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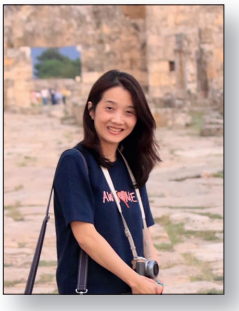
Case Report/รายงานผู้ป่วย

Fungal Conjunctivitis in a Healthy Adult (A case report)
ภาวะติดเชื้อราใต้เยื่อบุตา (รายงานผู้ป่วย)



Sunpech Bunyavanich, MD[1]

Anchuree Boonchanya, MD[1]

บทคัดย่อ

ภาวะติดเชื้อราใต้เยื่อบุตา (รายงานผู้ป่วย)

สรรเพ็ชญ์ บุณยวณิชย์ พ.บ.[1], อัญชุรี บุญจรรยา พ.บ.[1]

[1]กลุ่มงานตา โรงพยาบาลตำรวจ

บทความนี้กล่าวถึงผู้ป่วยชายอายุ 31 ปี มาด้วยอาการระคายเคืองตาซ้ายและมีเมือกสีขาวมา 2 เดือน ได้รับการรักษาด้วย antibiotic eye drop 1 เดือนอาการไม่ดีขึ้น มารับการตรวจที่โรงพยาบาลตำรวจ พบมีเม็ดสีดำเป็นกลุ่มที่ upper subconjunctival fornix ผลทางพยาธิและการตรวจทางห้องปฏิบัติการณ์พบ pigmented septate fungal hyphae

Keyword: Fungal conjunctivitis

ผู้นิพนธ์ทั้งหมดไม่มีส่วนเกี่ยวข้องหรือผลประโยชน์ใดๆ กับผลิตภัณฑ์ที่ได้กล่าวอ้างในงานวิจัยนี้

Abstract

The authors present an interesting case of a healthy 31 year-old man with history of irritation and white discharge of his left eye for 2 months. His symptoms did not improve after 1 month of antibiotic eye drops. Ophthalmological examination at our hospital revealed clusters of black particles on the upper subconjunctival fornix of his left eye. The patient underwent surgical removal. The surgical pathology and laboratory test reported pigmented septate fungal hyphae.

Keywords: Fungal conjunctivitis

No Authors have a financial or proprietary interest in material or method mentioned

[1]*Ophthalmology Section, The General Police Hospital, Bangkok, Thailand*

Background

Ocular fungal infections are an important cause of significant vision loss in Asia[1] and remain a diagnostic and therapeutic challenge for ophthalmologists. The inflammatory process typically involves the cornea, but the orbit, eyelids, lacrimal apparatus, conjunctiva, sclera and internal structures of the eye can also be affected[2]. Fungal conjunctivitis is very rare and often appears as chronic inflammation and discharge from the eyes. The clinical features of fungal conjunctivitis are redness, itching, discharge and irritation[3]. Risk of fungal infection increases with immunodeficiency, diabetes, surgery, chronic use of antibiotic and corticosteroid therapy, as well as drug addiction[2,4]. In this paper we present a unique case of fungal conjunctivitis in a healthy patient without known risk factors.

Case Presentation

A 31-year-old man presented with history of irritation and white discharge of his left eye for 2 months. There was no history of foreign body or trauma. The patient was healthy and did not use any medication. He was treated for bacterial conjunctivitis with antibiotic eye drops for 1 month. His symptoms did not improve.

Ophthalmological examination of the patient at our hospital revealed an unaided visual acuity of 20/20 for both eyes. Ocular tensions were 12 mmHg on the right and 13 mmHg on the left. Examination of the left eye under slit lamp revealed clusters of black particles on the upper subconjunctival fornix and membranous adhesion between the tarsal and bulbar conjunctiva (Figure 1). The right eye was asymptomatic. There was no corneal involvement. Anterior chamber, lens, and posterior chamber examinations were normal. Bilateral fundus oculi also appeared normal.

Since his symptoms did not improve after 1 month of antibiotic eye drops, surgical removal of the lesions was performed. Gross specimens revealed black fine particles.

Laboratory test and surgical pathology report

The specimens were sent for laboratory identification including gram strain, aerobic culture and potassium hydroxide (KOH) assay. The fungal culture was not performed because it is not available in our hospital. Polymononuclear cells, epithelial cells and gram negative cocci were seen on gram strain. There was no demonstrable fungus on KOH examination.

