



Treatment and Follow up of Psodomonas Endophtalmitis Due to Contact Lens Use

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Abstract

The use of contact lenses is the most common cause of bacterial keratitis. Pseudomonas aurogenoza is the most common factor. We aimed to present diagnosis, treatment and follow up a 21 yeas old female patient with endophtalmitis secondary to multi-drug resistance, a stubborn Pseudomonas aeruginosa keratitis due to the inappropriate use of soft contact lenses.

Key Words: Contact lens, keratitis, endophthalmitis, pseudomanas aeruginosa, drug resistance, imipenem

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Introduction

Contact lenses are recently considered to be the most common predisposing factor for bacterial keratitis [1]. As is known, a soft contact lens wearers reported more frequently affected, prolonged use of contact lenses and contact lens-sleeping increase the risk of keratitis [2]. We aimed to present treatment and follow up an endophtalmitis secondary to multi-drug resistance, a stubborn *Pseudomonas aeruginosa* keratitis due to the inappropriate use of soft contact lenses.

Case

21-year-old female patient, using soft contact lens for 2 years due to refractive error. For the last 2-3 months patient was using soft contact lenses in the form of 'monthly contact lenses' most of the day time and even during sleeping. Patient was cleaning contact lenses with contact lens solutions weekly or 10 days period. Applied to the health center with the left eye redness, pain, decreased vision for last 2-3 days. 4x1 ciprofloxacin and 4x1 dexamethasone drops were given and not to use contact lenses was recommended at the health center. Patient was referred to our clinic because of increased complaints. Ophthalmologic examination of the patient: left eye visual acuity was level of hand movements, biomicroscopic examination showed 2x3 mm wide corneal abscess formation with corneal edema around the lesion with ground glass appearance and ulcer formation staining with fluorescein at center of the abscess. There were intense cell in the anterior chamber and details of iris did not seen and also due to the central abscess and corneal edema details of lens and pupilla was not seen. There was 1 mm height hypopyon and conjunctival hyperemia and subconjunctival hemorrhage. There was minimal mucopurulent discharge at inferior and superior lid margins. (Figure 1)



Figure 1. At the first day of the case: Central corneal ulcer and abscess formation and hypopyon in the left eye.

Diagnosis, Treatment and Prognosis

1- Diagnosis

With topical anesthesia the patient's left after corneal scrapings samples were obtained from an abscess. Some of the samples taken to microscopic examination with direct smear, Gram staining and remaining part of sample was cultured and subjected to antibiogram. Direct microscopy showed Gram (-) bacilli, and the most common cause of corneal abscess and the typical abscess formation, microorganism was thought to be *Psodomonas aeruginosa*.

2-Treatment

Fortified ceftazidime, amikacin combination was started per hour. And also 1% cyclopentolate eye drops 3x1, preservative-free artificial tears 12x1, tetracycline eye pomade 3x1 was started. Third days in culture *Psodomonas aeruginosa* was isolated. Antibiogram showed that microorganism have resistance to 3rd and 4th generation cephalosporins,

piperacilline-tazobactam, quinolones and aminoglycosides and susceptible to carbapenem group antibiotic imipenem and meronem. Topical imipenem 5 mg / ml doses of drop was prepared and started as 24x1 [3,4]. Other antibiotics were stopped. Clinical findings of the patient did not decline in the first 2 days of treatment, 3rd day of the treatment imipenem was introduced, hypopyon was filmed during the first week of treatment, abscess decreased and anterior chamber selected better. The patient's pain and photophobia decreased. Vision increased to 20/200 (Figure 2).

