



A CLINICAL STUDY OF BACTERIAL KERATITIS IN PATIENTS ATTENDING TERTIARY CARE HOSPITAL

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ABSTRACT

Aim: To study about the etiological and epidemiological factors,and also the spectrum of ocular manifestations in patients with viral keratitis. **Methods:**It is a prospective study done over a period of 3 months from June to August 2022.A group of 100 patients of bacterial keratitis from East Godavari district attending Ophthalmology OPD, Government General Hospital, Kakinada , with complaints of visual disturbances in all age groups .All of these patients underwent thorough anterior and posterior segment examination and all other necessary investigations like gram and giemsa staining,AFB staining and bacterial culture. **Results:**Out of 100 patients studied,staphylococcus is the most common causative organism of bacterial keratitis.It is usually unilateral,with more incidence in males and in elderly age group.Contact lens wear is the main predisposing factor as per the study.Most of the patients presents with pain and redness and in case of severe bacterial keratitis,if untreated or in case of treatment failure ,it can end up in complications like corneal scarring ,recurrence,toxic iridocyclitis and eventually in phthisis bulbi and even endophthalmitis. **Conclusion:**Bacterial keratitis is a potentially sight threatening corneal infection in human eyes.It can proceed very rapidly with complete corneal destruction in few days.Early diagnosis and prompt treatment will help us to minimise the damage and ocular morbidity and thus helps in providing a better visual outcome.

KEYWORDS :

Introduction:

Bacterial keratitis is a common sight-threatening ocular corneal pathology.This infection of the corneal tissue, which is caused by various bacterial species can be an acute, chronic, or transient infectious process.Most common causative organism is staphylococcus aureus and staphylococcus epidermidis.The predisposing factors include contact lens wear,trauma, contaminated ocular solutions,corneal surface disorders (dry eye, eyelid misdirection etc),altered ocular defense mechanisms(topical and systemic immune suppression),blepharitis and viral keratitis etc. In younger patients, trauma and contact lens wear are the most common predisposing factors while in older patients, chronic corneal disease such as dry eyes, surgical trauma, and bullous keratopathy are important .If untreated can lead to progressive tissue destruction, corneal perforation, or extension of infection to adjacent tissue.

It occurs as a result of an alteration in the cornea's defense mechanisms that allow bacteria to invade when an epithelial defect is present. The organisms may come from the tear film or as a contaminant from foreign bodies, contact lenses or irrigating solutions. The severity of the disease depends on the strain of the organism, the size of the inoculum, the susceptibility of the host and immune response, the antecedent therapy, and the duration of the infection.

Bacterial keratitis progresses through four stages

- Stage of progressive infiltration-
- Stage of active ulceratio
- Stage of regression
- Stage of cicatrisation
- Common symptoms of bacterial keratitis are pain, redness, watering, mucopurulent or purulent discharge, photophobia, defective vision. The various signs of bacterial keratitis include lid edema, blepharospasm, matting of eyelashes, purulent discharge, conjunctival chemosis, circumcorneal congestion, hyperemia, epithelial defect, stromal edema, stromal infiltrate,, Descemet membrane folds, endothelial plaque, hypopyon, and exudates in the anterior chamber and anterior uveitis.

Corneal infections can damage the integrity of the ocular surface thereby disturbing the transparency of the cornea, leaving scars and decreasing visual acuity.As bacterial keratitis is the most common among all types of keratitis,proper evaluation of the patients will help us to reduce the ocular morbidity to an extens.Corneal scrapings are taken from the suspected individuals and gram and giemsa stain and acid fast stains are commonly done.Various culture media like blood agar,chocolate agar,LJ medium,SDA are used to culture bacteria.

Early diagnosis and prompt treatment helps to minimise the signs and

symptoms and thus to improve the visual outcome in patients of bacterial keratitis.

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Methods:

It is a prospective study done over a period of 3 months from June to August 2022 .A group of 100 patients of bacterial keratitis from East Godavari district attending Ophthalmology OPD, Government General Hospital, Kakinada , with complaints of visual disturbances in all age groups .All of these patients underwent thorough anterior and posterior segment examination and all other necessary investigations like gram and giemsa staining,Acid fast staining and bacterial culture are done.Based on the results obtained and also the history obtained from patients,an analysis of the clinical spectrum and epidemiological factors associated with bacterial keratitis are studied.

Results:

Table:1 ETIOLOGY OF BACTERIAL KERATITIS (n=100)

TYPES	NUMBER OF CASES	PERCENTAGE
Streptococcus pneumoniae	22	22%
Staphylococcus aureus	35	35%
Staphylococcus epidermidis	28	28%
Pseudomonas aeruginosa	10	10%
Others	5	5%
Total	100	100%

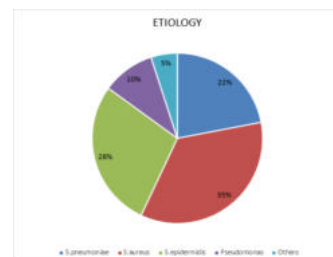


Table:2 AGE DISTRIBUTION OF BACTERIAL KERATITIS (n=100)

AGE GROUP	NUMBER	PERCENTAGE
<20 years	9	9%
21-40 years	27	27%
41-60 years	30	30%
>60 years	34	34%
total	100	100%

