

# FUNGAL KERATITIS — A CASE REPORT OF ASPERGILLUS INFECTION OF THE CORNEA

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## SYNOPSIS

**A case of Aspergillus infection of the cornea successfully treated with Amphotericin B eyedrops and a conjunctival flap is presented with a brief discussion of the diagnosis and management of fungal keratitis.**

## INTRODUCTION

Fungal keratitis or keratomycosis is relatively rare. However, with the increasing and extensive use of antibiotics and corticosteroids there has been an increase in the incidence of fungal keratitis over the past 20 years. (1, 2, 3).

At least 35 genera of fungi have been reported associated with corneal infection, the more common among which are *Candida*, *Fusarium*, *Cephalosporium* and *Aspergillus*. (4).

Although fungi are ubiquitous and thrive in our warm humid climate there has not been any previous report of fungal keratitis in the Malaysian/Singapore literature. However, Lim (5) in Singapore in his study of 147 cases of corneal ulcers between 1971 and 1974 mentioned that 22 (or 15%) of his cases were of presumed or proven fungal aetiology (four of which cases ended in evisceration.)

A case of fungal keratitis caused by *Aspergillus flavus*, treated at the University Hospital, Kuala Lumpur, is reported.

## CASE REPORT

A 37 year old female teacher was admitted in coma to the University Hospital on 12.3.81, following head injuries sustained in a motor vehicle accident. She was intubated and ventilated. Chloromycetin eye ointment was instilled in both eyes.

A week after admission the left eye was noted to be injected and examination revealed a moderately injected eye with a slightly raised irregular whitish lesion just off the centre of the cornea. (See Fig. 1). Conjunctival swabs of both eyes and corneal scrapings of the lesion were obtained for culture and sensitivity for both bacteria and fungi. Some corneal scraping was also sent for gram staining.

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Fig. 1. Patient's left eye showing raised lesion with white halo on cornea.

Pending the culture results she was put on hourly Gentamycin eyedrops. Two days later the lesion was noted to be relatively unchanged although the conjunctival swabs had shown scanty growth of *Pseudomonas* resistant to Gentamycin. The organism was reported to be sensitive to polymyxin B, so she was switched to neosporin eyedrops.

At this time also a white ring was noted to have formed around the ulcer, and this led to a suspicion of a fungal infection. This was confirmed when mycelia fragments were demonstrated in the corneal scraping (fig. 2) and *Aspergillus flavus* isolated from it (fig. 3).

She was started on Amphotericin B eyedrops hourly. Over the next 2 weeks, the ulcer gradually deteriorated on this regime. There was increased

activity in the anterior chamber, a hypopyon formed and the ulcerated cornea appeared thinned out to form a Descemetocoele. A conjunctival flap was fashioned and brought down to cover the ulcer. The flap remained in place for about 3 weeks after which it retracted. However, when this occurred the ulcer was seen to be healing and the hypopyon had cleared. She was continued on Amphotericin B eyedrops for another 10 weeks.

At the latest follow up 4 months after the injury, the ulcer had healed leaving an avascular corneal opacity and the visual acuity had improved to 6/18 in the affected eye.

## DISCUSSION

*Aspergillus* is an ubiquitous fungus which may produce a variety of primary or opportunistic infections in man. In addition to keratitis, *Aspergillus* organisms have been reported to cause exogenous and endogenous endophthalmitis, orbital cellulitis and infections of the lacrimal passages (1, 4, 6, 7).

Fungal keratitis frequently occurs in farmers and outdoor workers after ocular injuries (sometimes trivial) involving some type of vegetable matter. It would appear that the fungus is inoculated into the cornea by the injuring material rather than by subsequent contamination of the epithelial defect by environmental organisms in most of the cases reported (4).