Surgical pathology, H&E, GMS and Periodic

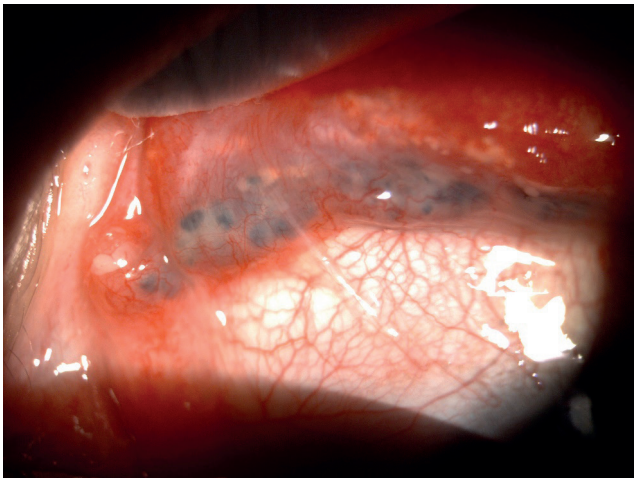


Figure 1. Cluster of black particles on the upper subconjunctival fornix and membranous adhesion between tarsal and bulbar conjunctiva of the patient's left eye.

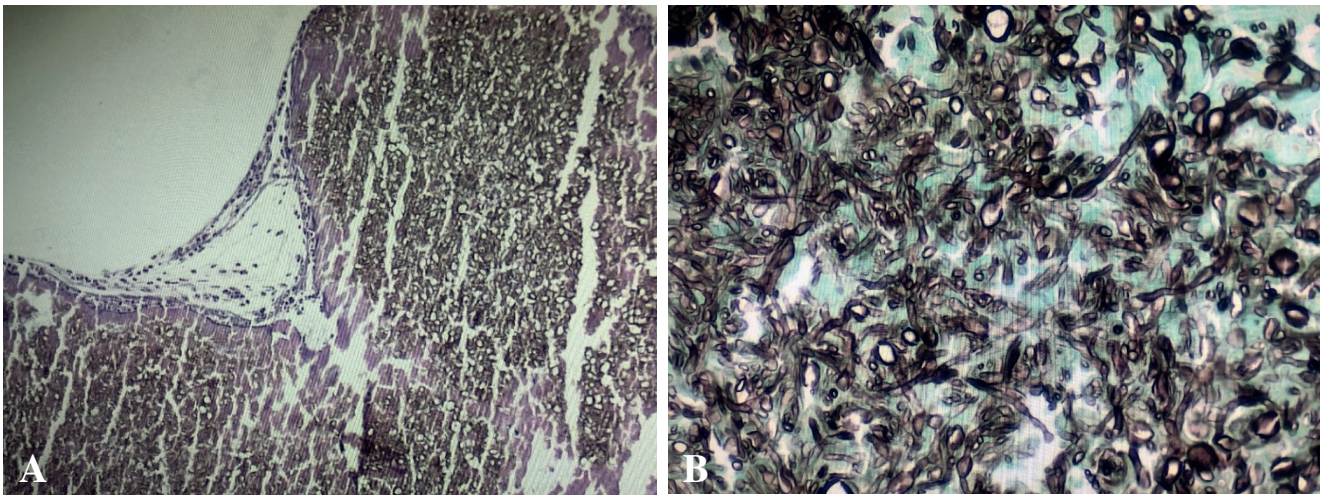


Figure 2. (A and B): Surgical pathology reveals colonies of pigmented septate fungal hyphae

acid-Schiff (PAS) strains revealed colonies of pigmented septate fungal hyphae (Figure 2).

Treatment

Postoperative medications included 5% Natamycin ophthalmic suspension every 2 hours, levofloxacin ophthalmic solution (Cravit® ophthalmic solution) 4 times daily for prophylaxis, and sodium hyaluronate eye drop (Vislube eyedrop).

Outcome and follow up

One week after the operation (Figure 3), there was improvement of symptoms and clinical signs. At his 2 month follow up visit, there were no signs or symptoms of recurrence.

