



A Clinical Study of Fungal Keratitis In A Rural Based Tertiary Care Hospital

KEYWORDS

Fungal Keratitis, Fusarium Species.

Dr. Anwasha Chakma

Final Year Post Graduate Student, Department of Ophthalmology Mahatma Gandhi Institute of Medical Sciences, Sevagram, Maharashtra, India

Dr. Ajab C. Dhabarde

Associate Professor, Department of Ophthalmology Mahatma Gandhi Institute of Medical Sciences, Sevagram, Maharashtra, India

Dr. Deepak Thamke

Associate Professor, Department of Microbiology Mahatma Gandhi Institute of Medical Sciences, Sevagram, Maharashtra, India

ABSTRACT

Aim-To study the proportion of fungal keratitis and its epidemiology in relation to contributing and predisposing factors and the clinical features and the response to treatment. 53 patients who were found positive in KOH and fungal culture were studied in a period of 18 months attending the Ophthalmology department of Mahatma Gandhi Institute of Medical Sciences, Sevagram, Wardha, Maharashtra.

INTRODUCTION

According to the World Health Organization, corneal diseases are a major cause of vision loss and blindness, second only to cataract in overall importance. It is estimated that ocular trauma and corneal ulceration result in 1.5 to 2 million new cases of corneal blindness annually.¹ Corneal ulceration is a major cause of monocular blindness in developing countries. Corneal infection of fungal aetiology is very common and represents 30 to 40 % of all cases of culture positive infectious keratitis in South India.² Fungal keratitis continues to be a cause of concern to the ophthalmologist due to lack of awareness about the disease, inappropriate treatment and misdiagnosis.

Thus apart from identifying typical clinical features an understanding to the risk factors and assistance of simple laboratory investigations play a major role in identifying the disease entity.³

In tropical and subtropical countries, the incidence of mycotic keratitis is more than 50% in all culture proven cases of keratitis.⁴ Common predisposing factors are trauma by a vegetative matter such as crop leaf, branch of a tree, straw, hay or decaying vegetative matter or injury by animal tail, prolonged use of topical steroids, structurally altered ocular surface, contact lens wearer, post-operative e.g. following keratoplasty, cataract and refractive surgery.⁵ To establish the diagnosis of fungal keratitis the use of smears and cultures is of extreme importance. 10% KOH, Gram stain, Gomori silver methamine stain and lactophenol cotton blue stains are frequently employed wherever the facilities are available. For culture Sabouraud's dextrose agar (SDA) is most frequently used. Non responding patients to initial treatment are subjected to corneal biopsy to confirm fungi histopathologically.⁶

The aim of the study was to find out epidemiology, clinical presentation and initiation of proper treatment in a rural based tertiary care hospital of central India (Maharashtra).

INCLUSION CRITERIA

1. Patients with features of fungal keratitis were subjected to KOH stain and fungal culture.

Those who were found to be positive for KOH and or culture were taken up for the study.

2. Both sexes

3. Who has given consent for the study

EXCLUSION CRITERIA

1. Patient who are non complaint

2. Patients with typical presentation of viral keratitis, atheromatous ulcer

3. Patients not giving consent for the study.

MATERIALS AND METHODS

Each patient was subjected to detailed history taking followed by ocular and adnexal examination. Patients were interviewed and socio-demographic history was noted which included age, sex, occupation, type of residence, any history of trauma, history of putting steroid drops, any history of previous ocular surgery and associated systemic diseases. All patients were subjected to detailed clinical examination. Corneal scraping was performed with a sterile 15 no Bard Parker blade after instillation of topical 4% lignocaine or peribulbar block in few patients. The scraping material was sent for Grams stain, KOH stain, aerobic culture and fungal culture.

Every patient received topical natamycin eye drop 5% at 1 hour interval. Oral fluconazole 150 mg twice a day was started if fungal culture was found to be positive. Therapeutic keratoplasty was performed in patients who were not responding to medical therapy.

RESULTS AND DISCUSSION

Out of 165 cases the incidence of fungal keratitis was 32.12% in this study.

FUNGAL INCIDENCE

In this present study out of 165 cases 53 (32.12%) cases are found to be positive for fungus. Pure mycotic growth was seen in 31 (18.79%) cases and 22 (13.33%) showed bacteria mixed with fungus. Corneal ulcer of bacterial aetiology was found in 108 (65.45%) cases and no growth was seen in 4 (2.42%) cases.

Table A: Prevalence of fungal keratitis

	No of patients	Percentage (%)
Fungal (Isolated)	31	18.79%
Bacterial	108	65.45%
Mixed (Bacterial+Fungal)	22	13.33%
No Growth	4	2.42%
Total patients studied	165	100%

In this study the most common fungal isolate found is Fusarium Spp. In 17 cases (32.08%) followed by Aspergillus Spp. in 8 cases (15.09%). Candida is diagnosed in 3 cases (5.66%). Three rare fungal species were identified in this study were- Colletotrichum Spp.

Trichoderma Spp, Curvularia Spp each accounting one case.

