Bilateral Atrophic Tracts Secondary to Chronic Central Serous Chorioretinopathy

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A 46YO black male with longstanding history of decreased visual acuity presents to the retina clinic. Clinical examination shows persistent retinal fluid in a drip pattern consistent with an atypical form of Central Serous Chorioretinopathy.

I. Case History
- 46YO Black Male
- Chief Complaint: decreased vision OD/OS diagnosed as macular edema in our general practice clinic; referred to retina for consultation/further evaluation
- Ocular History:
  - Decreased vision x 1 year, but this is concurrent with losing his glasses. Used over the counter readers but still reports blurry vision.
  - Last examination also notes pigmented lesions OD/OS which are symmetric and run along the inferior arcades.
  - Flashes x 3 months which have increased in amount and frequency, unsure which eye or both.
  - Previous exams noted reduction in BCVA to varying degrees which were attributed to diagnoses including: drusen, RPE mottling, microtropia and probable meridional amblyopia. Patient seen at the University Eye Center since 2005 but consistently lost to follow up.
  - Previous visual fields in 2005 noted diffuse central defects.
  - History of laceration of OS upper lid secondary to an accident in 1998 which he self-treated with peroxide.
  - Medical History: No significant systemic history per patient. No medications, no known drug allergies. Family history significant for Diabetes (mother) and Hypertension (mother, grandmother). No history of steroid use.

II. Pertinent Findings
- VA: OD 20/60-1 sc PH NI; OS 20/200 sc PH 20/50+1
- Fundus Evaluation:
  - C/D: 0.35 round pink distinct OU
  - Vessels: slight arteriole attenuation OU
  - Macula: elevated with scattered lipid deposits around fovea OU
  - Posterior Pole: OD RPE pigment changes 1DD inferior to optic nerve head, area of depigmentation inferior to macular suggesting fluid deposition; OS area of depigmentation inferior to macular suggesting fluid deposition
  - Periphery: flat/intact 360 OU
- Amsler Grid: no metamorphopsia noted OD/OS
- Cirrus OCT: OD central serous detachment with nasal pigment epithelial detachment; OS central serous detachment with temporal pigment epithelial detachment
- Fluoroscein Angiography: multiple areas of leakage with persistent subretinal fluid appearing as “drips” extending from optic nerve head, pigment epithelial detachments OD/OS

III. Differential Diagnoses
- Central Serous Chorioretinopathy (CSR)
  - Localized serous detachment of the neurosensory retina in the macular region, smokestack shaped leakage seen on fluorescein angiography
- Age Related Macular Degeneration (ARMD)
  - Drusen and pigmentary changes seen in macular region, elevation possible due to choroidal neovascularization, patient demographics typically Caucasian and >50 years, fluorescein angiography will show window defects and possible leakage if choroidal neovascularization present
- Retinal Pigment Epithelium Detachment
  - Localized detachment of RPE, can accompany both CSR and ARMD, area of increasing hyperfluorescence without leakage or increase in size on fluorescein angiography
- Cystoid Macular Edema
  - Typically presents with a petaloid appearance and is associated with cataract extraction, ARMD, ERM, or vitreo-macular traction
- Choroidal Tumor
  - Grey-green, brown, or yellow lesion/mass that exhibits subretinal fluid, ill-defined orange pigment areas over the lesion, height >2mm or growth

IV. Diagnosis and Discussion
- Central Serous Chorioretinopathy
  - Often unilateral with symptoms including blurred vision, metamorphopsia, dyschromatopsia, and/or micropsia. Central scotoma can be present. Patients may also be asymptomatic.
  - Visual acuities range from 20/20 to 20/80. Amsler grid testing often reveals distortions or scotoma.
  - Idiopathic etiology. Usually seen in men 25-50 years old with a Type A personality or history of corticosteroid use.
  - Serous leakage through the RPE causes a detachment of the neurosensory retina without detectable inflammatory, neovascular or neoplastic components.
  - Serous pigment epithelial detachment often observed under the neurosensory retinal detachment.
  - Dot-like precipitates and sub-retinal yellow material within the area of serous retinal detachment.\(^1\)
  - Tracts of RPE atrophy involving the inferior hemisphere of the fundus with varying descriptions such as “drip,” “gutter,” or “canal.”\(^2\) Varying tract orientations, configurations, starting and ending points have been reported.

In this case of central serous chorioretinopathy, fundus photos, OCT findings and fluorescein angiography reveal the extensive bilateral chronic nature of this condition.
Pigment epithelial detachments and sub-retinal accumulation of precipitates within the serous retinal detachment are evident on OCT. Fluorescein angiography reveals bilateral descending tracts of RPE atrophy extending from the optic nerves with multiple areas of leakage. Due to the extensive retinopathy found, photodynamic therapy is the recommended course of treatment for this patient.

V. Treatment/Management
- Monitor. Good chance for spontaneous recovery to at least 20/30 visual acuity. Follow patient every six to eight weeks until the condition resolves.
- Discontinue use of corticosteroids
- Argon laser photocoagulation in acute cases with evident focal leakage on fluorescein angiography
- Photodynamic therapy with verteporfin or micropulse diode laser photocoagulation in long-standing chronic cases. Treatment is directed at the area of RPE decompensation seen on fluorescein angiography.

VI. Conclusion
- Central serous chorioretinopathy is not exclusive to the macular region and can lead to damage in the surrounding fundus leaving behind “drips” or areas of atrophy. Damage is often seen in the inferior fundus due to gravitational force.
- Secondary manifestations including pigment migration, lipid deposition and leakage can by seen within these atrophic RPE tracts.
- Photodynamic therapy or micropulse diode laser photocoagulation treatment should be considered in chronic cases of central serous chorioretinopathy with active, extensive leakage.

Bibliography: