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Clinical Profile of Patients of Endophthalmitis Presenting To the Tertiary Health Care Centre

Dr. Jitendra Kumar[1], Dr.Vanshika Khanna[2], Dr.Priyanka Chanana [3]

[1.] *Associate Professor & Head, Dept. of ophthalmology, MLB Medical College Jhansi, India.*

[2, 3] *Junior Resident, Dept. of ophthalmology, MLB Medical College Jhansi, India.*

Corresponding author: Dr. Jitendra Kumar

Abstract

Purpose - *To study the clinical profile of patients of endophthalmitis presenting to the tertiary health care centre.*

Methods- *This was a prospective observational study that involved 25 patients with endophthalmitis complaining of blurring of vision, redness, pain, purulent discharge, photophobia and eyelid swelling.*

Results-*There were 18 males and 7 females and the age group taken was 30 to 75 years.*

14 patients belonged to the age group of 30 to 45 years, out of which 10 were males and 4 were females. 7 patients belonged to age group of 46 to 60 years, out of which 5 were males and 2 were females. 4 patients belonged to the age group of 61 to 75 years , out of which 3 were males and 1 was females. Most common presentation in endophthalmitis patients is blurring of vision in 86% patients followed by redness in 74% patients ,pain in 72% patients, purulent discharge in 66% patients ,photophobia in 55% patients and eyelid swelling in 42% patients. Majority of patients belong to low socioeconomic class . The most common cause was post traumatic followed by post operative and some endogenous infections spread through hematogenous route. Of the 25 cases of culture-positive endophthalmitis, 18 cases (75%) had bacterial growth and 7 cases (25%) had fungal growth. In post traumatic endophthalmitis, Gram-positive bacteria were the predominant species, followed by Gram-negative bacteria and fungi. In endogenous endophthalmitis, Gram-negative bacteria were the predominant species, followed by fungi and Gram-positive bacteria. In postsurgical endophthalmitis, all infections were bacterial.

Conclusion - *Endophthalmitis is a dreaded ocular disease and tends to occur more commonly in males of 30 to 45 years age group . Most common presentation of endophthalmitis is blurring of vision followed by redness, pain, purulent discharge, photophobia and eyelid swelling and signs include eyelid edema, hypopyon, circumcilliary congestion, corneal haze and ulcer and vitreous haze . Most common cause of endophthalmitis was post traumatic with gram positive bacteria followed by endogenous causes with gram negative bacteria and post operative cases with gram positive bacteria isolated.*

Keywords: *endophthalmitis, post traumatic, post operative, endogenous, hypopyon*

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I. Introduction

Infectious endophthalmitis, a potentially sight-threatening disease, is characterized by marked inflammation of intraocular tissues and fluids.The causative pathogen of endophthalmitis can come from the outside environment or from systemic infections transported in the bloodstream. Infectious endophthalmitis can be divided into the broad categories exogenous and endogenous. Exogenous endophthalmitis is caused by inoculation of the eye by microorganisms from the external environment and most commonly occurs as a complication of ocular surgery or trauma. Occasionally, it results from the contagious spread of infectious microbes from the cornea. Endogenous endophthalmitis is caused by hematogenous spread of infectious organisms from distant sites in the body. Both categories of endophthalmitis lead to subsequent intraocular inflammation and potentially severe visual loss. Posttraumatic endophthalmitis is an important complication of open globe injury[1–5]. The spectrum of causative organisms varies and depends on the region and environment, the type of injury, the living environment, and the time from injury to wound repair [6–8]. Bacteria account for approximately 80%–90% of culture positive cases [9, 10], and Gram-positive cocci are the most common isolates among these bacteria, followed by Gram positive bacilli and other Gram-negative organisms. Postoperative endophthalmitis can occur after any intraocular procedure, such as cataract surgeries [11], pars plana vitrectomy [12], penetrating keratoplasty [13], scleral buckling with drainage of subretinal fluid [14], bleb-related infections after trabeculectomy [15], or implantation of a glaucoma drainage device [16]. More recently, cases of postinjection endophthalmitis have occurred due to the use of intravitreal injection of

vascular endothelial growth factor antagonists [17].

There is no age or sex predilection in the incidence of endogenous endophthalmitis. Although it is caused by hematogenous spread, endogenous endophthalmitis tends to develop unilaterally, with the right eye more commonly affected, possibly due to the more proximal and direct arterial route from the heart to the right carotid artery. Several risk factors for endogenous endophthalmitis have been reported, including chronic metabolic diseases, immunosuppression, malignancy, intravenous drug abuse, longterm presence of an intracorporeal foreign body, and invasive surgery. According to a worldwide systematic survey of endogenous bacterial endophthalmitis, diabetes was the most common predisposing medical condition, and liver abscess was the most common extraocular focus of infection.Ocular symptoms of endophthalmitis, include ocular pain, redness, swelling, and discharge as well as blurred vision and floaters, are non-specific and their occurrence depends on the severity and extent of infection. The presence of bacteremia or fungemia indicates the possibility of other infective loci in the body. Even in patients with severe endophthalmitis, systemic symptoms are often non-specific and include malaise, nausea, loss of appetite or weight, abdominal discomfort, fever, chills, and rigor.

The diagnosis of endophthalmitis depends mostly on the clinical findings of ophthalmological examination. In the absence of ocular trauma or surgery, systemic investigations should be performed immediately to look for possible sources of infection or presence of malignancy such as retinoblastoma in children, leukemia, or intraocular lymphoma, which might masquerade as panuveitis.

