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Pennsylvania College of Optometry

# The Focal Point

November 2022 Edition

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## Naomi Nixon

Traditional Class of 2024

**Hometown:** Ramstein, Germany

**Undergrad:** Northern Illinois University

**Major:** Biological Science; Minor Chemistry

**Favorite Subject:** Clinical Skills & Binocular Vision

**Optometry Goal:** Pediatric Optometrist/Private Practice

**Favorite food:** Pasta!!!

**Hobby:** weight lifting, quad skating, and traveling (preferably with my dog)

**Last Show I binged:** ER & The Watcher



## Bhawan Minhas

Class of 2013, Illinois College of Optometry

**Hometown:** Calgary, Alberta Canada

**Optometry School:** Illinois College of Optometry

**Residency:** Primary Care/Ocular Disease at TEI/PCO

**Favorite Travel Destination Thus Far:** Portugal - finally get the hype about port wine

**Favorite Food:** Sushi and Wings (not together)

**Most Embarrassing Fact:** I have a 'leaky' left armpit which gets drenched when I am nervous



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# The Secondary Cataract: Presentation and Management of Reduced Vision After Cataract Surgery in a Patient with Pseudovitelliform Lesions

### Demographics

94 yo Black female; retired

**Chief complaint:** Constant blurred vision OU

### History of present illness

**Character/signs/symptoms:** blur with glasses at distance and near

**Location:** Both eyes

**Severity:** Moderate

**Nature of onset:** Noticed vision getting worse ever since having cataracts extraction surgery; vision was 'good' directly after surgery

**Duration:** cataract surgery 2 years ago; blur soon after

**Frequency:** Constant

**Exacerbations/remissions:** none

**Relationship to activity or function:** none

**Accompanying signs/symptoms:** denies LOV, flashes, floaters, and headaches

**Patient ocular history:** Eyelid mole removal OD, Cataract extraction w/ PCIOL OU, POAG suspect OU, Pseudovitelliform macular lesion OU with previous retinal consult ruling out Best's Disease or CNVM, Hyperopia OU, Meibomian Gland Dysfunction OU (-) Eye injuries

### Family ocular history:

(-) Blindness (-) Age-related Macular Degeneration (-) Glaucoma

**Patient medical history:** Hypertension, Vertigo

(-) Diabetes Mellitus (-) Hyperlipidemia

**Medications taken by patient:** amlodipine 2.5 mg tablet, hydrochlorothiazide 12.5 mg capsule, meclizine 25 mg tablet

**Patient allergy history:** NKDA

### Family medical history

Mother: Congenital heart defects

Sister: Diabetes Mellitus

### Review of systems

**Constitutional/general health:** denies

## The Case

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**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(cc):**

	<u>Distance</u>	<u>Near</u>
OD:	20/150 PH:20/125	0.4/1.6 M
OS:	20/125 PH: NI	0.4/1.0 M
OU:	20/100	0.4/1.0

**Pupils:** PERRL OU- $\downarrow$  APD

**EOMs:** Full, no restrictions, no diplopia OU

**Confrontation fields:** confrontation fields full to finger counting, OU

**Hirschberg:** symmetric

**Subjective refraction:**

	<u>VA Distance</u>
OD: +1.00-1.00 x150 +2.50 ADD	20/150
OS: +0.25-1.00 x145 +2.50 ADD	20/80

### Slit lamp:

**lids/lashes/adnexa:** capped glands, mild superior lid dermatochalasis OS>OD

**conjunctiva:** inferior palpebral concretions and diffuse melanosis OU, inferior nasal mole between bulbar/palpebral conj OD, conjunctival cyst inferior palpebral conj OS

**Cornea:** 360 Arcus OU, tear film debris OU

**anterior chamber:** deep and quiet OU; VH: 4 T and N OU

**Iris:** flat and intact, brown OU

**lens:** PCIOL, centered, 4+ PCO OU

**Vitreous:** PVD OU

## The Case

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**IOPs/method:** 11/12 mmHg with Goldmann

