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CULTURE-NEGATIVE ENDOGENOUS ENDOPHTHALMITIS IN A DIABETIC PATIENT: DIAGNOSTIC CHALLENGES AND VISUAL OUTCOME

Ophthalomology

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ABSTRACT

Endogenous endophthalmitis is a rare but vision-threatening intraocular infection resulting from hematogenous spread of microorganisms. Diagnosis is often delayed, particularly in culture-negative cases. We present a case of a 75-year-old woman with long-standing diabetes mellitus presented with pain, redness, and progressive vision loss in the left eye. Examination revealed hypopyon, severe anterior chamber inflammation, and dense vitritis. Systemic evaluation showed elevated inflammatory markers. However, blood and urine cultures were negative. Patient was treated with systemic and topical antimicrobials followed by corticosteroids. Inflammation gradually resolved, but visual recovery was limited. Culture-negative endogenous endophthalmitis poses significant diagnostic challenges. Early suspicion and prompt treatment are essential, as presenting visual acuity remains the strongest predictor of outcome.

KEYWORDS

Endogenous endophthalmitis, Culture-negative, Diabetes mellitus, Vitritis

INTRODUCTION

Endogenous endophthalmitis is an uncommon but devastating intraocular infection caused by hematogenous dissemination of microorganisms from a distant systemic focus. It accounts for a small proportion of all endophthalmitis cases but is associated with disproportionately poor visual outcomes. Diabetes mellitus is a recognized risk factor, and a significant proportion of cases remain culture-negative. We report a case highlighting the diagnostic challenges and management considerations of culture-negative endogenous endophthalmitis.

Case Report

A 75-year-old female with a 15-years history of diabetes mellitus and hypertension presented with a 2-weeks history of pain, redness, and decreased vision in the left eye. There was no history of trauma, recent surgery, hospitalization, or systemic infection.

Best-corrected visual acuity was 6/12 (p) in the right eye and 3/60 in the left eye. Slit-lamp examination of the left eye showed lid edema, conjunctival congestion, a 1 mm hypopyon, and marked anterior chamber cells and flare. The eye was pseudophakic. Fundus view was obscured due to dense vitritis.

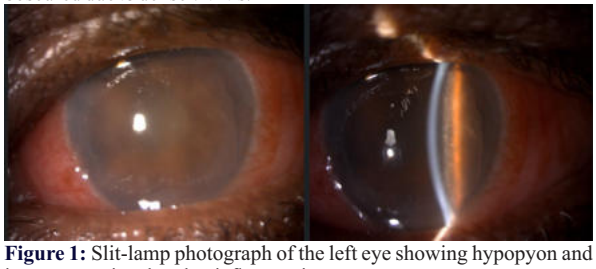

Figure 1: Slit-lamp photograph of the left eye showing hypopyon and intense anterior chamber inflammation.

B-scan ultrasonography demonstrated diffuse vitreous echoes suggestive of vitritis with an attached retina.

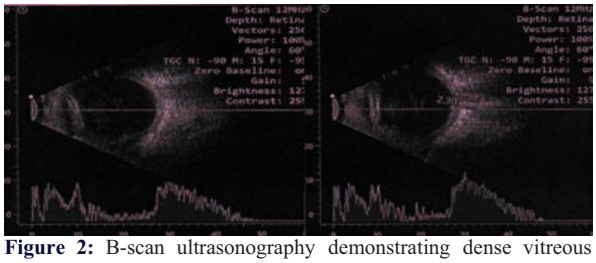

Figure 2: B-scan ultrasonography demonstrating dense vitreous echoes consistent with vitritis and an attached retina.

Laboratory investigations revealed leukocytosis with elevated ESR and CRP. Blood and urine cultures were negative. No definite systemic infectious focus was identified.

The patient was treated with intensive topical antibiotics, corticosteroids, cycloplegics and systemic broad-spectrum antibiotics. Oral corticosteroids were introduced after adequate antimicrobial coverage. Inflammation gradually subsided over three months. Final visual acuity improved to 6/36 and OCT showed preserved foveal architecture.

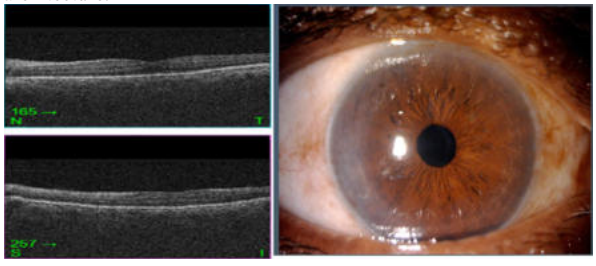

Figure 3: Optical coherence tomography at follow-up showing preserved foveal contour after resolution of inflammation.

DISCUSSION

Culture-negative endogenous endophthalmitis is reported in up to 70% of cases. Possible explanations include prior antibiotic exposure, low organism load, and fastidious pathogens. Diabetes mellitus predisposes patients to endogenous infections and may contribute to delayed diagnosis.

Presenting visual acuity has consistently been shown to be the strongest predictor of final visual outcome. Although pars plana vitrectomy may be considered in selected cases, management is often individualized. This case reinforces the importance of maintaining a high index of suspicion even when systemic evaluation fails to identify an infectious source.

CONCLUSION

Culture-negative endogenous endophthalmitis remains a diagnostic and therapeutic challenge. Early recognition and prompt treatment are crucial; however, visual prognosis remains guarded, particularly in patients with poor presenting visual acuity.

Learning Points

- Endogenous endophthalmitis may occur without an identifiable systemic source.
- Negative cultures do not exclude active infection.
- Diabetes mellitus is a significant risk factor.
- Presenting visual acuity predicts final outcome.

Ethics Statement

The study adhered to the tenets of the Declaration of Helsinki. Written informed consent was obtained from the patient for publication of clinical details and images.

Conflict Of Interest

The authors declare no conflict of interest.

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