A Case of *Klebsiella pneumoniae* associated Endogenous Endophthalmitis in a patient with Diabetes Mellitus Type 2 and Pyogenic Hepatic Abscess

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Endogenous endophthalmitis is an intraocular infection that is not related to an external source like surgery and trauma. Patients present with severe blurring of vision, eye pain, eye redness, photophobia, and periorbital or eyelid edema. It is associated with clinical co-morbidities and has visual-threatening complications.

**Background:**

To present a case of Endogenous Endophthalmitis associated with *Klebsiella pneumoniae* bacteremia and pyogenic liver abscess in a patient with Diabetes Mellitus type 2.

**Objective:**

To present a case of Endogenous Endophthalmitis associated with *Klebsiella pneumoniae* bacteremia and pyogenic liver abscess in a patient with Diabetes Mellitus type 2.
A 35-year-old diabetic male had a two-day history of blurring of vision associated with eye redness, tearing and burning sensation of the left eye.

**12/11/16**
- VA OS: CF@3 ft
- Hyperemic conjunctiva
- Clear Cornea
- Deep anterior chamber
- Pupil reactive to light
- Clear vitreous
- Pale and elevated inferotemporal retina with flame shaped haemorrhages

**Impression:**
- Acute Viral Conjunctivitis, OS
- Retinal Detachment, OS

**12/19/16**
- VA OS: HM
- Axial proptosis
- Periorbital eyelid tenderness and swelling
- Matting of lashes
- Mucopurulent discharge
- Hyperemic conjunctiva
- Conjunctival chemosis
- Ciliary injection
- Hazy cornea
- Anterior chamber plasmosis
- +4 cells and flare
- Grade 1 hypopyon
- Pupillary hypopyon
- Pupil non-reactive to light
- IOP OS: 30mmHg
- Ophthalmoplegia

B-scan ultrasonography:
- Vitritis, posterior vitreous detachment, attached retina and posterior scleritis

**Impression:**
- Panuveitis, OS
On admission, patient also presented with:

- Fever (39.4 C)
- Chills

**Medications:**

**Topical medications: (left eye)**
- Moxifloxacin eye drops
- Atropine sulfate eye drops
- Prednisolone acetate eye drops
- Brimonidine + Timolol eye drops

**Systemic medications:**
- Ceftriaxone 1g IV
- Paracetamol 300mg IV
- Acetazolamide 250mg

**Liver Ultrasound**

- Irregular hyperechoic foci with no internal vascularity on color Doppler Study involving the right lobe of the liver predominantly segments V and VI abutting the undersurface of the right portal vein measuring 91.2 x 75.5 x 107.8mm (388.4cc)

- A smaller focus in segment V adjacent to the gallbladder fossa measuring 17 x 11.4 x 22.2mm (2.24cc)
Well defined, lobulated rim enhancing hypodense lesion of fluid density, measuring 6.0 x 8.3 x 6.5 cm (AP x T x CC) is noted involving the inferior segments of the right hepatic lobe (segment V and VI).

A 1.4 x 1.8 cm enhancing hypodense nodule is also seen in the infero-anterior segment of the liver.

**Management**

**Cranial CT Scan with Orbital Cuts and IV Contrast**
- Diffuse thickening of the left globe associated with preseptal–periorbital soft tissue swelling
- Minimal retrobulbar fat stranding, enlargement of the lacrimal gland, proptosis, and subtle enlargement of extraocular muscles

**Triphasic Whole Abdominal CT Scan**
- Well defined, lobulated rim enhancing hypodense lesion of fluid density, measuring 6.0 x 8.3 x 6.5 cm (AP x T x CC) is noted involving the inferior segments of the right hepatic lobe (segment V and VI)
- A 1.4 x 1.8 cm enhancing hypodense nodule is also seen in the infero-anterior segment of the liver
**Selected Organism:** *Klebsiella pneumoniae*

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**Card:** AST-N261  
**Lot Number:** 6810133403  
**Expires:** 2018-04-08  
**Susceptibility Information:**  
- Completed: 2016  
- Status: Final  
- Analysis Time: 09.15.00

**12/24/2016**

**VA OS: NLP**  
**Eye Pain**

**Enucleation, OS done**

- AP diameter – 3.0cm
- Horizontal diameter 2.5cm
- Vertical diameter 1.8cm
- Optic nerve 0.7cm

**Purulent material occupying the vitreous chamber with anteriorly displaced lens**

**Added Metronidazole**  
**500mg TIV BID**
Histopathology Report

Fibrinoid necrosis and masses of red blood cells and inflammatory aggregates composed predominantly of neutrophils and some lymphocytes.

Polymorphonuclear cells predominantly neutrophils

Mononuclear cell infiltration of the choroid layer

Congested blood vessels
Endogenous Endophthalmitis is a rare condition. It represents only 2-8% of all endophthalmitis cases. It may occur as the primary manifestation of an underlying systemic illness.

In Asia, the more commonly associated causative organisms are the gram-negative bacteria, especially *Klebsiella pneumoniae*. It has also been strongly linked to liver abscesses. In cases of *Klebsiella pneumoniae* related endogenous endophthalmitis associated with a liver abscess, the most common underlying risk factor is diabetes mellitus, especially in the Asian population. Treatment options include systemic intravenous antibiotics, intravitreal antibiotics and posterior vitrectomy. However, visual outcome is still poor despite aggressive treatment.
Conclusion

Endogenous endophthalmitis is a rare condition that has poor visual outcome despite aggressive treatment. It can initially be misdiagnosed, which affects disease outcome due to delay in proper management. *Klebsiella pneumoniae*-associated endogenous endophthalmitis is highly associated with pyogenic liver abscess in particular patients with diabetes, which is the major underlying co-morbidity. Due to the rarity of this condition, there has not been a structured guideline for optimum management of this ocular condition. This is the first report of such case from our institution.