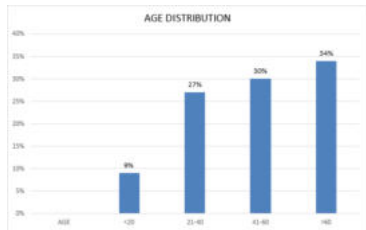


TABLE:3 SEX DISTRIBUTION OF BACTERIAL KERATITIS (n=100)

SEX	NUMBER	PERCENTAGE
Male	59	59%
Female	41	41%
TOTAL	100	100%

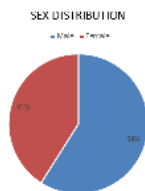


Table:4 LATERALITY

LATERALITY	NO: OF CASES	PERCENTAGE
Unilateral	78	78%
Bilateral	22	22%
TOTAL	100	100%

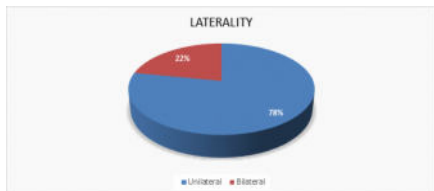


Table 5: PREDISPOSING FACTORS

RISK FACTORS	NO: OF CASES	PERCENTAGE
Contact lens wear	45	45%
Blepharitis	26	26%
Corneal trauma	17	17%
Dry eye	12	12%
Miscellaneous factors	10	10%

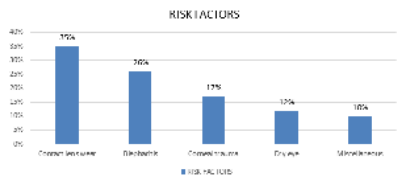


TABLE 6: PRESENTING COMPLAINTS

PRESENTING COMPLAINTS	NO: OF CASES	PERCENTAGE
Pain & Redness	40	40%
Diminution of vision	11	11%
Mucopurulent discharge	20	20%
Photophobia	18	18%
Watering	11	11%
TOTAL	100	100%

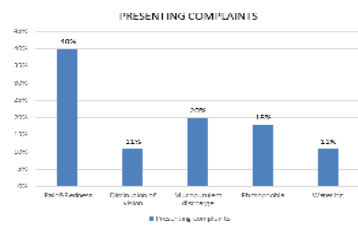


TABLE 7: COMPLICATIONS

COMPLICATIONS	NO:OF CASES	PERCENTAGE
Corneal Scarring	9	37.5%
Recurrence	4	16.66%
Perforation	3	12.5%
Toxic iridocyclitis	4	16.66%
Endophthalmitis	1	4.16%
Phthisis bulbi	3	12.5%
TOTAL	24	100%



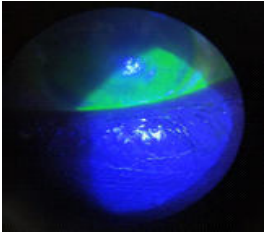
DISCUSSION

- This study of bacterial keratitis is done in 100 patients in a tertiary care hospital with staphylococcus being the most common causative factor followed by streptococci and pseudomonas. Staphylococcus pathogens frequently produce an oval ,yellowish white densely opaque ulcer with distinct borders which is surrounded by relatively clear cornea.Pseudomonas usually produce destructive enzymes which meet the corneal stroma and cause violent reaction in the anterior chamber.
- Bacterial keratitis is more common in elder age group with 33% of the patients belonging to >60yrs and 31% in age between 41-60yrs.Elderly people tends to present with severe keratitis with risk of having poor visual outcome.
- Least incidence of bacterial keratitis is seen among young individuals(<20years) accounting to only 9% and they have better chance of resolution due to its less severe nature
- Most cases of bacterial keratitis is seen in males when compared to females
- Almost 78% of the cases are unilateral
- Contact lens wear(35%) is the most common predisposing factor followed by blepharitis(26%)corneal trauma (17%)and dry eye(12%)
- Prolonged use or continous use of contact lens,improper disinfection of lenses,or wearing it while swimming increases the risk
- Miscellaneous factors like Uncontrolled diabetes,poor health and hygiene,immunocompromised conditions contributed to the remaining 10%
- Most common complaints include pain & redness (40%) followed by mucopurulent discharge
- Most common complications include corneal scarring and least complication include endophthalmitis.



Female patient with bacterial keratitis with predisposing factor as blepharitis

On staining with flurescent dye,it shows flurescent positive



CONCLUSION:

Bacterial keratitis is a potentially sight threatening corneal infection in human eyes. It interferes with the transparency of the cornea which results in diminished vision eventually and corneal perforation, phthisis bulbi and endophthalmitis as the dreaded complications. Contact lens wear is the most prominent risk factor. It can proceed very rapidly with complete corneal destruction in few days. Early diagnosis and prompt treatment will help us to minimise the damage and ocular morbidity. Most community acquired bacterial keratitis resolve with appropriate treatment. Proper treatment and regular follow up and proper hygiene will help to minimise the damage and prevent further progression of the infection and thus helps in providing a better visual outcome.

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Nil

Conflicts of interest:

There are no conflicts of interest

Ethical issues:

Approved by ethics committee

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