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Endophthalmitis in the Context of Ocular Trauma: Prognostic Factors and Visual Outcomes

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Resumo

A endoftalmite pós-traumática constitui uma das complicações mais graves do trauma ocular aberto e está associada a um elevado risco de perda visual irreversível e a um prognóstico funcional desfavorável. O presente estudo teve como objetivo caracterizar os casos de endoftalmite pós-traumática tratados num centro terciário de referência, identificando fatores clínicos e terapêuticos associados aos resultados visuais finais.

Foi realizado um estudo observacional retrospectivo com revisão dos processos clínicos eletrónicos de doentes adultos diagnosticados com endoftalmite pós-traumática entre janeiro de 2003 e dezembro de 2025. Foram incluídos casos de trauma ocular penetrante com confirmação clínica de endoftalmite. Foram recolhidos dados demográficos, características do trauma, presença de corpo estranho intraocular, envolvimento anatómico ocular, abordagem terapêutica, tempo até intervenção cirúrgica, Ocular Trauma Score (OTS) e acuidade visual inicial e final.

Entre 821 casos de lesão ocular aberta, identificaram-se 32 casos de endoftalmite póstraumática, correspondendo a uma incidência de 3,9%. Após exclusões, foram analisados 27 olhos. A média de idade foi de $49,5 \pm 20,1$ anos, verificando-se um predomínio do sexo masculino (89%). Os mecanismos traumáticos mais frequentes envolveram objetos cortantes e corpos estranhos intraoculares. A maioria dos doentes apresentava trauma ocular grave, classificado predominantemente como OTS II. O envolvimento corneano, catarata traumática e complicações do segmento posterior, incluindo descolamento da retina, foram frequentes.

A terapêutica incluiu antibioterapia intravítrea, vitrectomia pars plana e procedimentos cirúrgicos adicionais, frequentemente múltiplos. Apesar da abordagem agressiva, os resultados visuais permaneceram limitados: apenas 19% dos olhos atingiram acuidade visual final superior a 20/40, enquanto 19% evoluíram para ausência de perceção luminosa. Observou-se tendência para melhores resultados visuais nos doentes submetidos a intervenção cirúrgica mais precoce e com menor necessidade de cirurgias adicionais.

Conclui-se que a endoftalmite pós-traumática continua associada a elevada morbilidade visual, mesmo no contexto de técnicas modernas de cirurgia vitreoretiniana. A gravidade do trauma ocular, a presença de corpo estranho intraocular, o atraso terapêutico e os danos oculares extensos parecem contribuir para piores resultados visuais. O reconhecimento precoce e a intervenção rápida permanecem fundamentais para melhorar os resultados anatómicos e funcionais.

Palavras-chave: endoftalmite pós-traumática; trauma ocular aberto; corpo estranho intraocular; prognóstico visual; vitrectomia pars plana; infeção intraocular.

Abstract

Post-traumatic endophthalmitis is one of the most severe complications of open globe injury and is associated with a high risk of irreversible vision loss and poor functional prognosis. This study intended to characterize cases of post-traumatic endophthalmitis managed at a tertiary referral center and to identify clinical and therapeutic factors associated with final visual outcomes.

A retrospective observational study was conducted through the review of electronic medical records of adult patients diagnosed with post-traumatic endophthalmitis between January 2003 and December 2025. Cases of penetrating ocular trauma with confirmed endophthalmitis were included. Demographic data, trauma characteristics, presence of intraocular foreign body, ocular structural involvement, treatment management, time to surgical intervention, Ocular Trauma Score (OTS), and initial and final visual acuity were collected.

Among 821 cases of open globe injury, 32 cases of post-traumatic endophthalmitis were identified, corresponding to an incidence of 3.9%. After exclusions, 27 eyes were included in the final analysis. The mean patient age was 49.5 ± 20.1 years, with a predominance of male patients (89%). Sharp-object injuries and intraocular foreign bodies were the most frequent trauma mechanisms. Most patients presented with severe ocular trauma, predominantly classified as OTS II. Corneal involvement, traumatic cataract, and posterior segment complications, including retinal detachment, were common findings.

Treatment strategies included pars plana vitrectomy, intravitreal antibiotics and additional surgical procedures, frequently requiring multiple interventions. Visual outcomes remained limited although aggressive management: only 19% of eyes achieved a final visual acuity better than 20/40, while 19% progressed to no light perception. A trend toward better visual outcomes was observed in patients undergoing earlier surgical intervention and requiring fewer additional surgeries.

