

**A Cross Sectional Assessment of the Treatment Modalities in Early Post-Operative Endophthalmitis**Sangeeta<sup>1</sup>, Rajesh Tiwary<sup>2</sup><sup>1</sup>Senior Resident, Department of Ophthalmology, Nalanda Medical College and Hospital, Patna, Bihar, India<sup>2</sup>Professor, Department of Ophthalmology, Nalanda Medical College and Hospital, Patna, Bihar, India

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Conflict of interest: Nil

**Abstract****Aim:** The aim of the present study was to assess treatment modalities in early post-operative endophthalmitis.**Material & Methods:** This was a cross sectional study in the patients with total 100 Eyes were studied department of Ophthalmology over period of 2 Years. All patients with signs and symptoms suggestive of endophthalmitis following intra-ocular surgery were enrolled into the study.**Results:** The majority of the patients were in the age group of 41- 50, 51-60 were 24, followed by 61-70 were 22, 31-40 were 12, >70 were 12, 21-30 were 5, 11-20 were 1. The majority patients were male i.e. 55 and female were 45. Majority of the patients undergone Pars plana Vitrectomy i.e. 48%, Aggressive Topical and Intra-vitreous injection undergone 42%, Aggressive Topical Therapy Only in 10%. As per the Associated other interventions majority of the patients undergone Anterior chamber wash In 62%, Penetrating Keratoplasty in 8%, Implant removal in 6%, Enucleation in 3%, IOFB Removal in 1%. Majority of patients with Initial Visual Acuity were having Light perception in- 42; Vision (1/60)-36, Counting Fingers -8 and Final Acuity after all the treatment majority of the patients were having Vision (1/60)- were 20, Vision (>6/60) in 6 this observed difference was statistically significant.**Conclusion:** It can be concluded from our study that though the Endophthalmitis is dreaded complication but if it is detected early and treated with appropriately is having good outcome.**Keywords:** Endophthalmitis, IOFB (Foreign Intra Ocular Body), IOL (Intra Ocular Lens).

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**Introduction**

Endophthalmitis is an uncommon but sight-threatening intraocular inflammation that may be due to a non-infectious process or may be caused by an infectious organism. [1] It is a term used to describe intraocular inflammation that involves the vitreous cavity and the anterior chamber of the eye and can involve other adjacent ocular tissues such as the choroid or retina, sclera or cornea. [2] In this condition, the organisms enter the eye through some accident or trauma, by different surgeries of the eye, or some infectious diseases of cornea or structure near the vitreous humor. The classic signs of endophthalmitis are hypopyon (i.e., layering of WBCs in the anterior chamber of the eye), lid swelling, vitreous opacification, and loss of vision. Pain is a common presenting symptom but may be absent. Symptoms typically appear 24–48 h after surgery. [3]

These types of cases are critically important to treat and take care of. If the treatment is late, it could lead to complete blindness. Fungi are the major cause of endophthalmitis in most tropical countries

including India. Maximum prevalence is contributed by the bacteria such as streptococci, Staphylococcus aureus, and various other gram-positive cocci and gram-negative bacilli. Various non-infectious causes for endophthalmitis include foreign bodies which are retained in the intraocular region, exogenous toxins, and various allergic reactions. [4]

The management of patients with endophthalmitis is even more problematic to the Ophthalmologists who sees it in frequently the conflicting recommendations with regard to culture techniques. [5]

The most important treatment modalities for such cases are antimicrobial therapy. Vitrectomy is also the leading way of the treatment of endophthalmitis but leads to the toxicity of drugs in the ocular region. All over the world, the most commonly done ocular surgeries done is cataract surgery which is mostly followed by the complication of acute post-cataract endophthalmitis. [6] This complication risk increases with age and is

associated more with males and less with females. Some there progressive risk factors are type one and type two diabetes, high blood pressure, some carcinoma, and stroke. [7]

So in this study the different treatment modalities in early post-operative endophthalmitis and its final outcome were studied.

### Material & Methods

This was a cross-sectional study in the patients with total 100 Eyes were studied department of Ophthalmology, Nalanda Medical College and Hospital Patna, Bihar, India over period of 2 Years. All patients with signs and symptoms suggestive of endophthalmitis following intra-ocular surgery were enrolled into the study. Most of the patients

had undergone cataract surgery or a secondary IOL implantation, through a few were cases of endophthalmitis following other surgeries like trabeculectomy, Keratoplasty and Vitrectomy. The commonest presenting complaint was decreased visual acuity but patients also presented with other complain such conjunctival injection, ciliary congestion, Ocular pain and headache, watering and purulent discharge. All the patients entering the study were subjected to through examination.

### Statistical Analysis

The data was collected by pre-tested, semi-structured questionnaire, the data was analyzed by Chi-square test and calculated by SPSS 19 version.

### Results

**Table 1: Demographic data**

Age in years	N%
0-10	0
11-20	1 (1)
21-30	5 (5)
31-40	12 (12)
41-50	24 (24)
51-60	24 (24)
61-70	22 (22)
>70	12 (12)
Gender	
Male	55 (55)
Female	45 (45)

The majority of the patients were in the age group of 41- 50, 51-60 were 24, followed by 61-70 were 22, 31-40 were 12, >70 were 12, 21-30 were 5, 11-20 were 1. The majority patients were male i.e. 55 and female were 45.

**Table 2: Distribution of the patients as per the Primary Interventions**

Primary Interventions	N%
Aggressive Topical Therapy Only	10 (10)
Aggressive Topical and Intra-vitreous injection	42 (42)
Pars plana Vitrectomy	48 (48)

Majority of the patients undergone Pars plana Vitrectomy i.e. 48%, Aggressive Topical and Intra-vitreous injection undergone 42%, Aggressive Topical Therapy Only in 10%.

