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## **Bilateral Endogenous Endophthalmitis in an Asian Female**

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### **Authors' contributions**

*This work was carried out in collaboration between both authors. Author JNVP managed the literature searches and wrote the manuscript. Author ALDA reviewed the manuscript and served as an adviser. All authors read and approved the final manuscript.*

**Case Study**

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### **ABSTRACT**

**Aims:** To report a case of bilateral endogenous endophthalmitis in an elderly Asian female.

**Presentation of Case:** An elderly Filipino female complaining of sudden blurring of vision of the right eye sought consult at our institution. Ophthalmologic examination, and vitreous tap were done for both eyes and systemic work-up was facilitated to localize the source of infection. Vitreous sample of the right eye yielded positive for *Klebsiella pneumoniae*, but cultures were sterile on the left. Systemic work-up revealed a complicated nephrolithiasis. Within 24 hours of her admission, vision rapidly deteriorated to no light perception. There was no return in vision despite systemic and topical antibiotic treatment.

**Discussion:** Endogenous endophthalmitis is a relatively rare condition. Among Asians, the patient at highest risk for endogenous endophthalmitis is a diabetic with *Klebsiella* hepatobiliary infection. However, this patient was found to have a urinary tract infection.

**Conclusion:** *Klebsiella pneumoniae* endophthalmitis confers a poor prognosis necessitating a high index of suspicion and early intervention.

**Keywords:** *Endophthalmitis; Klebsiella pneumonia; case report.*

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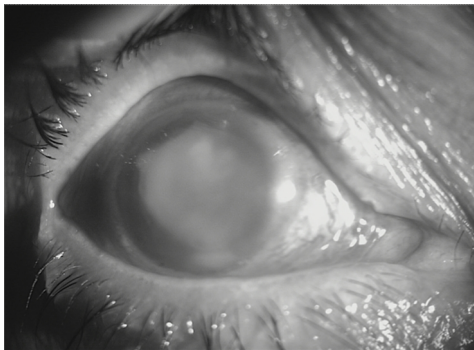
## 1. INTRODUCTION

Endogenous endophthalmitis is the inflammation of the internal ocular spaces from blood-borne infection [1]. It accounts for only 2-8% of cases of endophthalmitis [1]. Previous studies conducted in Asia have isolated *Klebsiella pneumoniae* as the most frequent causative organism, with liver abscess being the most common source [1]. We present an elderly Asian female with no known comorbidities assessed with bilateral endogenous endophthalmitis. Vitreous sample of the right eye yielded positive for *Klebsiella pneumoniae*, but with sterile cultures on the left. Systemic work-up revealed infection of the urinary tract. Patient was treated medically with systemic and topical antibiotics but without return of vision.

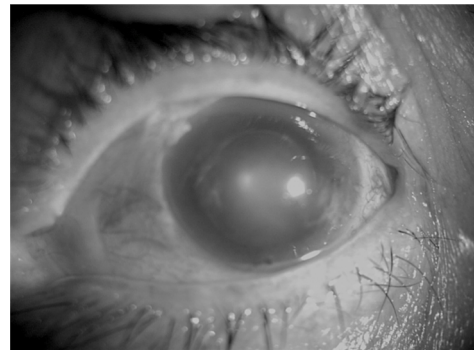
## 2. PRESENTATION OF CASE

A 73 year-old elderly female was referred to our institution for sudden onset blurring of vision of the right eye associated with headache and toothache. She was seen at a different institution seven years ago, diagnosed with glaucoma, underwent trabeculectomy of the left eye and cataract surgery of both eyes. She was lost to follow-up and eventually lost vision in the left eye.

On presentation, vision was light perception on the right eye and no light perception on the left. Slit lamp examination of the right eye revealed severe conjunctival injection, a hazy cornea, narrow anterior chamber, hypopyon, thick fibrin, and no view of the posterior segment (Fig. 1A). For the left eye, slit lamp examination showed severe conjunctival injection, flat bleb at 11 o'clock, hazy cornea, narrow anterior chamber, hypopyon, intraocular lens, and a retrolental abscess (Fig. 1B). Applanation tonometry was 26 and 33 for the right and left eyes, respectively.



