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**Case Report**

# Asyptomatic Fungal Cyst of Conjunctiva Caused by Bipolaris Spicifera

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**Abstract**

An asymptomatic fungal cyst of a conjunctival infection was found and removed by biopsy in a young shepherdess. Histopathologic evaluations of the excised tissue specimen from the lesion of the conjunctiva demonstrated an epithelium lined cavity containing a tangled mycelial mass that was surrounded by inflammatory cells and the fungus was identified as *Bipolaris spicifera*. It is concluded that asymptomatic conjunctival infections by fungi may occur without a having previous history of trauma or having any signs of inflammation.

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**Keywords** ● *Bipolaris spicifera*, Conjunctiva, cyst, fungal

## Introduction

Fungal infection of the conjunctiva has been rarely reported, especially in the tropical areas.[1] Occasionally, some filamentous fungi have been isolated from human conjunctiva without having inflammatory reactions and the fungus was disregarded as the normal flora.[2-5] Mycotic infection of the conjunctiva usually induces conjunctivitis, granuloma formation, or both.[6,7] Fungal species which have been reported as causative agents of conjunctivitis include: *Rhinosporidium Seeberi*, Candida spp. and several dematiaceous fungi.[1,2,7] *Rhinosporidium Seeberi* was found after trauma by vegetable matter to the eye where it produced polypoid lesions on the conjunctiva, containing sporangia with 200-300 microns in size and containing large numbers of spores.[1] The sporangia are surrounded by glaucomatous, or more commonly non-glaucomatous tissue reactions, consisting of lymphocytes and plasma cells.[1,8,9] Candida spp such as *Candida tropicalis*, *Candida albicans* and *Candida parapsiliosis* have been rarely isolated from lid or conjunctival infections unless they were part of a mucocutaneous candidiasis syndrome.[7,10] Several *Dematiaceous fungi* species such as *Alternaria, Curvularia, Bipolaris* and *Exserohilum* are also involved in ocular infections .[7,11]

Three species of *Bipolaris*, one species of *Drechslera* and three species of *Exserohilum* are shown to cause infection in human.[12] Here we present a conjunctival cyst caused by *Bipolaris spicifera* without having a history of previous trauma and any sign of inflammation.

## Case presentation

A 35-yr-old shepherdess incidentally noticed a lesion on her right eye while was looking in the mirror. She had no history of trauma, redness, pain or discharge in her eye. She did not seek any treatment for one month until she developed eye

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discomfort. She was referred to the clinic for medical care. On physical examination, visual acuity was normal and in slit lamp examination the lids seemed normal and there was no evidence of inflammation.

A conjunctival cyst measuring about 10 mm was present in the lateral aspect of the inferior fornix and extended upward with free movement under conjunctiva. The cyst had circumscribed borders without any adhesion to other structures. There was a brownish discoloration visible at the depth of the cyst. On palpation it had no tenderness on palpation and there was no conjunctival congestion present. The remaining examination in both eyes was normal.

Excision biopsy was performed under local anesthesia and the conjunctiva was closed with absorbable sutures after complete removal of the cyst. In histological examination of H&E stained tissue sections, an epithelium lined cyst containing goblet cells detected, which was filled with a collection of dark septate hyphae and swollen cells. The cavity was surrounded by many acute inflammatory cells (Fig. 1, 2). On the cultured of the conjunctival specimen after 10 days, done on Sabouraud glucose agar, Mycosel, and Brain heart infusion agar as a routine procedure, several flat olive-gray colonies were observed. Microscopic examination revealed dark septate hyphae and multicellular conidia with thick transverse septa which were attached to a geniculate conidiophore showing the typical sympodial growth pattern. The fungus was identified as *Bipolaris spicifera*.

The patient was followed for more than 12 weeks without antifungal treatment and the conjunctiva was healed completely.

