at the central cornea (Figure 2). At this point, the patient's BCVA was 20/40 in the right eye and 20/30 in the left eye. The gram-chromotope stain from the right eye shown numerous microsporidial organisms (Figure3). He was subsequently switched to topical moxifloxacin dexamethasone phosphate in the right eye four times daily and 0.5% moxifloxacin four times daily was prescribed for the left eyes for 4 days and then switched to moxifloxacin dexamethasone phosphate for 1 week. After 2 weeks of treatments, the visual acuity for both eyes returned to 20/20 with complete resolution of all corneal infiltrations.

Discussion

Recently, the incidence of microsporidial keratoconjunctivitis has increased significantly in HIV-negative individuals in Asia.11 The prevalence

of microsporidial keratoconjunctivitis was about 0.4-19.7%.[12,13] Risk factors of microsporidial keratoconjuncitivitis include contact lens usage, ocular surgery especially following LASIK or corneal transplantation, prolong usage of topical corticosteroid and history of bathing in thermal baths and exposure to contaminated water or soil.[4-6,12] In Thailand, the incidence of microsporidial keratitis was highest during the rainy season from July to October.[11] Our case a rare presentation of bilateral microsporidial keratoconjunctivitis was observed in an otherwise healthy patient with no history of predisposing factors and without HIV infection or systemic immunosuppression.

Transmission electron microscopy is the definitive method of microsporidia identification. However, this technique is expensive, time consuming and required significant technical expertise. Various stains such as gram-chromotrope, potassium hydroxide plus calcofluor white, Gram, Giemsa, acid-fast, and modified Ziehl-Neelsen stains had all been used for the detection microsporidial organisms. The diagnosis of this case was made by clinical suspicious and the protozoa was identified with gram chromotrope staining.

Various treatment regimens had been used successfully for the treatment of microsporidial keratoconjunctivitis and topical fumagillin is the drug of choice for most cases.[14] However, in Thailand, fumagillin is not readily available and topical fluroquinolone has been used as the alternative treatment.[14] In our case, topical moxifloxacin effectively treated microsporidial keratoconjunctivitis in both eyes. Sub-epithelial scars were found about 8-40% higher in the study without steroid treatment.[5,10,11,14] After the infection subsided, we switched to moxifloxacin dexamethasone phosphate and all the lesions were completely resolution without sub-epithelial scar.

We recommend that microsporidial keratoconjunctivitis should be considered in the differential diagnosis in patients who presented with atypical multifocal bizarre shapes diffuse superficial keratitis and corneal scraping should be performed with appropriate staining techniques. Ocular microsporidiosis is a treatable condition and early recognition and proper treatments may significantly improve clinical outcomes.

Conflict of Interest:

No conflicting relationship exists for any author

Acknowledgments

We thank Atasit Rojanasakul for editing a draft of this manuscript.

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