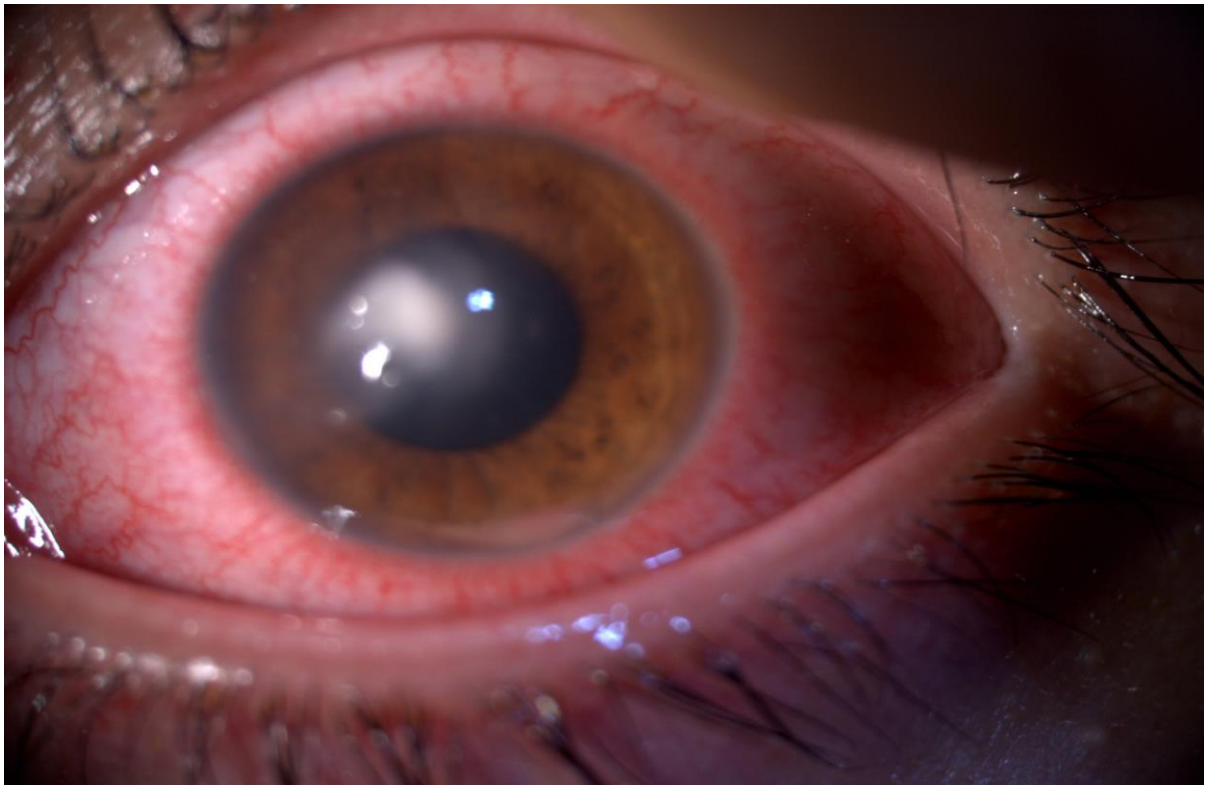


Figure 2. At the first week of the treatment: Abscess decreased, hypopyon resolved and anterior chamber selected better.

3- Prognosis

At the end of the 2nd week abscess became smaller, confined and cornea cleared, the anterior segment was selecting. Center of the abscess was staining minimally (Figure 3a), visual acuity was 20/100.

