Acute Macular Neuroretinopathy Associated with Acute Promyelocytic Leukemia

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Summary

- *Purpose*: To describe the first reported case of AMN associated with acute promyelocytic leukemia (APL) in a young Asian-Indian male
- *Observations*: We review the clinical and multimodal imaging findings in our patient that are characteristic of AMN.
- *Conclusions and Importance:* Ophthalmologists should be aware of leukemia associated with AMN and consider hematologic work-up when assessing patients with AMN without the prototypical history or risk factors

Case

- 37 y.o. M no past ocular history referred to retina clinic for evaluation of scotoma in right eye
- Recent hospitalization with new diagnoses of APL after presenting with fatigue and fever in setting of pancytopenia
  - APL treatment: ATRA, idarubicin, arsenic trioxide
  - Ophthalmology initially consulted as inpatient for papilledema secondary to ATRA therapy
  - Hospital course had been complicated by DIC, pneumonia, ARDS

Exam

	OD	OS
VA (sc)	20/20	20/20
Pupils	4->3 mm, no rAPD	4->3 mm, no rAPD
IOP	13	15
EOM	Full	Full
Visual Field	Full	Full

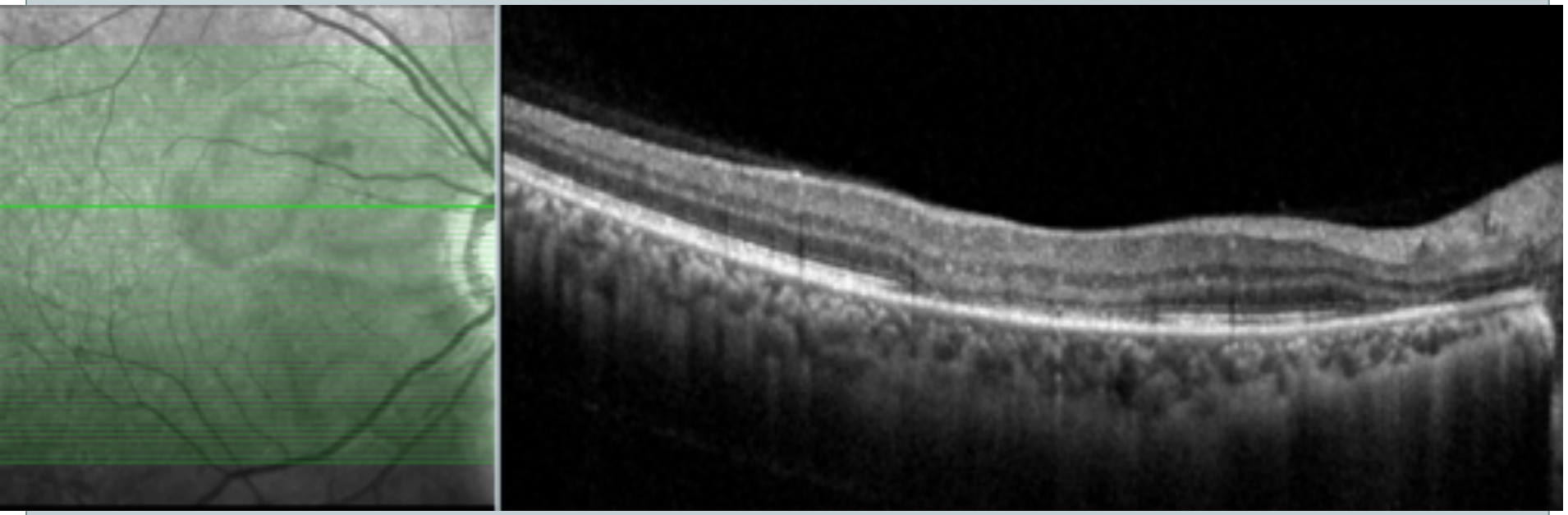
Exam

	OD	OS
Lids/Lashes	Unremarkable	Unremarkable
Conjunctiva/Sclera	White, quiet	White, quiet
Cornea	Trace PEE	Trace PEE
AC	Deep, quiet	Deep, quiet
Iris	Round	Round
Lens	Clear	Clear
Vitreous	Clear	Clear
DFE	Intra-retinal hemorrhage superonasal to the macula and superior to the disc, pigment mottling within the macula	Intra-retinal hemorrhage nasal to the disc, pigment mottling within the macula

