SALUS UNIVERSITY
The Eye Institute

Pennsylvania College of Optometry

The Focal Point

May 2024 Edition

Mariam Majid

Traditional Class of 2026

Hometown: Highland, Maryland
Undergrad: UMBC
Major: Biological Sciences; Minor Psychology
Favorite Animal: Cats
Optometry Goal: Own a private practice
Hobby: watching movies with my cat
Last Show I binged: The Resident

Nolan Shenk

Traditional Class of 2025

Hometown: Lancaster, PA
Undergrad: Millersville University
Major: Biology
Favorite Ice Cream: Mint chocolate chip
Optometry Goal: To one day be 25% as cool as Dr. Jeff Nyman
Favorite instrument: Saxophone
Hobby: musician
Last Show I binged: Better Call Saul

Bhawan Minhas, OD, FAAO

Illinois College of Optometry 2013; Pennsylvania College of Optometry Residency in Primary Care and Ocular Disease 2014

Hometown: Calgary, Alberta Canada
Undergrad: University of Calgary
Major: Biological Sciences; Minor Primatology
Favorite Primate Fact: Titi monkeys use tail twining like human monkeys hold hands!
Favorite Person: Dr. Jeffrey Nyman
Current obsession: sourdough

Where Did It Come From? A Case of Idiopathic Peripapillary CNVM

SALUS UNIVERSITY
The Eye Institute

Some details of the case have been changed to protect patient confidentiality. Though the NBEO PAM-Style format is utilized for the case write-up, there is no affiliation with NBEO.

Demographics 76 yo Black female
Chief complaint: eyelid twitch OS
History of present illness
Character/signs/symptoms: spontaneous eyelid twitching
Location: OS>OD, upper > lower lid
Severity: moderate
Nature of onset: 2 months
Duration: N/A
Frequency: sporadic - no discernable pattern
Exacerbations/remissions: none
Relationship to activity or function: N/A
Accompanying signs/symptoms: mild eye pain correlating to dry eye and treated with ATs PRN and Restasis BID OU. Does note decreased water intake, increased stress, and lack of sleep over past 2 months
Patient ocular history (+) CNVMOS s/p PDT laser x 6 years ago, (+) glaucoma suspect, (+) posterior capsular opacification s/p YAG, (+) seasonal conjunctivitis, (+) dry eye, (+) cataracts OU s/p CE w/ PCIOL (+) hx of ocular trauma
Family ocular history
Mother: (-) glaucoma, (-) blindness
Father: (-) glaucoma, (-) blindness
Paternal aunt and sister: (+) glaucoma
Patient medical history (+) DM, (+) HTN, (-) hyperlipidemia, (+) MS, (+) pituitary tumor s/p resection x 7 years ago (+) irritable bowel disease, (+) migraine, (+) anemia, (+) cervical cancer s/p cryotherapy, (+) congestive heart failure, (+) gallbladder sx, (+) arthritis
Medications taken by patient Albuterol sulfate inhaler, Amlodipine, Amoxicillin, Azithromycin, Baclofen, Dicyclomine, Donepezil, Escitalopram, Estradiol, Fluticasone, Furosemide, K-Tab, Losartan, Medroxyprogesterone, Metformin, Methylprednisolone, Myrbetriq, Neurontin, Omeprazole, Pramipexole, Pravastatin, Prednisone, Ranitidine, Restasis
Patient allergy history Sulfa
Family medical history
mother: (+) HTN
Father: (+) DM
Review of systems
Constitutional/general health: denies
Ear/nose/throat: Cardiovascular: denies
Pulmonary: Endocrine: denies
Dermatological: denies
Gastrointestinal: denies
Genitourinary: denies
Musculoskeletal: denies
Neurologic: denies
Psychiatric: denies
Immunologic: denies
Hematologic: denies
Mental status

Orientation: oriented to person, place, and time
Mood/Affect: normal

Clinical findings

BVA:

	Distance	Near
OD:	20/20-2	0.4/0.4M
OS:	20/25+	0.4/0.4M

Pupils: PERRL (-) APD OU Bright: 2.5mm OU Dim: 3.0mm OU
EOMs: FROM OU
Confrontation fields: FTFC OU
Hirschberg: Symmetric

Subjective refraction:

	VA Distance	VA Near
OD: +0.25 -1.75 x 090 ADD: +2.50	20/20-3	0.4/0.4M
OS: plano -1.25 x 105 ADD: +2.50	20/20	0.4/0.4M