In conclusion, post-traumatic endophthalmitis remains associated with substantial visual morbidity even with modern vitreoretinal surgical management. Severe initial trauma, intraocular foreign bodies, delayed treatment, and extensive ocular damage all seem to contribute to poorer visual outcomes. Early recognition and timely management remain key to improving anatomical and functional recovery.

Keywords: post-traumatic endophthalmitis; open globe injury; intraocular foreign body; visual prognosis; pars plana vitrectomy; intraocular infection.

List of Abbreviations

Abbreviation	Definition
BETT	Birmingham Eye Trauma Terminology
GDPR	General Data Protection Regulation
IOFB	Intraocular Foreign Body
IQR	Interquartile Range
LogMAR	Logarithm of the Minimum Angle of Resolution
NLP	No Light Perception
OTS	Ocular Trauma Score
PPV	Pars Plana Vitrectomy
STROBE Epidemiology	Strengthening the Reporting of Observational Studies in
VA	Visual Acuity

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Introduction

Post-traumatic endophthalmitis is a vision-threatening ophthalmologic emergency. It is associated with poor visual outcomes and risk of permanent vision loss.¹ Although relatively uncommon, its incidence increases significantly in cases of penetrating ocular injuries, particularly when an intraocular foreign body (IOFB) is present.² These injuries are frequently related to high-energy mechanisms such as occupational accidents, physical assaults, and trauma involving metallic objects, allowing direct microbial inoculation into the intraocular space.³

Post-traumatic endophthalmitis represents a severe intraocular inflammatory condition resulting from acute or subacute infection.⁴ The pathophysiology is closely related to the direct inoculation of microorganisms at the time of injury, often through contaminated objects or foreign bodies.⁵ Gram-positive bacteria are the most commonly implicated pathogens, particularly *Staphylococcus epidermidis* and *Bacillus cereus*.⁶ *Bacillus cereus* is especially associated with fulminant clinical progression, severe intraocular inflammation, and poor visual outcomes due to its high virulence and toxin production.⁷

Visual prognosis in post-traumatic endophthalmitis is affected by various factors, including the time interval between injury and initiation of treatment, the presence of an IOFB, the extent and location of ocular damage, host immune status, and the virulence of the infectious agent.⁸ Delayed diagnosis and treatment initiation of surgical or antimicrobial therapy have consistently been associated with worse anatomical and functional outcomes, drawing attention to the importance of early and aggressive management.⁹ Therapeutic methods such as early pars plana vitrectomy and intravitreal antibiotic administration have been more frequently adopted to reduce microbial load, control intraocular inflammation, and preserve ocular integrity.¹⁰ Beyond the anatomical and functional consequences, vision loss secondary to posttraumatic endophthalmitis has serious consequences for patients' quality of life, including psychological distress, social isolation, and significant socioeconomic impact.¹¹ Permanent visual impairment may compromise personal autonomy, professional reintegration, and extended psychological well-being, revealing the wider public health relevance of this condition.¹²

Despite advances in vitreoretinal surgical techniques and antimicrobial therapy, final visual outcomes remain unsatisfactory in a substantial proportion of cases, with persistently high rates of severe visual impairment and, in some situations, the need for globe-sacrificing procedures such as evisceration or enucleation.¹³ In this context, the systematic identification of prognostic factors associated with clinical and functional outcomes is crucial to improve risk stratification and guide therapeutic decision-making.¹⁴

Therefore, this study aimed to characterize cases of post-traumatic endophthalmitis managed at a tertiary referral center, focusing on clinical and therapeutic factors, as well as final visual outcomes.¹⁵ By improving the understanding of prognostic determinants, this

study intends to support earlier risk stratification, refine therapeutic strategies, and ultimately improve visual and anatomical outcomes in affected patients.¹⁶

Methods

Study Design

A retrospective, observational study was conducted based on a systematic review of electronic medical records from patients diagnosed with post-traumatic endophthalmitis in a tertiary referral ophthalmology center.