**Fundus OD:**

**C/D:** 0.4/0.4; perfused, healthy, distinct ONH; intact NRR, no RNFL dropout

**Macula:** foveal pseudovitelliform lesion with central pigmentary changes; scattered macular drusen

**Posterior Pole:** (-) hemes or exudates; visible grossly retina clear with hazy views

**Periphery:** paving stone degeneration inferior temporal OU; flat and intact x 360, no RD, no breaks

**Fundus OS:**

**C/D:** 0.5/0.5; perfused, healthy, distinct ONH; intact NRR, no RNFL dropout

**Macula:** foveal pseudovitelliform lesion with central pigmentary changes; scattered macular drusen

**Posterior Pole:** (-) hemes or exudates; visible retina grossly clear with hazy views

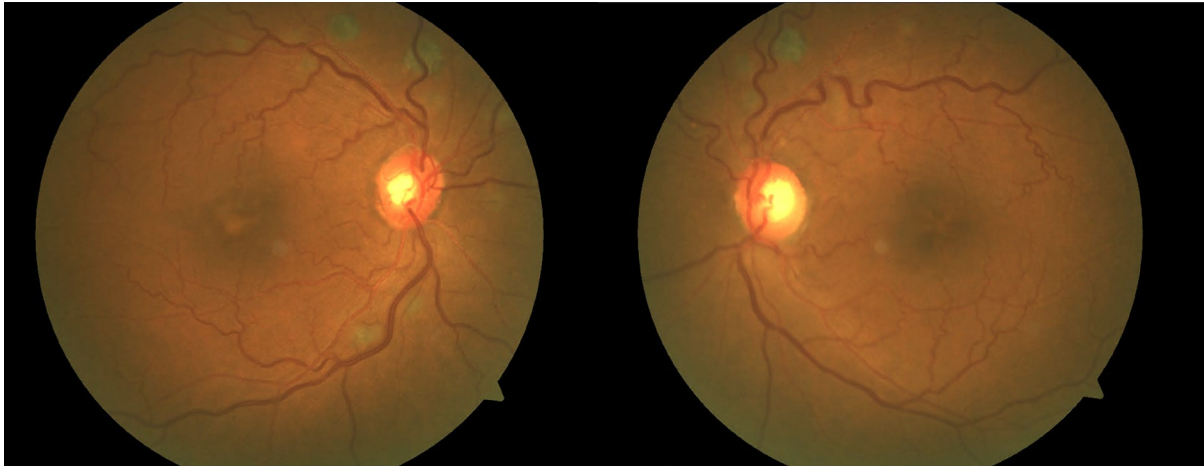
**Periphery:** paving stone degeneration inferior temporal OU; flat and intact x 360, no RD, no breaks

**Blood pressure:** 154/74 mm/Hg RAS

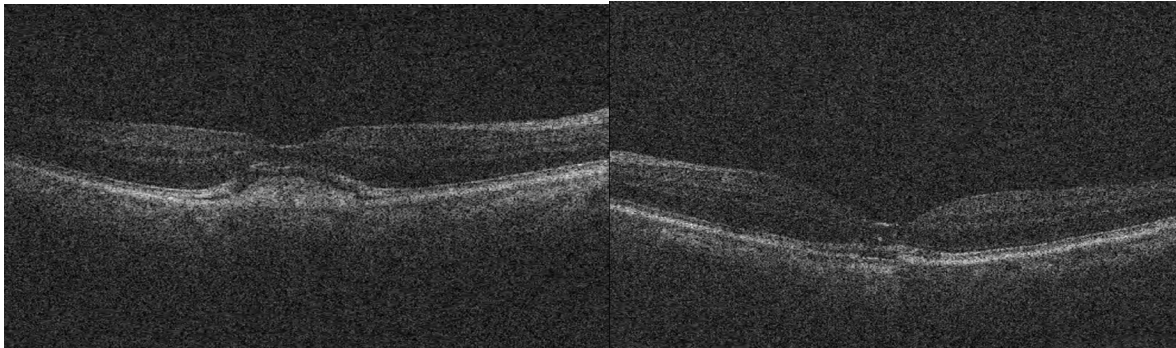
### Case Images:

**Image 1:** Colored Fundus Photographs OD and OS, respectively, from 5 years prior when posterior segment views were more clear. Note the pigmentary changes in the foveal region OU. BCVA at this time was 20/25 OD and OS. Dilated view at this visit was grossly similar OU.

