

Pennsylvania College of Optometry **The Focal Point** November 2023 Edition

Jessica Harsch

Traditional Class of 2025

Hometown: Chester Springs, Pennsylvania Undergrad: Ursinus College Major: Neuroscience Favorite Animal: Bear Favorite cuisine: Sushi Hobby: Anything outdoors with my partner, Robert, and our golden retriever, Harper Last Show I binged: Devs





Alice Lim

Class of 2018, Pennsylvania College of Optometry

Hometown: North Wales, PA Undergrad: Arcadia University Favorite dog breed: shih-tzu Favorite cuisine: Korean food, anything spicy Hobby: traveling to new places

What in the High Myopia is this? A Case of CNVM as an Ocular Sequela to Myopia



Demographics

22-year-old Black female; college student

Chief complaint: Blurry vision in LE

-Referred by outside ophthalmology (evaluated 10 days prior) diagnosed with "CNVM" of unknown cause, w/o treatment

-Referral was to Wilmer Eye, but patient had difficulty scheduling appointment, present to TEI for 2nd opinion

History of present illness

Character/signs/symptoms: difficulty seeing at distance with and without glasses **Location:** OS

Severity: severe, gradually worsening over the past couple weeks

Nature of onset: ~1 month

Duration: constant

Frequency: constant

Exacerbations/remissions: none

Relationship to activity or function: none

Accompanying signs/symptoms: distortions in superior temporal field of vision

Patient ocular history

(+) Long-term spectacle and contact lens wearer (myopia, bilateral)

Family ocular history

Mother: no reported history of glaucoma or blindness

Father: no reported history of glaucoma or blindness

Patient medical history

(+)Heart murmur (2022), (+) Asthma, (+) Headache (-) DM, (-) HTN (-) cholesterol

Medications taken by patient

Ibuprofen 400mg tablet Albuterol sulfate 2.5mg/3mL (0.083%) Cetirizine 10mg tablet Epinephrine 0.3mg/0.3mL injection, auto-injector Fluticasone propionate 50mcg/actuation nasal spray, suspension

Patient allergy history

No known drug allergies

(+) Environmental allergies, seasonal allergies

Family medical history

Mother: no reported history of diabetes, hypertension, or cancer Father: no reported history of diabetes, hypertension, or cancer

Review of systems

Constitutional/general health: denies

Ear/nose/throat: denies

Cardiovascular: denies

Pulmonary: asthma

Endocrine: denies

Dermatological: denies

Gastrointestinal: denies

Genitourinary: denies

Musculoskeletal: denies

Neurologic: headache



Psychiatric: denies Allergic/Immunologic: seasonal allergies Hematologic: denies

Mental status

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

Clinical findings BVA:

<u>Distance</u>		<u>Near</u>
OD:	20/20	0.4/0.5M
OS:	20/100 PHNI	0.4/2.5M

Pupils: PERRL (-) APD OU

EOMs: full, no restrictions, no diplopia OU

Confrontation fields: FTFC OD, FTFC OS with metamorphopsia on hand comparison Hirschberg: symmetric

Amsler grid: distorted/warped lines in left superior guadrant of grid OS Autorefraction:

OD: -7.00 -2.25 x165 OS: -6.25 -2.75 x009

Slit lamp:

Lids/lashes/adnexa: normal Conjunctiva: diffuse melanosis Cornea: normal endothelium, epithelium, stroma and tear film Anterior chamber: deep and quiet Iris: normal, brown in color lens: clear lens capsule, cortex and nucleus Vitreous: clear

IOPs/method: Goldmann OD 11mmHg, OS 17mmHg

Fundus OD:

C/D: 0.45/0.45 Macula: flat and intact Posterior pole: unremarkable with normal course & caliber of vasculature Periphery: unremarkable

Fundus OS:

C/D: 0.3/0.3

Macula: bullous elevation of macula, round grayish lesion, (-)exudates or hemorrhages Posterior pole: unremarkable with normal course & caliber of vasculature Periphery: unremarkable

Blood pressure: 118/80 mmHg RAS



Case Images:



Image 1: Colored fundus photographs of right and left eye (respectively). Images display distinct optic nerve margins with flat andhealthy perfused rim OU; macula is flat and intact and visible retina is clear OD; there is a well circumscribed **bullous elevation observed involving fovea (blue arrows) OS**



Image 2: OCT HD 5 Line Raster of left macula demonstrating subfoveal fluid with no intraretinal edema and area of sub-RPE elevation indicating likely choroidal neovascular network.





