The cases mention here were received in the Ophthalmological Hospital “Santa Lucia”, Buenos Aires’ main ophthalmological center, where I am the Laboratory chief. Patients from the capital city as well as from the provinces come to this hospital. The *Fusarium* appears to be absolutely cosmopolitan; there is no single region in Argentina having the highest percentage of cases. The fact that must be taken into consideration and pointed out is that many of our patients showing a keratomycosis by *Fusarium* without a definite cause lived in rural areas.

Fifty cases of keratomycosis have been studied up to the present time (from 1970 to 1985) and 29 of these have corresponded to this genus. *Fusarium* lives saprophytically in the soil and inflicts serious disease to all kinds of plants. It also has a great affinity for the corneas, being the most frequent cause of keratomycosis.

Keratomycosis has a characteristic clinical history, and one should immediately be suspicious of its etiology if a patient’s history suggests trauma to the cornea by vegetable matter or soil. Vegetable matter which may cause injuries is extremely varied and also many infections are produced while dusting crops.

Severe manifestations of fungus keratitis appear to be so typical that they should suggest the diagnosis of fungus infection. They are: a severe ocular reaction, a corneal ulcer, a hypopyon that is a yellowish infiltrate which consists of polymorphonuclear cells, some eosinophils and plasma cell; mycelia is occasionally found.

Sometimes a white endothelial plaque appears on the endothelium of the central cornea.

The clinic appearance of the keratomycosis by *Fusarium* is similar to that caused by other genera, but in our practice it has a worse prognosis.

If there is no cure in a case of presumably bacterial keratitis, or no recovery is observed in a period of no longer than a week, a mycosis must be considered as probable.

Apart from infections originated by erosions produced with plants, stones or metals, we have seen some very peculiar cases. For instance, there was a woman 50 years old who lived in a farmhouse in the province of Buenos Aires. There, she used to feed hens with corn that was kept in big containers. As these containers were left out in the open, the grain was being spoiled because of the fungi that covered it. The patient told us that a moth flew out of the containers and hit her left eye. She rubbed it with her hand and apparently nothing had happened. But some days later an epiphora and a serious conjunctival irritation were noticed. After a month of treatment with antibiotics, the process got worse and so the woman was brought to our hospital in Buenos Aires where we examined her. A large central cornea ulcer with photophobia and hypopyon could be observed. The mycological analysis showed a great quantity of fungal filaments in the direct examination and the development of *Fusarium verticiloides* in the culture.

She was given a treatment with natamycin in a 2% and miconazole in a 5% proportion, but a leukoma remained that left her only enough vision to see the movement of her fingers.

Sometimes the trauma is very unsuspected, as in the case of a 16 year old boy who was taking part in a fireworks display when one of his eyes was superficially hurt as a result of a fireworks explosion. From the first, he was medically treated with gentamicin subconjunctivally, but the case gradually became more grave. When the patient came to us for consultation he showed palpebral edema and white-greyish nodules in the cornea. During the corneal scraping fungal filaments appeared and *F. solani* developed in the culture. A treatment with natamycin was applied. The process remained stationary but a few days later a large staphyloma developed in the cornea that was very vascularized and so the eye had to be eviscerated.

On another occasion the keratomycosis was produced in the simplest way one can imagine: by onion juice that splashed into a woman’s eye while she was cooking. Although she immediately washed her eye with water, in a few days she had considerable irritation and photophobia. She was treated for a long time with antibiotics. When we observed her, she showed a great central corneal ulcer. Through mycological analysis, the existence of *F. solani* was detected. A treatment based on natamycin was started but an irreversible intraocular pressure caused the evisceration of the eye.
Mycologic diagnosis

To obtain material from the eye is, in practice, a difficult process. Material obtained from an eye ulcer is scarce and one smear will seldom render enough hyphal elements to be visible. Another problem is that these agents, with the exception of some species highly specific, are saprophytic, what we call "opportunistic fungi". For this reason it is always advisable to take material for a second observation 24 to 48 hours after the first culture.

The cornea is anesthetized; a small bistury or platinum spatula (Kimura spatula) is used to scrape the ulcer during slit-lamp observation. Corneal scrapings are smeared over glass slides and stained with Gram and Giemsa. The Gram stain is necessary for bacterial identification. The PAS stain facilitates recognition of fungal filaments by its specific staining. Potassium hydroxide is also helpful but we use it only if we have enough sample.

For the culture of fungi of ocular origin the most adequate medium is Sabouraud's with the addition of an antibiotic to suppress bacteria.

The cultures showed an aerial mycelium, sparse, floccose to striate. In agar develops a blue to bluish-brown or an orange to deep apricot. The presence of fusoid macroconidia with a foot cell is now accepted as the most definite character and this foot cell separates it from Cylindrocarpon (C. Booth, 1971). Microconidia and terminal or intercalary chlamydoospores may or may not be present.

Thioglycollate broth is used for anaerobic germs. The brain-heart infusion is an ideal medium for culturing aqueous or corneal fragments. Its disadvantage lies in the danger of contamination and the need to transfer it to a solid medium to identify the species.

If the corneal ulcer is diagnosed early and the treatment started immediately, its prognosis will be good. The great problem is that the patients come to us too late, in very bad condition, after having gone through long antibacterial therapy. The lack of a specific treatment for such a long time leads unfortunately to evisceration.

Keratitis caused by Fusarium responds to pimaricin. Pimaricin (natamycin) is an antifungal antibiotic isolated in 1955 from Streptomyces natalensis. It is used in a 5% suspension.

Summary

Fusarium isolated in 19 cases

- F. solani: 20
- F. dimerum: 5
- F. oxysporum: 2
- F. verticiloides: 1
- F. sacchari: 1

Data of the infection

- At the beginning of the spring and during the summer: 23 cases. In autumn: 6 cases

Treatment

- With natamycin (pimaricin), miconazole, amphotericin B or graft 55%
- Eviscerated 45%

References


