

# AMD A-to-OCT-to-RI-to-Z

## What You Need to Know

Greg A. Caldwell, OD, FAAO  
Optometric Education Consultants



## Disclosures- Greg Caldwell, OD, FAAO

- ☞ Will mention many products, instruments and companies during our discussion
  - ★ I don't have any financial interest in any of these products, instruments or companies
- ☞ Pennsylvania Optometric Association –President 2010
  - ☑ POA Board of Directors 2006-2011
- ☞ American Optometric Association, Trustee 2013-2016
- ☞ I never used or will use my volunteer positions to further my lecturing career
- ☞ Lectured for: B&L, Shire, BioTissue, Maculogix, Optovue, Alcon, Allergan, Aerie
- ☞ Advisory Board: Alcon, Allergan, Maculogix, Sun
- ☞ Envolve: PA Medical Director, Credential Committee
- ☞ Optometric Education Consultants - Scottsdale, WDW, St. Paul, Quebec City, and Nashville, Owner



# Financial Obligations



# Course Description and Objectives

This course will evaluate Age Related-Macular Degeneration (AMD) from subclinical to advanced AMD. It will emphasize structure (OCT) and function (dark adaptation) testing to provide early detection and proper staging of AMD. Once accurately diagnosed the course will discuss applying current clinical guidelines in the treatment of subclinical to advanced AMD. The course will also call attention to OCT structural changes indicating progression.

## Course Objectives:

- ☞ Show how to diagnose the often missed subclinical or early AMD
- ☞ Increase ones understanding on function testing for AMD
- ☞ Increase ones understanding on the structure changes to properly stage AMD
- ☞ Show how to treat subclinical or early AMD
- ☞ Discuss OCT Angiography utilization in AMD
- ☞ Review treatments for Intermediate AMD
- ☞ Review treatments for exudative/choroidal neovascular AMD

# AMD Dominance

- ✪ In 2010, the World Health Organization estimated that 5% of the world's blindness was due to AMD
- ✪ Leading cause of blindness over 55-year-old in USA
- ✪ 11 million people in USA have AMD, 22 million by 2050
  - ★ Approximately 1 in 14 people over the age of 40 has some degree of macular degeneration
  - ★ Over 60, 1 in 8 (12.5%)
  - ★ Over 80, 1 in 3 (33 %)
- ✪ More cases of AMD than Alzheimer's, breast cancer, and Parkinson's combined
- ✪ The leading cause of blindness and vision loss in Caucasians
- ✪ Affect 1 in 5 families
- ✪ Hereditary strongest genetic linkage of any major diseases

# Eye Care Professional Landscape

 58,000 eye care professionals

★ 40,000 optometrists

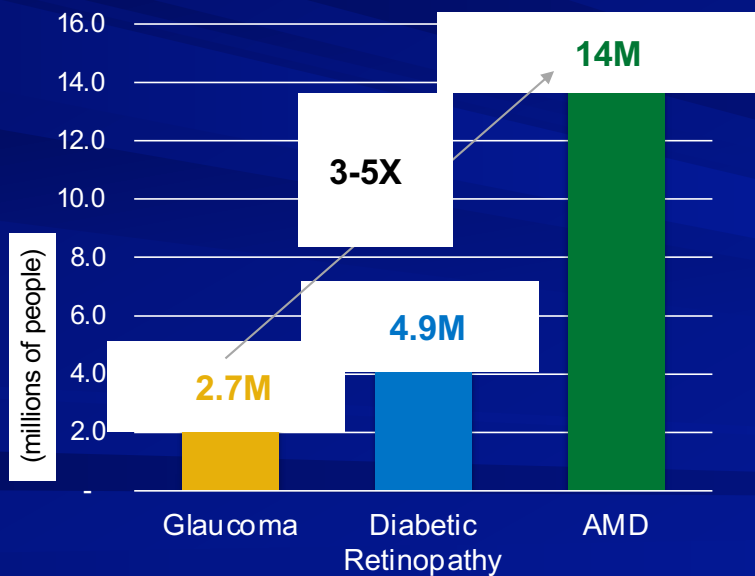
★ 18,000 ophthalmologists

📄 About 10% are retinal specialists

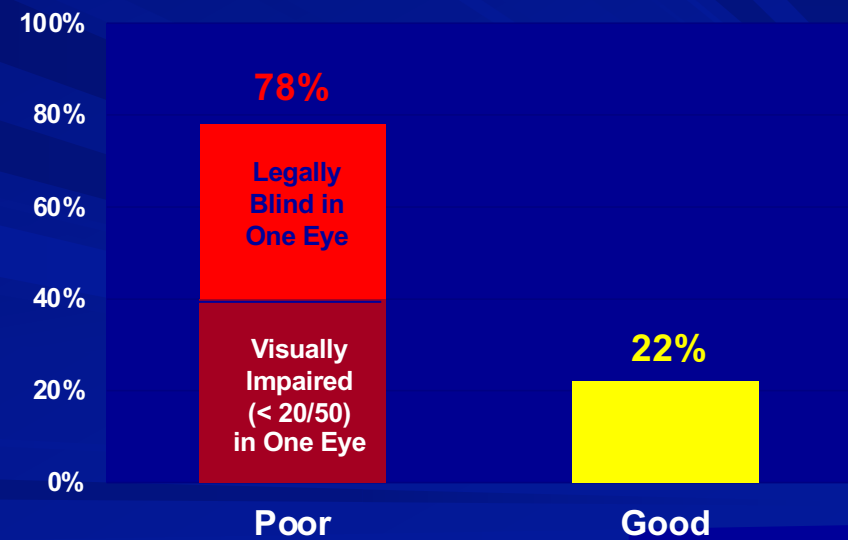
# Age-Related Macular Degeneration is the Leading Cause of Preventable Blindness in the Western World