Image 3: OCT 512x128 Macular Thickness Analysis Report OU demonstrating a normal scan OD and significant sub-retinal thickening noted inferior para-macula region OS

Case Management Summary

TEI Assessment and Plan -

Assessment 1: Other specified retinal disorder (H35.89)

- Patient complaint of distorted vision OS for about 1 month
- Previously evaluated by Baltimore Eye Associates : CNVM OS w/ unknown cause, no prior treatment
- BCVA: 20/20 OD, 20/100 OS PHNI
- OCT Mac: normal OD, CNVM w/ serous detachment OS
- Patient denies steroid use or trauma

Plan 1: Patient educated on findings of CNVM and importance of additional retinal consult for imaging and treatment consideration for active CNVM. Patient referred to Retina for consult; all exam notes faxed, appointment scheduled in 3 days.

Retina Consult Report - Impression and Plan (3 days post TEI visit):

- <u>Myopic Choroidal Neovascularization-OS</u>. Macula shows choroidal neovascularization, subretinal fluid, trace macular edema and trace thickening. Based on today's exam, diagnostic studies, and/or review of records, the determination was made for treatment today. **Intravitreal-VEGF therapy** was recommended. Advised to call immediately if eye pain or loss of vision.
- 2. <u>Myopic Degeneration-OS</u>. Discussed risk of vision loss from secondary CNV, lacquer



crack, myopic maculopathy, or retinal detachment. Advised **regular use of Amsler grid.** Recommended observation.

- 3. <u>Myopia OU</u>. Discussed risk of vision loss from secondary CNV, lacquer crack, myopic maculopathy, or retinal detachment. **Retinal detachment warnings given.**
- 4. <u>COVID-19 Vaccine not received</u>. Encouraged to get vaccinated.

Treatment Summary at Retina Consult:

- Procedures: Intravitreal Ranibizumab (Lucentis) 0.5mg OS
- Specialty Meds: Artificial Tears 1 gtt PRN OU
- Follow-up: 5 weeks

Case Pearls

Myopic Choroidal Neovascular Membrane (CNVM)¹

- Myopic CNVM is a complication that can occur in high myopia (defined as axial length greater than 26.5mm or refractive error greater than -6D). However, it is now recognized that myopic CNVM can occur in any degree of myopia.
- Myopic CNVM has been reported in 5-11% of patients with progressive myopia 62% of these patients developed CNVM before the age of 50.
- Active diagnosis should be considered in myopes presenting with metamorphopsia, sudden vision loss, and funduscopic changes (small, slightly elevated, grayish lesion in subfoveolar zone).
- Choroidal neovascular membrane in myopia is typically 1000µm in diameter and sub-RPE fluid or exudates are uncommon.
- Note on treatment: Anti-VEGF is first line treatment for myopic CNVM. Lucentis is the only FDA-approved treatment for this indication. Avastin and Eyelea are used off-label.
- Imaging in addition to fluorescein angiography (FA) that may be performed to aid in differential diagnosis: ICG-A, OCT, and OCT-A.

Differential Diagnosis: Age-Related Macular Degeneration

- Age-related macular degeneration accounts for most patients with CNVM.
- Establishing myopic CNV diagnosis in older patients is more challenging, because AMD may also be present.
- AMD-associated CNV lesions are typically larger, often associated with hemorrhage and drusen, with potential sub-RPE fluid.

Differential Diagnosis: Central Serous Chorioretinopathy

- Central serous chorioretinopathy was also considered as a differential due to imaging findings (ie sub-retinal/sub-foveal fluid, potential RPE changes) but the patient reported no history of acute rise in endogenous cortisol levels or exogenous steroid use

Other Differential Diagnoses:

- Multifocal choroiditis
- Presumed ocular histoplasmosis syndrome
- Recent hemorrhage from lacquer crack formation
- Idiopathic CNV



- Hereditary disorders including Best disease, reticular dystrophy, and retinitis pigmentosa
- Blunt ocular trauma

Assistance with Referral

- Although this patient was referred to another provider following our visit, updated imaging was obtained and used for patient education and to monitor disease progression and establish urgency of referral.
- In circumstances where a patient is having difficulty scheduling for a second opinion, Optometrists may have a role as middleman to assist with prompt referral as indicated.

References

 Perez, D et al. Myopic choroidal neovascularization [Internet]. American Academy of Ophthalmology. 2020 [cited 2023 Jun 14]. Available from: https://www.aao.org/eyenet/article/myopic-choroidal-neovascularization