II. Method And Material

This was a prospective observational study that involve 25 patients with endophthalmitis complaining of blurring of vision, redness, pain, purulent discharge, photophobia and eyelid swelling. Patients were recruited from the OPD of MLB MEDICAL college, Jhansi ,Uttar Pradesh and were followed from 1st september 2019-1st february 2020 . It was performed under the Helsinki Declaration of 1975, as revised in 2000. The necessary permission from the Ethical and Research Committee was obtained for the study.

EYELID SWELLING WITH CONGESTION AND HYPOPYON

SEVERE HYPEREMIA WITH CORNEAL EROSION AND HYPOPYON

EYELID SWELLING WITH PURULENT DISCHARGE

Inclusion criteria

1. All patients between the age group 30 to 75 years who presented to the OPD of MLB medical College Jhansi with the complaint blurring of vision, redness, pain, purulent discharge, photophobia and eyelid swelling and who were found to have history of trauma , surgery or systemic features like fever, chills, rigors, malaise, nausea, loss of appetite and abdominal discomfort. Diagnostic tests like slit lamp examination, gram staining, culture on blood agar, KOH smear, sabouraud dextrose agar culture were done.

Exclusion criteria

1.Patients outside the age group of 30 to 75 years
2.Patients with any other corneal pathology.
3.Patients with other conjunctival diseases.
4.Patients with any other ocular pathology.
5.Mentally or physically unfit patients.

All patients were subjected to a detailed history taking, complete ophthalmic examination in diffuse and focal light,slit lamp examination and numerous diagnostic tests to identify microorganisms.

III. Results

A total of 25 patients were studied. We included only eyes with a recent complaint of blurring of vision, redness, pain, purulent discharge, photophobia and eyelid swelling.There were 18 males and 7 females and 60% of the studied eyes were right eyes.

Table1: Age distribution in endophthaltimis population

	Age group	no. of patients
1	30 to 45 years	14
2	46 to 60 years	07
3	61 to 75 years	04

Table2: Gender distribution in endophthalmitis patients

	Gender	no. of patients
1	Male	18
2	Female	07

Table3: Causes of endophthalmitis

	Causes	no. of patients
1	Post traumatic	13
2	Endogenous infection	08
3	Post operative	04

Table 4: Ocular symptoms in patients of endophthalmitis

	Symptoms	% of patients
1	Blurring of vision	86%
2	Redness	74%
3	Pain	72%
4	Purulent discharge	66%
5	Photophobia	55%
6	Eyelid swelling	42%

Table 5: Micro organisms isolated in patients of endophthalmitis

Micro organisms	no. of patients		
	Post traumatic	Post operative	Endogenous
Gram positive bacteria			
Staphylococcus	05	01	01
Streptococcus	02	00	00
Micrococcus	01	00	00
Enterococcus	00	02	00
Gram negative bactertia			
Pseudomonas	01	01	00
Enterobacter	03	00	01
Xanthomonas	00	00	02
Klebsiella	00	00	01
Fungi			
Aspergillus	01	00	00
Fusarium	00	00	02
Candida	00	00	01

IV. Discussion

In a British review of acute endophthalmitis, Krause et al. [18] reported that up to 41% of cases were endogenous. In general, gram-negative organisms, especially Klebsiella pneumoniae (KP), are responsible for most cases of endogenous endophthalmitis in East Asia, whereas gram-positive organisms and fungi are the more frequent causative agents in North America and Europe . In recent reports, a rising trend of KP infection has been observed worldwide . In Taiwan, the primary source of infection in endophthalmitis during the past 20 years has been KP liver abscess. Fang duan et al analyzed the microbial etiology of infectious endophthalmitis in 330 patients. Of these, 193 patients (58.5%) had posttraumatic endophthalmitis, 67 patients (20.3%) had postoperative endophthalmitis, 61 patients (18.5%) had exogenous endophthalmitis, and 9 patients (2.7%) had postcorneal infective endophthalmitis. Of 105 cases (31.8%) of culture-positive endophthalmitis, 79 cases (75.2%) had bacterial growth, and 26 cases (24.8%) had fungal growth. In addition, a high percentage of bacteria were primarily susceptible to levofloxacin. Odouard C, Ong D, Shah PR, et al. showed the rising trends of endogenous Klebsiella pneumoniae endophthalmitis in Australia.[19]. **.** Tsai CC, Chen SJ, Chung YM, et al. concluded that in postpartum patients fungus candida is an important cause of endogenous endophthalmitis. Benoist d'Azy C, Pereira B, Naughton G, et al. studied the role of antibiotic prophylaxis in prevention of

endophthalmitis in patients receiving intravitreal injection of anti-vascular endothelial growth factor. Moshfeghi AA, Charalel RA, Hernandez-Boussard T, et al. studied the declining incidence of neonatal endophthalmitis in the United States recently.

V. Conclusion

Endophthalmitis is a significant eye disease that can cause devastating consequences. The prognosis is usually extremely poor, even with prompt diagnosis and treatment. Thorough evaluation of clinical presentation, systemic symptoms, and history is essential to the diagnosis of endophthalmitis. It tends to occur more in males of 30 to 45 years age group of low socio economic status. Most of cases showed history of ocular trauma or some recent oculas suregy. Our study spans over a period of 6 months and is prospective in nature focusing on age and gender distribution and clinical profile and micro organism isolated from patients of endophthalmitis. Most predominant symptom of endophthalmitis is blurring of vision followed by redness, pain, purulent discharge, photophobia and eyelid swelling. Most common microbial species isolated in post traumatic endophthalmitis were Gram-positive bacteria followed by Gram-negative bacteria and fungi. In endogenous endophthalmitis, Gram-negative bacteria were the predominant species, followed by fungi and Gram-positive bacteria. In postsurgical endophthalmitis, gram positive bacteria was predominant.

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