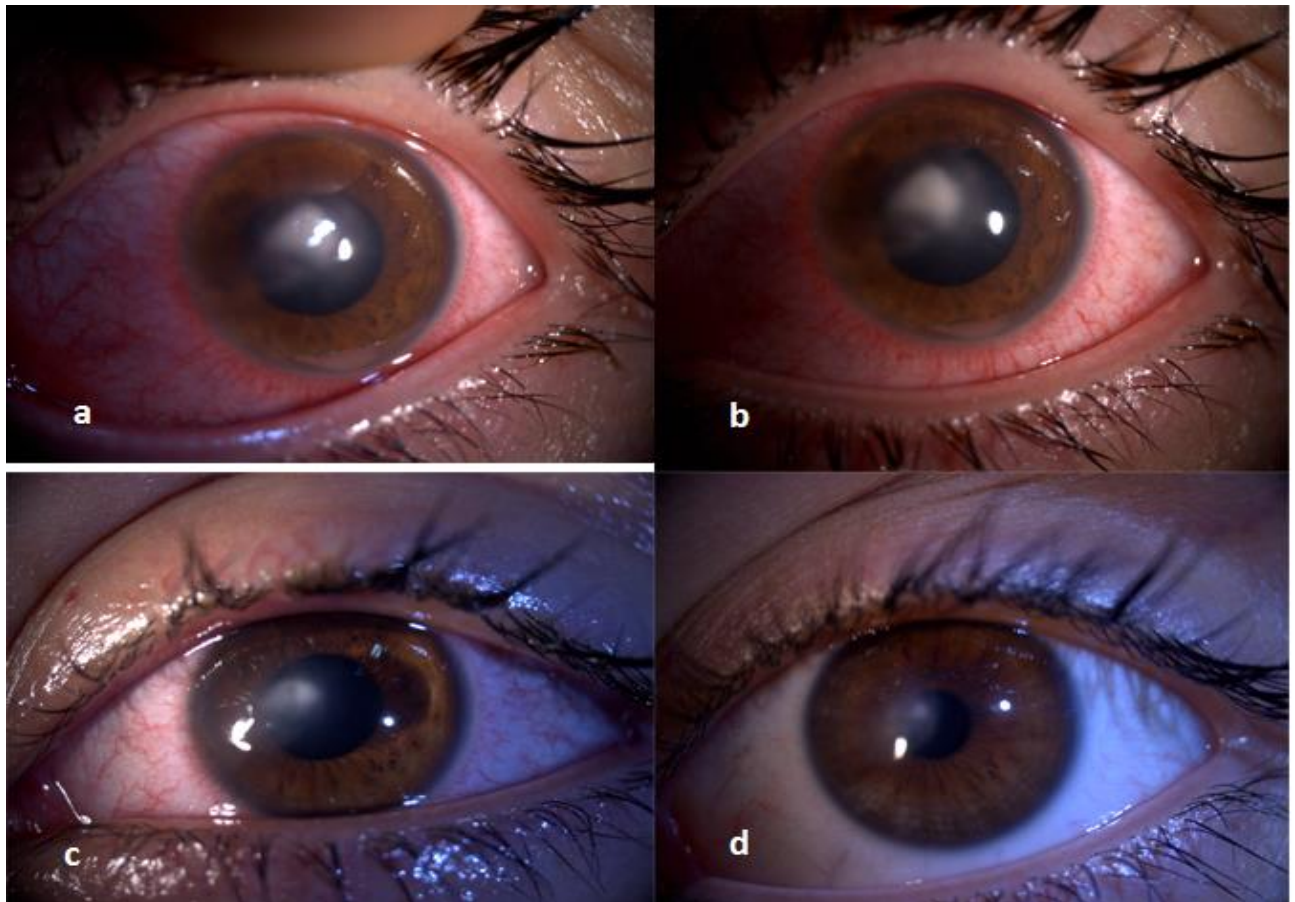


Figure 3. a) At the end of the 2nd week: Abscess became smaller, confined and cornea cleared, the anterior segment was selecting.

b) At the first month: Decrease in dimension of abscess and corneal edema were continued.

c) At the 2nd month examination showed that abscess get shrunk, superficial and no staining.

d) At 6 th month examination; corneal opacity were observed in the central cornea.

At the end of the 3rd week and first month decrease in dimension of abscess and corneal edema were continued (Figure3b). There was no change in visual aquicity. At the end of the first month patient discharged with same drops regimen. 2nd month examination showed that abscess get shurnk, superficial and no staining (Figure 3c). Corneal opacity were observed in the central cornea at 6 th month examination (Figure 3d) and visual aquicity was 20/50.

Discussion

Previous studies showed imipenem can be used in multi drug resistant, long term keratitis and good results were reported [4]. At this case we have good results with topical imipenem treatment.

The percentage of microbial keratitis associated with contact lens wear ranged from 0% in a study from Nepal to 54.5% from Japan. The frequency of *Pseudomonas aeruginosa* as a causative agent of keratitis ranged from 1% in Japan to over 50% in studies from India and Thailand [5].

The most commonly reported agents used to treat *pseudomonas aeruginosa* keratitis were either aminoglycoside (usually gentamicin) fortified with a cephalosporin, or monotherapy with a fluoroquinolone (usually ciprofloxacin). In the most geographical areas, most strains of *pseudomonas aeruginosa* (95%) were sensitive to ciprofloxacin, but reports from India and Thailand reported sensitivity to this antibiotic and similar fluoroquinolones of between 76% and 90% [5].

Usually *pseudomonas aeruginosa* is sensitive to fluoroquinolones, but there have been reports of multi-resistant *pseudomonas aeruginosa* strains were resistant to ciprofloxacin, gentamicin, tobramycin, and amikacin but was sensitive to ceftazidime, imipenem, meropenem, and timentin as our case [6]. Recent data examining possible synergistic activity between different classes of antibiotics against *pseudomonas aeruginosa* has shown that a combination of meropenem/ciprofloxacin gave the lowest mean fractional inhibitory concentrations for *pseudomonas aeruginosa* isolates, with 90% of isolates showing an additive or synergistic effect and so this may be a promising therapy for the more resistant strains [7].

Ciprofloxacin is the most commonly prescribed antibiotic to treat microbial keratitis in Iraq, which is our neighbour country, however only 62% of *pseudomonas* sp. are sensitive to it [8]. In our case isolated *pseudomonas* sp. showed resistance to 3rd and 4th generation cephalosporins, piperacilline-tazobactam, quinolones and aminoglycosides and susceptible to carbapenem group antibiotic imipenem and meropenem.

The most important advantage in obtaining a favorable outcome in treatment was antibiogram results. Antimicrobial agents are chosen according to the result of culture, the more important is the fact that obtaining good results [5].

As a result, the contact lens related keratitis, ulcers and endophthalmitis have risk of severe visual loss. It is important to use contact lenses properly. In addition, rather than empirical treatment in these cases, treatment according to the results of culture and antibiotic treatment is extremely important in terms of regulation is a fact that the visual prognosis.

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