 Clinical AMD is more prevalent than Glaucoma and Diabetic Retinopathy combined

PREVALENCE OF MAJOR EYE DISEASES (US)



CNV PATIENT OUTCOMES ON 1<sup>ST</sup> PRESENTATION FOR Anti-VEGF TREATMENT



# Primary Eye Care is Missing Visible Disease in 25% of Patients Using Standard Workup

JAMA Ophthalmology | Original Investigation

## Prevalence of Undiagnosed Age-Related Macular Degeneration in Primary Eye Care

David C. Neely, MD; Kevin J. Bray, MD; Carrie E. Huisingsh, MPH; Mark E. Clark, BS; Gerald McGwin Jr, PhD; Cynthia Owsley, PhD

1288 eyes from 644 people

- Mean age of 69.4
- 36% male

**Doctors were aware that they were recruiting patients for an AMD study!!!**

- ✓ 25% of eyes were consistent with AMD
- ✓ 30% of missed AMD eyes had large drusen (Intermediate AMD)
  - ✓ Well-known risk factor for progression to advance disease
- ✓ ODs and MDs miss AMD diagnosis equally



## AMD Considerations and Pearls

- There is currently no cure for AMD
  - ★ Proper detection and care may prevent significant visual acuity loss in many patients
- Are anti-VEGF injections our patients' best hope?
- Late-stage treatments, albeit necessary, they have little impact on central acuity
  - ★ Impacting our ability to intervene in early to intermediate AMD?

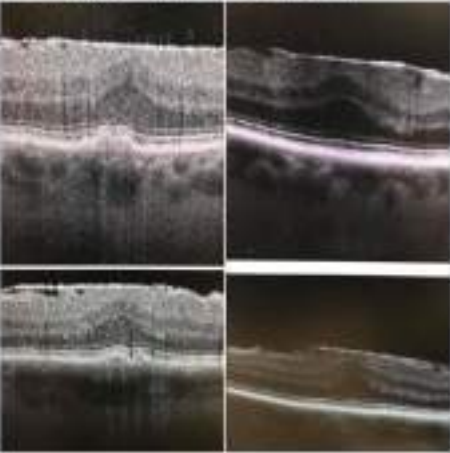
# Optometrists and All Eye Care Professionals Responsibility

- 👁️ Rethink our responsibility related AMD diagnosis and management
- 👁️ Commit to that we will do better in
  - ★ Early detection
  - ★ Treatment
- 👁️ Know, execute, and employ current clinically appropriate Practice Guidelines
  - ★ Those that preserve vision
  - ★ Don't wait until vision has been lost
- 👁️ Closely monitor and treat the early detected disease
  - ★ If progresses to advanced AMD, better opportunity to save vision

ODs on Facebook 44

Cheryl Feltows  
September 18 at 11:43 PM

Loss of foveal pit with macular texture and drusen appearance which may be vitelliform. Anular normal OI, VA OD 20/25 - OS 20/30+. Mild cataracts oa. Who sends to retina? Who monitors? Optosis?



1 Like

- Elisa Gonzalez Monitor Like · May 24
- Tracy Kinnelstein Guest Monitor Like · May 23
- Elaine S. Sparto Monitor Like · May 21
- Steve Blumstein what's she going to do with it? monitor Like · May 20
- Dr. Alan Glazer Member & 3 mos with home avatar Like · May 20
- Mark Weber Monitor Like · May 20
- Asadish Raymond Monitor Like · May 19

PEVTE MEMBERS

DESCRIPTION

This community is PRIVATE. ODs, students, Opticians, Industry/Ops... See More

GROUP TYPE

Social Learning

CREATE NEW GROUPS

Groups make it easier than ever to stay up to friends, family and local events.

CREATE NEW GROUPS

25th Annual Ocular Therapeutics in Contact Lens Program  
March 15, 2022 - March 16, 2022  
Catalin Mexico  
Created by ODs on Facebook 44

OE in Italy/Europe Several at the Spring 2020 Heidelberg  
April 25, 2020 - April 26, 2020  
Heidelberg Germany  
James Powell invited you to attend for ODs on Facebook 44

2021 GROUP PHOTOS

English (US) · Español Portuguese (Brazil) · Français (France) · Deutsch

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Dr. Alan Glazer Member & 3 mos with home avatar Like · May 20

Mark Weber Monitor Like · May 20

Asadish Raymond Monitor Like · May 20

AD MEMBER



Like · May 24

David Johnson Based out of the US? Don't forget include your AFNAP member number! Like · May 24

Kyle O Wagner Being sent to retina unless VA is at least 20/40. Like · May 24

Brian Jennings (LHC user) I heard there could be some 30 WFE involved. They will need longer. How would you like to do function of someone's job to have them see the world or work their going in. Though well. Like · May 24

ODs on Facebook 44

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Facebook © 2019

# Early Onset Pathogenesis

- ↳ Drusen small or large are not makers for early stage AMD
  - ★ Visible structural evidence of a pathological process
    - ☐ Underway for quite some time
- ↳ Cholesterol deposits exist beneath the surface long before drusen form
  - ★ Cannot be seen with structure-based methods
  - ★ Cholesterol produced by RPE and deposits into Bruch's membrane
  - ★ Continue to layer in Bruch's membrane
- ↳ As this cholesterol accumulates the process unfolds with compromise to the outer retina
  - ★ Inflammation
  - ★ Oxidative stress
  - ★ Disruption of oxygen and nutrients
  - ★ Drusen formation
- ↳ Impaired Vitamin A across Bruch's membrane
  - ★ Functional impairment can occur to dark adaptation

