Endophthalmitis caused by Acinetobacter spp. as the presenting manifestation of diabetes mellitus

Mohammad Mehdi Parvaresh, Amir Abbas Mehrpouya, Rahimeh Ganji Anari, Mohammadreza Aghamirsalim, Kaveh Abri Aghdam*, Khalil Ghasemi Falavarjani

Eye Research Center, Rassoul Akram Hospital, Iran University of Medical Sciences, Tehran, Iran

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Abstract

**Purpose:** We describe a patient with endogenous endophthalmitis caused by Acinetobacter spp. as the first clinical presentation of diabetes mellitus.

**Method:** A 48-year-old otherwise healthy woman was referred with signs and symptoms of acute endophthalmitis in the left eye. Systemic work-up, vitreous tap, and intravitreal antibiotic injection were performed followed by pars plana vitrectomy.

**Results:** The laboratory tests confirmed the diagnosis of diabetes mellitus. Vitreous culture was positive for Acinetobacter spp., and the organism was sensitive to colistin. One month after surgery, vision was no light perception, and the eye was phthisical.

**Conclusion:** Diagnostic work-up should be performed even in otherwise healthy patients with endogenous endophthalmitis.

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Keywords: Endophthalmitis; Diabetes mellitus; Acinetobacter species

Introduction

Endophthalmitis is a sight-threatening ocular condition that usually occurs after surgical procedures or trauma. Endogenous endophthalmitis is less common and occurs when organisms enters the eye by crossing the blood–ocular barrier.1 Endogenous endophthalmitis is usually associated with systemic risk factors leading to the defects in immune system.1,2 Diabetes mellitus (DM) is a chronic immune-compromising illness, and several endogenous endophthalmitis cases have been reported in diabetic patients1–5; however, endogenous endophthalmitis as the presenting manifestation of DM is extremely rare.6 Moreover, endogenous endophthalmitis caused by Acinetobacter spp. has been rarely reported7,8 Here, we report a patient with endogenous endophthalmitis caused by Acinetobacter spp. as the first clinical presentation of DM.

Case report

A 48-year-old female patient was referred with pain, redness, and decreased vision in her left eye during the previous four days. Oral prednisone 50 mg/day had been prescribed by the referring ophthalmologist without improvement in clinical symptoms. At presentation, vision was 10/10 in the right eye and hand movements in her left eye. Slit lamp biomicroscopy examination revealed normal anterior segment and mild scattered dot and blot retinal hemorrhages in the right eye. The cornea showed diffuse stromal haze without keratic precipitates. The anterior chamber demonstrated a hypopyon, and fibrin membrane was noted on the
endotamponade was performed. The vitreous cavity was filled with vitreous tap and intravitreal injection of vancomycin/cefazidime were performed. Laboratory examination revealed fasting blood sugar: 280, mg/dl, random blood glucose: 500 mg/dl, and hemoglobin A1C: 9.1. Other endocrinologic and rheumatologic evaluations were unremarkable. No specific site of infection was found by the infectious diseases specialist. The results of chest X-ray and computed tomography (CT) scan of the paranasal sinuses were unremarkable. Blood, urine, and stool cultures were negative. The next day, no improvement occurred in the patient's clinical signs and symptoms. Pars plana vitrectomy without intraocular fluid drainage revealed dense vitreous opacities with an attached retina. She had vision was no light perception, and the eye was phthisical.

Discussion

Our patient was not aware of her systemic disease, and the DM was detected by the laboratory tests. The patient took oral prednisolone, and this could raise the blood sugar levels; however, the patient's right eye had findings consistent with non-proliferative diabetic retinopathy. Ko et al reported a case of bilateral endogenous endophthalmitis in a 55-year-old man without history of systemic disease that DM was detected via systemic work-up. In addition, urinary infection was found, and blood culture was positive for Staphylococcus aureus. Ocular and urinary infections responded to antibiotic therapy; however, Candida albicans was isolated from the culture of aqueous humor, and the patient was treated successfully with oral fluconazole.

Acinetobacter spp. are found in the environment, soil, and water and have the ability to colonize almost any surface including the skin, respiratory, and gastrointestinal tracts. There are few reports of post-operative and post-traumatic endophthalmitis caused by Acinetobacter spp., and endogenous endophthalmitis caused by Acinetobacter spp. has rarely been reported. Although diabetes mellitus may be considered a risk factor in our patient, most reported cases in previous articles did not have any history of systemic illnesses. Previously reported Acinetobacter isolates were from baumanii and calcoaceticus species; however, considering the rare detection of this infection in our hospital and difficulty in differentiation of the species, our laboratory did not report the exact species of the organism.

Acinetobacter spp. infection is a major concern in the field of infectious diseases because of the rapid development of resistance to antimicrobial agents. Acinetobacter spp. are also intrinsically less susceptible to antibiotics than many virulent bacteriae like Enterobacteriaceae. Carbapenems, fluoroquinolones, and doxycycline may have activity against Acinetobacter spp. The most important problem in the treatment of Acinetobacter infection is acquired multi-drug resistance. The mechanism for acquired resistance includes any or all of the following mechanisms: degradation enzymes against β-lactams, modification enzymes against aminoglycosides, altered binding sites for quinolines, and a variety of efflux mechanisms and changes in outer membrane proteins. Recent clinical isolates of Acinetobacter spp. were often found to be multi-resistant to carbapenems, fluoroquinolones, and aminoglycosides. Colistin-resistant isolates are rare, but started to be isolated. Our case was resistant to all antibiotics tested except for colistin. Considering adverse consequences of delayed treatment, carbapenems such as Imipenem are often given as a drug of choice for serious Acinetobacter spp. infections. However, given the probability that the organism would be most likely resistant to one of the common first line antibiotics, treatment of the infection should be tailored based on antimicrobial susceptibility testing. In conclusion, diabetes mellitus may rarely be discovered following endogenous endophthalmitis. Even in otherwise healthy patients with endogenous endophthalmitis, a complete diagnostic work-up should be performed.

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