Table B:Fungal isolates of positive cases

Fungal Isolates	No of patients	Percentage(%)
Aspergillus spp	8	15.09%
Fusarium spp	17	32.08%
Candida spp	3	5.66%
Colletricumspp	1	1.89%
Trichoderma spp	1	1.89%
Curvulariaspp	1	1.89%
Not Identified	22	41.51%
Total	53	100%

AGE DISTRIBUTION

In our study 26.42% cases were between the age group 41-50 years, followed by the increased prevalence of the disease among the age group of 31-40 years which accounts for 22.64% which is same what that was found in the hospital based prospective study conducted in a tertiary referral hospital in upper Assam.⁷ This has a considerable social impact because this age group people are bread earners of the family.

AGE AND SEX WISE DISTRIBUTION

Higher incidence of fungal keratitis is found in males (67.92%) than females (32.08%) in our study. By the nature of their work profile men are more exposed to outdoor activities thereby increasing their vulnerability to the disease. Bharathi et al (2003) have described in their study that a larger group of patients were between the ages 21 to 50 years (66.85%). Males (65.02%) were more commonly affected than females (34.98%).²

IN RELATION TO OCCUPATION

When the occupations of these patient were enquired it was found that 43 patients (81.13%) were agriculture workers by profession. 4 patients (7.55%) were manual labour, 3 were housewives and 3 were household people. 41 patients (77.36%) came from rural areas. According to the study conducted by M Bharathi in a tertiary eye care hospital in South India they concluded majority of the patients were came from rural areas and most patient were farmers which corresponds to our study.

IN RELATION TO PREDISPOSING FACTORS

Among the positive patients 47 patients (88.68%) gave history of trauma to the eye with various agents. The majority of patients 38 (71.70%) had history of trauma with vegetative matter, 5 patients (9.4%) had trauma by dust, 2 patients had finger nail trauma and 1 patient had trauma with stone and 1 patient had trauma with metal. Bharathi et al (2003) have described that there was history of trauma in 1009 cases (92.15%) and most common traumatic agent was found to be vegetative matter in 61.28% cases.²

CLINICAL FEATURES

All the patients were subjected to slit lamp examination. All 53 cases showed epithelial defect on fluorescent staining, 28 (52.83%) cases showed presence of immune ring. Satellite lesion was noted in 29 cases (54.72%) and hypopyon was seen in 27 cases (50.94%). In Bharathi et al study they also found similar clinical pattern of fungal keratitis- satellite lesion (10.05%), immune ring (1.35%), hypopyon (55.62%) cases.² Out of 53 cases 25 cases had paracentral ulcer, 22 had central ulcer and rest 6 had marginal ulcer. Most of the ulcers were of <20 sq mm in size (64.15%).

TREATMENT RESPONSE

In the present study all fungal ulcers were given antifungal therapy both oral and topical. Treatment was also associated with application of antimicrobial agents for associated infection, antiglaucoma agents for secondary glaucoma, analgesics, cycloplegics. Four cases who were not responding to medical treatment and developed complications like perforation and descemetocoele underwent surgical intervention like therapeutic

keratoplasty.

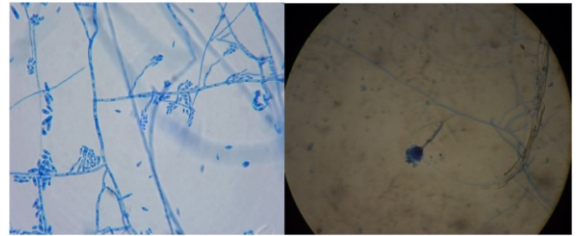


FIG1.FUSARIUM SPP ON KOH

FIG2- ASPERGILLUS SPP ON KOH

CONCLUSION

Fungal keratitis was found to be more common in male rural dwelling agriculturists. common predisposing factor was found to be trauma by vegetative matter. Fusarium spp was the commonest fungal isolate. KOH mount is very sensitive method to diagnose. 5 % natamycin is drug of choice in fungal keratitis. Early meticulous examination and timely institution of proper antifungal treatment can limit the ocular morbidity.

References:

1. Srinivasan M et al, Fungal Keratitis, Current Opinion in Ophthalmology 2004;15:321-327
2. Bharathi M, J, R. Ramakrishnan et al, Epidemiological characteristics and laboratory diagnosis of Fungal Keratitis .A three year study, Indian Journal of Ophthalmology 2003;51:315-21
3. Gopinathan U, Garg P, Sharma S et al , The epidemiological features and laboratory results of fungal keratitis. A 10 year review at a referral eye care centre in South India, 2002;21(6):555-559
4. Thomas P A Current retrospective in Ophthalmic mycosis. Clinical microbial view 2003;16:730-797
5. Dutta L C , Dutta Nitin K . Modern Ophthalmology vol 1. 3rd edition. New Delhi: Jaypee;2005 Chapter 26. Keratomycosis:p-191
6. Sridhar MS, Sharma S, Gopinathan U, et al ,Anterior chamber tap : diagnostic and therapeutic indications in the management of ocular infections. Cornea 2002, 21: p.718-722
7. Nath R et al, Mycotic Corneal Ulcer in Upper Assam. Indian Journal of Ophthalmology 2011;59(5):367-371