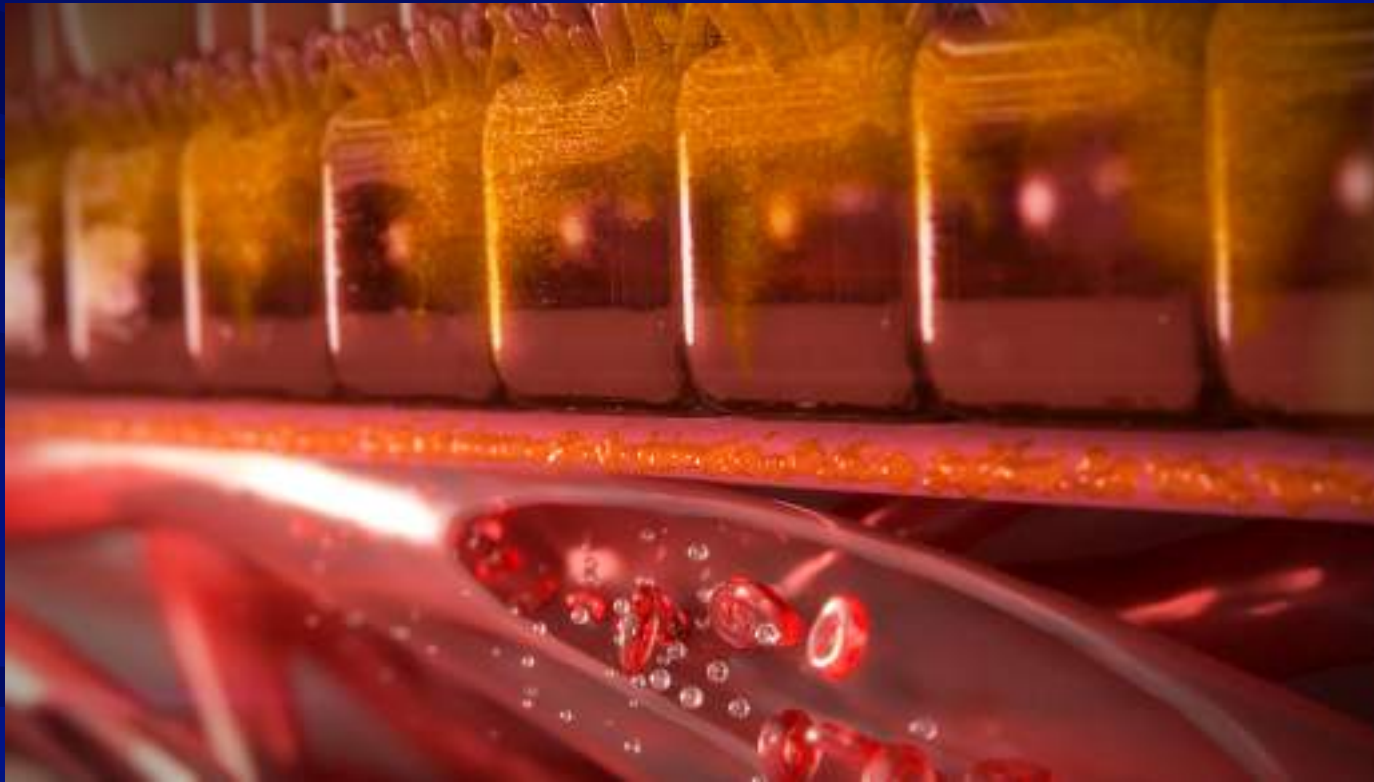
# Healthy choriocapillaris, Bruch's, RPE, and Photoreceptors

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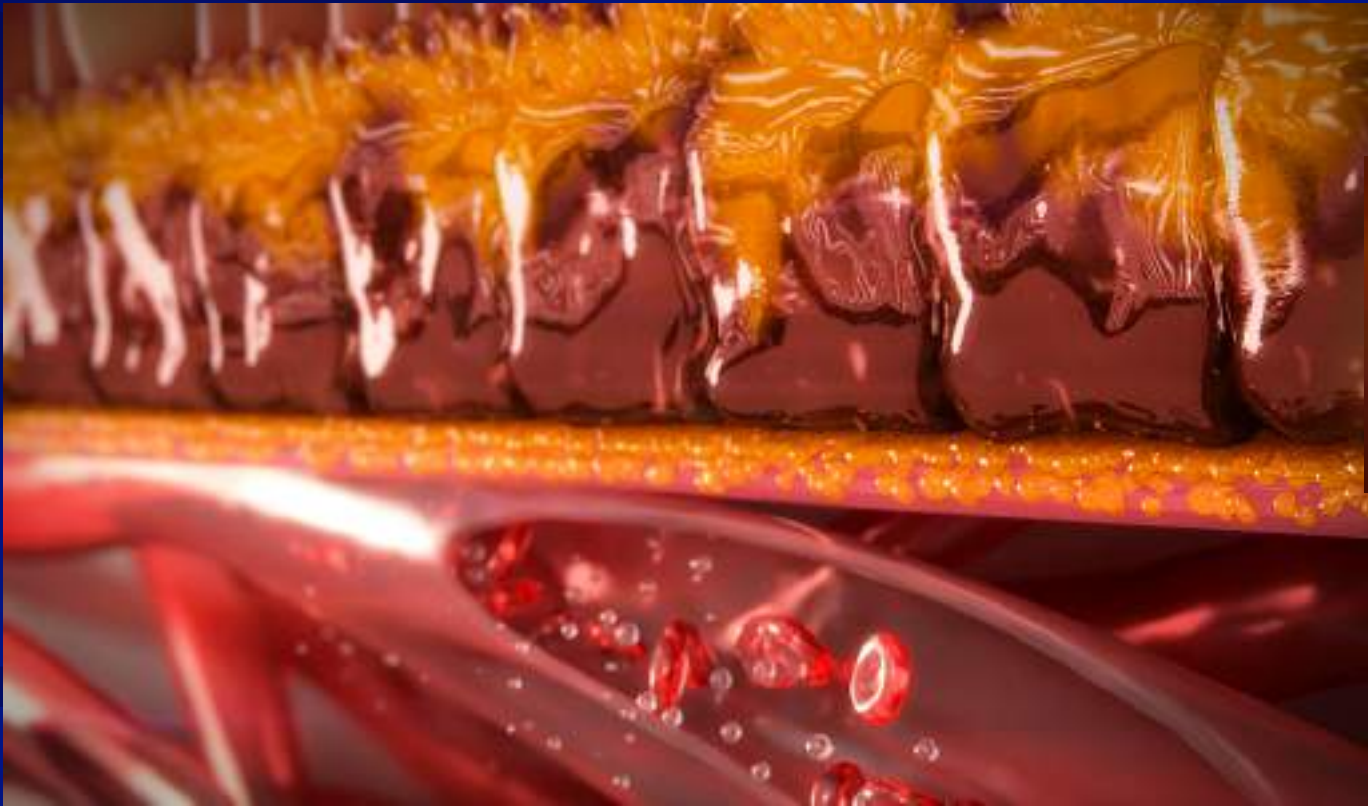
# Cholesterol barrier deposited along Bruch's and RPE