Dilated Fundus Exam

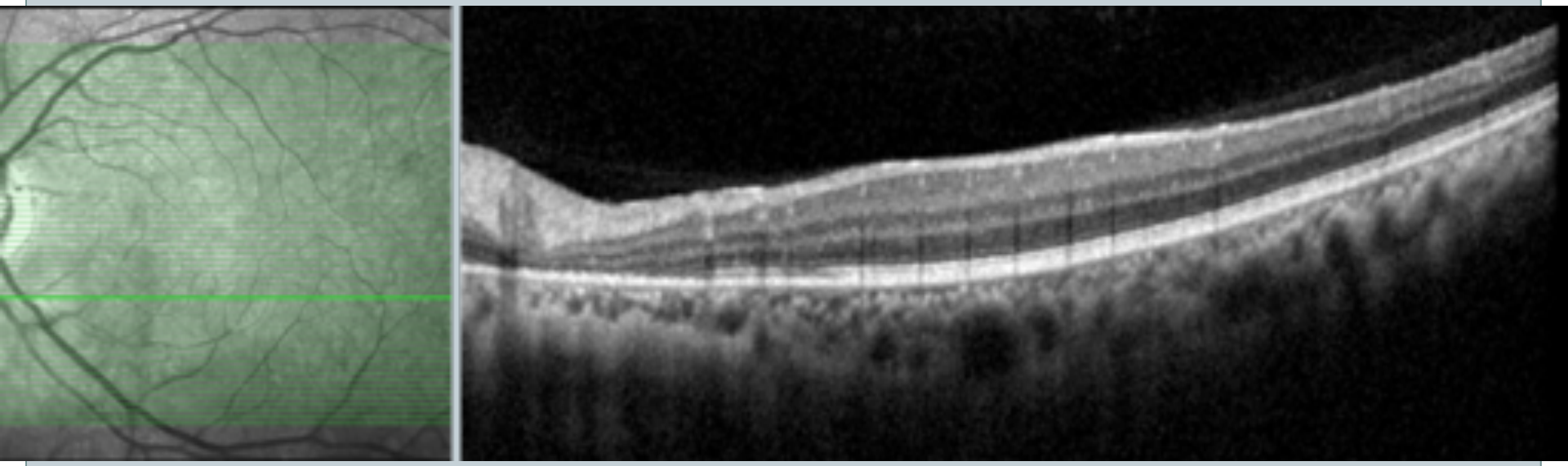
A: Right eye
B: Left eye

Right eye, OCT Macula



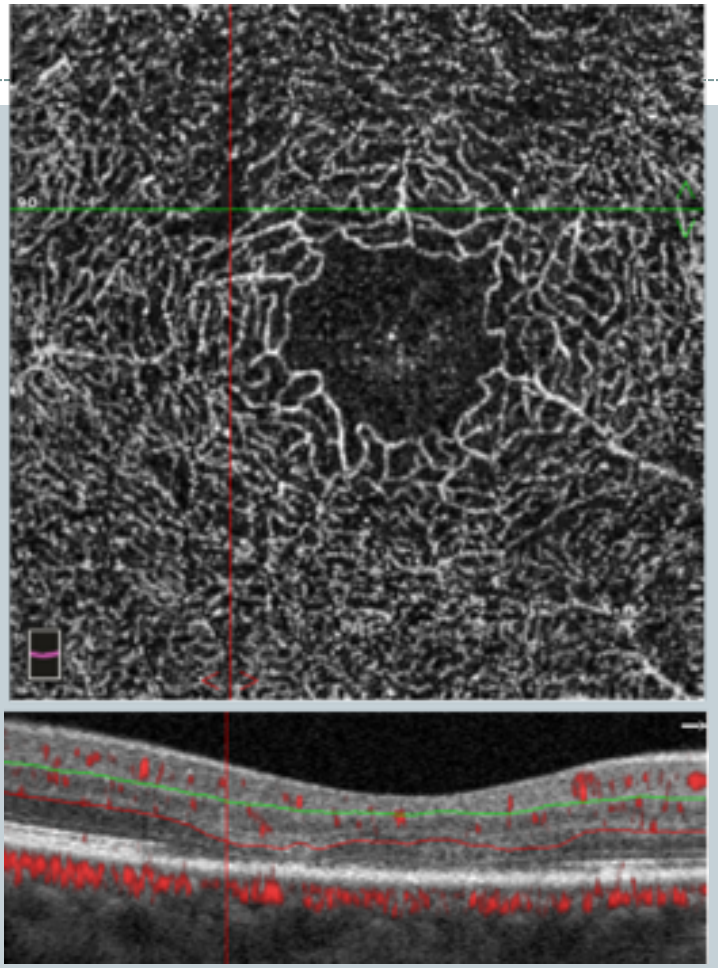
- **Thinning of the outer nuclear layer and disruption of the ellipsoid zone corresponding to the lesions seen on NIR**

Left eye, OCT Macula



- **Thinning of the outer nuclear layer and disruption of the ellipsoid zone corresponding to the lesions seen on NIR**

Right eye, OCT-A, deep capillary plexus



- **Loss of the deep capillary plexus with attenuation of signal on both the enface and cross-sectional images in the regions corresponding to the NIR defects**

Proposed Mechanisms

- Thrombocytopenia and anemia ➡ focal ischemia at level of deep capillary plexus
- Increased leukoblasts due to APL ➡ hyperviscosity ➡ venous stasis ➡ exacerbation of underlying hypoxia
- DIC ➡ thrombotic microangipathy ➡retinal microvascular ischemia

Conclusions

- Include AMN in differential for leukemic patient with vision loss and scotoma
- Consider hematologic work up for patients with AMN that lack other commonly associated risk factors
- OCT-A can be useful when considering AMN diagnoses for assessing ischemia within DCP

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