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"A STUDY ON MICROBIOLOGICAL PREVALENCE OF CORNEAL ULCER FROM A TERTIARY CARE HOSPITAL IN KANPUR, UTTAR PRADESH"

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Abstract-Introduction-Corneal infections are the second most common cause of monocular blindness after cataract in some developing countries in the tropics. According to World Health Organization (WHO), corneal diseases are among the major causes of vision loss and blindness in the world today. In India there are approximately 6.8 million people who have corneal blindness.**Aim-"**A study on microbiological prevalence of corneal ulcer at a tertiary care hospital , Kanpur ,Uttar pradesh.**Material and method-** This was a cross-sectional and observational study carried out in the Department of Microbiology and Ophthalmology at RMCH&RC. Corneal scrapings were collected from the Ophthalmology Department of the RMCH&RC. The samples were cultured on blood agar and prepared on slides for Gram staining and KOH examination in the Microbiology Laboratory. Antimicrobial susceptibility testing (AST) was performed according to the 2024 CLSI guidelines. **Result-** A total of 25 samples were collected, of which 16 were from male patients and 9 from female patients. Two samples tested positive, showing the growth of bacterial and fungal species The most infected age group was 26 to 54 years, and the most affected gender was male. Additionally, the most frequently isolated bacterial species was *Staphylococcus epidermis*.**Conclusion-** This study is to analyze etiology of corneal ulcer and to determine the antibiotics susceptibility pattern of bacterial isolates there by reducing antibiotics misuse and the incidence of microbial drug resistance. **Keywords-** Prevalence, Corneal Ulcer, Antibiotic susceptibility test ,Corneal scraping ,CLSI

INTRODUCTION-

Corneal ulcer is an inflammatory or more seriously, infective condition of the cornea involving disruption of the epithelial layer with involvement of the corneal stroma. Infectious

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keratitis is a leading cause of corneal blindness in developing countries. Corneal blindness is responsible for 1.5-2 million new cases of monocular blindness every year.

Fungi are the most common etiological agents which account for 30-40% whereas bacteria account for 13-48% of all cases of suppurative keratitis; this varies by geographical area.

Microorganisms can penetrate through a breach in the epithelium either due to penetrating or perforating ocular trauma or due to surgery. Various risk factors have been implicated for increased incidence of fungal keratitis including widespread use of antibiotics and steroids, use of contact lenses, and postoperative infections. The etiology of corneal ulcer varies disproportionately in different geographical regions with highest proportion of bacterial corneal ulcers reported from North America, Australia, Netherlands, Singapore and that of fungal corneal ulcer from India and Nepal.

AIM-

"A study on microbiological prevalence of corneal ulcer at a tertiary care hospital Kanpur , Uttar Pradesh"

OBJECTIVE-

1. To diagnose corneal ulcer clinically.
2. To perform KOH and gram staining from corneal scraping.
3. To culture on blood agar , mac conkey agar and on SDA plates
4. To perform biochemical and AST for bacterial isolates5.
5. To perform LPCB mount for fungal isolates grown on SDA plates**.**

MATERIAL AND METHODS –

Study Setting-

This study was conducted in the Department of Microbiology , Rama Medical College Hospital and Research Centre, Kanpur.

Inclusion criteria-

Patients with infectious corneal ulcer presenting to the OPD and IPD.

Exclusion criteria-

Patients with perforated corneal ulcer, typical viral ulcer,Interstitial keratitis ulcer with autoimmune disease.

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Study design-

Cross-sectional study.

Type of study-

Observational study.

Methodology-

1.Blood agar

2.Mac conkey agar

3. Biochemicals

4.Muller Hinton agar

5. Saborauds dextrose agar

6.Slide culture

7.Lactose phenol cotton blue

FIGURE:1

CORNEAL SCRAPING ON BLOOD AGAR-NO GROWTH SEEN

RESULTS-

FIGURE:2

CONTACT LENS ON BLOOD AGAR-NO GROWTH SEEN

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Total number of cases included in the study were 25.Males and female patients affected were 64% & 35% respectively.The most common age group involved were 26 to 54 years . Right eye was most commonly affected as compared to left eye.