Slit lamp:
lids/lashes/adnexa: eyelid laxity OU with inferior eyelid twitching noted OD during exam
conjunctiva: diffuse melanosis OU, 1+ papillae OU
Cornea: clear OU
anterior chamber: deep and quiet OU
Iris: flat, brown OU (-) NVI OU
lens: PCIOL centered, clear S/P YAG OU
Vitreous: syneresis OU (-) vitreous heme OU

IOPs/method: 18/16mmHg via Goldmann

Fundus OD:
C/D: 0.65 round follows ISNT rule (-) drance (-) NVD
macula: flat and intact (-) CSME
posterior pole: clear (-) hemes, exudates, CWS, microan, IRMA, venous beading, or NVE
Periphery: flat and intact 360 (-) breaks or detachments

Fundus OS:
C/D: 0.7 round follows ISNT rule (-) drance (-) NVD; chorioretinal scar s/p PDT laser temporal aspect of ONH ***(See Image 1)***
macula: flat and intact (-) CSME
posterior pole: clear (-) hemes, exudates, CWS, microan, IRMA, venous beading, or NVE
Periphery: flat and intact 360 (-) breaks or detachments

Blood pressure: 142/72mmHg RAS

Case Images:

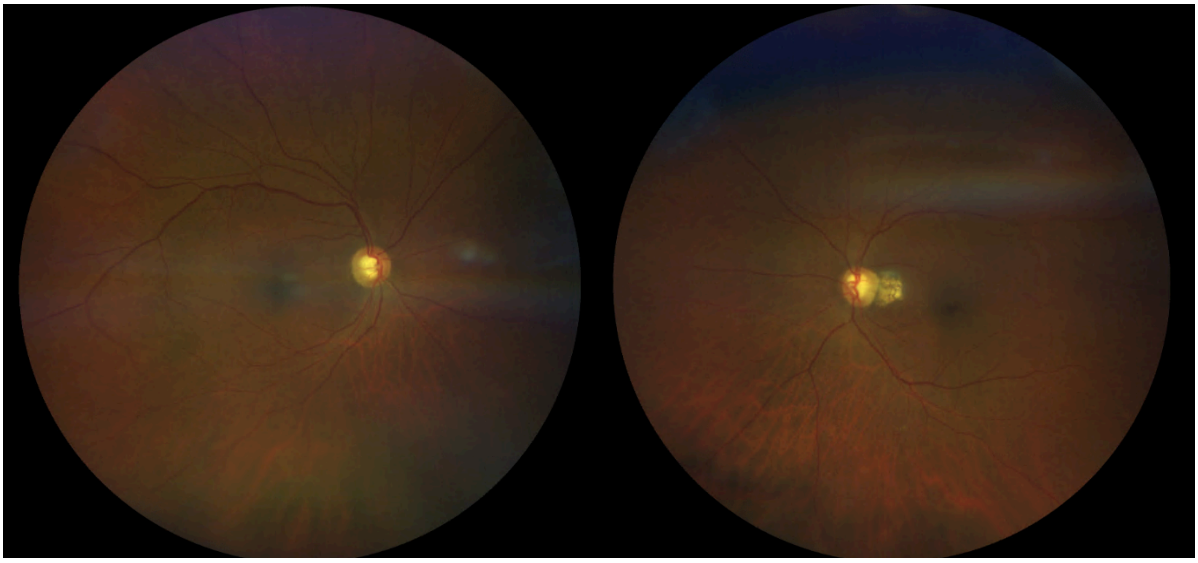

Image 1: Colored fundus photograph OD and OS, respectively. Note the chorioretinal scar on the temporal aspect of the ONH consistent with PDT laser repair of a choroidal neovascular membrane OS.