Study Population and Inclusion Criteria

All adult patients (≥ 18 years) admitted between January 2003 and December 2025 with a confirmed diagnosis of post-traumatic endophthalmitis following penetrating ocular trauma were included. Ocular trauma was classified according to standardized international terminology systems, guaranteeing uniform case definition and comparability between patients.¹⁷

Exclusion criteria included cases of postoperative endophthalmitis, endogenous endophthalmitis, endophthalmitis associated with previous ocular surgery in the same eye, and incomplete medical records, particularly those lacking information on final visual outcomes or treatment management.

The protocol for this study was approved by the Coordinating Office of Research /Department of Education, Training and Research (GCI/DEFI), by the Health Ethics Committee ULSSA Health Ethics Committee and the ULSSA Board of Directors through the opinion with reference **2025.304(262-CAC-262-CE)**

Data Collection

Data were obtained through a structured review of electronic medical records. Collected variables included:

Demographic and Clinical Data

Age, sex, relevant systemic comorbidities (including diabetes mellitus and immunosuppressive conditions), mechanism of injury, time interval between trauma and initiation of treatment, presence of an intraocular foreign body (IOFB), location and characteristics of the ocular wound, and initial presenting symptoms.

Ocular wounds were anatomically classified into zones according to established ocular trauma classification systems.¹⁸

Therapeutic Management

Initial treatment strategy (intravitreal antibiotic therapy, pars plana vitrectomy, evisceration, or enucleation), time interval between diagnosis and therapeutic intervention, and requirement for additional surgical procedures during follow-up were documented. Therapeutic decisions were guided by established international recommendations for the management of endophthalmitis.⁴

Further therapeutic variables included the number of surgical procedures performed per patient, timing of pars plana vitrectomy (PPV) from presentation (in hours or days), and classification of vitrectomy as primary (performed at initial management) or secondary (performed after initial medical treatment).

Ocular structures involvement

Detailed assessment of ocular structures involved was performed based on clinical examination and imaging findings, including the presence of retinal injury, vitreous involvement, lens damage (traumatic cataract), and corneal lesions.

Ocular Trauma Score

Ocular Trauma Score (OTS) was calculated retrospectively for each patient based on standardized criteria, incorporating initial visual acuity and specific clinical features at presentation.

Outcome Measures

Outcome variables included initial and final visual acuity, expressed in Snellen units, preservation or loss of globe integrity, and associated complications such as retinal detachment and traumatic cataract formation. Visual acuity assessment followed standardized ophthalmological measurement systems.¹⁹

Initial visual acuity was recorded as a potential prognostic factor. Visual outcomes were categorized into favorable and unfavorable groups, with an unfavorable outcome defined as a final visual acuity <20/200.

The study was conducted and reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.

Statistical Analysis

Statistical analysis was performed using Stata® software, version 14 (StataCorp LP, College Station, TX, USA). Descriptive statistics were used to summarize data. Group comparisons were performed using appropriate parametric or non-parametric tests according to data distribution. Due to the limited sample size and the low number of outcome events, multivariable logistic regression analysis was not performed in order to avoid model overfitting as well as unreliable estimates.

Results

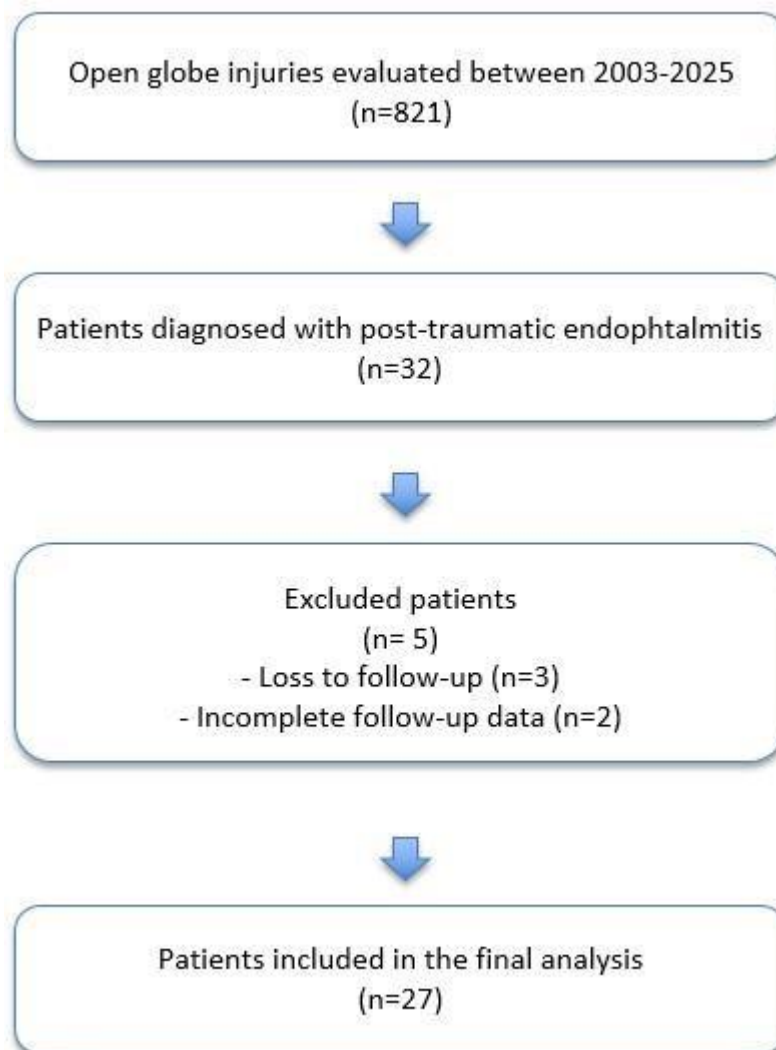


Figure 1: Participation flowchart and selection for the study evaluating post-traumatic endophthalmitis following open globe injuries between 2003 and 2025

Overall cohort characteristics

Between 2003 and 2025, a total of 821 cases of open globe injury were evaluated at our Department. Post-traumatic endophthalmitis occurred in 32 patients, corresponding to an incidence of 3.9%. Five cases were excluded from further analysis due to loss to follow-up (n = 3) or incomplete follow-up data (n = 2), leaving 27 eyes for final analysis.

The mean age of patients with post-traumatic endophthalmitis was 49.5 ± 20.1 years, and the majority were male (89%). The right eye was involved in 44% of cases. Most injuries occurred outdoors (78%), and 30% were related to occupational accidents. The most common places of injury were the home (41%) and garden (30%), followed by industrial areas (19%).

Sharp objects were the predominant mechanism of injury, accounting for 70% of cases. The demographic and injury-related characteristics are summarized in Table I.

According to the Birmingham Eye Trauma Terminology (BETT), as represented in Table II, intraocular foreign body (IOFB) injuries were the most frequent presentation (48%), followed by penetrating injuries (37%), ruptures (11%), and perforating injuries (4%).¹⁷ No intentional injuries were recorded in this cohort.

Overall, post-traumatic endophthalmitis in this cohort predominantly affected middle-aged male patients exposed to outdoor or work-related trauma mechanisms, with frequent involvement of intraocular foreign bodies, representing the typical profile commonly described in tertiary referral centers.

Ocular involvement and injury severity

Corneal involvement was present in 70% of eyes, while scleral involvement occurred in 30% of cases. Anterior chamber abnormalities were frequent, particularly hypopyon, which was observed in 48% of patients. Iris involvement included dialysis in 26% of eyes.

Lens injury was also common, with traumatic cataract identified in 44% of cases, lens extrusion in 8%, and lens luxation in 4%. Retinal involvement was documented in 22% of eyes, including retinal detachment in 15% and retinal tears in 7%, showing the substantial posterior segment damage associated with post-traumatic endophthalmitis. Ocular structural involvement is presented in Table III.

According to the Ocular Trauma Score (OTS), most patients presented with severe ocular trauma, with 81% classified as OTS class II. Only 14% of patients were classified as OTS III or IV, while no patient presented with OTS class V injury, as it is shown in Table IV.

Therapeutic management and visual outcomes

Treatment approach varied according to the extent of ocular injury and clinical severity at presentation. Combined treatment approaches involving intravitreal antibiotics, pars plana vitrectomy (PPV), cataract surgery, and foreign body removal were frequently required. Treatment modalities are described in Table V.

Seventeen patients (63%) underwent their first surgical procedure within the first 24 hours after presentation, while 19% underwent surgery between 1 and 3 days, and 19% after more than 3 days. Time to first surgery is shown in Table VI. Multiple surgical procedures were commonly required, with only 33% of patients managed with a single procedure. Nearly two-thirds of the cohort required two or more surgeries during follow-up, as summarized in Table VII.