**Table 3: Distribution of the patients as per the Associated other Interventions**

Associated other Interventions	N%
Anterior chamber wash	62 (62)
Penetrating Keratoplasty	8 (8)
Enucleation	3 (3)
Implant removal	6 (6)
IOFB Removal	1 (1)

As per the Associated other interventions majority of the patients undergone Anterior chamber wash In 62%, Penetrating Keratoplasty in 8%, Implant removal in 6%, Enucleation in 3%, IOFB Removal in 1%.

**Table 4: Distribution patients as per the Initial Versus Final Visual Acuity**

Initial Visual Acuity	N	Final Acuity 3/60 or Better (N)
Light perception	42	20
Hand movement	6	4
Counting Fingers	8	8
1/60	36	22
>6/60	8	6
Total	100	60

Majority of patients with Initial Visual Acuity were having Light perception in- 42; Vision (1/60)-36, Counting Fingers -8 and Final Acuity after all the treatment majority of the patients were having Vision (1/60)- were 20, Vision (>6/60) in 6 this observed difference was statistically significant.

### Discussion

Endophthalmitis is a rare complication, potentially the most devastating, of intraocular surgery or trauma. Despite major advances in asepsis, surgical technique and antibiotic therapy, it remains a major concern for any ocular surgeon. Its prevention by meticulous clinical evaluation of preoperative risk factors, accurate surgical procedure, pre and Perioperative antibiotic prophylaxis is one of our first goals. In some cases, however, the infection will occur; only prompt diagnosis and adequate treatment can successfully restore visual acuity. The classic signs of endophthalmitis are hypopyon (i.e., layering of WBCs in the anterior chamber of the eye), lid swelling, vitreous opacification, and loss of vision. Pain is a common presenting symptom but may be absent. Symptoms typically appear 24–48 h after surgery. In general, eyes with more-virulent bacteria have a quicker onset of endophthalmitis. Endophthalmitis may have unusual manifestations, such as vitreous haemorrhage. [8] There is general agreement that application of povidoneiodine to skin and conjunctiva is the best surgical preparation technique, because this treatment has been shown to reduce bacterial flora and the incidence of endophthalmitis. [9,10]

The majority of the patients were in the age group of 41- 50, 51-60 were 24, followed by 61-70 were 22, 31-40 were 12, >70 were 12, 21-30 were 5, 11-20 were 1. The majority patients were male i.e. 55 and female were 45. Majority of the patients undergone Pars plana Vitrectomy i.e. 48%, Aggressive Topical and Intra-vitreous injection undergone 42%, Aggressive Topical Therapy Only in 10%. As per the Associated other interventions majority of the patients undergone Anterior chamber wash In 62%, Penetrating Keratoplasty in 8%, Implant removal in 6%, Enucleation in 3%, IOFB Removal in 1%. Endophthalmitis is an uncommon but sight-threatening intraocular inflammation that may be due to a non-infectious process or may be caused by an infectious organism. It is a term used to describe intraocular inflammation that involves the vitreous cavity and the anterior chamber of the eye and can involve other adjacent ocular tissues such as the choroid or retina, sclera or cornea. [11] In infectious endophthalmitis, the organism might reach the eye from other infected sites in the body through hematologic seeding and in these cases it is labelled endogenous endophthalmitis. More commonly, the organism is exogenous and gains access to the

intraocular environment. [12] According to the Endophthalmitis Vitrectomy Study, postoperative endophthalmitis is divided generally into two types: acute and chronic. Acute postoperative endophthalmitis is defined as infections within 6 weeks of surgery; on the other hand, chronic postoperative endophthalmitis is defined as infections after 6 weeks of surgery. [13]

The white blood cells are found in the vitreous chamber as the protective mechanism of the immune system. Accumulation of neutrophils and fibrins that settle ventrally within the anterior chamber. Subluxation of the lens and the left-over particle of the lens is present in the vitreous humor. Plaque is seen in the eye of the organism. [14] The evaluation of chronic endophthalmitis is mostly with clinical thought with the other test findings. Biopsy of the vitreous chamber is done by the needle aspiration method. Tests like gram stain, immunofluorescence, and other tests for microorganism findings these types of culture require a week or more to grow as the organisms are very slow growing in nature. [15] The plaque formed in the eye is also used as a special type of culture for organisms to grow. The inflammation can also occur due to the implant placed in the eye, which starts to get irritated and cause it, so checking any implants is also a very important part of evaluation. [16] Majority of patients with Initial Visual Acuity were having Light perception in- 42; Vision (1/60)-36, Counting Fingers -8 and Final Acuity after all the treatment majority of the patients were having Vision (1/60)- were 20, Vision (>6/60) in 6 this observed difference was statistically significant. The visual acuity of the patient with the chronic onset of endophthalmitis is better than that of the acute onset of endophthalmitis, with over half of the patients having 20/40 in Snellen's chart; another half of them have a visual acuity vision less than this to worse than 5/200. [17]

### Conclusion

It can be concluded from our study that though the Endophthalmitis is dreaded complication but if it is detected early and treated with appropriately is having good outcome. In conclusion, endophthalmitis, a postoperative complication of cataract surgery, should always be considered an important factor for the complications and further loss of vision. Endophthalmitis is divided into two types on the basis of the time of causing an inflammation: the acute onset of endophthalmitis, which is considered inflammation within six weeks of cataract surgery, and the chronic onset of endophthalmitis, which is considered inflammation after six weeks of the cataract surgery. The acute onset of endophthalmitis occurs more often as the organisms tend to infect as soon as possible and have a greater impact on the eye. This leads to

higher chances of causing blindness if it gets diagnosed late or is misdiagnosed. In other types, the organisms are slow and react in the eye slowly, which takes more time to show the symptoms.

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