Section: Ophthalmology

Research

A CLINICAL PROFILE OF FUNGAL CORNEAL ULCER AT TERTIARY EYE CARE CENTRE

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Abstract

Background: Corneal infections are the second most common cause of monocular blindness after un-operated cataracts in the developing countries. The aim is to evaluate the Etiological agents, Risk factors and outcome in a fungal corneal ulcer patients. **Materials and Methods:** This is a prospective study conducted at a Tertiary eye hospital for a period of 2 years in 50 cases of fungal corneal ulcer who are presented to OPD of cornea and trauma unit are included in the study. Clinical examination including meticulous history, BCVA, anterior segment evaluation with Slit lamp biomicroscopy, flourescein staining, IOP measurement with noncontact tonometry. Microbiological Investigations like corneal scrapings for KOH wet mount, culture on sabourauds dextrose agar, Grams staining was done. Syringing, RBS, BP, Serology of HIV, HBsAg was done. **Result:** 40–60-year age groups were more at risk. Males were commonly affected than the females. Vegetative trauma is the most common predisposing factor. Rural population is more at risk than the urban people. A simple KOH mount, culture on Sabourauds dexrose agar of corneal scrapings highly beneficial in confirming the diagnosis and treating the patient. Most common etiological agent was Fusarium followed by Aspergillus Curvularia. Most of the cases were responded well to the medical management as they were presented early with no complications. **Conclusion:** Accurate diagnostic tests not only play a key role in patient management but also reduce the risk of the patient developing long-term complications.

INTRODUCTION

Fungal corneal ulcer is one of the leading cause of Blindness and is a Significant problem in both developed and developing countries. Fungal corneal ulcer can elicit severe inflammatory response which leads to corneal perforation. It accounts for the 1-44% of microbial corneal ulcer depending on the geographic location.[1] Most common etiological agents for fungal corneal ulcer are Fusarium, Aspergillus, Curvularia, Candida.[2,3]

The Risk factors for fungal keratitis are history of ocular trauma with vegetative matter, Trauma with cow tail, prior history of usage of topical steroids and antibiotics, history of contact lens use, Immunosuppressive states like Diabetes mellitus, previous history of herpetic keratitis etc.

Most of the available antifungal agents are having limitation of poor penetration as fungal keratitis is a deep seated corneal infection which leads to the non-resolving keratitis with intra ocular spread and corneal perforation and descemetocele formation which requires the Therapeutic penetrating keratoplasty.[4-6]

MATERIALS AND METHODS

This is a prospective study conducted at a Tertiary eye hospital during November 2017 to October 2019.50 cases of fungal corneal ulcer who are presented to OPD of cornea and trauma unit at sarojini devi eye hospital are included in the study.

Clinical examination including meticulous history, BCVA,

anterior segment evaluation with Slit lamp biomicroscopy, flourescein staining, IOP measurement with noncontact tonometry. Microbiological Investigations like corneal scrapings for KOH wet mount, culture on sabourauds dextrose

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agar, Grams staining was done. Syringing, RBS, BP, Serology of HIV, HBsAg was done.

Inclusion Criteria

Cases of Fungal corneal ulcer in the age group of 18 to 60 yrs.

Exclusion Criteria

Cases of Bacterial ulcer, viral keratitis, neurotrophic keratitis, exposure keratitis, parasitic keratitis.

Laboratory Diagnosis of Fungal Keratitis

Conjunctival Smear: it has be done under topical anaesthesia. In thiscotton swabs are soaked in calcium alginate are used to scrape over the epithelial surface. This collected material is spread in a thin layer on a precleaned slide.For observation of bacteria the smear is dried ,heat fixedand stained by Gram`s method .

Corneal Scrapings: under topical anesthesia, all exudate, necrotic Material should be removed. In this sterile kimuras platinum spatula is used for the material collection from the base and margins of the ulcer under the magnification of operating microscope. So the collected material is placed over a clean slides for 10% KOH mount, Giemsa and Grams stain and scraping material inoculated immediately into various media like BLOOD agar, chocolate agar, sabourauds dextrose agar.

Ocular examination

	Right eye	**Left eye**
Visual Acuity	6/9	6/24
Lids	Normal	Edematous
Conjunctiva	Quiet	Circumcorneal Ciliary Congestion
Cornea	Clear	Corneal Infiltrate Measuring 1.5x1.5mm With Epithelial Defect And Epithelial Edema.
Anterior Chamber	Normal Depth	Normal Depth
Pupil	Round, Regular, Reacting Light	Drug Mydriasis
Lens	Clear	Clear
Fundus	Fundus Within Normal Limits	Fundus Within Normal Limits.