Despite aggressive management, visual outcomes remained limited. Only 19% of eyes achieved a final visual acuity better than 20/40, whereas 19% progressed to no light perception (NLP). Functional visual outcomes remained poor overall, with approximately half of patients failing to achieve visual acuity greater than 20/200. Final visual outcomes are presented in Table VIII.

Comparative analysis according to final visual acuity

A total of 27 patients were included and stratified into two groups according to final visual acuity (VA): <20/200 (n = 13) and ≥20/200 (n = 14), as it is presented in Table IX. No statistically significant differences were observed between groups regarding sex, age, work-related accidents, wound size, injury zone, lens status, previous ophthalmologic history, or initial visual acuity.

Regarding the location of trauma, there was a trend toward a higher frequency of outdoor injuries among patients with better final visual outcomes (93% vs 62%; p=0.077).

Similarly, patients with better visual outcomes demonstrated a shorter median time to first surgical intervention, with a median of 0.5 days (IQR 0–1), compared with 2 days (IQR 0–3) in the poorer visual outcome group (p=0.09). Furthermore, patients achieving better final visual acuity tended to require fewer surgical procedures (p=0.083), with 50% requiring only one surgery compared with 15% in the poorer outcome group.

Discussion

Post-traumatic endophthalmitis remains one of the most devastating complications of ocular trauma, frequently resulting in severe and irreversible visual impairment in spite of advances in vitreoretinal surgery and antimicrobial therapy. In the present study, we analyzed cases of posttraumatic endophthalmitis managed at a tertiary referral center over a prolonged period, identifying key clinical and therapeutic factors associated with final visual outcomes and globe preservation.

The incidence observed in our cohort (3.9%) lies within the range reported by previous studies (2–7%), supporting the external validity of our findings despite the limited sample size.^{1,2,5} This observation supports the view that, although relatively uncommon, post-traumatic endophthalmitis represents a clinically significant complication, particularly in referral centers managing severe ocular trauma.

Our cohort predominantly consisted of middle-aged male patients, indicating the typical epidemiological profile described in the literature and likely related to increased exposure to occupational and outdoor high-risk activities. The high proportion of injuries occurring outdoors and in domestic or industrial settings draws attention to the significance of preventive measures, particularly the use of protective eyewear during manual labor and high-velocity activities.

Intraocular foreign body (IOFB) injuries have been associated in the literature with poorer visual outcomes, mainly due to their frequent association with retinal damage, retinal detachment, and a higher risk of infection. These injuries are typically seen in working-age men and are usually the result of high-energy trauma.

In our cohort, although IOFB cases were frequent, we did not find a statistically significant association with final visual outcome. This is likely related to the small sample size and the resulting limited statistical power. Still, the direction of the effect was in line with what has been described in previous studies.²⁰

The pattern of ocular involvement observed in our cohort indicates the severity of the underlying trauma. Corneal involvement was observed in most patients, while posterior segment complications, including retinal detachment and retinal tears, were also frequent. Additionally, traumatic cataract occurred in nearly half of the patients, reflecting the substantial mechanical disruption associated with penetrating trauma. These data reinforce the concept that posttraumatic endophthalmitis is rarely an isolated infectious process, but rather part of a complex spectrum of severe ocular injury involving multiple anterior and posterior segment structures.

The Ocular Trauma Score (OTS) distribution also supports the high severity profile of our population, with most patients classified as OTS class II. Since OTS is strongly associated with final visual prognosis, the predominance of lower OTS categories likely contributed to the poor visual outcomes observed in our cohort. The incorporation of OTS into the analysis

strengthens the prognostic characterization of the study and aligns our methodology with contemporary ocular trauma research standards.

Time to treatment has consistently been identified as one of the most important prognostic factors in post-traumatic endophthalmitis. In our cohort, patients with better final visual outcomes demonstrated a trend toward earlier surgical intervention. Although statistical significance was not reached, likely due to the limited sample size, these data show that earlier intervention and reduced surgical burden may be clinically associated with more favorable visual outcomes. Delayed intervention may allow continued microbial proliferation, toxin production, and progressive inflammatory damage, finally leading to irreversible retinal and choroidal injury.

