"An 85-Year-Old Female with Multiple White Choroidal Lesions"

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Introduction:

An 85-year-old Caucasian female was referred for evaluation of age-related macular degeneration (AMD) in both eyes. She described progressively worsening vision over the past year. Her past ocular history was significant for presumed ocular histoplasmosis syndrome (POHS), primary open angle glaucoma, prior cataract surgery in both eyes, and previous retinal detachment in the right eye which was repaired with vitrectomy and scleral buckling 8 years prior to presentation. Medical history was significant for hypertension for which she took amlodipine and hydrochlorothiazide. For her glaucoma, she was being treated with latanoprost and betimolol in both eyes. Her family history was significant for AMD. She denies any changes in systemic health and her review of systems was unremarkable. She denied any smoking.

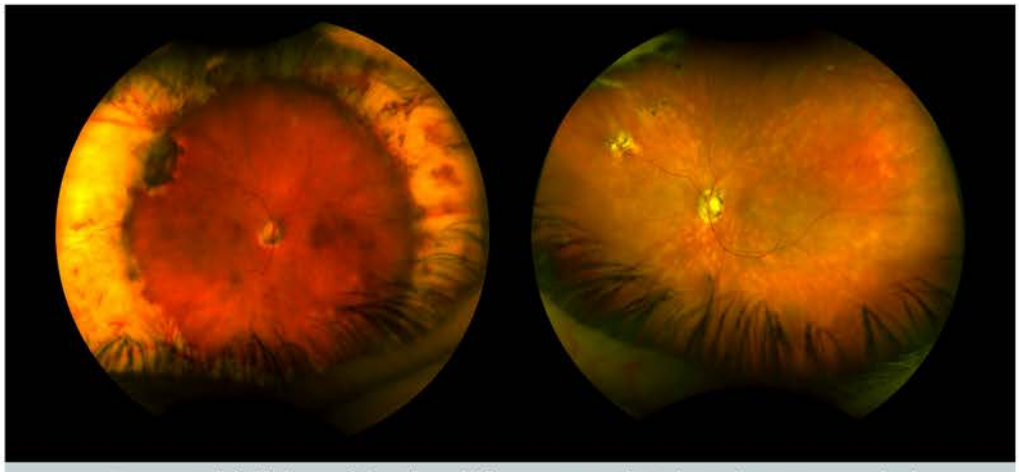

Figure 1: Widefield photos of the right and left eyes respectively. Right eye demonstrates a scleral buckle with peripheral scarring and an attached retina. Left eye shows circular white choroidal lesions.

Exam:

Visual acuity with correction was 20/80 in both eyes. Pinhole occluder improved her visual acuity to 20/60 in the right eye and 20/40 in the left eye. Her intraocular pressures were within normal limits and her anterior segment examination revealed bilateral intraocular lenses. Dilated fundus examination demonstrated that the right eye had previously undergone vitrectomy and the left eye demonstrated a posterior vitreous detachment. Peripapillary atrophy was present in both eyes. The macula had drusen and pigmentary changes bilaterally. The left eye also had scattered, circular, white choroidal lesions in the macula as well as the periphery. The right eye showed evidence of a scleral buckle with laser scarring and an attached retina. The periphery of both retinas also had a few punched-out chorioretinal scars. Wide-field photos were obtained (Figure 1 and Figure 2).

OCT was also obtained of both eyes demonstrating drusen in the right eye and drusen with a central pigment epithelial detachment in the left eye (Figure 3). Fundus autofluorescence demonstrated areas of hypoautofluorescence corresponding to prior surgical and chorioretinal scars as well as peripapillary atrophy around the optic nerve. The choroidal lesions can be appreciated in the left eye (Figure 4). Fluorescein angiography was conducted and demonstrated some late staining of the choroidal lesions in the left eye (Figure 5). B-scan was also performed and did not show any evidence of choroidal elevation. The differential diagnosis for these lesions included Birdshot chorioretinopathy, lymphoma, sarcoidosis, tuberculosis, sympathetic ophthalmia,

Figure 2: Widefield photo of the left eye demonstrating white circular choroidal lesions in greater detail.

and lymphoid hyperplasia.