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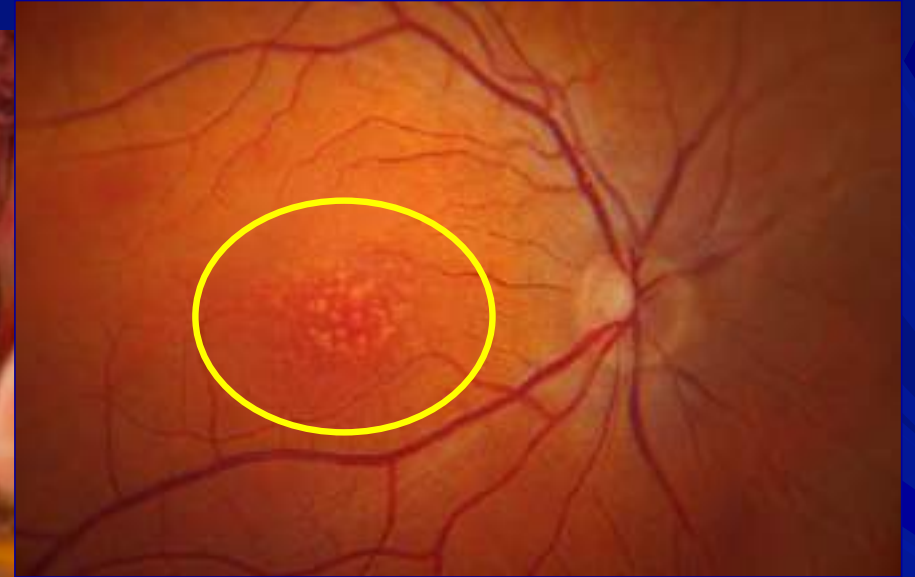
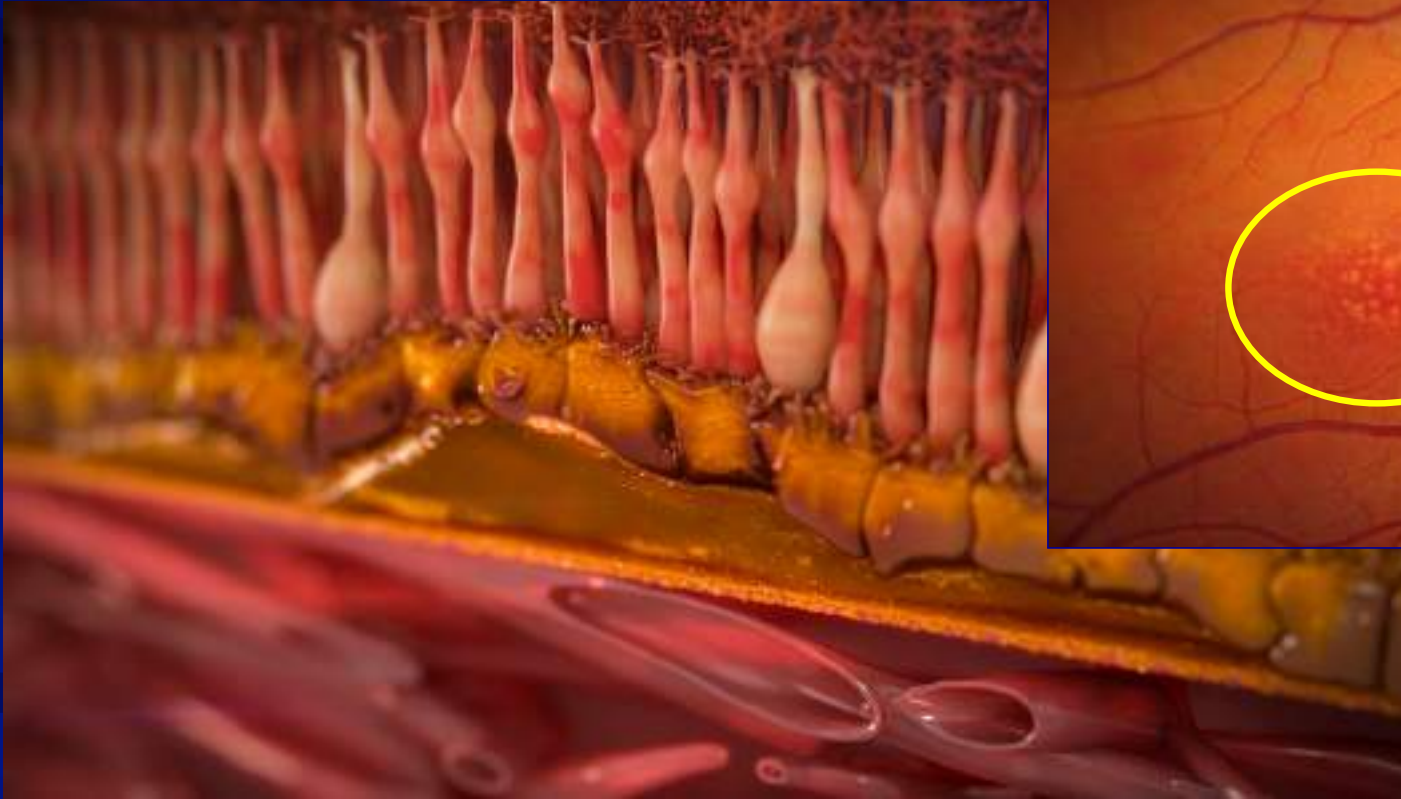


