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Research Article

OCCURRENCE OF FUNGAL CORNEAL ULCER IN POPULATION OF MADHYA PRADESH REGION

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ABSTRACT

According to the World Health Organization, corneal diseases are a major cause of vision loss and blindness, second only to cataract in overall importance. **Aims and objectives:** -1. A study of recent epidemiological trends in case of fungal corneal ulcer. 2. To study the precipitating and predisposing factors for fungal corneal ulcer. 3. To study the clinical profile of fungal corneal ulcer. **Material & Method-** Thirty consecutive cases of presumably fungal corneal ulcers admitted in hospital over a period of one year were included in the study. The presumptive diagnosis was based on clinical features and history. The diagnosis was then confirmed by KOH preparation and culture. **Observation** -it was found that fungal corneal ulcers are common in people of 40-60 year and more common in male. Fungal corneal ulcers occur mostly in farmer but in urban area because of over use of topical antibiotics and steroid, fungal ulcers also very common and in urban young population who wear contact lens, corneal ulcers are common findings. **Conclusion**-Due to vegetative trauma in rural area and due to over use of topical antibiotics and steroid fungal ulcers are very common problems in urban population.

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INTRODUCTION

Cornea is a thin circular, transparent, avascular structure of eye, which is exposed to outside (direct contact with environment).

It has been indicated that although corneal infections have worldwide distribution, the incidence of fungal infections is higher in tropical and semitropical areas and is much more frequent in developing countries. It has also been mentioned that these infections follow trauma, especially with plant debris. Therefore, very important to recognize the prevalence and etiology of corneal ulcers.

Fungal ulcers present one of the major problems of India. In our country this has been a major ophthalmic problem and incidence is increasing day by day which seems to be due to two factors – first an upset between normal symbiosis of bacteria and fungi since the introduction of various antibiotics into ophthalmic therapy, and second, alteration in the resistance of the tissues resulting from topical use of corticosteroids. 1

Agrawal and Khosla 1999¹ in their experimental and clinical study found that long continued use of corticosteroids favors the propagation of fungi in normal conjunctival sac. It also increases the virulence of the fungi.

In the last couple of decades, fungal infections (corneal ulcers) of the urban area have risen dramatically. This dramatic rise

coincides in time with the general use of antibiotics and steroids.

Arora and Taygi² 2003 in their study of fungal flora of conjunctival sac in health and diseases found fungi in 13% of healthy eyes and 24% of diseased eyes. Most cases were amongst the laborers and aspergillus was commonly encountered.

Corneal Ulcer

The development of an infective corneal ulcer is dependent on

1. tissue resistance as well as
2. Virulence of the infective organism.

Tissue resistance is lowered by the following predisposing factors:

1. Trauma to the cornea, especially by vegetable or soil containing material.
2. Deficit immune system
Itrogenic → topical steroids
a. → Long use of immunosuppressant therapy
3. ophthalmic disease-
 - a. Lid closure defects
 - b. #tear film defects
 - c. # long standing infections of conjunctiva

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- General Debilitate, as seen in diabetes mellitus, alcoholism, acutely febrile illness or very elderly people.

Iyer *et al* 2006, reported that after 2005, contact lens use surpassed trauma as the most common risk factor of fungal keratitis and then fungal ulcer.

MATERIALS AND METHODS

The present study “Occurrence of Fungal Corneal Ulcer In Population of Madhya Pradesh Region” was carried out on outdoor and indoor cases of fungal corneal ulcer, in Regional Institute of Ophthalmology, Gandhi Medical College Bhopal; Thirty consecutive cases of presumably fungal corneal ulcers over a period of one year were included in the study.

The presumptive diagnosis was based on clinical features and history. The diagnosis was then confirmed by KOH preparation and culture.

Clinical Features

A dry looking, crumbly, raised slough.

A shaggy or created border of the ulcer.

Satellite lesions.

Hypopyon

Immune ring (corneal ring) beyond the edge of the ulcer.

Radiating folds.

Endothelial plaques in the center of the cornea.

History- The present complaints of the patients were asked in detail. The patients were asked about various visual symptoms and their duration, i.e., watering, redness, blepharospasm, photophobia, diminished vision or any other symptom.

History of trauma and the object causing it were noted. If the patient gave a history of a foreign body in the eye which was removed, then the method of its removal was asked for.

