Fungi causing keratitis are relatively less common as compared to bacteria; it usually follows contact with vegetative matter, prolonged contact lens wear, topical or systemic corticosteroid uses, uncontrolled diabetes, and immunosuppression.[1-2] Acremonium keratitis has also been reported after the laser-assisted in situ keratomileusis procedure.[3]

Acremonium are filamentous fungi usually found in soil and dead plants. They appear as hyaline, septate fungal elements with branched hyphae. The genus acremonium contains several species, but only a few are pathogenic to humans. Although acremonium species are opportunistic pathogens, they do not usually cause corneal ulcers.[4] Etiologically, fungal keratitis exhibits a geographical variation with fusarium being the most common species in America and aspergillus species in the subcontinent.[5] Acremonium keratitis following herpetic eye disease has rarely been reported.

**Case Report**

A 65-year-old male presented to the outpatient department with pain, diminution of vision, redness, foreign-body sensation, and watering for 1 month. The patient’s medical history revealed bronchial asthma for which he was on inhalational budesonide treatment for 3 years. The patient had cataract surgery 18 months back and has a history of herpetic eye disease. Corneal cultures were positive for acremonium.

The ulcer was deep stromal infiltrates which did not stain with fluorescein.

The base of the ulcer was scraped under aseptic conditions, and the material obtained was subjected to gram and potassium hydroxide (KOH) staining. Simultaneously, the scraped material was also inoculated into blood, MacConkey, and Sabouraud agar plates for culture, respectively. Corneal scrapings revealed fungal hyphae on KOH mount and fungal elements on Gram stain. Awaiting culture results, empirical therapy consisting of topical 1% natamycin hourly, 0.5% moxifloxacin hourly, and oral fluconazole 150 mg twice daily was initiated. However, no reduction in the size of ulcer and improvement of symptoms were seen at 1 week. Acremonium colony was seen on Sabouraud agar after 7 days [Figure 2]. The lactophenol blue mount revealed septate hyphae with tapered phialides and intermingled concentric conidia [Figure 3]. Topical therapy with 1% voriconazole was initiated and oral fluconazole 150 mg twice daily was reintroduced for 5 days. There was a significant reduction in size of the infiltrate at 2 weeks with the disappearance of hypopyon. At 2 months, there was a complete resolution of infiltrate with the development of corneal scar [Figure 4]. There was no recurrence at 4 months follow-up.

**Discussion**

Acremonium rarely causes fungal keratitis as compared to aspergillus, fusarium, and candida species. It usually follows
Brief Communications

Corneal trauma, although there was no history of trauma in the present case report. Fincher et al. reported 17 cases of acremonium keratitis over 26 years, of which 71% had a history of trauma. Having said this, the patient in the present report had herpetic eye disease previously and was on budesonide therapy for asthma, both of which may be predisposing factors for opportunistic pathogens. Rosa et al. found corticosteroids to be an important risk factor for fungal infections. Herpetic eye disease appears to be an unusual predisposing risk factor for fungal keratitis. Acremonium keratitis following herpetic eye disease has only been reported once. The probable explanation for keratitis following viral infections appears to be neurotrophic changes secondary to the destruction of corneal nerves increasing susceptibility to trivial trauma/colonization.

The genus acremonium had several species; however, only a few have been found to be pathogenic to humans. The identification of species of genus acremonium is difficult as they resemble morphologically. We could not identify the acremonium species in our laboratory. The treatment of keratitis due to acremonium can be challenging due to the lack of a standard protocol. Amphotericin B, fluconazole, voriconazole, and natamycin have been used in different studies with variable response. Results have been more encouraging with natamycin and voriconazole. Large fungal corneal ulcers may require surgical intervention in addition to medical therapy. In the present case, however, resolution without recurrence was observed with medical therapy. In conclusion, acremonium species is a rare cause of corneal ulcer. Predisposing ocular conditions, including trauma and herpetic eye disease, may play a critical role in corneal ulcers due to acremonium.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.
Acknowledgments
We are thankful to www.imdianmedicalstats.com for guidance and help.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

References
1. Wang MX, Shen DJ, Liu JC, Pflugfelder SC, Alfonso EC, Forster RK. Recurrent fungal keratitis and endophthalmitis. Cornea 2000;19:558-60. PubMed PMID: 10928778.
2. Ioakimidou A, Vyzantiadis TA, Sakellari I, Arabatzis M, Smias C, Douka V, et al. An unusual cluster of Acremonium kiliense fungaemias in a haematopoietic cell transplantation unit. Diagn Microbiol Infect Dis 2013;75:313-6.
3. Alfonso JF, Baamonde MB, Santos MJ, Astudillo A, Fernández-Vega L. Acremonium fungal infection in 4 patients after laser in situ keratomileusis. J Cataract Refract Surg 2004;30:262-7. PubMed PMID: 14967502.
4. Kim SJ, Cho YW, Seo SW, Kim SJ, Yoo JM. Clinical experiences in fungal keratitis caused by Acremonium. Clin Ophthalmol 2014;8:283-7.
5. Chander J, Sharma A. Prevalence of fungal corneal ulcers in Northern India. Infection 1994;3:205-7.
6. Fincher RM, Fisher JF, Lovell RD, Newman CL, Espinel-Ingroff A, Shadomy HJ. Infection due to the fungus Acremonium (cephalosporium). Medicine (Baltimore) 1991;70:398-409.
7. Rosa RH Jr, Miller D, Alfonso EC. The changing spectrum of fungal keratitis in South Florida. Ophthalmology 1994;101:1005-13.
8. Rodriguez-Ares T, De Rojas Silva V, Ferreiros MP, Becerra EP, Tome CC, Sanchez-Salorio M. Acremonium keratitis in a patient with herpetic neurotrophic corneal disease. Acta Ophthalmol Scand 2000;78:107-9.
9. Walsh TJ, Groll A, Hiemenz J, Fleming R, Rolides E, Anaissie E. Infections due to emerging and uncommon medically important fungal pathogens. Clin Microbiol Infect 2004;10 Suppl 1:48-66.