# Post cataract *Pseudomonas stutzeri* endophthalmitis: Report of a case and review of literature

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We report a rare case of *Pseudomonas stutzeri* endophthalmitis in an immunocompetent individual along with the review of the literature. A 39-year-old healthy lady presented with sudden painful loss of vision in her right eye. She was diagnosed with postcataract surgery acute endophthalmitis and underwent vitrectomy, intraocular lens explantation and intravitreal antibiotics. *P. stutzeri* was isolated from vitreous. Though the infection was controlled, the anatomy of the eye could not be salvaged and the right eye became phthisical. *P. stutzeri* is a rare cause of endophthalmitis with usually poor outcomes.

**Key words:** Acute endophthalmitis, immunocompetent, postcataract surgery endophthlamitis, *Pseudomonas stutzeri*

*Pseudomonas* species are known to cause devastating ocular infections including endophthalmitis and bacterial keratitis.[1,2] Among its various species, *Pseudomonas aeruginosa* has been mainly implicated as the cause of endophthalmitis. *Pseudomonas stutzeri* as an etiological microorganism for delayed onset of endophthalmitis has been sparingly described in the literature.[3] To the best of our knowledge, present report was the first to describe acute endophthalmitis by *P. stutzeri* in a patient who underwent extra capsular cataract extraction with intraocular lens implantation.

## Case Report

A 39-year-old lady presented with sudden painful decrease in vision in the right eye for two days. She had undergone extracapsular cataract extraction with intraocular implantation 12 days back elsewhere. The best corrected visual acuity (BCVA) in the right eye was perception of light with accurate projection of rays. Anterior segment examination showed circumciliary congestion, corneal haze, 3+ anterior chamber cells, and exudative plaque covering the pupil intraocular pressure with applanation tonometer was 10 mm of Hg. Left eye was normal. Fundus of left eye was not visible due to pupillary exudates. Ultrasound B scans showed plenty of dot echoes. A provisional diagnosis of acute postcataract surgery endophthalmitis was made. A complete systemic examination that included routine blood investigations, and urine and blood culture along with a physician evaluation was done. No active systemic foci of infection were detected. The patient underwent standard three port 23-gauge pars plana vitrectomy, intraocular lens explantation, and intravitreal antibiotics (vancomycin 1 mg/0.1 ml and amikacin 0.4 mg/0.1 ml). Undiluted vitreous aspirate and intraocular lens were sent for microbiological tests. In view of recurrent exudates at pupil and no view of fundus again in postoperative period, the right eye received two more intravitreal injection of vancomycin and amikacin. No organism was identified on Gram's stain, 10% KOH mount and calcofluor-white stain. Vitreous culture revealed *P. stutzeri* causative organism. Antibiotic sensitivity testing was performed by the Kirby-Bauer disc diffusion method. The organism was sensitive to gentamicin, ciprofloxacin, amikacin and resistant to cefotaxime, ceftazidime, and vancomycin. Based on the sensitivity report, the patient further received two more intravitreal injections of amikacin and ciprofloxacin (0.1 mg/0.1 ml). However, at the end of follow-up of nine months, the eye became phthisical.

## Discussion

*P. stutzeri* is an aerobic, gram negative bacteria first described by Burri and Stutzer in 1895. It is usually found in the soil, manure, pond water, and sewage. It is ubiquitous in hospital environment and is a rare opportunistic human pathogen. Though it has been isolated from surgical wounds, blood, sputum, and urine, isolation from the eye is extremely rare.[4] Most patients in whom the organism has been isolated have been elderly and in poor health.[4,5] Review of the literature shows that only a few isolated cases of ocular infections by *P. stutzeri* have been reported [Table 1]. In 1977, Brinzer[6] reported the first ever case of corneal ulcer due to *P. stutzeri* in a scarred cornea secondary to previous herpetic infection. In 2001, Lebowitz *et al*.[1] reported a single case of late onset panophthalmitis with orbital abscess due to *P. stutzeri*. One case of delayed onset endophthalmitis following cataract surgery has been reported in 1998 by Jiraskova *et al*.[3] The patient was elderly and in poor health. The organism was sensitive to tetracycline, gentamicin, amoxicilin, and ofloxacin, and resistant to oxacillin, chloramphenicol, vancomycin and cefalotin. *P. stutzeri* was identified as the cause of conjunctivitis in an eye with preexisting corneal opacity in a 66-year-old female by Malhotra *et al*.[7] In the current case, we report an acute onset postcataract surgery

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**Table 1: Review of literature of *P. stutzeri* ocular infection**

| Authors | Year | Eye disease | Age/gender | Systemic history | Initial BCVA | Clinical presentation | Treatment | Final outcome |
|---|---|---|---|---|---|---|---|---|
| Brinser *et al.* | 1977 | Corneal ulcer | 78 years; male | None | HMCF | Corneal abscess and hypopyon | Topical gentamicin and colistin. Intravenous gentamicin | Deceased |
| Jiraskova *et al.* | 1988 | Post cataract surgery endophthalmitis | 88 years; female | None | 20/1000 | Corneal edema, hypophon, fibrin, and exudates | Vitrectomy, topical gentamicin | 20/200 |
| Lebowitz *et al.* | 2001 | Bleb related panophthalmitis with orbital abscess | 69 years; male | None | No PL | Severe proptosis, corneal edema, fibrin, and hypopyon | Intravitreal vancomycin, ceftazidime. Enucleation | No PL |
| Kalra *et al.* | 2015 | Bacterial keratitis | 25 years; female | Trigeminal nerve schwanoma | HMCF | Corneal edema, Multiple infiltrate and epithelial defect | Topical ciprofloxacin, fortified cefazoline and amikacin | 20/40 |
| Malhotra *et al.* | 2008 | Conjunctivitis | 66 years; female | None | Not available | Discharge and dry eye | Topical ciprofloxacin | Resolution of conjunctivitis |
| Present report | 2019 | Post cataract surgery endophthalmitis | 39 years; female | Hypertension | HMCF | Corneal edema, hypopyon, fibrin and exudates | Vitrectomy, IOL removal, Intravitreal Vancomycin, amikacin and ciprofloxacin | Phthisis |

BCVA=Best corrected visual acuity; HMCF=Hand movement close to face; PL=Perception of light; IOL=Intraocular lens

endophthalmitis due to *P. stutzeri* in a relatively young and immunocompetent patient. Report suggested that the organism was susceptible to gentamicin, ciprofloxacin, and amikacin whereas resistant to cefotaxime, ceftazidime, and vancomycin. The current case for the first time reports *P. stutzeri* as the cause of acute endophthalmitis following cataract surgery. Authors also intend to highlight the significance of early detection of causative microorganism and antibiotic sensitivity test in prompt management of endophthalmitis.

## Conclusion

Though rare, *P. stutzeri* should be considered in the list of microorganisms responsible for acute postcataract surgery endophthalmitis.

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### Conflicts of interest

There are no conflicts of interest.

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