Similar observations have been reported in previous studies, supporting the role of early diagnosis and prompt intervention.^{9,16}

Previous studies evaluating severe ocular trauma with intraocular foreign bodies have similarly demonstrated that delayed vitreoretinal intervention is associated with an increased risk of proliferative vitreoretinopathy, macular detachment, and the need or repeated surgical procedures. These complications may ultimately compromise visual recovery and globe preservation, further pointing out the importance of timely surgical management in eyes at high risk of post-traumatic infectious and inflammatory sequelae.²⁰

Similarly, patients with more favorable outcomes tended to require fewer surgical procedures during follow-up. This observation may indicate that eyes responding adequately to early treatment achieve better inflammatory control and reduced structural damage progression. Conversely, the need for multiple interventions may reflect more severe disease at presentation or persistent infectious and inflammatory activity.

Final visual outcomes in our cohort were generally poor, with a high proportion of eyes failing to achieve functional vision. This is consistent with previously published data, which report high rates of severe visual impairment following post-traumatic endophthalmitis.^{10,14} Poor outcomes remain common even with modern management, reflecting the aggressive nature of this condition and accentuating the need for improved preventive and therapeutic strategies. Beyond visual acuity outcomes, globe preservation represents another clinically meaningful endpoint. Severe cases requiring evisceration or enucleation are associated not only with anatomical loss but also with profound psychological and social consequences. Early recognition of patients at high risk for globe loss may therefore assist in refining therapeutic strategies and counseling patients regarding prognosis.

Several variables showed a tendency toward better visual outcomes without reaching statistical significance. Given the rarity of post-traumatic endophthalmitis and the limited sample size, these outcomes should be interpreted cautiously. Therefore, these findings should not necessarily be interpreted as the absence of association, but rather as potentially meaningful observations requiring confirmation in larger multicenter cohorts.

This study has several limitations. Its retrospective design introduces the possibility of selection bias and incomplete data collection. The relatively small sample size limits statistical power and may reduce the robustness of subgroup comparisons. The low number of outcome events also precluded reliable multivariable regression analysis, limiting the identification of independent prognostic factors. However, this reflects the rarity of post-traumatic endophthalmitis, even within large tertiary referral centers. Microbiological data, including culture results and pathogen identification, were not available for all cases, limiting the ability to correlate clinical outcomes with specific infectious agents or antimicrobial susceptibility patterns. Additionally, the long study period may have introduced heterogeneity in diagnostic approaches, surgical techniques, and clinical management procedures, indicating the evolution of vitreoretinal practice over more than two decades.

Nevertheless, the study also presents important strengths. The long inclusion period, standardized management within a single institution, and comprehensive assessment of clinical, anatomical, therapeutic, and prognostic variables provide a realistic depiction of real-world management of post-traumatic endophthalmitis. The inclusion of OTS stratification and detailed characterization of ocular structures additionally improves the clinical relevance of the analysis.

Future studies should ideally involve multicenter prospective cohorts with larger sample sizes, allowing more robust identification of independent prognostic factors and optimization of therapeutic algorithms. Advances in rapid microbiological diagnostics, molecular pathogen identification, and targeted intravitreal therapies may also improve outcomes in this demanding condition.

From a clinical perspective, the present findings emphasize the importance of rapid referral of patients with open globe injuries to dedicated ophthalmology centers. Early recognition of endophthalmitis and timely surgical management may represent some of the few potentially modifiable factors capable of improving visual prognosis.

In conclusion, post-traumatic endophthalmitis remains associated with substantial visual morbidity despite modern vitreoretinal management. Severe ocular trauma, intraocular foreign bodies, delayed intervention, and extensive structural involvement appear to contribute to unfavorable outcomes. Early recognition, prompt surgical management, and aggressive treatment strategies remain critical to optimize anatomical and functional recovery in these patients.

Ethical Considerations

This study was conducted in accordance with the principles of the Declaration of Helsinki and was approved by the hospital's Ethics Committee. Given its retrospective nature and the use of anonymized clinical data, informed consent was waived in accordance with national legislation and the guidelines of the Clinical Research Ethics Committee.

All data were handled confidentially, anonymized prior to analysis, and used exclusively for scientific purposes, in conformity with the General Data Protection Regulation (GDPR).