## The Case

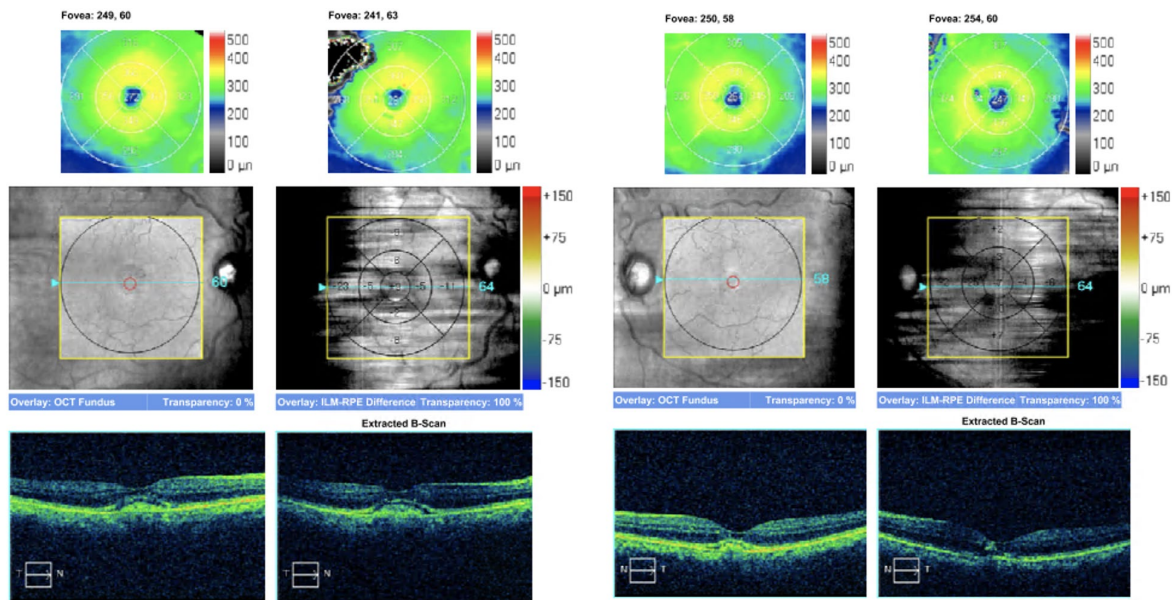


**Image 2:** Raw OCT scan image OD and OS, respectively from this visit. Note the sub-RPE hyperreflective foveal lesions OD>OS and the diminished quality of the scan secondary to PCO OU.



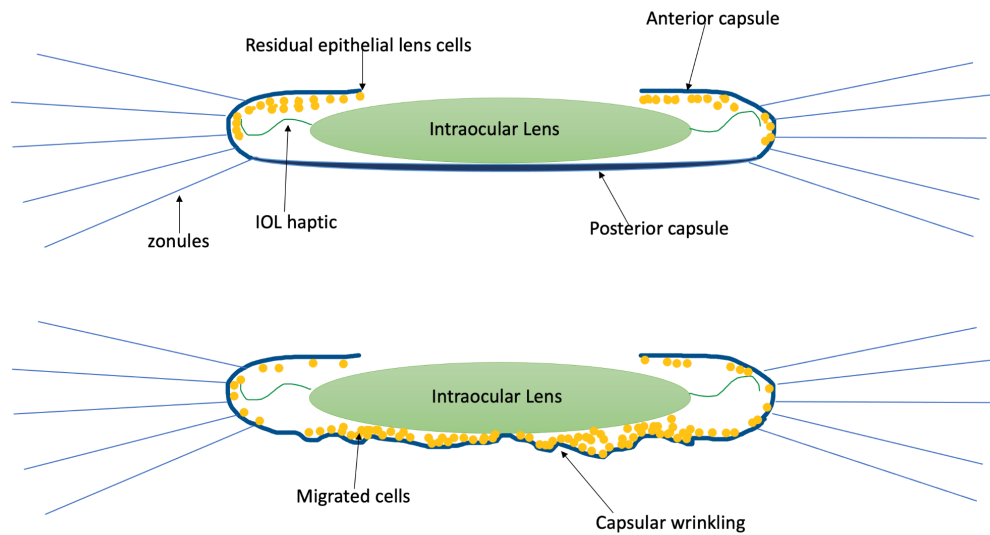
## The Case

**Image 3:** Macula OCT Change Analysis Report OD and OS, respectively. Though the quality of the scans from this visit are poor, the change analysis as compared to scans taken 3 years ago (prior to cataract extraction consult) look similar with no statistically significant difference in thickness measurements OU. This indicates that the BCVA could improve back to 20/25 post YAG capsulotomy OU.



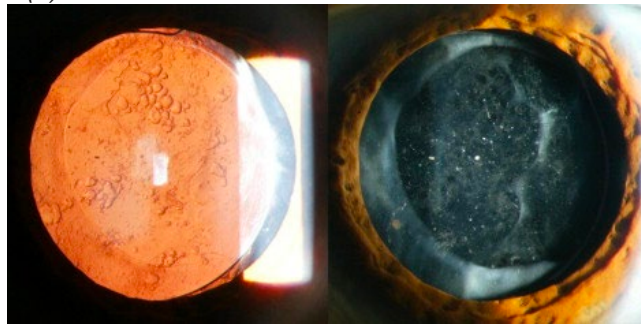
**Image 4:** Visual schematic cross-section of PCIOL directly after cataract extraction (top) and after residual lens epithelial cells have migrated to the posterior subcapsular space and created PCO which presents as opacification and capsular wrinkling (bottom). Representation re-created by B Minhas, OD.