Work-up:

Given the differential diagnosis, systemic work-up was conducted. Blood work was obtained and included CBC, ESR, CRP, QuantiFERON Gold, HIV, Lyme titers, ACE, FTA-Ab, TPA, RF, ANA, Anti-Smith Ab, Anti-DS DNA Ab, Anti-Chromatin Ab, Anti-SSA Ab, Anti-SSB Ab, Anti-Jo1, Anti-Centromere, p-ANCA, c-ANCA, PR3, MPO Ab, and HLA-A29. CBC demonstrated mildly elevated WBCs with a neutrophilic predominance. ESR and CRP were also elevated. All other tests were negative including HLA-A29. Chest X-ray (CXR) was acquired and showed a right upper lobe granuloma. MRI of the brain and orbits demonstrated chronic microvascular changes without evidence of metastatic lesions. Due to these findings systemic evaluation with the patient's primary care physician (PCP) was requested. Bronchial alveolar lavage (BAL) was recommended by her PCP, during this hilar lymphadenopathy was noted. BAL samples showed no evidence of carcinoma or evidence of lymphoma or a malignancy. Systemic work-up did not reveal any evidence of malignancy.

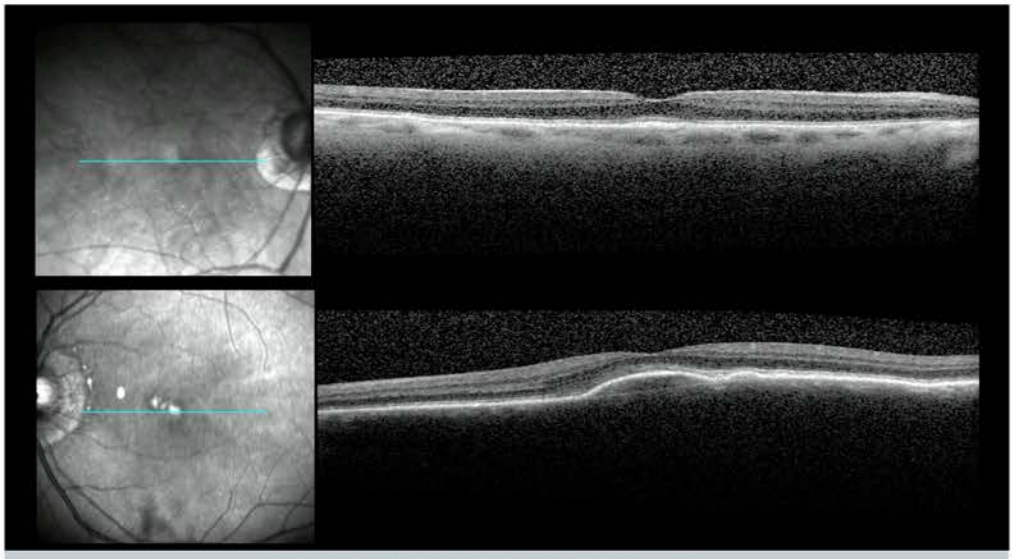

Figure 3: OCT of the right (top) and left (bottom) eyes.

Based on exam, imaging and systemic work up the likely diagnosis was benign reactive lymphoid hyperplasia (BRLH). Discussion was had with the patient regarding potential choroidal biopsy for absolute certainty in the diagnosis. The patient elected for close observation given lack of progressive visual symptoms. The patient has been monitored closely and has yet to demonstrate any evidence of progression over many years.

Discussion:

BRLH was first described by Gass in 1967 as an inflammatory pseudotumor of the uvea or other intraocular as well as extraocular tissues. It tends to affect middle-aged Caucasian patients and does not have an associated sex predilection. It is more common to be unilateral in nature with the most commonly affected site in terms of ocular tissue being the conjunctiva or orbit. Patients can note episodes of blurred vision and metamorphopsia if the lesions cause serous fluid to accumulate in the subretinal space. Additionally, patients may experience painless, progressive vision loss, diplopia, and a sensation of "fullness" or pressure if there is orbital involvement. There may be evidence of intraocular inflammation, however this is not as common. Some cases also describe a form of secondary angle closure caused by displacement of the iris-lens plane from uveal elevations. A hyperopic shift in a patient's refraction can sometimes be noted as well depending on lesion location and degree of elevation. Common findings of BRLH are, multiple creamy white or yellow patches with choroidal thickening. These lesions can also be solitary or diffuse in the retina. Ultrasound can be helpful in these cases as it can characterize if the lesions are elevated or flat. It can demonstrate low internal reflectivity, which can be noted with these lesions as well. Although, there is potential for malignant transformation, it is very uncommon. In any patient presenting with multiple scattered choroidal lesions such as this it is important to keep a systemic malignancy (lymphoma, metastatic carcinoma, metastatic melanoma) on the differential. This is especially true for elderly patients as they are more predisposed to developing systemic malignancies than younger patients. It is also pertinent to consider an inflammatory (sarcoidosis, posterior scleritis) or infectious etiology (syphilis or tuberculosis). An important diagnosis to exclude is birdshot chorioretinopathy, which is why obtaining an HLA-A29 can be

