Burkholderia cepacia: Rare cause of postsurgical acute endophthalmitis

Taskin Khan, MB BS, MS

This is a case report of a 50-year-old woman who developed acute postoperative endophthalmitis after uneventful small-incision cataract surgery. Clinical progression of the disease was very rapid. Vitreous tap showed gram-negative bacilli. Cultures were positive for *Burkholderia cepacia*. Infection was controlled by intravitreal antibiotics and pars plana vitrectomy, but the visual outcome was poor.

**Financial Disclosure:** The author has no financial or proprietary interest in any material or method mentioned.

JCRS Online Case Reports 2013; 1:e1–e2 © 2013 ASCRS and ESCRS

Postoperative acute endophthalmitis remains a serious and blinding complication even today, with an incidence of about 0.03% to 0.15%. Microorganisms which reside in the skin around the eyelids, eyelashes, conjunctiva, or lacrimal sac are the usual source of infection. *Staphylococcus epidermidis* is the most common organism recovered from patients with culture-proven endophthalmitis. Gram-negative species are found in fewer cases. Culturing of intraocular fluid, especially vitreous specimens obtained by direct aspiration is critical for proper diagnosis and management of endophthalmitis. *Burkholderia cepacia* is an opportunistic aerobic gram-negative nonfermentative bacillus widely distributed in the environment. However, the hospital is the main source of infection. It more commonly causes respiratory tract infection in cystic fibrosis patients, chronic kidney disease, and infection in immune-compromised patients, and even sometimes, in otherwise healthy individuals. Due to high intrinsic resistance and being 1 of the most antimicrobial-resistant organisms encountered, these infections can prove very difficult to treat. It has also been found to be resistant to certain antiseptics. We describe a patient who developed acute postoperative endophthalmitis caused by *B cepacia* 3 days after small-incision cataract surgery with posterior intraocular lens (IOL) implantation.

**CASE REPORT**

A 50-year-old woman presented in the outpatient department with pain, redness, and decreased vision in her right eye 3 days after having cataract surgery with posterior chamber IOL implantation in the same hospital. The patient’s general condition was good, with no evidence of systemic infection. The surgery was uneventful. At the time of presentation, her left eye had a corrected distance visual acuity of 20/40 and her right eye had counting fingers. Examination revealed lid edema, conjunctival and circumciliary congestion, corneal edema, and anterior chamber reaction (3-plus) with hypopyon; there was no fundal glow. Digitally, the intraocular pressure was high. B-scan ultrasonography demonstrated generalized echogenicity in the vitreous cavity in her right eye.

Treatment for acute postoperative endophthalmitis was started. Injection cefazoline (2.25 mg/0.1 mL), amikacin (0.4 mg/0.1 mL), and dexamethasone were given as intravitreal injections and a vitreous sample was sent for culture and sensitivity. Topical (cefoxazime and tobramycin) and systemic antibiotics (Ciprofloxacin), cycloplegics, and timolol were also started. Gram staining of the vitreous sample revealed gram-negative bacilli. Culture reports showed *B cepacia* sensitive only to ceftriaxone, meropenem, and trimethoprim. Culture was grown on blood agar and MacConkey media, and sensitivity was checked through VITEK (Biomérieux SA). The antibiotics were changed according to the sensitivity report as the patient’s condition was not improving. Systemic meropenum and trimethoprim along with topical sulphacetamide were started. Pars plana vitrectomy was performed when the patient’s visual acquity detoriated to light perception despite changing the drugs.
and intravitreal injection. Following the pars plana vitrectomy, the infection was controlled, the patient improved clinically, and the vitreous culture became sterile but, unfortunately, there was no improvement in visual acuity.

The source of infection could not be traced. All the cultures from the disinfecting agents, water supply, and operating room were found to be sterile.

**DISCUSSION**

Despite the availability of modern surgical techniques and standard sterilization methods, the incidence of postoperative endophthalmitis is still seen in 0.05% to 0.15% cases of cataract surgery. In most of the cases, the periocular flora is responsible for infections. *Staphylococcus epidermidis, S aureus, Streptococcus* sp., and gram-negative bacillus are the usual causative organisms. The infection in the eye may be exogenous or endogenous in origin.

*Burkholderia cepacia* is an opportunistic gram-negative nonfermentive pathogen which can cause nosocomial infections acquired through contaminated medical equipment. It thrives in moist environments.3 *Burkholderia cepacia* endophthalmitis is a rare entity and very few cases have been reported in the literature following cataract surgery.4 The incidence, however, could be under reported and there may be a higher incidence of *B cepacia* infections as manual and automation units for identification are inadequate worldwide. Even with advancement in automation, there could be discrepancies in the identification and can only be confirmed following molecular studies.5–7 Treatment remains a big challenge as it can easily become resistant to antimicrobial agents like in this case, which was found to be resistant to all the antibiotics commonly used in ophthalmology. The poor penetration of antibiotics into the eye also results in it being a difficult infection to treat. Clinicians must be aware of this infection, especially when it is difficult to treat, especially in high-risk groups, as the visual outcome is poor. Better understanding of surgical techniques, instrumentation, prophylactic antibiotics, ambulatory surgery, and proper asepsis will significantly reduce its incidence.

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