

**A CASE OF SUDDEN LOSS OF VISION SECONDARY TO BILATERAL ENDOGENOUS
ENDOPHTHALMITIS AS SEPTIC COMPLICATION OF PYOGENIC LIVER ABSCESS
CAUSED BY *KLEBSIELLA PNEUMONIAE***

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Significance: Endogenous endophthalmitis (EE) is an uncommon intraocular infection with potentially devastating visual consequences. It is initially associated with visual impairment, leading to loss of vision despite aggressive treatment (1, 2). A pyogenic liver abscess (PLA) is a serious life-threatening condition. EE is reported to be the most serious septic complication of pyogenic liver abscess with stated incidence of 0.84% during 1 year of pyogenic liver abscess follow-up (2).

Clinical Presentation: Patient is a 61-year-old, female, non-hypertensive, diabetic, who came in because of loss of vision. She presented with two weeks history of eye pain, photophobia, erythema, and sudden blurring of vision that progressed to loss of vision involving both eyes. Pertinent initial physical examination revealed no light perception, severely hyperemic conjunctivae, slightly hazy cornea, lens opacity; the rest of the physical examination was unremarkable.

Management: She was initially managed as panuveitis, given topical ophthalmic drops, valaciclovir, oral prednisone, and acetazolamide. She underwent pars planovitrectomy, phacoemulsification, with intravitreal injection of antibiotics, on both eyes. Purulent vitreous aspirate and blood cultures exposed *Klebsiella pneumoniae*. To further investigate, ultrasound of the abdomen was done which revealed a hepatic abscess in the right lobe measuring approximately 4.0x5.0x5.2cm. Patient was then managed accordingly as a case of pyogenic liver abscess secondary to *Klebsiella pneumoniae* complicated with bilateral endogenous endophthalmitis.

Recommendations: Early recognition of the disease is a must because failure to make a timely diagnosis and to intervene at an early stage poses substantial risks (including permanent loss of vision) to affected patients.

KEYWORDS: *case report, pyogenic liver abscess, endogenous endophthalmitis, Klebsiella pneumoniae*

CASE REPORT

CLINICAL PRESENTATION

Patient is a 61-year-old, female, non-hypertensive, diabetic, who came in because of loss of vision. She presented with two weeks history of eye pain, photophobia, erythema, and sudden blurring of vision that progressed to loss of vision involving both eyes. No reported history of trauma to the eyes, fever, cough, colds, ear pain, throat pain, abdominal complaints, diarrhea and urinary complaints. Pertinent initial physical examination revealed no light perception, severely hyperemic conjunctivae, slightly hazy cornea, lens opacity (see Figure 1); the rest of the physical examination was unremarkable. Patient was then admitted, initially managed by Ophthalmology service as a case of panuveitis, both eyes, to consider acute angle closure glaucoma, both eyes. Ophthalmic drops (prednisone acetate, moxifloxacin, atropine), valaciclovir, oral prednisone, and acetazolamide were started. Diagnostics were done; urinalysis and chest xray revealed unremarkable results, complete blood count shown leukocytosis (WBC = 24,620 mm³), Levofloxacin 750mg/IV once a day was then started for coverage, glycohemoglobin was elevated at 8.2% revealing poor glycemic control. Patient underwent pars planavitrectomy, with intravitreal antibiotics injection (vancomycin and ceftazidime); during the procedure purulent material during vitreal aspiration was noted, specimens were collected and submitted for culture. On the fourth hospital day, blood and vitreous aspirate cultures revealed *Klebsiella pneumonia*, heavy growth; levofloxacin was shifted to ceftriaxone based on antibiotic sensitivity study and another dose of intravitreal antibiotics injection (vancomycin and ceftazidime) were given. To further investigate, where the focus of *Klebsiella pneumonia* is coming, ultrasound of the abdomen was done (see Figure 2) revealing a heterogeneous predominantly hypoechoic focus in the right lobe measuring approximately 4.0 x 5.0 x 5.2 cm with minimal perilesional vascularity noted on color Doppler, which is compatible with hepatic abscess. Patient was then referred to gastroenterology service and was managed accordingly as a case of pyogenic liver abscess secondary to *Klebsiella pneumonia* complicated with bilateral endogenous endophthalmitis. Patient was also referred to the service of endocrinology (for glycemic control) and infectious disease (for antimicrobial management). Additional antimicrobial (metronidazole 500mg/IV every 8 hours) coverage was initiated. Because of the invasiveness of the presented pyogenic liver abscess with metastatic infection, drainage of the abscess was done. Succeeding days of the hospital