# The Case



**Image 5:** Borrowed image of PCO demonstrating retroillumination (left) and direct illumination (right) evaluation in a slit lamp.

Montenegro GA, Marvan P, Dexl A, Picó A, Canut MI, Grabner G, Barraquer RI, Michael R. Posterior capsular opacification assessment and factors that influence visual quality after posterior capsulotomy. *Am J Ophthalmol.* 2010 Aug;150(2):24853.



**Table 1:** Evaluation of posterior capsular opacification (EPCO) Grading System

Grade	Description
0	None visible

## The Case

1	Minimal wrinkling of posterior capsule with fine layer of lens epithelial cells (LECs)
2	Mild honeycomb PCO; thicker layer of LECs with dense fibrosis
3	Classic Elschnig pearls; very thick layer of LECs
4	Severe opacity with darkening effect

### Case Management Summary

#### Assessment 1: Posterior Capsular Opacification OU

- symptomatic of blurred vision
- BCVA: 20/150 OD, 20/80 OS
- patient reports 20/20 vision initially post cataract surgery OU
- BCVA prior to cataract surgery referral 20/25 OD and OS
- No significant changes on MAC OCT of foveal lesions OU

**Plan 1:** Patient educated on natural occurrences of posterior capsule opacification after cataract extraction. Patient education on the risk and benefits of YAG laser capsulotomy to clear the PCO. Ed on potential limitations to BCVA given foveal lesions however, good prognosis given stable structural testing. Patient acknowledged understanding and decided to move forward with the YAG procedure and scheduled with the previous OMD for the next available appointment.

#### Assessment 2: Pseudovitelliform Macular Dystrophy OD>OS

- Patient seen by OMD to monitor with no treatment recommendation
- Updated Macula OCT performed today: stable to previous OU
- Last Fundus Photos: 5 years ago
- Current tobacco smoker with no intent to quit

**Plan 2:** Patient educated on today's finding and educated to continue to maintain 6 month follow-ups. Patient was given home Amsler Grid for self monitoring and instruction on how to utilize the grid. Educated the importance of returning immediately if any changes are noticed. Previously on AREDS formula however, decided to stop taking due to cost. Patient was educated on the benefits of green leafy vegetables, omega 3 fatty acids and food sources such as fish, nuts, flax seeds. Patient educated on the importance of smoking cessation. Patient to



## The Case

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return for monitoring in 6 months.

### Case Pearls

1. Months to years after cataract extraction surgery patients should have a dilated examination to evaluate the correct position and clarity of the intraocular lenses. “Secondary cataracts” or posterior capsule opacification is caused by residual lens epithelial cells migrating to an intact posterior capsule post cataract surgery. PCO typically presents with symptoms such as constant decreased visual acuity, increased sensitivity to glare, and potentially reduction of color perception - all similar to the initial symptoms of senile cataracts.
2. Educating patients on the high incidence of a PCO development is important prior to and after cataract surgery to ensure the patient knows to seek treatment if symptoms occur. The reduction of vision, like in the case presented, can be highly debilitating for the patients. With proper education patients will feel at ease when symptoms such as glare and diffuse blur arise post surgery and will follow up with Optometrists more readily.
3. Similar to vitelliform lesions found in Best’s Disease, pseudovitelliform lesions present as yellow pigmented foveal lesions that localize to the sub-RPE space on MAC OCT and include hyperreflectivity internally. EOG can confirm a pseudovitelliform diagnosis which has a relatively good visual prognosis as compared to Best’s. Retinal consult is warranted to rule on choroidal neovascular membrane or need for treatment with Anti-VEGF injections. The only modifiable risk factor that is well researched in pseudovitelliform macular dystrophy is smoking cessation however, AREDS formulation and benefits of diet modifications have anecdotal evidence for support.
4. When the examiner’s view into the eye is limited due to media opacity- in this case PCO- diagnostic imaging such as OCT can be helpful in monitoring for change from baseline. In this case, the stable nature of the Mac OCT as compared to prior to cataract surgery indicates that the patient’s vision can return back to BCVA (20/25 OU) s/p YAG. That being said, it is important to educate patients on the limitations of visual potential and our prediction of vision post procedure when there is retinal pathology at play.