# RPE Secretes even more cholesterol and degenerates

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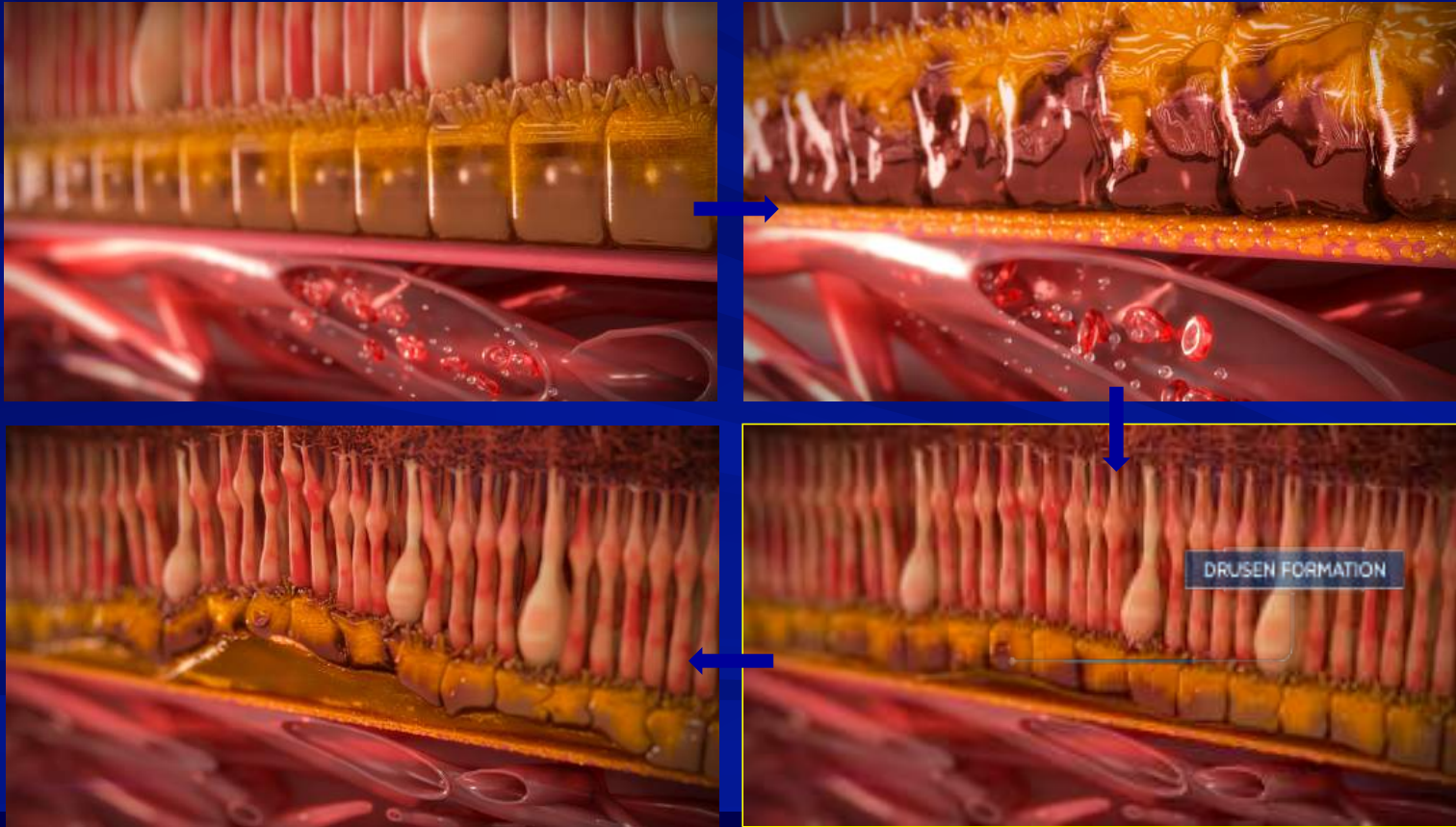


Finally, visibly evident drusen on fundus evaluation





# AMD is a Disease Process that Starts Below the Surface



# Staging of Drusen

What method to detect?

↳ Sub-clinical or sub-structural – cholesterol layer	Functional
↳ Small drusen < 63 microns	Exam, photos, SD-OCT
↳ Medium drusen > 63 – <125 microns	Exam, photos, SD-OCT
↳ Large drusen > 125 microns	Exam, photos, SD-OCT