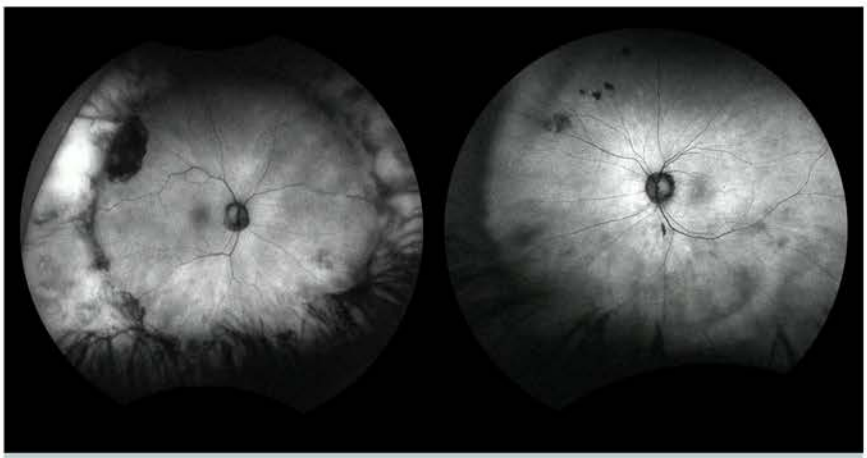

Figure 4: Fundus Autofluorescence of the right and left eyes

helpful. Given the appearance of white choroidal lesions that can be seen with BRLH. Sympathetic Ophthalmia may also be relevant in patients that have previously undergone any intraocular surgery or have had prior eye trauma. Overall, it is a diagnosis of exclusion and definitive diagnosis is accomplished by chorioretinal biopsy, although some patients may present with a episcleral or conjunctival mass, that are often times easier to obtain a biopsy from given they are more superficial in comparison to a retinal or orbital lesion. Histopathology of BRLH will demonstrate a localized or diffuse replacement of tissue stroma by an infiltration of lymphocytes and plasma cells; this finding is more prominent in the posterior choroid. Management is determined by clinical presentation and patient symptoms. If systemic evaluation is overall negative, the patient is relatively asymptomatic, and the involvement of the ocular structures appears to be minimal on serial exams, then observation can be appropriate. Larger lesions with secondary retinal detachment or intraocular inflammation can be treated with corticosteroids. If the process is refractory to steroid therapy and progressive, then whole-eye radiation can be used to control symptoms and squelch the disease process. A patient's visual prognosis will depend on the extent of the disease and ocular/periocular structures that are involved. Those with less extensive disease and minimal ocular involvement tend to do quite well. While there is a chance for evolution into a systemic lymphoma this tends to be low likelihood, but does warrant fairly regular follow up exams even in asymptomatic patients.

Figure 5: Fluorescein Angiography of the left eye with late staining of the choroidal lesions.

Figure 6 is another patient with a diagnosis of reactive lymphoid hyperplasia.

Take Home Points:

- Reactive Lymphoid Hyperplasia is a diagnosis of exclusion.
- It is important to rule out systemic malignancy.
- It can resemble Birdshot Chorioretinopathy and an HLA-A29 can be helpful.
- When arranging for systemic work-up, coordination with a patient's PCP can be helpful.

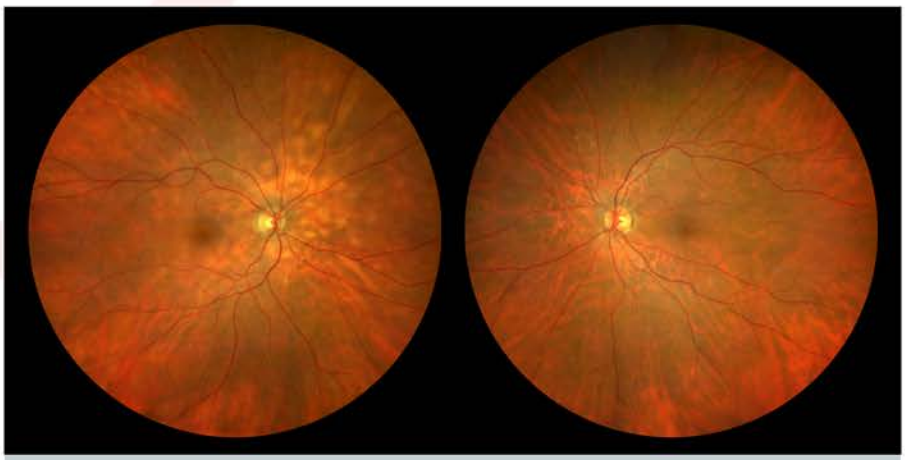

Figure 6: Fundus photos from a patient with reactive lymphoid hyperplasia of the right eye

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