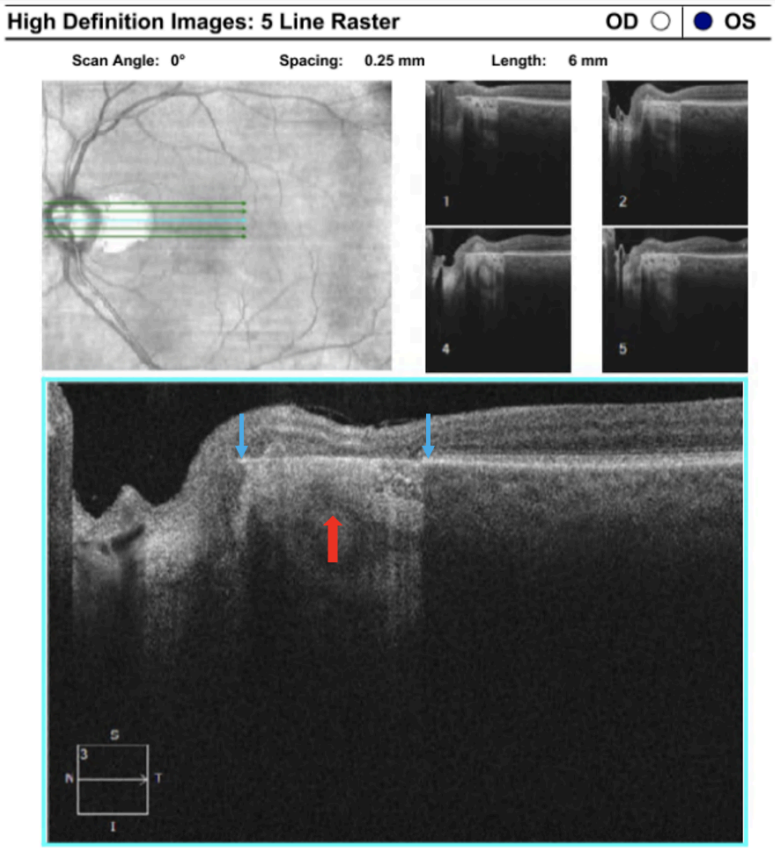

Image 2: HD 5-line Raster OCT OS through chorioretinal scar OS. Of note: thinning of the outer sensory retinal layers, including RPE (blue arrows) with increased hyper-reflectivity of the underlying choroid (red arrow) consistent with loss of RPE tissue allowing OCT signal to

'penetrate' deeper into the choroid.

Case Management Summary

1. **G51.4** A: **Lid myokymia:** Patient reports eyelid twitching OS>OD upper > lower eyelid x 2 months w/ right lower eyelid twitching noted during examination today
   -Denies involvement of forehead/cheek or entire half of face at any point allowing to rule out blepharospasm
   -Pt denies increased caffeine use but does not decreased water intake, increased stress, and lack of sleep over past few months that correlates with timing

   P: Pt was educated on exam findings. Ed on exacerbating factors of myokymia such as not enough sleep, too much caffeine, stress, and dehydration. Discussed control of these factors to the best of her ability and ed on possible benefits of quinine in tonic water. Ed to monitor for progression hemifacial nature and RTC if noted. Monitor yearly, sooner worsening noted.

2. **E11.9** A: **Diabetes type II without complications:** DM Type 2 x 24 years: Examination revealed no diabetic retinopathy OU (-) CSME/DME OU
   -Last HbA1C: 7%; Last fasting blood sugar (self-monitored): 124 mg/dL
   -Baseline photos: obtained

   P: Pt was ed on exam findings. Ed on importance of optimal metabolic control including blood sugar, blood pressure and cholesterol via diet/meds/exercise and regular PCP follow up. Ed on importance of yearly dilated eye exams. Letter sent to PCP with exam findings. RTC 1 year comprehensive eye exam (CEE).

3. **H40.013)** A: **Open angle with borderline finding, low risk, bilateral:** Examination revealed glaucoma suspect OU with the following risk factors:
   -(+) family history: paternal aunt and sister
   -Race: African American/Black
   -IOP today: 18/16; previous: 16/16
   -TMAX: 20/20
   -Current Tx: None, observation
   -Ocular Surgeries: PDT OS 05/2018 for active CNVM temp to ONH OS; CE w/ PCIOL OU; YAG OU
   -C/D: 0.70/0.70 OD, 0.65/0.65 OS
   -Last DFE: today
   -Last Gonio: Open OU
   -Last Pachs: 637/634
   -Last HVF 24-2: clear OU
   -Last OCT ONH: updated today: stable sup temp thinning since 2013 OU on Guided Progression Analysis
   -Last GCC Analysis: updated today: generalized sup and inf thinning OU
   -Last Fundus photos: updated today

   P: Pt was ed on exam findings. Ed on glaucoma being a potentially blinding condition and importance of compliance with follow up care, testing, and treatment. No current

treatment indicated with normal pressures and stable structural testing with updated ONH OCT and GCC OU today. Monitor 1 year CEE - update HVF 24-2 at that time.