**Fig. 1A. Diffuse illumination of the right eye at 10xmagnification showing a hazy cornea, hypopyon and thick fibrin obscuring the view of the posterior segment**



**Fig. 1B. Diffuse illumination of the left eye at 10xmagnification showing a hazy cornea and a diffuse retrolental opacity**

Vitreous tap of both eyes was done, with intravitreal injection of Vancomycin and Ceftazidime. She was started on intravenous Penicillin G and Chloramphenicol, topical Moxifloxacin and Atropine on both eyes, Timolol drops on the right eye, and Acetazolamide

tablets. Pars plana vitrectomy was deferred due to rapid deterioration of vision of the right eye to no light perception the next day.

Cultures revealed moderate growth of *Klebsiella pneumoniae* on the right eye but no organisms were isolated from the left. Urinalysis, urine culture, and a holoabdominal ultrasound supported the presence of a complicated nephrolithiasis. No hepatobiliary infections were noted and other diagnostic exams were unremarkable.

Patient was discharged on daily intravenous Ceftriaxone on outpatient basis and then shifted to oral Co-Amoxiclav to complete for 10 days. Topical Moxifloxacin was continued for both eyes. On follow-up, there was resolution of eye pain and decrease in inflammation. Final visual acuity for both eyes was no light perception.

### 3. DISCUSSION

Endophthalmitis is a clinical diagnosis made when intraocular inflammation involving both the anterior and posterior chambers is attributable to bacterial or fungal infection [2]. Endogenous endophthalmitis occurs when bacteria or fungi are hematogenously disseminated into the ocular circulation [2]. It accounts for only 2—8% of all cases of endophthalmitis [1] and involvement is bilateral in 25% [3].

The patient suspected to have endogenous bacterial endophthalmitis presents with acute onset of eye pain, photophobia and blurred vision, with symptoms suggestive of an ongoing systemic infection such as fever [2]. The case patient complained of sudden blurring of vision of the right eye with headache and toothache. She had no other systemic complaints.

Eye examination in patients with endogenous endophthalmitis reveal severely reduced visual acuity, with periorbital and lid edema, as well as fibrin and hypopyon in the anterior chamber. These findings were consistent in this case.

Bacterial endogenous endophthalmitis is associated with systemic medical conditions that confers a relatively immunosuppressed state [1]. A study on the East Asian population revealed that the patient at highest risk for endogenous endophthalmitis is a diabetic with *Klebsiella* hepatobiliary infection [4]. This patient however, was not a diabetic, nor was she found to have a hepatobiliary infection. Vitreous culture of the right eye yielded *Klebsiella pneumoniae* while there was no growth for the vitreous culture of the left eye. She was found to have a urinary tract infection with gram-negative bacteria on systemic work-up. Literature review yielded only one article on *Klebsiella* endogenous endophthalmitis secondary to renal or urinary tract infection [5].

Endogenous endophthalmitis can have serious complications with the worst being death from untreated or missed systemic infection. With regards to vision, the prognosis is directly related to the offending organism as well as the systemic status of the patient. *Klebsiella* confers a poor prognosis necessitating a high index of suspicion and early intervention [1]. Treatment is initiated empirically while awaiting cultures. The role of vitrectomy is controversial but benefits include reduction of bacterial load and inflammation [6]. In this patient, vitrectomy was considered for her right eye but deferred due to rapid deterioration in vision. Treatment was continued with systemic antibiotics.

#### 4. CONCLUSION

We present a rare case of *Klebsiella* endogenous endophthalmitis in an elderly Asian female with no co-morbidities and a complicated nephrolithiasis. Vision rapidly deteriorated to no light perception, highlighting the need for a high index of suspicion and prompt intervention to preserve vision in such cases.

#### CONSENT

Not applicable.

#### ETHICAL APPROVAL

Not applicable.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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