Aspergillus fumigatus Keratitis With Wreath Pattern Infiltrates

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Purpose. To report a case of Aspergillus fumigatus keratitis with clinical features simulating Nocardia keratitis and to highlight the utility of microbiologic investigation in the successful management of infectious keratitis. Method. Case report. Results. A 62-year-old man presented with complaints of pain, redness, and watering of 10 days’ duration in his right eye. Direct microscopic observation of smears of corneal scrapings revealed a fungal etiology. The patient was treated with 5% natamycin eye drops and 1% atropine sulphate eye drops and was advised to visit the hospital for observation. During his visit to the hospital on day 10 after medication, the eye demonstrated a wreath pattern corneal infiltrate with indistinct edges surrounding the stromal edema, and leukocytic infiltration. In fungal keratitis, typical clinical features include elevated areas, hyphate edges, irregular feathery margins, a dry and rough texture, endothelial exudates, and satellite lesions.1–3 Patchy anterior stromal infiltrates involving the epithelium and subepithelial tissues in a wreath-like pattern (ring fashion) is characteristically seen in Nocardia keratitis.4,5 A 62-year-old man presented with pain, redness, and watering of 10 days’ duration in the right eye. On examination, he had a visual acuity of “counting fingers” at 1 m in the right eye. There was diffuse conjunctival congestion, and the cornea showed patchy anterior stromal infiltrates. The anterior chamber was deep and quiet, and the lens showed cataractous changes. Corneal scrapings were taken and processed for microscopic evaluation and culture. Direct smears of corneal material revealed septate and branching fungal filaments (Fig. 1). The patient was treated with natamycin eye drops (5%) every half hour and atropine sulphate eye drops (1%) three times a day. The culture identification revealed that the etiologic agent was A. fumigatus. On a subsequent visit to the clinic on September 4, 1999, the infiltrate was superficial and patchy and demonstrated a wreath pattern (Fig. 2); the features thus resembling those of Nocardia keratitis.

Discussion

An issue that, as yet, is unresolved is whether to scrape or not scrape all corneal ulcers for microbiologic investigation. Although the authors in this report feel that every corneal ulcer should be scraped for smears and culture, it may not always turn out to be practical or economical. Compliance with the recommended procedures in the diagnosis of corneal ulcers is inadequate.6 Although some ophthalmologists are of the opinion that corneal cultures are essential in the management of ulcerative keratitis,7 others feel that laboratory investigation is not a necessity, as most community-acquired bacterial ulcers resolve with broad-spectrum antibiotics.8 Ciprofloxacin, a fluoroquinolone antibiotic, has been found to be an effective alternative for standard antibiotic combinations9 and is being used widely in the initial management of bacterial keratitis, even in the absence of microbiologic evidence of the agent causing the infection.

McLeod et al.8 have proposed three protocols for the management of suspected cases of infectious keratitis: 1) routine scraping of all suspected cases for smears, culture, and sensitivity; 2) in the absence of any history or signs suggestive of a nonbacterial etiol-
ogy, treatment of the ulcer with a standard empirical regimen of combined broad-spectrum antibiotics; or 3) scraping and direct inoculation onto culture media (maintained under appropriate conditions in the laboratory) of all corneal ulcers and observation of the scrapings for identification and sensitivity in case a modification of therapy is required.

In the current case, the patient would have received only antibacterial agents if he had been treated based on clinical features alone. Because corneal scrapings from this patient were evaluated by direct microscopy and culture, treatment with natamycin was initiated immediately based on smear findings (which revealed fungal elements) on the day of presentation. The current case highlights the importance of laboratory investigation of corneal scrapings in the management of infectious keratitis. Because a patient may delay seeking medical help or because of the inappropriate use of antimicrobial agents and corticosteroids, there could be considerable overlap in the clinical features of infectious keratitis of varied etiology that could make clinical diagnosis difficult, resulting in inappropriate management. The similarity in clinical features of nocardial and fungal keratitis could be attributed to some of the shared characteristics between the organisms. In tissues, the actinomycetes resemble fungi in certain respects, such as in the branching and formation of an extensive filamentous network. In the light of these observations, we emphasize the usefulness of pretreatment microbiologic evaluation of corneal scrapings in the management of infectious keratitis.

REFERENCES