Leukemic Retinopathy

Category(ies): Retina, Vitreous
Contributor: Eric Chin MD
Photographer: Cindy Montague, CRA and Brice Critser, CRA

Retinopathy associated with leukemia typically occurs in acute disease.

Patients may develop dilation, tortuosity, and beading of the retinal veins; vascular sheathing; cotton-wool spots; flame-shaped hemorrhages; Roth spots; sub-hyaloid and sub-internal limiting membrane hemorrhages. These changes are similar to those seen with severe anemia.

A 60-year-old female was referred for bilateral retinal hemorrhages. She noticed blurry vision two months prior when she hit her head. She said her right eye gradually improved, but the left eye remained poor. She was told that this may be related to her blood pressure, but it was found to be normal (i.e. 118/70). She had a past ocular history of myopia, and a past medical history of hypertension.

BCVA with correction:

- OD: 20/125
- OS: 20/40

IOP: OD 13; OS 14

SLE: anterior segment unremarkable; 1+ NS OU; no AC cells; no vitreous cells
Image 2: OS: many central and paracentral superficial hemorrhages, some with a white center (i.e. Roth spots); no cystoid macular edema

Image 3: OCT OD: Irregularities of outer retinal layer in the fovea with scant patchy areas of inner retinal edema and opacifications
The patient presented with bilateral retinal hemorrhages and scattered Roth spots. A fluorescein angiogram was done which ruled out retinal venous occlusions and showed no evidence of vasculitis.

Upon further history, she reported mild fatigue and bruising on the upper and lower extremities for the past few weeks.

CBC, ESR, CRP, ANA were ordered, significant for the following:

- **WBC:** 354.1 (normal 3.7-10.5)
- **RBC:** 2.37 (normal 4.5-20)
- **Hb:** 7.3 (normal 11.9-15.5)
- **Hct:** 22 (normal 35-47%)
- **Pit:** 81 (normal 150-400)

BP was checked in the clinic: 129/66

Patient was immediately referred to the hematology and oncology service. She was diagnosed with leukocytosis consistent with chronic myeloid leukemia, later found to be positive for the Philadelphia (Ph+) chromosome.

She was started on chemotherapy, and her follow-up fundus photos are shown below.