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Acute Macular Neuroretinopathy (AMN) Associated with a Case of Acute Promyelocytic Leukemia (APL)

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Purpose:
We herein describe a unique case of AMN associated with APL.

Methods:
Multimodal imaging and retrospective case report of a single patient with AMN secondary to acute promyelocytic leukemia.

Results:
The patient is a 37-year-old male who presented for evaluation of a scotoma and outer retinal loss on optical coherence tomography (OCT) in the right eye. Two months prior, the patient was admitted for fatigue and fever in the setting of viral pneumonia after routine labs detected pancytopenia. Hematologic work-up was consistent for APL and all-trans retinoic acid therapy (ATRA) was initiated. He was later intubated due to viral pneumonia and acute respiratory distress syndrome. Initial ophthalmic examination demonstrated significant bilateral papilledema likely secondary to ATRA therapy. After extubation, the patient noticed paracentral scotomas in his right eye. Dilated fundus examination (DFE) demonstrated bilateral Roth spots and intra-retinal hemorrhages in the posterior pole. On follow-up, one month after discharge, his visual acuity was 20/20 OU. DFE OD revealed intra-retinal hemorrhage superonasal to the macula and superior to the disc along with pigment mottling within the macula. DFE OS revealed an intra-retinal hemorrhage nasal to the disc and pigment mottling within the macula. The OCT demonstrated outer retinal loss in the macula OD>OS. Near infrared spectroscopy (NIR) demonstrated well-demarcated, wedge-shaped lesions pointing towards the fovea corresponding to scotomas on Amsler grid. OCT angiography revealed loss of the deep capillary plexus in regions corresponding to the NIR defects. Humphrey Visual Field (HVF) OD demonstrated blind spot enlargement as well as central and paracentral depression. HVF OS demonstrated paracentral depression. Collectively these findings were consistent for a diagnosis of AMN in the setting of APL.

Conclusions:
Although the exact pathogenesis of AMN is unknown, a microvascular etiology has been proposed with a variety of reported associations. This report is the first to describe AMN in the setting of APL. It is important these cases continue to be reported to understand common trends and increase detection rates of this rare disease as well as to better elucidate an understanding of pathogenesis.