stay revealed no improvement in vision (no light perception on both eyes), patient opted to be discharged on the 18th hospital day with ciprofloxacin as take home medication.

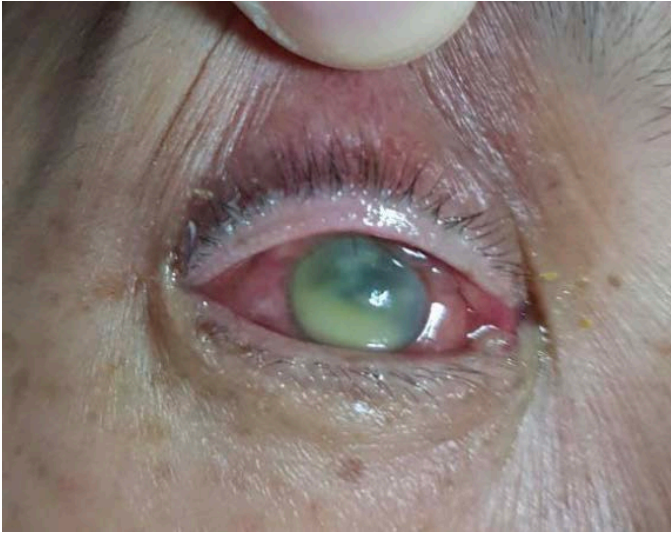


Figure 1. Patient's Right Eye (Actual Photo)

