

Case Report

A diagnostic dilemma in a patient with delayed onset endophthalmitis



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Abstract

We report a case of nonpainful uveitis nine months after an uncomplicated phacoemulsification cataract surgery. Chronic postoperative endophthalmitis was suspected. Diagnostic vitrectomy and partial capsular bag removal was performed, but the specimens cultured in microbiology laboratory showed no pathogens. Systemic workup came positive for skin Tuberculosis test, and presumed intraocular tuberculosis treatment was started accordingly. Inflammation persisted, so a repeat vitrectomy was performed with removal of the lens implant with the capsule, and this time bedside culture inoculation was performed in operating room, revealing *Pseudomonas* infection. Delayed-onset postoperative endophthalmitis typically progresses slowly and therefore can be confused with uveitis and treated with steroid and immunosuppressant treatment regimes. Our case confirms both the value of immediate bacterial inoculation and the necessity of aggressive surgical treatment in chronic postoperative endophthalmitis cases.

Keywords: Uveitis, *Pseudomonas*, Endophthalmitis

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Introduction

Chronic postoperative endophthalmitis may present as chronic uveitis, with recurrent low-grade inflammation long after intraocular surgery. It is usually secondary to *Staphylococcus epidermidis* and *Propionibacterium acnes*.¹ Main challenge in diagnosing chronic postoperative endophthalmitis is to find the offending microorganism, generally low grade and therefore hard to isolate. We report a case of delayed onset endophthalmitis first treated as uveitis, then reported as culture negative in the first diagnostic vitrectomy when samples were sent for inoculation, only to be

diagnosed as chronic endophthalmitis caused by *Pseudomonas* species when same cultures were prepared in the operating theatre during the repeat vitrectomy.

Case report

A 65-year-old female was referred to our clinic for non-painful uveitis in the right eye nine months after an uncomplicated phacoemulsification cataract surgery with in-the-bag implantation of a hydrophobic acrylic intraocular lens.

Examination of the affected eye revealed a visual acuity of light perception, a pressure of 18 mm Hg, corneal edema

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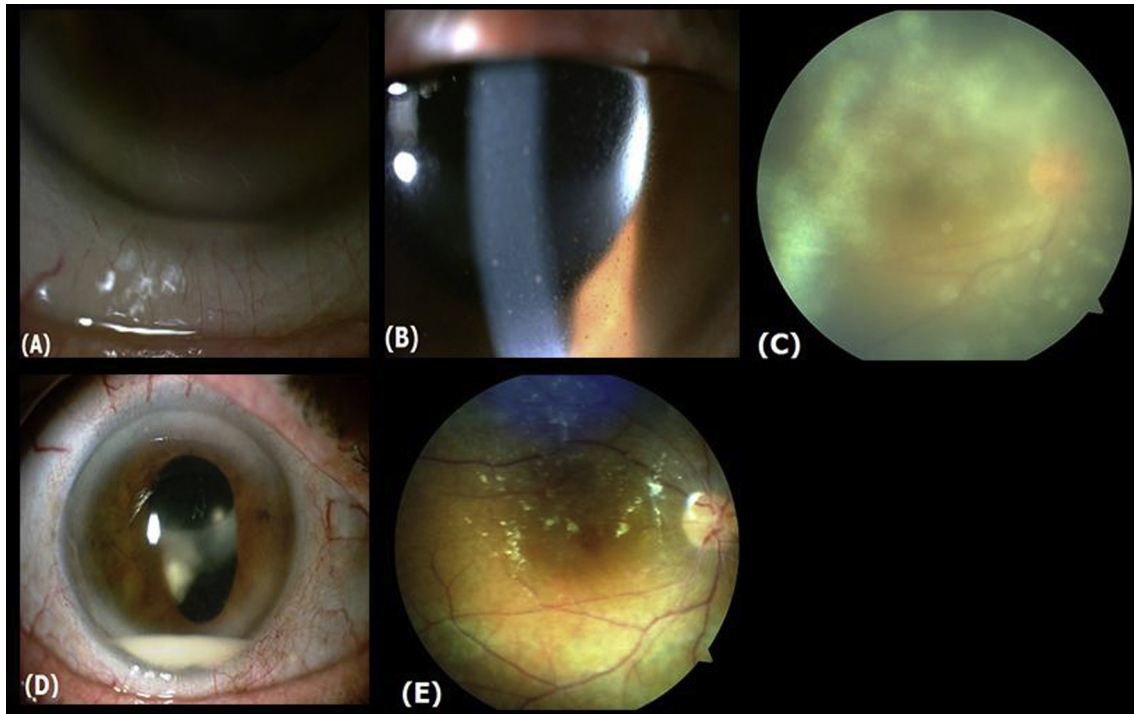


Fig. 1. (A) Anterior segment photograph of cornea, showing endothelial folds due to edema. (B) Keratic precipitates scattered in diffuse pattern. (C) Fundus photograph of grade 3 vitreous haze. (D) Hypopyon formation in the third week of initial vitrectomy. (E) Fundal appearance following the second vitrectomy and silicone oil tamponade.

with endothelial folds (Fig. 1A), diffuse fine keratic precipitates (Fig. 1B), anterior chamber cells (3+), vitreous haze (3+) (Fig. 1C), and a well-centered, in-the-bag IOL. Chronic postoperative endophthalmitis was suspected. Diagnostic vitrectomy and partial capsular bag removal was performed to exclude chronic endophthalmitis and ocular lymphoma, followed by intraocular injections of Vancomycin (1 mg/0.1 cc), Ceftazidime (2.25 mg/0.1 cc) and Voriconazole (0.05/0.1 cc). However undiluted specimens from anterior chamber and vitreous sent for cultures were negative and pathological examination only showed polymorphonuclear leukocyte infiltration and necrosis, with no signs of lymphoma. Three weeks postoperatively recurrence of inflammation was noted, now with hypopyon formation (Fig. 1D). Her systemic workup showed positive Tuberculosis skin test, so Tuberculosis treatment regime with topical corticosteroids for presumed intraocular Tuberculosis was prescribed. Inflammation persisted, so a repeat vitrectomy was performed, this time with complete removal of the lens capsule and implant, followed by combined intraocular antibiotic-antifungal injections and silicone oil tamponade instillation. Anterior chamber and vitreous specimen was also taken prior to antibiotic and antifungal injection, but this time cultures were inoculated immediately in the operating theatre. Anaerobic cultures were found negative, but aerobic cultures of vitreous and explanted intraocular lens showed *Pseudomonas species* growth sensitive to Amikacin, Aztreonam, Cefepime, Ciprofloxacin, Meropenem and Ceftazidime. With Systemic and topical Moxifloxacin treatment patient improved symptomatically. Postoperative first month, patient showed no signs of inflammation with the visual acuity of 20/400.

Discussion

Delayed-onset postoperative endophthalmitis can be confused with uveitis, prompting steroid treatment to be started. The main challenge is to find the offending microorganism, generally low grade and therefore hard to isolate.² Majority of these cases is caused by *Propionibacterium species*, followed by coagulase-negative *Staphylococcus* and fungi.³ There have been reports of *Pseudomonas species*, including *Pseudomonas aeruginosa*, causing late-onset endophthalmitis.⁴⁻⁶ However, due to the high virulence and multiple drug resistance of *Pseudomonas aeruginosa*, chronic postoperative endophthalmitis secondary to this organism is rare. In our case, the *Pseudomonas* isolate was found susceptible to Amikacin, Aztreonam, Cefepime, Ciprofloxacin, Meropenem and Ceftazidime, with no signs of multidrug-resistance. This made us believe this strain was not *Pseudomonas aeruginosa* but a subtype with low virulence.

It is also important to note that the first vitreous specimen, which was sent to microbiology for culture preparation, was found negative. Only with bedside culturing pathogen identification was possible. Also, without the removal of the intraocular lens and total capsulectomy, intraocular wide spectrum antibiotics and antifungals proved to be ineffective. Our case confirms both the value of immediate bacterial inoculation and the necessity of aggressive surgical treatment in chronic postoperative endophthalmitis cases.

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Conflict of interest

The authors declared that there is no conflict of interest.

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