# Beckmann Committee Classification of AMD

Based on presence of lesions within 2 DD of fovea in either eye

- ★ No AMD

- ☐ None or few small drusen, < 63 microns
- ☐ No AMD pigmentary abnormalities

- ★ Early AMD

- ☐ Medium drusen, > 63 – <125 microns
- ☐ No AMD pigmentary changes

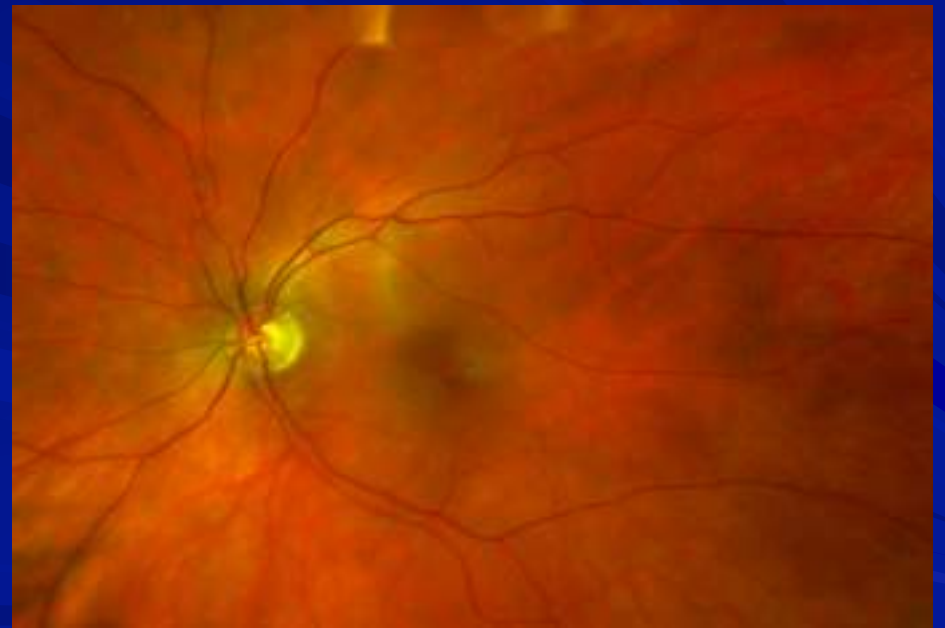
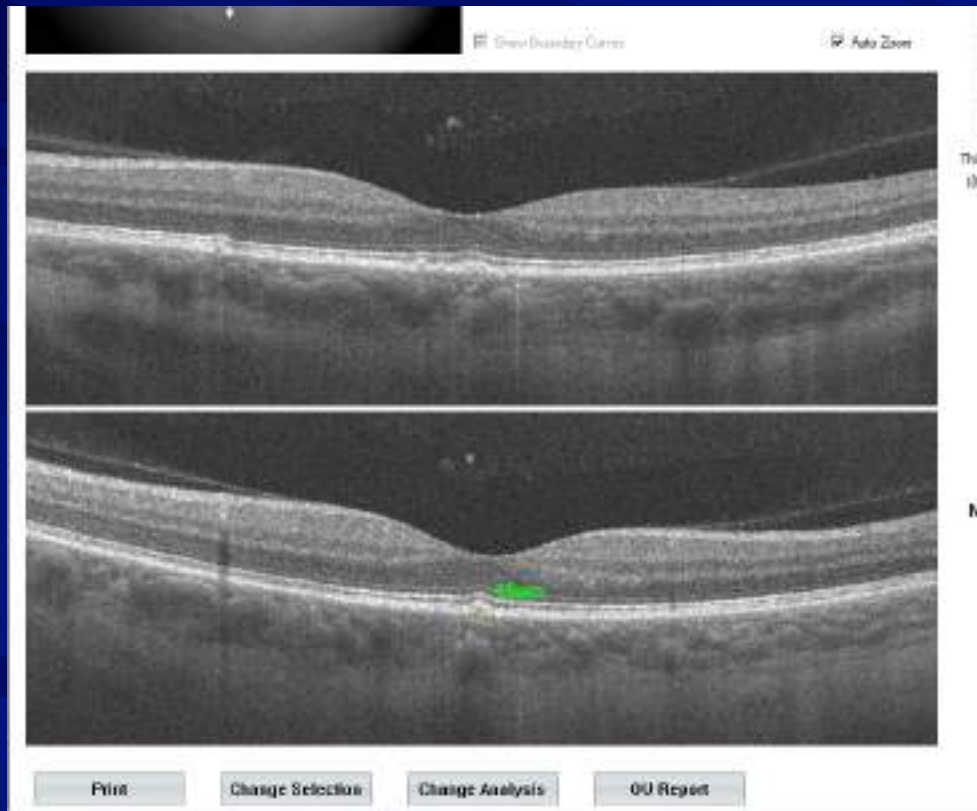
- ★ Intermediate AMD

- ☐ 1 large drusen, > 125 microns
- ☐ Any AMD pigmentary changes

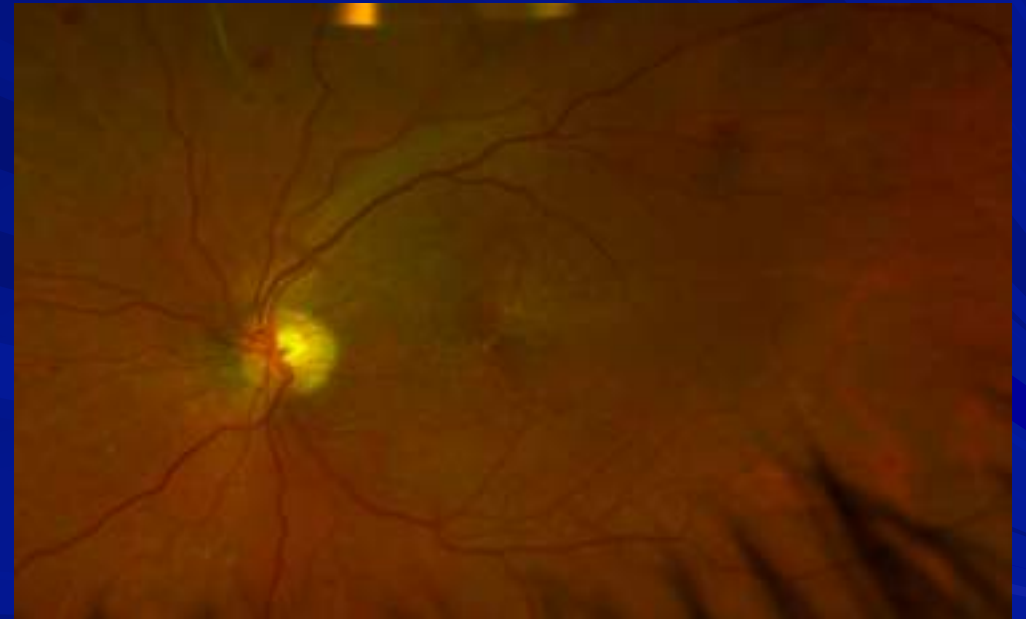
- ★ Advanced AMD

- ☐ Any geographic atrophy
- ☐ Choroidal neovascularization (CNV)