The descriptive data was analyzed by SPSS software: Univariate analysis was done for categorical data. Mean and standard deviation was used to know the variation of the parameters. The chisquare test and t-test was used to draw the significant inference.

RESULTS

A total of 50 patients were Analysed.

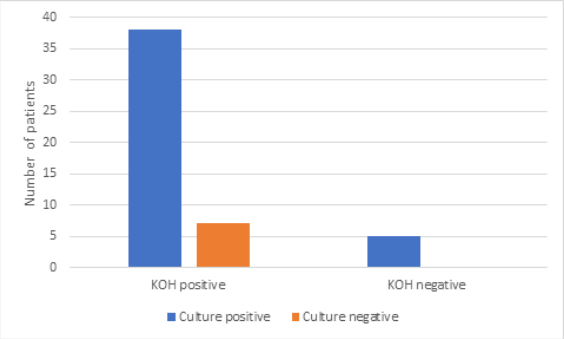

Figure 1: KOH test and culture results in present study

Among 50 patients 86% of the patients were both culture positive and KOHpositive. Only 14% of the patients were culture negative.

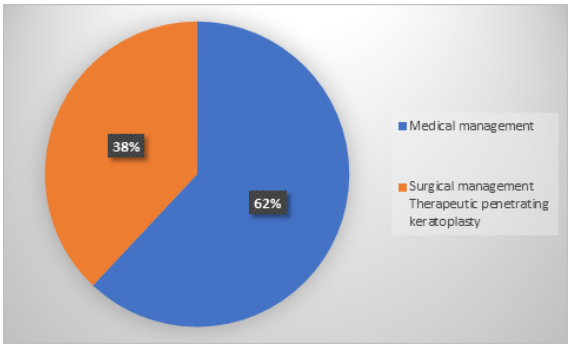

Figure 2: Treatment in present study

In our study 62% (31) of the cases received medical therapy, other 38% (19) of the cases were treated surgically

Table 1: Demographic distribution in present study

Age	**No of patients**	**Percentage**
18-30 years	6	12%
31-40rears	8	16%
41-50years	11	22%
51-60years	25	50%
Gender		
Males	34	68%
Females	16	32%
Occupation		
Agricultural labourers	37	74%
Household worker	4	8%
Daily wage worker	4	8%
Students	4	8%
Mechanic	1	2%
Urban / rural		
Rural	39	78%
Urban	11	22%

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Most commonly affected age group is 51-60 years in our study
In our study males were affected 64% more than the females 36%
In our study agricultural labours were most commonly affected 74%. In our study rural population were 78% (39) more at risk than urban 22%(11) population.

Table 2: Risk Factors in present study

	No of patients	Percentage
Trauma with vegetative matter	27	55%
Trauma with cow tail	7	14%
Trauma with stone	6	12%
Trauma with insect	3	16%
Diabetes mellitus	2	4%
unknown	2	4%
Fall of foreign body	2	4%
Trauma with paddy leaf	1	2%

In our study trauma with vegetative matter 54% is the most common predisposing factor for the fungal keratitis. 4% of the cases found to be having Diabetes mellitus as a systemic association.

Table 3: Distribution of etiological agent

	No of patients	Percentage
Fusarium	20	40%
Asperigillus	15	30%
Curvularia	4	8%
Unidentified	4	8%

Fusarium 40% is found to be most common etiological agent in our study. Aspergillus 30 %is the next common etiological agent.

Table 4: Presentation of the fungal corneal ulcer

	No of patients	Percentage
Corneal infiltrate	15	30%
Total corneal ulcer with hypopyon	14	28%
Corneal ulcer	11	22%
Corneal ulcer with endothelial infiltrate with hypopyon	8	16%
Corneal infiltrate with satellite lesions	2	4%

In our study most of the patients presented with corneal infiltrate 30%. 28% of the patients presented with total corneal ulcer with hypopyon.