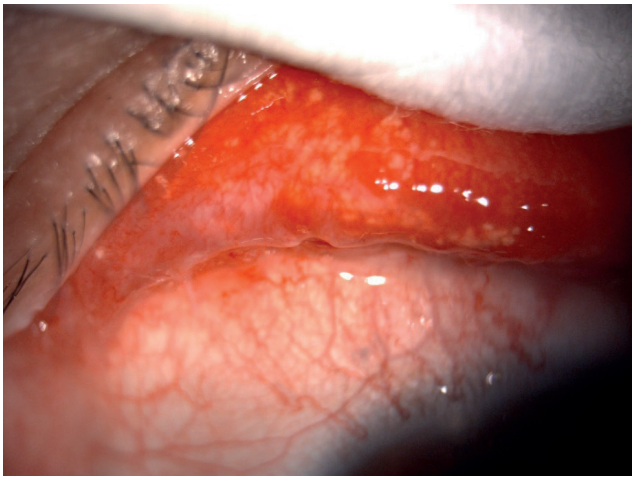


Figure 3. One week after surgery. The cluster black particles on the upper subconjunctival fornix and membranous adhesion were surgically removed.

Discusssion

Fungal conjunctivitis is very rare and usually occurs secondary to inflammation of the cornea, lacrimal sac and tear ducts. Predisposing factors of fungal infections include immunodeficiency, diabetes, surgery, chronic use of topical broad spectrum antibiotics, prolonged use of corticosteroid therapy, and drug addiction[2,4].

The clinical features of fungal conjunctivitis are redness, itching, discharge and irritation. Conjunctival edema, hyperemia of the tarsal and bulbar conjunctiva, and yellow or green

mucopurulent or frankly purulent discharge can be observed[3,5]. The severity of the patients' symptoms may depend on the type of etiologic agents, extent of the infection, and immune status of the patients[3].

The etiologic agents of fungal conjunctivitis include Candida, Aspergillus, Sporotrichum, Blastomyces, Coccidioides, Malassezia, Dermatophytes, and Rhinosporidium spp, which cause the symptoms of acute conjunctivitis with mucopurulent discharge[2]. There are characteristic features of the infected lesions such as grayish deposits on the conjunctiva with eyelid-eyeball adhesion formation in Candida infection, papular changes of a white-yellow color in Sporotrichum infection, and pink or red inflammatory changes of pedicled lesions in the palpebral conjunctiva in Rhinosporidium infection[2,6]. Conjunctival membrane or pseudomembrane may be obscured in some patients[3].

Fungal conjunctivitis causes serious complications including blindness and requires intensive antifungal therapy. Surgical debridement is recommended in case of a Rhinosporidium infection. Early diagnosis and effective antifungal treatment are important to avoid serious complications[2].

Microbiological identification of the etiologic agent in clinical samples can be performed using PAS, Giemsa, gram stain, Calcofluor white & Fluorescence microscopy, and SDA agar. Biopsy and histopathology are recommended diagnostic procedure in the diagnosis of invasive fungal infections[2].

The clinical presentation of the patient in our report was irritation and white discharge of his left eye. The cornea of both eyes was unaffected. There was no evidence of intraocular inflammation. He had no history of diabetes, foreign body, use of contact lenses, eye trauma, eye surgery, acquired immunodeficiency, corticosteroid therapy or any other significant medical disorders. The examination of his left eye under slit lamp revealed clusters of black particles on the upper subconjunctival fornix, which raised the possibility of atypical infection. He had no demonstrable deposits on the conjunctiva, eyelid-eyeball adhesion, papular changes of a white-yellow color, or red inflammatory changes in the palpebral conjunctiva, which have been reported as characteristic features of fungal conjunctivitis in prior studies[2,3]. Since the symptoms were not improved after 1 month antibiotic eye drop, surgical removal of the lesions was performed. The colonies of pigmented septate fungal hyphae were revealed on surgical pathology.

Fungi are opportunistic pathogens that can be recovered from the conjunctiva. Isolation of fungi from normal conjunctival sacs occurs in 2.9 to 27.9% of normal individuals including Candida, Cladosporium, Mycelia sterilia, Aspergillus, Fusarium, Rhizoctonia, and Penicillium,[7-12]. There were no significant differences between fungi found in healthy and diseased conjunctivas. The common species of air-borne fungi were mainly Cladosporium and Alternaria[10]. Increase in fungal conjunctival isolation may be seasonal. However, the same fungi do not remain or grow in the conjunctival sac under normal conditions. When several colonies of fungi are identified, fungal

infection is suggested[10].

Potassium hydroxide (KOH) is one of the oldest and principle modalities for demonstration of fungal infection and is recommended in all clinics without exception for establishing early treatment[13-15]. It is highly reliable in confirming the diagnosis of fungal, Nocardia, and Acanthamoeba infection. The sensitivities of KOH smears in the detection of fungi are 96-99%[15,16]. However, the KOH assay was negative in this case.

We reported this patient because it was challenging to establish his diagnosis. Clinical symptoms of fungal conjunctivitis can be mild in healthy individuals, as was the case with the chronic irritation and white discharge in our patient. Lesions can be confined to the upper subconjunctival fornix only. Negative KOH cannot exclude fungal infection. If clinical and symptoms do not improve after antibiotic treatment, further investigation of fungal infection should be performed.

Conclusion

Fungal infections are important causes of eye disease and a major cause of blindness in Asia. Early diagnosis and rapid aggressive antifungal therapy have a significant impact on the course of the disease. The clinical symptoms of fungal conjunctivitis can be mild in healthy individuals. If clinical signs and symptoms do not improve in healthy individuals after antibiotic treatment, further investigation of fungal infection should be performed to avoid serious complications.

References

1. Ayse K, Sengul O**:** Ocular Fungal Infections. Curr Eye Res. 2011;36:179-9.
2. Słowik M, Biernat MM, Urbaniak-Kujda D, et al. Mycotic infections of the eyes. Adv Clin Exp Med. 2015;24:1113-7.
3. Mishra D, Ranjan P, Mohan N, Sinha B P. Fungal Conjunctivitis: How to Suspect & Diagnose. DOS Times. 2014;19:57-58.
4. Vanzzini Zago V1, Alcantara Castro M, Naranjo Tackman R.Support of the laboratory in the diagnosis of fungal ocular infections. Int J Inflam. 2012;2012:643104. doi: 10.1155/2012/643104. Epub 2012 Mar 5.
5. Sehgal S, Dhawan S, Chhiber S, Sharma M, Talwar P. Frequency and significance of fungal isolations from conjunctival sac and their role in ocular infections. Mycopathologia. 1981;73:17-19.
6. Sutton DA. Specimen collection, transport, and processing: mycology. In:Murry PR, Baron EJ, Landry ML, Jorgensen JH, Pfaller MA, editors. Manual of clinical microbiology. 9th ed. Washington DC: ASM Press; 2007:1728-36.
7. Mitsui Y, Hanabusa J. Corneal infections after cortisone therapy. Br. J. Ophthalmol; 1955:39:244.
8. Williamson J, Gordon AM, Wood R, Dyer AM, Yahya OA. Fungal flora of the conjunctival sac in health and disease. Br J Ophthalmol 1968;52:127.
9. Cugnani HC, Gupta S, Talwar RS. Role of opportunistic fungi in ocular infections in Nigeria. Mycopathologia.1977;65:155.
10. Ando N, Takatori K. Fungal flora of the conjunctival sac. Am J Ophthalmol. 1982;94:67–74.
11. Segal E, Romano A, Eylan E, Stein R. Fungal flora of the normal conjunctival sac. Mykosen. 1977;20:9-14
12. Ainley, R. & B. Smith. Fungal Flora of conjuctiva in healthy and diseased eyes. Brit. J. Ophthalmol. 1965;49:505-15.
13. Sandhu DK, Randhawa IS, Singh D. The correlation between environmental and ocular fungi. Indian J Ophthalmol. 1981;29:177-82.
14. Laverde S, Moncada LH, Restrepo A, Vera CL.

Mycotic keratitis: 5 cases caused by unusual fungi. Sabouraudia. 1973;11:119-23.

15. M J Bharathi, R Ramakrishnan, R Meenakshi, et al. Microbiological diagnosis of infective keratitis: comparative evaluation of direct microscopy and culture results. Br J Ophthalmol. 2006;90(10):1271-6.
16. Rautaraya B, Sharma S, Kar S, Das S, Sahu SK. Diagnosis and treatment outcome of mycotic keratitis at a tertiary eye care center in eastern india. BMC Ophthalmology. 2011;22;11:39.