Title: Leukemic Retinopathy
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Abstract: Patient presents with recent onset blurred vision OD, nausea, tinnitus, and malaise. Upon dilated exam, multiple bilateral flame shaped white centered retinal hemorrhages lead to the diagnosis of Acute Leukemia.

I. Case History

- 67 year old Caucasian Female
- CC: recent onset blurred vision OD and associated nausea, tinnitus, malaise
- Ocular, medical history
  - (+) Eyelid tarsorrhaphy
  - (+) Hypertension, Acid Reflux, Seasonal allergies
  - (+)Fhx Leukemia (sister) and Lymphoma (brother)
- Medications: Allegram B12, Calcium, Multivitamin
  - Med allergies: penicillin, bactrim

II. Pertinent findings

- Clinical
  - BCVA: OD 20/400, PH NI and OS 20/30, PH 20/20
  - IOP 21, 17 mmHg, BP 137/72 pulse 82
  - Red Cap Desaturation: OD 70%, OS 100%
  - Color Vision: OD 10/14, OS 11/14
  - External Exam: unremarkable
  - Internal Exam: Lens – NS OU, CD ratio 0.40r OU, posterior pole - white centered retinal hemorrhages, cotton wool spots OU, macula – macular edema w/ hemorrhages OD and WNL OS, periphery - unremarkable OU
  - Macular OCT showed macular edema OD and OS WNL.
- Patient was referred to PCP for additional testing and Hematology/Oncology
  - Labs ordered: CBC w/ differential, ESR, CRP, BMP, LFT

III. Differential diagnosis

- Blood Cell Dyscrasias – Leukemia
- Endocarditis, Anemia, Hypertensive Retinopathy

IV. Diagnosis and discussion

- Diagnosis → Acute Myeloid Leukemia w/ thrombocytopenia, anemia, febrile neutropenia- neoplastic blood disorder characterized by abnormal proliferation of immature leukocytes
- Retinopathy associated with leukemia typically occurs in acute disease
  - Due to either direct infiltration of the obit and other tissues (iris, choroid, optic nerve) or vascular abnormalities affecting the retina (intraretinal hemorrhages, white centered retinal hemorrhages, cotton wool spots, macular hemorrhages, subhyaloid hemorrhages, vitreous hemorrhages) or neuro-ophthalmic signs (papilledema, isolated nerve palsies) (2)
Appropriate lab testing to order: CBC with differential, ESR, CRP, BMP, LFT, Blood cultures
Follow up with retina specialist secondary to macular edema OD

V. Treatment, management

- Treatment:
  - Chemotherapy w/ PRBC and platelet transfusion
  - Possible Avastin injection for macular edema OD by retina specialist
- Management: Upon recognition of ocular manifestations prompt referral to physician and hematologist/oncologist for further evaluation and additional testing. There is no treatment that is eye specific for leukemia. With early diagnosis, appropriate follow up, and careful management with therapeutic systemic procedures/medications and physicians – patient can have a better prognosis.

Bibliography:


VI. Conclusion

- Clinical pearls
  - Dilated exam – document findings → fundus photography, macular OCT
  - Rule out other differentials and educate patient on findings
  - Refer to PCP and hematology/oncology → request appropriate lab testing