Etiological Patterns of Acute Infective Endophthalmitis at a Tertiary Care Centre in North India

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ABSTRACT

Background: Acute infective endophthalmitis is a vision-threatening ocular emergency with varied etiologies and clinical presentations. Understanding regional etiological patterns is important for early diagnosis and referral.

Objective: To describe the etiological patterns of acute infective endophthalmitis presenting to a tertiary eye care centre in North India.

Methods: This prospective observational study included patients diagnosed with acute infective endophthalmitis. Data regarding etiology, mode of presentation, duration of symptoms, and presenting visual acuity were analysed descriptively.

Results: Post-operative endophthalmitis was the most common etiology (42.9%), followed by post-traumatic endophthalmitis. Most patients presented within one week of symptom onset, although delayed presentation was common in traumatic cases. The majority of eyes had poor presenting visual acuity at the time of referral.

Conclusion: Post-operative and post-traumatic endophthalmitis remain the predominant forms of acute infective endophthalmitis in this region. Delayed presentation and severe disease at presentation highlight the need for early recognition and timely referral.

This descriptive analysis highlights real-world patterns of disease presentation encountered at a tertiary referral centre and reflects challenges related to delayed referral and advanced intraocular inflammation at first contact.

Keywords: Endophthalmitis; Etiology; Ocular Infection.

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Crossref Doi: https://doi.org/10.36437/irmhs.2025.8.4.D

Introduction

Infective endophthalmitis is a severe intraocular inflammatory condition caused by microbial infection of the aqueous and vitreous cavities. It represents one of the most devastating ophthalmic emergencies due to its rapid progression and potential to cause irreversible visual loss. The condition commonly follows intraocular surgery, penetrating ocular trauma, intravitreal injections, or may occur secondary to systemic infection.

The epidemiological profile of endophthalmitis varies across regions depending on surgical volume, trauma burden, and access to healthcare. In developing countries, delayed presentation and post-traumatic cases contribute significantly to disease severity at presentation. Knowledge of local etiological patterns and clinical presentation is essential for improving preventive strategies and optimizing referral pathways.

Early identification of etiological trends is important not only for clinicians managing endophthalmitis but also for policymakers aiming to improve surgical safety standards and trauma prevention strategies. Data from tertiary centres provide insight into referral patterns and disease burden in the community.

Materials and Methods

This prospective observational study was conducted at a tertiary eye care centre in North India. Patients presenting with clinical features suggestive of acute infective endophthalmitis were included.

Data collected included etiology of endophthalmitis, duration of symptoms prior to presentation, mode of onset, presenting visual acuity, and anterior and posterior segment findings. Etiological classification was based on clinical context, history, mode of presentation, as microbiological confirmation was not available for all cases. Cases of chronic endophthalmitis and those with incomplete records were excluded.

Data were analysed using descriptive statistics and expressed as frequencies and percentages.

All patients were managed as per institutional protocols. Clinical findings were documented at presentation, and patients were followed during the acute phase of illness to ensure completion of data collection relevant to disease presentation.

Result

Etiology	Number (n)	Percentage (%)
Post-operative endophthalmitis	21	42.9
Post-traumatic endophthalmitis	14	28.6
Delayed-onset post-operative endophthalmitis	7	14.3
Post-injection endophthalmitis	4	8.2
Endogenous endophthalmitis	2	4.0
Others	1	2.0

Table 1. Etiological distribution of acute infective endophthalmitis (n= 49).

A total of 49 eyes with acute infective endophthalmitis were analysed. Post-operative endophthalmitis constituted the largest group (42.9%), followed by post-traumatic endophthalmitis (28.6%). Other etiologies included delayed-onset post-operative, post-injection, and endogenous endophthalmitis.

The majority of patients presented within one week of symptom onset; however, delayed presentation was frequently observed in traumatic cases. Presenting visual acuity was poor in most eyes, reflecting advanced intraocular involvement at the time of referral.
Clinical examination commonly revealed hypopyon, dense vitritis, and marked anterior chamber inflammation.

Laterality did not show a significant predilection, and both sexes were affected across a wide adult age range. Traumatic cases were more frequently

associated with delayed presentation compared to post-operative cases.

Discussion

The predominance of post-operative endophthalmitis observed in this study is consistent with reports from other tertiary referral centres. The substantial proportion of post- traumatic cases reflects regional occupational hazards and delayed access to specialized ophthalmic care.

Poor presenting visual acuity and advanced inflammatory signs were common, underscoring the aggressive nature of the disease at presentation. Improved awareness, strict aseptic surgical practices, and early referral from peripheral centres may help reduce disease severity at presentation.

The findings of this study reinforce the importance of preventive strategies, including adherence to aseptic techniques during intraocular procedures and public awareness regarding ocular trauma. Reducing delays in referral may help limit disease severity at presentation. The single-centre design and lack of microbiological data are limitations of this study.

Conclusion

Acute infective endophthalmitis in this region is most commonly post-operative or post- traumatic in origin. Severe clinical presentation and delayed referral remain significant challenges. Strengthening preventive measures and referral systems is essential to improve overall patient care.

Descriptive studies such as this provide essential baseline data that can inform future analytical and interventional research in the management of infective endophthalmitis.

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How to cite this Article: Zeeshan.M , Mohammed Z. S, Abdullah. A; Etiological Patterns of Acute Infective Endophthalmitis at a Tertiary Care Centre in North India; Int. Res. Med. Health Sci., 2025; (8-4): 28-30; doi: https://doi.org/10.36437/irmhs.2025.8.4.D
Source of Support: Nil, **Conflict of Interest:** None declared.
Received: 10-10-2025; **Revision:** 27-10-2025; **Accepted:** 27-12-2025