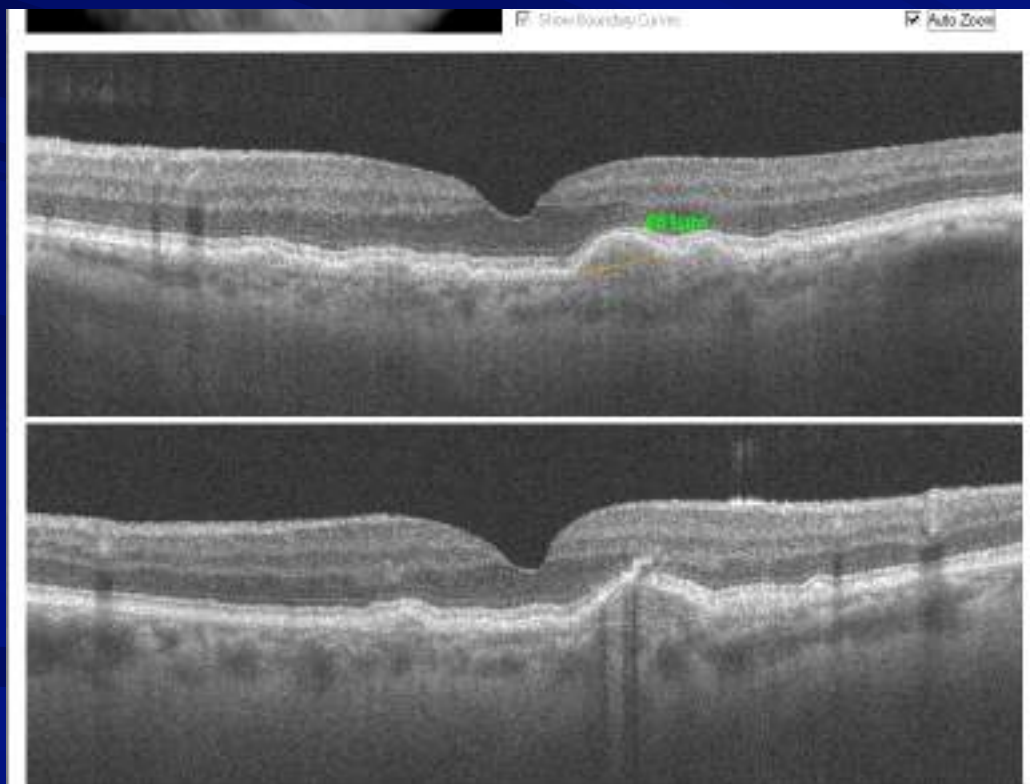
# Measure the Drusen with Your OCT



# Measure the Drusen with Your OCT



# Measure the Drusen with Your OCT



# Choroidal Neovascularization (CNV)

- 👁️ Type 1 – Occult
- 👁️ Type 2- Classic
- 👁️ Type 3- RAP
- 👁️ Type 4- Mixed

# Predictors of Progressing to Advance Disease

- 👁️ Hyper-reflective foci
- 👁️ Reticular pseudodrusen
- 👁️ Nascent geographic atrophy
- 👁️ Sub-RPE hyper-reflective columns
- 👁️ Drusen substructures
- 👁️ Drusen load and regression
- 👁️ Vision loss from geographic or exudative/CNV



# Tools for Diagnosis, Management, and Treatment of AMD

- 👁️ Comprehensive eye exam – structural, some functional
- 👁️ Fundus photography and FAF - structural
- 👁️ OCT and OCT Angiography – structural
- 👁️ Dark adaptation – functional
  
- 👁️ How about macula pigment density testing

# Applying a Familiar Standard of Care: *Two Multifactorial Diseases*

## Glaucoma

## AMD

**Structure**



Cup-to-disc  
Ratio



Drusen

**Function**



Visual Field



Dark Adaptation

**Risk**

Intraocular Pressure (IOP)  
Corneal Thickness  
Age/race  
Family history/etc.  
Health and Lifestyle (Diabetes)



Age  
Genetic Testing  
Health and Lifestyle (Smoking)  
Macular Pigment Optical Density (MPOD)  
Contrast Sensitivity.

# Dark Adaptation in AMD

## Function Test

- 👁️ Measures how long to recover from bright light to darkness
  - ★ Rod intercept line (RI) time
- 👁️ Functional test that can help overcome the challenges in diagnosing AMD
- 👁️ Alabama Study on Early Age-Related Degeneration (ALSTAR)
  - ★ Able to detect subclinical 3 years before clinically visible
  - ★ 325 adults without clinically detectable AMD
- 👁️ Rod deterioration happens in earliest stages of AMD
  - ★ Earlier detection before visual acuity
- 👁️ AdaptDx 92284
  - ★ Sensitivity 90.6%
  - ★ Specificity 90.5%