Several features of fungal keratitis are characteristic if not pathognomonic and may permit an immediate

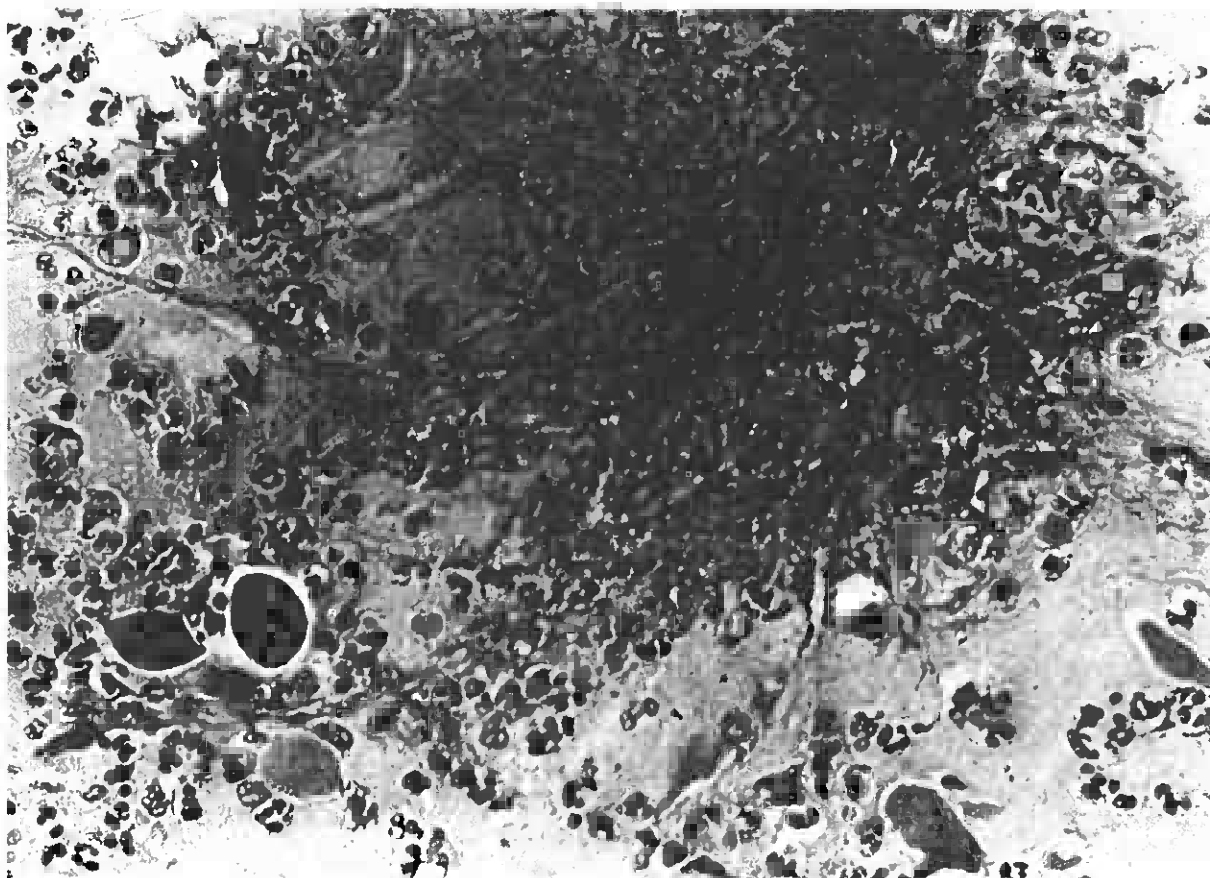


Fig. 2. Corneal Scraping showing mycelial fragments

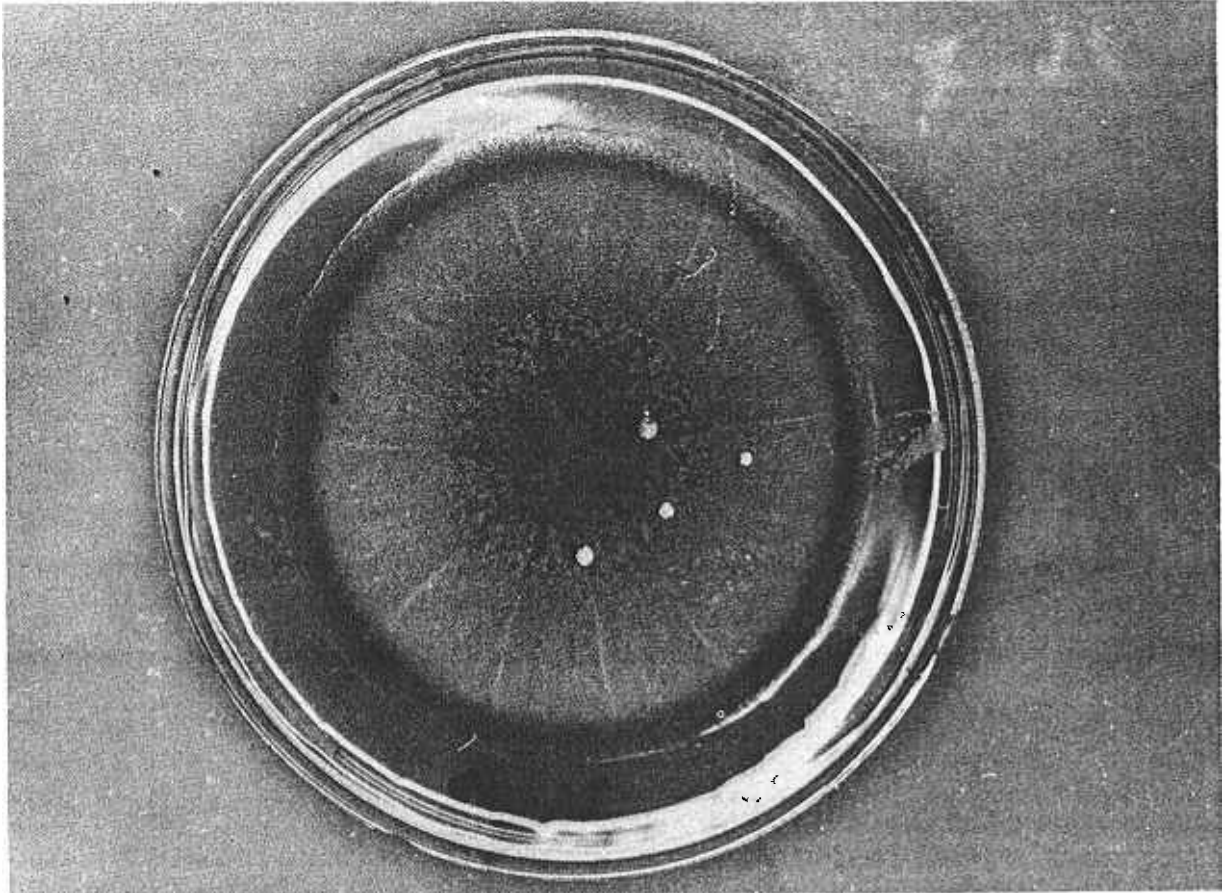


Fig. 3. *Aspergillus Flavus* grown on culture plate

or early diagnosis. These features are:—

1. The surface of the lesion is usually gray or dirty white with a dry rough texture.
2. Areas of the lesion may be raised above the plane of the uninvolved cornea.
3. The margins of the ulcer tend to be irregular ('Hyphate appearance').
4. There may be satellite lesions.
5. There may be a complete or partial white 'immune ring' around the lesion. This is said to be formed by the fungal antigen and host antibody response.

However, it is not possible to determine the genera or species of the infecting organism by the clinical features alone and laboratory investigations are essential. Eye swabs alone are inadequate for diagnosis and corneal scrapings of the lesion are important for isolation of both bacteria and fungi (7, 8).

Despite prompt identification of the causative organism management still poses a serious problem as there are very few effective antifungal agents available for treatment. Among the few reported to be of help for *Aspergillus* infections are miconazole, nystatin and Amphotericin B (4, 9, 10). We used Amphotericin B for our patient because it was readily available to us and also because it was available in the form of a solution and not a suspension as with some of the other compounds. Healing is remarkably slow and treatment may have to be continued for weeks or months. Even then success is not always assured, and one may have to resort to surgical

measures as we did in this patient. Surgical measures which may be used include debridement, superficial keratectomy, conjunctival flap and keratoplasty.

The conjunctival flap we did in our patient appears to have played a significant role in her recovery. The value of conjunctival flaps in the healing of fungal keratitis was stressed by Kaufman (11).

Steroids are contraindicated in the early therapy of a fungal ulcer (3).

#### ACKNOWLEDGEMENT

We would like to thank Professor S. Chandran for his help and encouragement in the preparation of this paper, Mrs. Lai for her secretarial assistance and the Medical Illustration Department for the photographs.

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