Use of topical antibiotics and steroids was especially asked for. Special emphasis was given while taking history on the total duration of use of topical medicines or any other home remedy. The onset and duration of systemic diseases like diabetes mellitus, tuberculosis, ear, nose, or throat diseases, if any, was noted. History of fever with without eruptions on the face was asked. The patients were also asked about any past history of similar complaints, preexisting corneal opacity or trauma to the eye.

OBSERVATION & RESULTS

Table no 1 Age Incidence

Sino.	Age group in yrs	number	%
1.	0-10	1	3.3
2.	11-20	4	13.3
3.	21-30	3	10
4.	31-40	6	26.6
5.	41-50	8	13.3
6.	51-60	4	3.3
7.	61-70	1	10
8.	71-80	3	20.0
	Total	30	

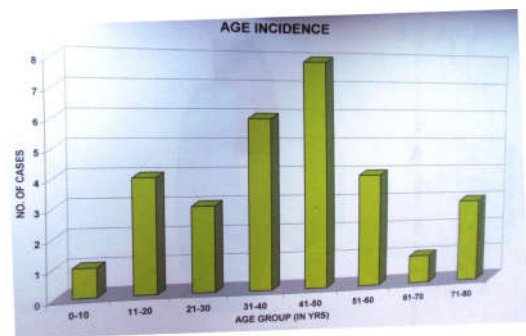


Table no 2

Sex incidence		
Sex	Number	%
Male	22	73
female	8	27

Males were predominantly affected. The male to female ratio was 2.70:1

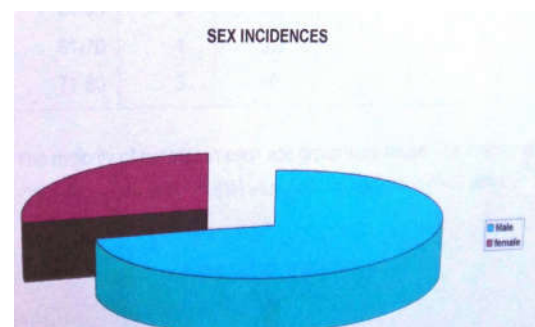


Table no-3

Age Group	Male		Female	
	Number	Percent	Number	Percent
0-10	1	3.3	-	-
11-20	3	10	1	3.3
21-30	3	10	-	-
31-40	4	13.3	2	6.6
41-50	5	16.6	3	10
51-60	2	6.6	2	6.6
61-70	1	3.3	-	-
71-80	3	10	-	-

The majority of patients in each age group were males. The majority of males (23.2%) and females (16.6%) were from the age group 41-60 years

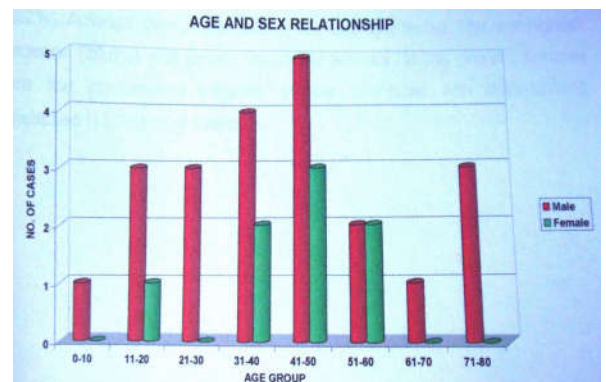


Table no- 4 Relation of mycotic keratitis with occupation

Occupation	Sex		Total	Percent
	Male	Female		
Agriculture	11		14	48.2
Household	1	3	6	20.6
Dairy	4	5	4	13.7
Others:				
Labourers	1	-	2	6.8
Student	1	1	2	6.8
Service	1	1	1	3.4
Business	1		1	3.4
Total	20	10	30	100