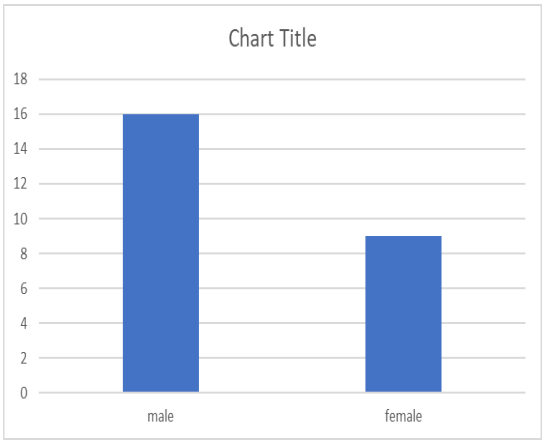
Among the isolated organisms , 1 were bacterial isolate and 1 were fungal isolate.From the bacterial isolate , gram positive were 1 and no gram negative bacterial species was isolated.

Chief Complaint
Pain
Redness
Watering
Diminision of vision
Pricking sensation

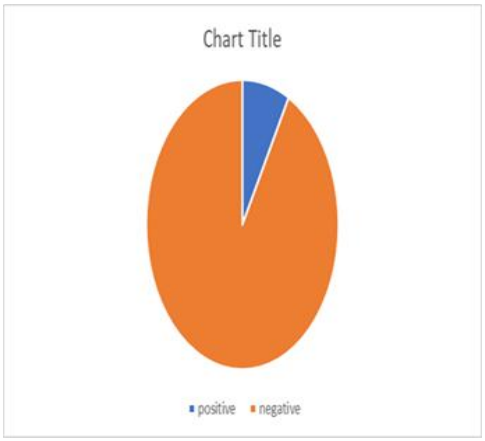
Table 1: Associated complains of corneal ulcer

Risk factor
Injury
Foreign particle
Drugs

Table 2: Risk factors associated with corneal ulcer



Graph 1: Gender wise graph



Graph :2 Pie chart of positive & negative cases

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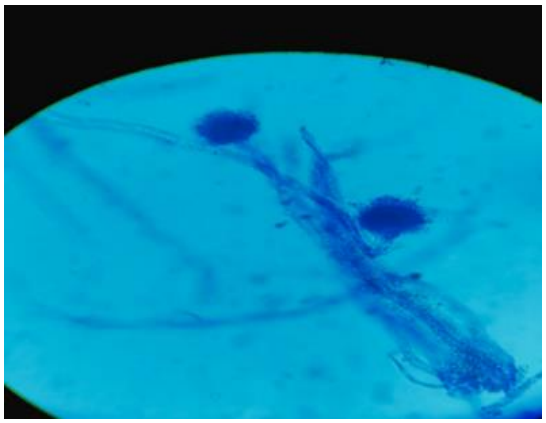

FIGURE :3 MICROSCOPIC VIEW OF CORNEAL SCRAPING AFTER LPCB MOUNT-ASPERGILLUS SPECIES ISOLATEED COTTONY COLONY SEEN ON BLOOD AGAR

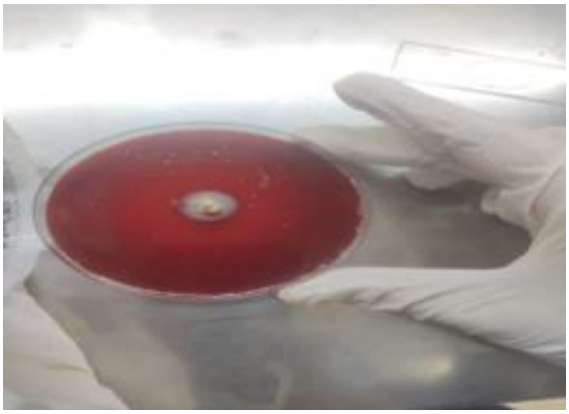

FIGURE :4 Growth of fungus on blood agar

Discussion-

Corneal ulcer is a major health problem in developing world causing prolonged ocular morbidity and loss of vision.The prevalence of visual disability from corneal ulcer varies from one geographical location to another. The emergence of antibiotic resistance is a major public health issue and the distribution of microorganisms causing corneal ulcer, especially those which are resistant to antibiotics, varies according to time ,geographical location.

Conclusion-

This study has revealed that supportive corneal ulcers are caused by bacterial and fungal agents with bacterial preponderance in this geographical area.

Early recognition of causative organisms and prompt use of specific antibiotics and antifungal drugs will bring down the morbidity caused by this disease to great extent.

Early and accurate diagnosis, along with intensive treatment, is the need of the hour for saving the eye and preventing the catastrophe of lifelong blindness.

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