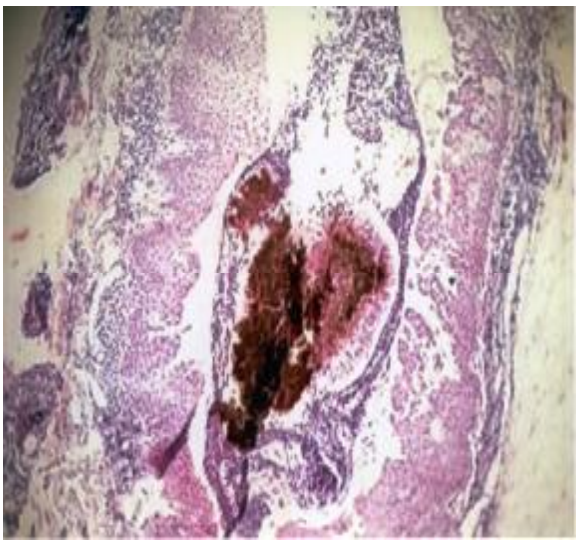

**Fig 1:** True conjunctival cyst lined by epithelium contains fungal hyphea (H&E staining ×100)

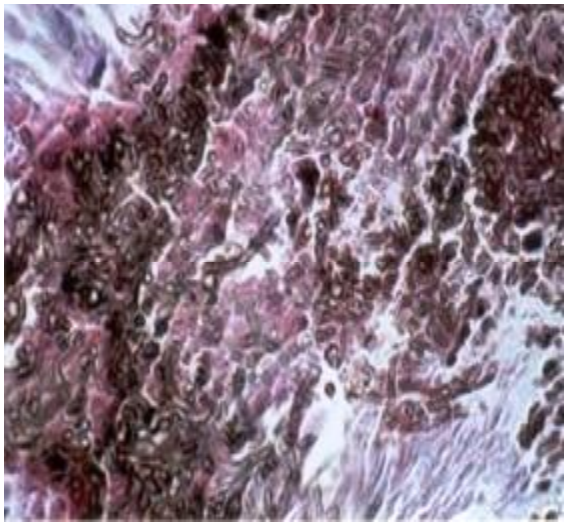

**Fig 2:** Pigmented septate hyphae and spores. (H&E staining X400)

## Discussion

The conjunctival defense mechanisms against fungal colonization and subsequent invasion are variable and numerous.[2] Some filamentous fungi have been occasionally detected on the conjunctiva without producing inflammation and have been considered as normal flora.[2-5] Others that induce conjunctivitis, granuloma formation or even present as a pigmented mass or mimic malignant melanoma are true infections.[6,7] Many yeasts and filamentous fungi, like Candida spp, R. Seeberi and some filamentous fungi are considered as causes of fungal conjunctivitis, but in healthy individuals, they are uncommon.[7] Organisms were surrounded by granulomatous or more commonly non-granulomatous reactions composed of lymphocytes and plasma cells.[7]

Fungal infection of the conjunctiva occurs mostly in patients with weakened conjunctival defense mechanisms.[13] Trauma seems to be the most common predisposing factor which often occur in patients with outdoor occupation.[13] Bipolaris is a diatomaceous filamentous fungi, a cosmopolitan fungus in nature, isolated from plant debris and soil,[12] with their colonies spreading, floccose to hairy and grayish–yellow to olivaceous.[14]

The genera *Bipolaris* and *Exserohilum* have been previously reported to be pathogenic, mostly under the names Drechslera and *Helminthosporium*. Although *Bipolaris* has been generally considered as an opportunistic pathogen, more than half of the patients infected by this species have been otherwise healthy.[12] Our patient was a shepherdess who was spending her time on pastures along with

her flock everyday. She had a risk factor for conjunctival trauma from abrasive dust injury when she was walking at the back of the herd.

Histological features of such lesions observed by Kwon-Chung and colleagues were determined as circumscribed granulomata composed of multinucleated foreign body giant cells, epithelioid histiocytes and a mixed inflammatory infiltration of plasma cells, lymphocytes and polymorphonuclear leukocytes.[12] Whereas, our results differed due to the absence of symptoms and lack of clinical evidence of inflammation and the patient was in good health and had no history of eye trauma. In the histological examined by definition, we found a true cyst possessing an epithelial lining. As a component of differential diagnosis, mycetoma was considered owing to the presence of a fungal mass. However, immediately this possibility was ignored because of the fungal mass had to have a mycetoma consisting organized hyphae with or without a cement matrix which was not seen in our case. Whereas, the classic symptoms of tumefaction and draining sinuses were also absent in our patient.

Weather this asymptomatic infection needed any medical treatment is unclear. Although cultures obtained from overlying conjunctiva showed growth of similar septate hyphae few days post excision, in pathological examination, the fungus ball was confined by inflammation and the lesion was totally excised. Most authors have recommended a complete removal of this type of lesions.[15-17] Therefore, we did a 12 week post excision follow-up and did not find any problems and the conjunctiva was healed completely.

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