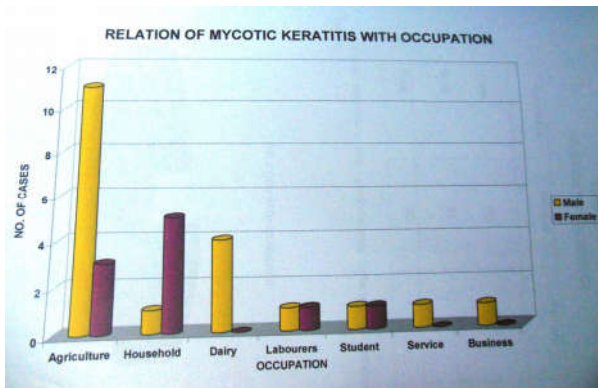


Table no -5 Relation with residence

Residence	Numbe	Percent %
Urban	9	30.0
Rural	21	70.0
Total	30	

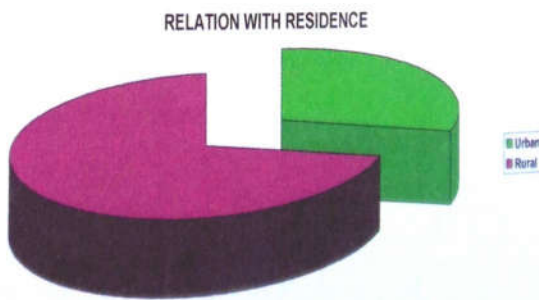


Table no- 6 Seasonal Variation

Month	Urban	Rural	Total	Percent
January	1	1	2	6.0
February	-	3	3	10.0
March	1	5	6	20.0
April	-	2	2	6.0
May	1	1	2	6.0
June	1	1	2	6.0
July	1	1	2	6.0
August	1	1	2	6.0
September	1	2	3	10.0
October	1	4	5	16.6
November	1	-	1	3.0
December	-	-	-	-
Total	9	21	30	

Table no – 7 Incidence of predisposing factors

P.D.F.	No. of ulcers	Percent	Contributory Factors	Percent %
Trauma	20	66.6	6	30
Foreign body	10	33.3	4	40

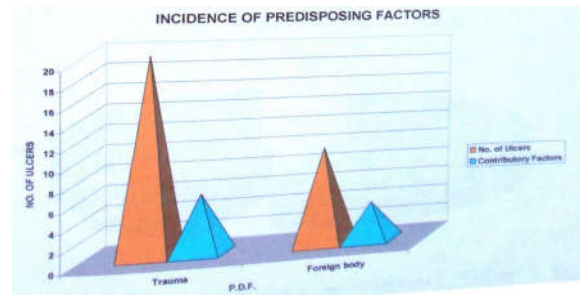


Table no- 8 Nature of trauma

Object	No. of patients	Percent
1. Vegetable matter(cereal plant, husk, edge of a leaf)	17	56.6
2. Animal Hair (cattle)	2	6.6
3. Self inflicted (accidently)	1	3.3
4. Foreign body	10	33.3

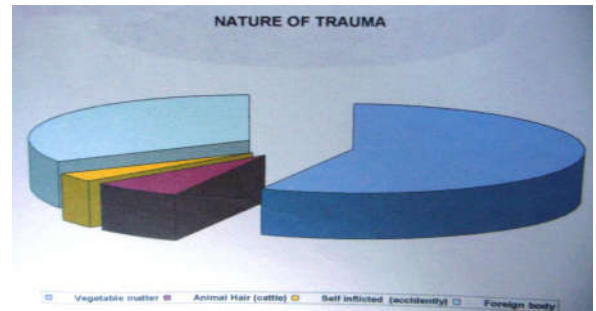


Table no-9 Incidence of trauma and foreign body in relation to sex

Sex	No. of patients	Percent
Male	22	73.3
Female	8	26.6

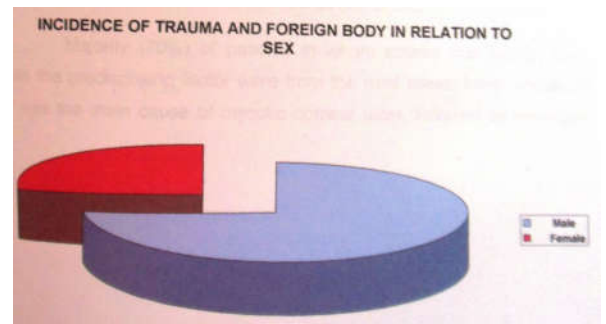
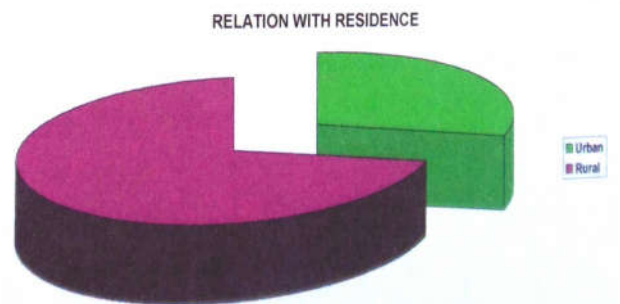


Table no -10 Relation of nature of trauma with residence

Residence	Vegetable Matter	Animal (dairy)	Foreign (body)	Total	Percent
Urban	3	1	4	8	26
Rural	14	1	6	21	70
Total	17	2	10	29	96



DISCUSSION

Results indicates that the highest incidence CORNEAL ULCER is in the 41-60 years(41%), followed by 21 – 30 years(30%).This is may be due to the fact that adults of this age group are more active in outdoor and field work than children and old persons ,and hence their eyes are more exposed to fungal infection.