Follow up – After 3 Months

Table 5: Sequelae of fungal corneal ulcer after 3 months

	No of patients	Percentage
Nebular opacity	19	38%
Corneal perforation with descemetocele	17	34%
Macular opacity	11	22%
Leucomatous opacity	3	6%

Table 6: Bestcorrected visual acuity after 3 months follow up

Visual acuity	No. of patients	Percentage
6|9	10	20%
6|6	4	8%
6/12	6	12%
6/36	2	4%
6/60	1	2%
CF-3 metre	5	10%
HM	5	10%
PL +Ve	4	8%
PL -Ve	13	26%

DISCUSSION

Fungal corneal ulcer is one of the cause of corneal Blindness.[6] So it is a potentially sight threatening condition which require immediate medical or surgical intervention depending on the clinical presentation. During the period of november 2017 to October 2019, 50 patients were evaluated in corneal department.

In present study Among 50 Patients, 45 number of patients (90%) found to be KOH positive. Of which 38 patients (76%) were both KOH positive and culture positive. Only 7 patients (14%) were found to be culture negative.[5] patients (10%) found to be KOH negative but Culture positive. Which is in

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accordance with the study conducted by Paty BP, Dash P, Mohapatra D, Chayani et al.[7]

Present study showing most common age of presentation is 51-60 years (50%) followed by 41-50 years (24%), this is in accordance with the previous study conducted by Srinivasan et al,[8] and Samir Mahapatra et al.[9]

Present study showing males 68% are affected than the females 32%, this is in accordance with the study conducted by Gopinathan, Usha Ph.D et al,[10]

Present study showing Agricultural labourers 34 (68%) are at more risk, followed by Daily wage workers 4(8%), house hold workers 4(8%), students 4(8%), which is similar to the study conducted by Sethi et al,[11] and Amrutha and Venkatesha et al.[12]

Present study showing the incidence of fungal corneal ulcer is found to be more common among the Rural population39 (78%) than the Urban 11(22%) population, which is in accordance with the study conducted by Keshav et al.[13]

Clinical presentation of fungal corneal ulcer in our study, most of the patients are presented with corneal infiltrate 15(30%), followed by Total corneal ulcer with hypopyon14 (28%), corneal ulcer 11(22%),corneal infiltrate with satellite lesions 4(8%), corneal ulcer with Endothelial infiltrate with hypopyon 8(16%).

Present study showing the most common etiological agent for the fungal corneal ulcer is Fusarium 20 (40%), followed by Asperigillus 15 (30%), Curvularia 4 (8%), which is in accordance with the previous study conducted by Jisha K, Sreekumari PK et al.[14]

In the Present study, most common risk factor is Trauma to the eye 37(74%), the trauma in most cases is due to, trauma with vegetative matter, followed by trauma with cow tail, which is in accordance with the Study conducted by Sharma and Mehta et al.[15]

In the Present study, among 50 patients 31 (62%) patients received medical treatment, followed by 19 (38%) received surgical treatment in the form of Therapeutic penetrating keratoplasty. Fungal corneal ulcer mainly involves the stroma so out of 50 patients 20 (40%) patients were presented with deep seated lesion, of which 3 (6%) patients had leucomatous corneal opacity, another 17 patients had persisting total corneal ulcer with perforation and descemetocele formation 19 patients with persisting keratitis with corneal perforation and descemetocele formation received surgical management in the form of Therapeutic penetrating keratoplasty. Of which 13 (26%) patients presented with failed graft after a period of 3 weeks. 6(12%) patients had clear graft after a period of 3 weeks., which is in agreement to the study conducted by Rogers Gina M MD et al.[16]

In the present study after 3 months follow up of 5o cases, 23(46%) patients had visual acuity in between 6/60-6/6, followed by 13 (26%) patients had PL –Ve, 5 (10%) patients had CF-3metre vision, 5 (10%) patients had HM,4 (8%) patients found to be having PL +Ve visio.

CONCLUSION

In our study Vegetative trauma is the most common predisposing factor, Rural population is more at risk than the urban people. 40–60-year age groups were more at risk. Males were commonly affected than the females. A simple KOH mount, culture on Sabourauds dexrose agar of corneal scrapings highly beneficial in confirming the diagnosis and treating the patient. Most common etiological agent was Fusarium followed by Aspergillus Curvularia. Most of the cases were responded well to the medical management as they were presented early with no complications.

Hence I conclude that Fungal corneal ulcer is a serious ocular infectious disease that remains therapeutic challenge and vision threatening ocular condition. They need to be diagnosed clinically, followed by laboratory. Confirmation and early intervention are needed to preserve the vision.

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