



FUNGAL KERATITIS PRESENTING AS PIGMENTED CORNEAL PLAQUE: AN UNUSUAL CASE

Ophthalmology

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ABSTRACT

To report the clinical findings, laboratory findings and treatment of an unusual case of pigmented fungal corneal ulcer. A 45 year old male presented with history of an unknown insect falling into his left eye while driving. On examination, a paracentral brownish-black pigmented plaque of size 5mm x 5mm with surrounding infiltrates was seen. The patient was treated with intrastromal injection of Voriconazole 50 mcg/0.1 ml, topical Natamycin 5%, topical Voriconazole 1%, debridement and supportive therapy in the form of atropine 1% eye drops, topical antibiotics and oral analgesics. The patient responded well to treatment.

KEYWORDS

corneal disease; pigmented corneal ulcer; ophthalmology.

INTRODUCTION

Mycotic keratitis or keratomycosis has a world-wide distribution, but is most common in tropical and subtropical climates. Infection usually follows the traumatic implantation of spores into the corneal epithelium. The most common traumatizing agents are plant materials or objects that have come into contact with soil or vegetation. *Fusarium*, *Aspergillus* and dematiaceous mould species are the most common group of etiologic agents.¹

Case history

A 45 year old male presented with complaints of redness, watering and photophobia in his left eye. He gave history of an unknown insect falling into his left eye 3 weeks earlier while driving a motorbike. He was already on more than 2 weeks of oral and topical antifungals at presentation.

On examination, visual acuity in the affected eye was 2/60. Slit lamp examination showed mild edema of lids; conjunctival injection and circumcorneal congestion; a paracentral brownish pigmented plaque ulcer of size 5mm x 5mm was seen with surrounding infiltrates; superficial corneal vascularisation at 5 to 6 o'clock [Figure 1]. Anterior chamber was quiet; pupil – pharmacologically dilated; lens – clear and posterior segment was normal. On microbiological examination (KOH mount) – filamentous fungal elements with thin, hyaline septate hyphae with acute angle branching were seen [Figure 2]. Culture was inconclusive which could be because of the ongoing antifungal treatment.

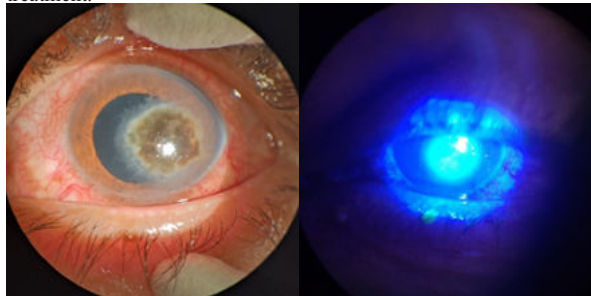


Figure 1. - Slit lamp picture at presentation; Left: paracentral brownish corneal plaque with surrounding infiltration; Right: after fluorescein staining.

METHODS

After informed consent, the patient was treated with intrastromal

injection of Voriconazole 50 mcg/0.1 ml, topical Natamycin 5% and topical Voriconazole 1% one-hourly and supportive therapy in the form of topical moxifloxacin 0.5% and atropine 1% eye drops.

For intrastromal voriconazole injection, Voriconazole lyophilized powder was used to prepare a solution with concentration of 0.5 mg/mL. Then, 0.1 mL of the prepared solution was loaded in a 1 mL tuberculin syringe with a 30 gauge needle. Peribulbar anaesthesia was given in the left eye of the patient with 2% lignocaine hydrochloride. The conjunctival sac and surface of the lesions were washed for two to three times with 0.9% NaCl before the necrotic tissue was removed without exceeding 1/2 of the corneal thickness. A 1-ml syringe attached to a 30 G needle was then used to penetrate the corneal stroma from the transparent corneal area of lesion edge. The needle in the bevel-down position was inserted obliquely through the uninvolved clear area to just reach the periphery of ulcer at mid stromal level. The drug was injected until sufficient hydration was achieved, and the needle was then slowly withdrawn. Five divided injections were used to surround the corneal lesion.²



Figure 2. - Microscopy of corneal scrapings showing thin, hyaline septate hyphae with acute angle branching.

Additionally, patient underwent therapeutic debridement for better penetration of topical medications. Response to treatment in the form

of reduction in the size of the ulcer and infiltration was recorded on regular follow-ups.

RESULTS AND FOLLOW-UP

Patient was followed-up daily for 3 days to rule out exacerbation of the ulcer and complication of the intrastromal voriconazole injection. However, no exacerbation in ulcer or complication was noted. The patient was then followed-up on 7th day after the intrastromal injection. There was improvement in signs and symptoms with decrease in ulcer size and infiltration and increase in superficial vascularization. Further follow-ups showed progressive improvement in terms of reduction in ulcer size and pigmentation, accordingly topical therapy was tapered. At the end of 6 weeks, the ulcer was completely healed with corneal opacification and superficial vascularisation [Figure 3] with final visual acuity recorded to be 3/60 in the left eye.

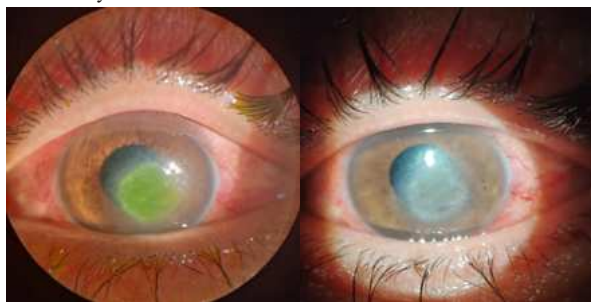


Figure 3. – Left: Slit lamp picture at 2 weeks showing decreased pigmentation and infiltration; Right: Picture at 6 weeks showing healed corneal opacity.

DISCUSSION

Pigmented ulcers are a relatively uncommon occurrence. Although antifungal agents can be administered topically or orally for the treatment of mycotic keratitis, they have some disadvantages such as poor penetration, limited spectrum, ocular surface toxicity, limited clinical response and prolonged course of treatment.

Recent studies have reported that intrastromal injections allowed better corneal penetration of antifungal agents.^{3,4} In addition, a number of studies have previously shown that intrastromal voriconazole injection is effective against filamentous fungal infections. However, these are not randomized controlled trials. Two trials did not report additional benefit with intrastromal therapy.^{5,6}

Since there is lack of knowledge of the pharmacokinetics of voriconazole when injected into the corneal stroma, need for reinjection and the interval between injections can only be based on clinical observations and may differ from case to case. In our patient, there was poor response to 2 weeks of conventional topical therapy of topical natamycin (5%) and topical voriconazole (1%). Thus, this patient was considered a good candidate for intrastromal injection.

Although no procedure-related complications were noted in our case, complications due to toxicity of voriconazole with possible endothelial damage, creation of new infective foci and micro-perforations during injection should be borne in mind while using this modality of treatment.

CONCLUSION

The clinical management of fungal keratitis is challenging, as most of the topical antifungal agents achieve a poor stromal penetration resulting in only a fungistatic rather than curative effect. Therefore, targeted drug delivery in the form of intrastromal injection may have a role in treating selected cases of keratomycosis and offer a good alternative to therapeutic keratoplasty.

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