4. **H16.223** A: **Keratoconjunctivitis sicca not specified as Sjogren's:** Examination revealed: Dry Eye Syndrome OU
   -Pt symptomatic of irritation/dryness OU
   -Current treatment Restasis BID to TID OU

   P: Pt was ed on exam findings. Ed on continued treatment regimen of Restasis up to 6x/day and gel QHS (sample given today). Refilled Restasis today. Referred to Dry Eye Clinic for continuity of care for dry eye management.

5. **H35.89** A: **Other unspecified retinal disorder:** Examination and history revealed choroidal neovascular membrane OS (between ONH and MAC) - called wet AMD in Retina notes S/P PDT laser OS (5 years prior); no indication of drusen in retina OU
   -Updated OCT OS: today - stable CR scaring temp to ONH OS; no sub retinal or intraretinal edema OS
   -Fundus Photos: obtained
   -Last Retina visit: 2 years ago

   P: Pt was ed on exam findings and stable findings. Ed to continue use of Amsler Grid to monitor for changes. RTC 1 year CEE, sooner if changes noted on Amsler.

6. **H52.223 and H52.4** A: **Regular astigmatism, bilateral and Presbyopia:** Refraction revealed: mixed astigmatism OD and simple myopic astigmatism OS w/ presbyopia OU
   -BCVA: 20/20 OD, 20/20 OS

   P: Updated bifocal Spec Rx released for full time wear. Ms Harris was ed on minor change from habitual Rx, no adaptation problems expected. Return to clinic 1 year comprehensive eye exam (CEE).

Case Pearls

- Peripapillary choroidal neovascular membranes (PCNM) can present symptomatically if the membrane covers or a leakage of fluid occurs in the macula and/or hemorrhages into the subretinal space.[1]
- Larger PCNMs (>3.5 disc diameter or involves >50% of disc circumference) pose an additional risk of visual impairment from scar contraction, hemorrhaging, and increased fibrovascular growth.[1]
- There are two types of PCNM[1]:
  - *Type 1:* seen in patients with ARMD, where the membrane resides within the retinal pigment epithelium (RPE) – the most common cause of CNV in patients over 50 years old.
  - *Type 2:* the membrane resides anterior to the retinal pigment epithelium (RPE).
- There are various options for treatment of PCNM:
  - Conventional laser therapy for PCNMs poses limitations in benefit as it may lead to adverse outcomes due to scar formation. In our patient, the location of the

CNVM between the ONH and the macula - if treated - could lead to damage to the papillomacular bundle.
    - Photodynamic therapy has been shown to effectively resolve PCNMs, yet visual acuity may not improve significantly.[1]
    - Surgical outcomes for PCNMs are favorable, yet surgical intervention can increase the likelihood of further complications.[1]
    - The invention of anti-VEGF injections (*Ranibizumab and Bevacizumab),* offer advantageous outcomes over other treatment options due to preservation of the papillomacular bundle.[1] Although anti-VEGF injections have a short duration of action and require frequent dosages, it could be the most effective treatment option for most patients.
- Pachychoroid is defined as increase in choroidal thickness which is thought to be attributed to an enlargement of Haller's layer leading to compression of inner choroidal vessels. There are a spectrum of conditions that are related to pachychoroidal diseases including pachychoroid pigment epitheliopathy, central serous chorioretinopathy, pachychoroid neovasculopathy, and polypoidal choroidal vasculopathy.[2]
    - Since the abnormally increased choroidal thickness may cause chronic congestion and backpressure of the vasculature, structural damage to the RPE and Bruch's membrane can be noted in these conditions.[2] These morphological changes along with inflammatory mediators can lead to the formation of choroidal neovascular membranes.
    - "Double-layer sign" is a characteristic feature that can be observed on OCT in some eyes with pachychoroid where irregularly elevated RPE separates from the inner layer of Bruch's membrane.[2]
        - This is a sign that astute clinicians can note in patients presenting with acute PCNMs which could point to pachychoroid.
        - Since our patient was s/p PDT, we were not able to evaluate for this specific OCT feature.

References:

1. Jutley G, Jutley G, Tah V, Lindfield D, Menon G. Treating peripapillary choroidal neovascular membranes: a review of evidence. Eye (2011) 25, 675-681.
2. Sheth J, Anantharaman G, Chandra S, Sivaprasad S. "Double-layer sign" on spectral domain optical coherence tomography in pachychoroid spectrum disease. Indian J Ophthalmol. (2018) 66(12): 1796-1801.