A 30-year-old healthy female presented with a 1-year history of chronic mucous discharge, tearing, and irritation in the left eye. Slit-lamp examination revealed severe papillary and follicular reaction surrounding a movable subconjunctival mass on the left upper tarsal conjunctiva. Incision and curettage were performed to establish the diagnosis. Multiple peculiar black mulberry nodules were obtained. The clumps of septate hyphae seen with periodic acid-Schiff stain were characteristic of fungus ball (aspergilloma). The patient’s symptoms improved significantly after surgery without any antifungal therapy. Although rarely reported, aspergillus is a common fungus in the conjunctiva that may seed into the subconjunctiva. We present this case to remind ophthalmologists of such a rare cause of recalcitrant conjunctival inflammation in immunocompetent patients.

**Key Words:** aspergilloma, conjunctiva, immunocompetent


Ocular infection caused by fungi is less common than that caused by bacteria, but an increase in the reported incidence of ocular mycotic infections has been noticed in recent years. Although floral fungi are found in the healthy conjunctival sac, according to fungal cultures [1,2], they are rarely implicated in infections of the eyelid or conjunctiva, except in the presence of preexisting ocular disease, lower resistance to infection, or trauma involving organic matter in immunocompromised conditions. We report a conjunctival aspergilloma with a peculiar histologic appearance in a young, healthy female who presented with a 1-year history of recalcitrant ocular inflammation in her left eye.

**CASE PRESENTATION**

A 30-year-old female visited our hospital complaining of lid swelling with chronic mucous discharge, photophobia, and gradually increasing irritation in her left eye for 1 year. Previous ophthalmic medication used in other hospitals included topical steroids and antibiotics, but none alleviated the condition. Previous ocular history revealed neither contact lens use nor any treatment with systemic corticosteroids [3]. The patient denied ocular trauma or surgical history. General examination showed that she was in otherwise excellent health.

At presentation, ocular examination showed that visual acuity with correction was 6/6 in the right and 6/6.7 in the left eye. When the upper lid of the left eye was everted, a $2 \times 3 \times 1$-mm conjunctival mass surrounded by mucous discharge became visible. The superior tarsus showed a severe papillary and follicular reaction (Figure 1). Other ocular evaluations in both eyes were unremarkable.

The impression was of bacterial conjunctivitis or internal hordeolum and the mass was thought to represent a pyogenic
granuloma or foreign body. Initial treatment included 0.25% chloramphenicol and 0.02% flumethasone eye drops three times daily and 0.3% gentamicin ointment at night. A small incision in the mass was made from the subconjunctival side under biomicroscopy. Some exudates with black debris were drained during manipulation and sent for bacterial culture, but the culture was negative. The patient had delayed resolution of the conjunctival mass. One month after surgical intervention, the mass appeared to have enlarged slightly with mucous discharge and persistent severe papillary reaction. Horizontal conjunctival incision and curettage of the mass under the surgical microscope in the operating theatre yielded several peculiar black mulberry nodules pressed out from the mass (Figure 2). After curetting the subconjunctival space, the wound was left open. Samples were collected for bacterial and fungal culture as well as further pathologic examination. Topical treatment was continued postoperatively.

Pathologic examination showed clumps of septate hyphae compatible with fungus ball (mycosis) with periodic acid-Schiff stain (Figure 3). The cultures ultimately grew aspergillus, a fungus with filamented hyphae. Topical antifungal drugs were not administered because the patient’s condition dramatically improved after surgical intervention. After 2 weeks, the patient returned with no evidence of the nodular lesions and almost complete resolution of her conjunctival inflammation (Figure 4). She did not have any evidence of recurrence during a 1-year follow-up; ocular examination was unremarkable except for significant conjunctival scarring in the left eye (Figure 5). Immunologic examinations produced negative results for anti-nuclear antibody, syphilis, and human immunodeficiency virus.

**DISCUSSION**

Aspergillus species are ubiquitous molds in the environment in most areas of the world and are often nonpathogenic members of normal body flora [1,2,4]. However, such widely distributed fungi can cause various presentations of illness and infections, including of the ear, sinuses, eye [5,6], lung,
central nervous system, heart, gastrointestinal tract, skin, and bone. Aspergillus keratitis [7] and endophthalmitis are well known and can be caused by minor trauma [8] or surgery [9]. Endogenous aspergillus endophthalmitis [10–12] and aspergillus orbital cellulitis [13–15] have been reported in immunocompromised patients [16].

Conjunctival aspergilloma, though unusual, should be included in the differential diagnosis of chronic outer eye infection lasting longer than 4 weeks. A palpable lid mass with significant conjunctival infection in this case with no history of meibomian gland dysfunction reminds us to perform conjunctival swabs or incisions for a microscopic assay for hyphae.

Demonstration of aspergillus by culture and microscopic examination of biopsy tissue, using special stains such as periodic acid-Schiff stain to reveal septate hyphae, provides the most definitive diagnosis. Although it is rarely reported, aspergillus can opportunistically seed into the subconjunctiva. Combined therapy with surgical intervention and medical management has been successfully used to treat invasive and noninvasive aspergillosis colonization in a variety of manifestations, including the brain, keratitis, endophthalmitis, and paranasal sinus. When the deeper ocular structure is involved, systemic antifungal therapy is necessary. Hampton et al reported a case of conjunctival sporotrichosis in the absence of antecedent trauma [17]. The conjunctival infection resolved completely after excision of the mass and treatment with oral itraconazole and topical fluconazole. Perry et al reported a case of a retained aspergillus-contaminated contact lens inducing conjunctival mass in an immunocompetent patient [3]. Upon removal of the contact lens, the patient became asymptomatic and the conjunctival mass completely resolved without any additional therapy. In our case, removal of the subconjunctival aspergilloma by incision and curettage without any additional antifungal therapy also led to complete resolution of the conjunctival aspergillosis.

The peculiar appearance of subconjunctival fungus balls (aspergilloma) in an immunocompetent patient may occur due to the accidental inoculation of an abundance of aspergillus. The filamented hyphae positive on periodic acid-Schiff staining were characteristic of aspergillus in this case, probably representing a pyogenic granuloma or an invasive reaction. We report this unusual case of subconjunctival aspergilloma that presented as chalazion with intensive conjunctival inflammation and remind ophthalmologists to keep in mind the possibility of mycotic conjunctival infection.

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Conjunctival aspergilloma with multiple mulberry nodules

以結膜下多發性桑椹狀小節瘤
為表現之結膜麹菌感染 — 病例報告

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本病例報告一位三十歲身體健康女性，主訴左眼有分泌物，溢淚，與異物感長達一年。眼部檢查發現左上結膜結膜有明顯乳突炎性反應，且有一結膜下結節。經手術切除結節之後給予局部藥物治療。此結節病理報告顯示內含數個黑色桑椹狀小節瘤，在顯微鏡高倍率放大且經過染色下，可以見到具有分節的菌絲，符合麹菌的診斷。雖然麹菌可以是結膜上的正常菌落，在很少的機會下也可能侵入到結膜下。此一病例報告呈現出麹菌也可以在免疫健全的情況下，造成一長期結膜發炎的表現。

關鍵詞：麹菌，結膜，免疫健全
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