Males were maximally affected in this age group as compared to females. although incidence if males was found to be 10 % in the age group of 20-30 years, no females were found to be affected it this age group. This may be due to the fact that most women in this age group are involved in raising the family and hence most of their responsibilities are indoor.The incidence in males of age group 61-80% was 13.3%.here again no females were found in this age group .This may be due to the fact that women in this age group do not work outdoors due to physical constraints and hence are much less exposed to factors which cause keratomycosis and then ulcer.

The male and female ratio in our study was 3.3:1.Sex ratios observed in previous study was 5:1 (jain R.K.1997)³.in all these studies males were found to be more in number and this is because males perform maximum amount of field and outdoor work for maximum number if hours. Hence a male is more exposed to agricultural, industrial and other types if trauma as well as foreign particles which may fall into eye predisposing to fungal infection.

The present study shows highest incidence in farmers (48.2%) followed by household (20.6%).this has also been observed by balkrishnan (1997)⁴. Farmers come in direct contact with vegetative matter and hence more prone to injury with fungus contaminated matter. Fungus is present in all types of decaying vegetative and organic matter. When a farmer working in field hits even a trivial injury in eye, the fungus makes direct entry into the abrasion.

In our study 70 % of the cases were found to be from the rural areas. This high incidence may be due to the fact that rural population is much more exposed to cultivation and forestry.

vegetative matter caused maximum number of ulcer (56.6%).Direct trauma to cornea was to be main factors responsible for ulcer .This is in accordance with the findings of Puttana (1997)⁵, found to be a commoner predisposing factor in our series(66.6%).This correlates with the findings of Chaddah and agarwal (2000)⁶ and others.

It was found that trauma by a vegetative matter found to be responsible were hey, straw, twigs, grass and thorns..Vegetable matter is heavily contaminated by fungal spores. A direct trauma to cornea by such matter inoculates the spores directly on the denuded area of cornea, thus favoring primary fungal infection.

Foreign body in the eye was the next highest predisposing factor for corneal ulcer (33.3%).The foreign bodies were reported to be mostly soil or dust particles, coal or small insects. This corroborates with the observation of Albal et al (2004)⁷. Fungal spores may be carried directly into abraded area in this way.

A significant relationship was found between sex and incidence of trauma. The incidence of trauma in males was 73.3% while in females it was 26.6%.This is in accordance with the findings of all authors who have studied this relationship. By virtue of their physical and psychological makeup and virtue of work, males are universally more prone to trauma in all parts of the body.

Two peaks of keratimycosis have been observed in our study. One is during February-march and other is during September-october. These peaks have been observed in rural population only. This is explained by the fact that this two seasons are the harvesting season for crops in most places. This necessitates more number of people working for longer time in fields contaminated with fungal spores. (Dutta l, c., et al 2000)⁸. This predisposes to the increased incidence of keratomycosis. Our findings are in accordance with those of shukla I.M. (1999)⁹, sharma s.l. (2001)¹⁰, poria et al (2004)¹¹ and others.

People residing in rural areas were found to be more prone to vegetative matter trauma than their urban counterparts. On the other hand, urban population was more prone to get corneal ulcer by a airborne foreign particle; when person riding an open vehicle. In this condition, the foreign body enters the eye at a high velocity thus abrading the cornea.

CONCLUSIONS

1. The maximum incidence of mycotic keratitis is in the age group of 41-60 years.
2. Males are affected more than females.
3. Farmers are the largest group of people affected by fungi followed by housewives.
4. Rural population is commonly affected.
5. A seasonal increase in the incidence of mycotic keratitis is seen in rural population during February-march and September-october which coincides with the harvesting time of crops. No such variation is seen in urban population.
6. Trauma by vegetable matter is main cause of corneal ulcer in rural population, while in urban population foreign bodies play a major role. local and general contributory factors which cause general debility of cornea play a significant role in the genesis of corneal ulcer.

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