Conclusion

Post-traumatic endophthalmitis remains a vision-threatening complication of open globe injury with persistently poor functional outcomes despite advances in vitreoretinal management. The findings of this study support the role of early recognition and prompt surgical intervention in improving the likelihood of visual preservation.

Although severe initial trauma and intraocular foreign body involvement are consistently associated with worse outcomes, most patients in this cohort still experienced significant visual impairment, highlighting the aggressive nature of this condition.

Preventive strategies for ocular trauma and timely referral remain essential to reduce disease burden. Further multicenter prospective studies are required to better define prognostic factors and refine therapeutic approaches.

Tables

Table I. Demographic and injury-related characteristics of eyes with post-traumatic endophthalmitis.

Characteristic	Total (n=27)
Age (years), mean +/- SD	49.5 +/- 20.1
Male gender, n (%)	24 (89)
Right eye, n (%)	12 (44)
Work accident, n (%)	8 (30)
Outdoor injury, n (%)	21 (78)
Place of injury, n (%)	Total (n=27)
Home	11 (41)
Industry	5 (19)
Sports	2 (7)
Garden	8 (30)
Not specified	1 (4)
Context/mechanism, n(%)	Total (n=27)
Sharp object	19 (70)
Hammering	3 (11)
Contusion	2 (7)
Lawnmower	2 (7)
Fall	1 (4)

Table II. Clinical characteristics at presentation.

BETT Classification, n (%)	Total (n=27)
Rupture	3 (11)
Penetrating injury	10 (37)
Intraocular foreign body (IOFB)	13 (48)
Perforation	1 (4)

Table III. Ocular structures involvement.

Structure involvement	Total (n=27), n (%)
Corneal involvement	19 (70)
Scleral involvement	8 (30)
AC involvement	None - 13 (48) Hypopy <u>o</u> n - 13 (48) Inflammation - 1 (4)
Iris involvement	None - 19 (70) Dialysis - 7 (26) Hernia- 1 (4)
Lens involvement	None - 12 (44) Cataract - 12 (44) Luxation - <u>1</u> (4) Extrusion - 2 (8)
Retinal involvement	None - 21 (78) Detachment - 4 (15) Tear - 2 (7)

Table IV. OTS - Ocular Trauma Score

OTS, n (%)	Total (n=27)
Class I (0-44)	1 (4)
Class II (45-65)	22 (81)
Class III (66-80)	2 (7)
Class IV (81-91)	2 (7)
Class V (92-100)	0 (0)

Table V. Treatment modality.

Treatment modality, n (%)	Total (n=27)
IVI only	4 (15)
IVI plus repair	8 (30)
IVI plus FB removal	1 (4)
IVI plus repair + FB removal + CS	1 (4)
IVI plus PPV	2 (7)
IVI plus PPV + CS	5 (19)
IVI plus PPV + FB removal	2 (7)
IVI plus PPV + CS + FB removal +/- Repair	3 (11)

FB - foreign body; CS - cataract surgery; PPV - pars plana vitrectomy.

Table VI. Time to first surgical procedure.

Time to first surgical procedure, median (IQR) and n (%)	Total (n=27)
< 1 day	17 (63)
1-3 days	5 (19)
> 3 days	5 (19)

Table VII. Number of surgeries.

Number of surgeries, n (%)	Total (n=27)
1	9 (33)
2	8 (30)
3	7 (26)
4	3 (11)

Table VIII. Final VA.

Final VA	Total (n=27)
>20/40	5 (19)
20/50 to 20/200	9 (33)
1/200 to 19/200	5 (19)
HM/LP	3 (11)
NLP	5 (19)

Table IX. Comparative analysis according to final visual acuity

Variable	≥20/200 (n=14)	<20/200 (n=13)
Age (years), mean ± SD	47.8 ± 19.6	51.3 ± 20.8
Male gender, n (%)	12 (86)	12 (92)
Work accident, n (%)	5 (36)	3 (23)
Outdoor injury, n (%)	13 (93)	8 (62)
Zone III injury, n (%)	13 (93)	13 (100)
Initial VA HM/LP, n (%)	11 (79)	11 (85)
Retinal detachment, n (%)	2 (14)	2 (15)
Time to surgery <24h, n (%)	10 (71)	7 (54)
Time to surgery (days), median (IQR)	0.5 (0–1)	2 (0–3)
≥2 surgeries, n (%)	6 (43)	12 (92)

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