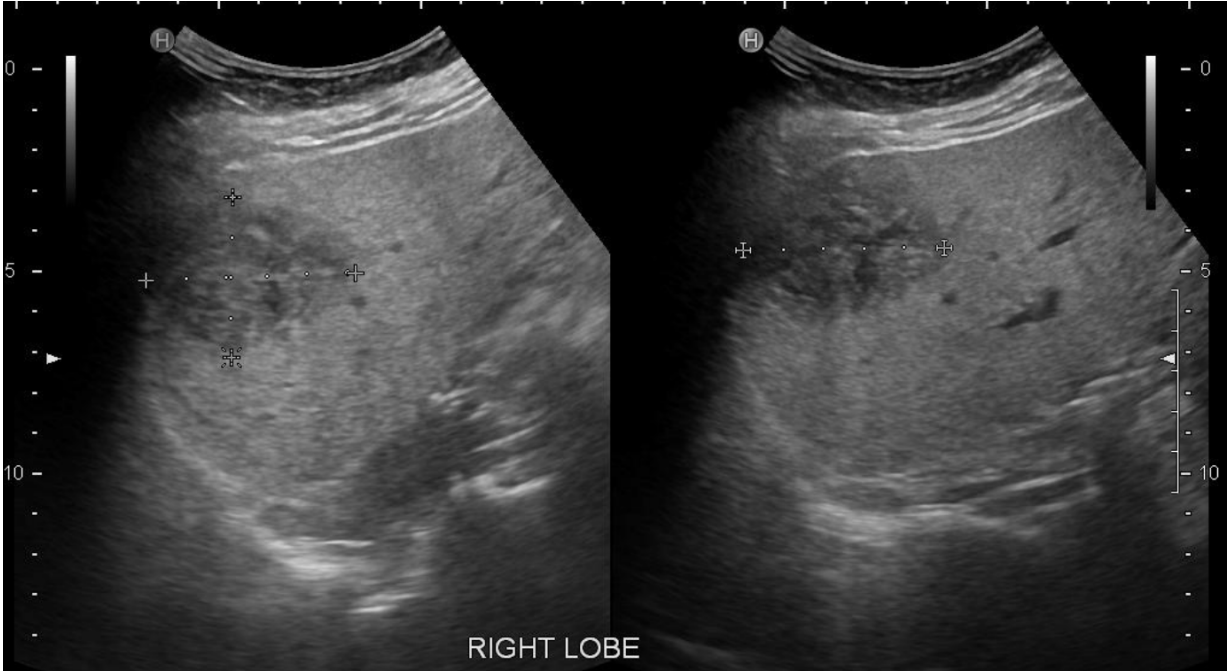


Figure 2. Right Hepatic Lobe Abscess (approximately 4.0 x 5.0 x 5.2 cm)

DISCUSSION:

A pyogenic liver abscess (PLA) is a serious life-threatening condition, with a mortality rate of 6% to 14%. With recent advances in diagnostic tools and treatment modalities, most cases are currently diagnosed at early stages and effectively treated. However, severe complications including endophthalmitis, metastatic central nervous system infections, psoas abscesses, splenic abscesses, abscess rupture, and septic pulmonary emboli may develop in some patients (2). The most common pathogen in liver abscesses is *Escherichia coli*, accounting for approximately 35% to 45% of cases worldwide. *Klebsiella pneumoniae* is known to be an enteric Gram-negative bacillus that cause hospital-acquired infections and infections in debilitated or immunocompromised patients (2,6).

Endophthalmitis is an infection of the interior of the eye that frequently results in visual loss despite appropriate therapeutic intervention. It is an ocular inflammation, resulting from the introduction of an infectious agent into the posterior segment of the eye. Entry of the offending microorganism occurs via three different routes: (I) seeding of the microorganism during intraocular surgery (postoperative), (II) following a penetrating injury of the globe (post-traumatic), or (III) from hematogenous route from distant anatomic area (endogenous). In endogenous endophthalmitis, a remote primary site of infection may seed the posterior segment of the eye via hematogenous spread, causing endogenous endophthalmitis. Endophthalmitis generally results in visual loss (transient and permanent) even after aggressive pharmacologic or surgical intervention, often within a few days of inoculation (1,2,5). An endogenous source is responsible for roughly 2% to 8% of all endophthalmitis. Endogenous endophthalmitis (EE) is the most common and serious septic complication of PLA; in a previous study of Park, the reported incidence was 0.84% during 1 year of PLA follow-up (2). Prompt diagnosis and treatment are essential to obtain the best visual outcomes (1).

Major risk factors for EE are immunocompromised states, intravenous drug use, indwelling catheter, or dental procedures. In rare cases, EE has also been reported in healthy individuals (1). In this patient, the risk factor that pushed the patient in developing liver abscess and its septic complication (bilateral endogenous endophthalmitis) is uncontrolled diabetes mellitus. She presented without the usual symptoms of liver abscess such as fever, abdominal pain hence the delay in the diagnosis of pyogenic liver abscess.

In determining the therapeutic approach, the potential causative organism and the extent of ocular involvement should direct the aggressiveness of therapy. If the ocular lesion is confined to the choroid, systemic therapy with antibiotics or antifungals and close observation may be adequate; if the infection has spread beyond the choroid into the vitreous, then more aggressive intravitreal antibiotic therapy, with or without pars planavitreotomy, should be added to the regimen (1,4).

In conclusion, *K. pneumoniae* endophthalmitis associated with liver abscess is a very aggressive disorder that results in poor visual outcome in most cases despite proper treatment. The diagnosis of such disease requires a high index of suspicion. Early treatment in the form of pars planavitreotomy, injection of intravitreal antibiotics and systemic antibiotics may help to provide a better outcome (4)

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