Urgent Consult: Red Eyes

Or: Ophthalmology as an intensive-care specialty
63 y/o obese W M admitted to ICU though ER for presumptive dx: Sepsis, Primary infection of LE lesions.

Intensivist consults ophthalmology re: b/l conjunctivitis and subjective blurry vision and loss of color vision.
Pt d/c’d to LTCF from hospital X 5 days earlier following admission for DKA. At that time began to c/o b/l “pink eye” and was given Gentamycin Oph to be used QID. Also on IV Vanco and Zosyn for LE cellulitis.

Shortly thereafter, pt noticed blurring of his vision in the left eye, followed by the right eye one day later. This was accompanied by loss of color vision.

Pt’s condition continued to deteriorate at LTCF: unresponsive fever, altered mental status, and elevated WBC count. Admitted to ICU via ER Dx: Sepsis

LEE X 18 mos ago with local optometrist; denies pain, HA, flashes, floaters, discharge, itching, or diplopia.
PMHx, POHx, Meds, Allergy

- **PMHx**: significant for CHF, Kidney dz, DM II (poorly controlled), COPD, Rheumatoid Arthritis, HTN

- **POHx**: Negative, other than myopia and presbyopia; FOHx, likewise negative

- **Meds**: included Gentamycin OU Q 4 hr, Plaquenil, Zosyn IV, Vancomycin IV

- **Allergy**: Azathioprine - ?Rash
Exam

- Vitals: BP 150/65, RR 20, O2 Sat: 99% NC @ 4L, T: 102.4F

- Labs: RBC:3.32 (L), WBC 35.6 (H), Platelets 446 (L)

- Va, sc @ near: CF @ 3’/CF @ 2’

- Ta, Tonopen @ 8:40 pm: 23/14

- EOMs/alignment: Full EOMs, OU; XT

- CVF: binasal defect - unreliable

- Pupils: round, 3mm OU, sluggish response, 1+ APD OS

- Color vision: Red Mydriacil gtts bottle cap - “Black”
Exam, cont.

- External - Periorbital edema and fullness b/l, OS>OD.
- Conjunctiva: 2+injection with mild chemosis, bilaterally. No Follicles or papillae noted. No discharge.
- Sclera: marked hyperemia OU
- Cornea: clear
- AC: No apparent hypopyon
- L: 2-3+ NS OU
Imaging

- CT with and without contrast
- Possible inflammatory infiltration of periorbital fat OS and fullness of orbital contents OS.
Exam, cont. (fundus)

- Undilated fundus exam via Direct Ophthalmoscopy - poor view secondary to cloudy media

- Pt dilated OU for indirect ophthalmoscopy with 20D lens.
**Differential Dx**

- Infectious conjunctivitis, bilateral
- Mucormycosis
- Early Endogenous Endophthalmitis via Sepsis
- b/l Uveitis
- Neoplasm or infiltrative process
- AION or NAION with b/l presentation
Exam, Fundus

- ONH: no papilledema, CD 0.3 OU
- Vitreous: debris present OD > OS
- Retina: Scattered pre- and sub-retinal hemorrhages, bilaterally, many with white-yellow centers
Further examination of pt’s extremities

• Splinter hemorrhages of L foot 5th digit nail bed

• Multiple tender nodules of the pads of the fingers

• 2+ systolic murmur
New Dx: Endocarditis

Plan:

- Add Gentamycin to Abx regimen
- Blood cultures (review/repeat)
- Echocardiography
- MRI brain, c/s contrast
Endocarditis

- Infectious or non-Infectious inflammation of the inner lining of heart
- usu. involves valvular structures (Mitral, Ao)
- Vegetation
- MCC, infectious: Strep spp (*viridians*), S. aureus, coag-neg Staph, Enterococci
- Dx: Duke Criteria
Two major; One major and three minor; five minor

Major Criteria:
- + Blood Cx with known pathogen
- Evidence of endocardial involvement via US

Minor criteria:
- Predisposing factor: IV drug use, known valvular damage, etc
- Fever > 38 deg C
- Evidence of embolism: Janeway, arterial emboli, pulmonary infarcts, conj. hemes
- Immunological problems: Osler nodes, glomerulonephritis
- + Blood Cx with pathogen known to cause IE, but not meeting MC.
Looking additional Criteria

- Blood Culture results
  - Negative (IV Vanco/Zosyn regimen X 5 days)

- Preliminary Echocardiogram (transthoracic)
  - Negative, though Ao valve not well-visualized
  - reduced reliability d/t pt habitus
Trans-Esophageal Echocardiogram

- Advantages:
  - less intervening tissue
    - Esophagus vs. skin, fat, bone, lungs
  - shorter reflective distance
  - Better evaluation of several structures, including:
    - Aorta and Pulmonary vessels
    - all four valves (Aortic)
    - Atria and Septum
    - Coronaries
  - Sensitivity and Specificity
TEE, results

- 10 mm Pedunculated vegetative mass located on the right leaflet of Aortic valve

- risk of thromboembolism vegetations >10mm
Duke Criteria, modified

- Two major; One major and three minor; five minor
- Major Criteria:
  - + Blood Cx with known pathogen
  - Evidence of endocardial involvement via US
- Minor criteria:
  - Predisposing factor: IV drug use, known valvular damage, etc
  - Fever > 38 deg C
  - Evidence of embolism: Janeway, arterial emboli, pulmonary infarcts, conj. hemes
  - Immunological problems: Osler nodes, glomerulonephritis
  - + Blood Cx with pathogen known to cause IE, but not meeting MC.
Ophthalmic Manifestations of Endocarditis

- Roth’s Spots
- Conjunctival injection, petechiae
- Iris Abscess
- Retinal hemorrhage
- Vasculitis
- Choroidal neovascular membrane
- Endogenous Endophthalmitis
- BRVO/CRVO
- Idiopathic Orbital Inflammatory Syndrome
Conclusions:

- ICU Conjunctivitis consults
- Gestalt examination for the Ophthalmology residents
- Ophthalmic manifestations of systemic disease
- Value of highly-sensitive diagnostic testing
References


- Kennedy JE, Wise GN; Clinicopathological Correlation of Retinal Lesions: Subacute Bacterial Endocarditis; *Archives of Ophthalmology*; 1965; 74(5): 658-662


- Uehara F, Ohba N; Diagnostic Imaging in Patients with Orbital Cellulitis and Inflammatory Pseudotumor; *International Ophthalmology Clinics*; Winter 2002, Vol 42(1): 133-142