# Dark Adaptation in AMD

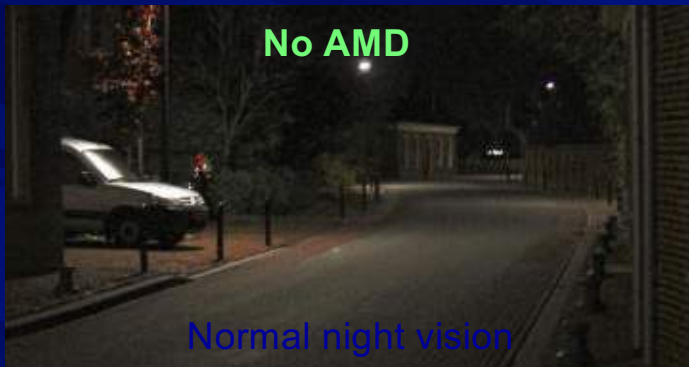
## Function Test

### January 1<sup>st</sup>, 2020

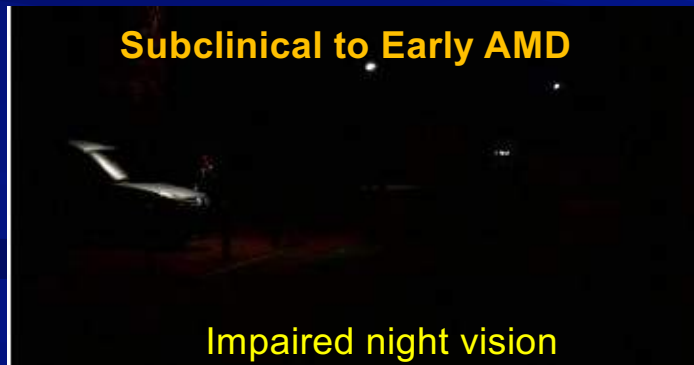
## AdaptDx Pro Now Available for Clinical Use



## This Means We Now Have an *Early* Symptom We Can Use to Help Diagnose AMD



- Night vision impacted in early AMD: 30+ studies
- AMD patients often give up driving at night
- Night vision is impaired before day vision
- Typically ECP's chalk this complaint up to cataracts

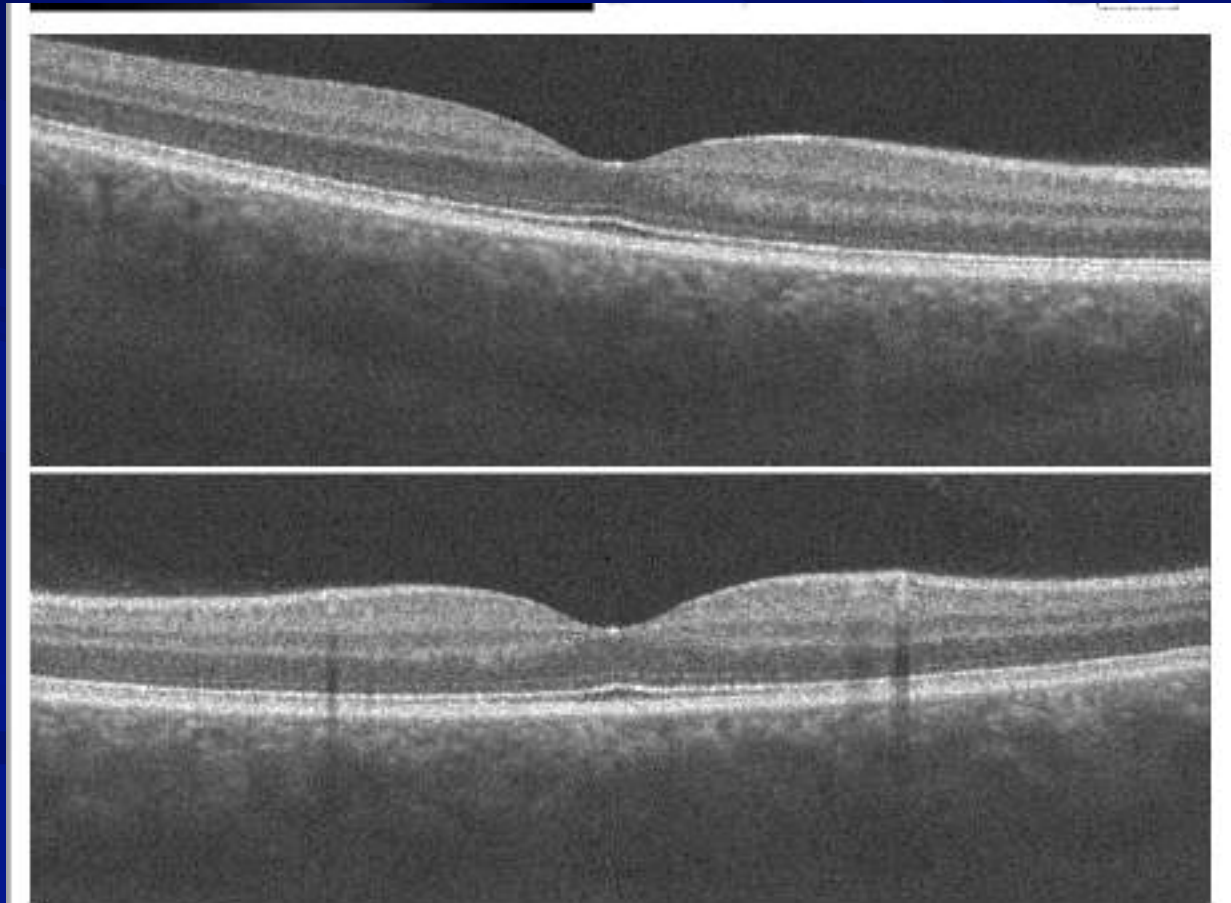


***Ask Every Patient Over 50  
About Their Night Vision***

# OCT in AMD

- 👉 Need spectral domain to follow intermediate or worse AMD
- 👉 Able to identify OCT predictors of progression
- 👉 Especially in identifying OCT predictors of progression
  - ★ Hyper-reflective foci
  - ★ Reticular pseudodrusen
  - ★ Nascent geographic atrophy
  - ★ Sub-RPE hyper-reflective columns
  - ★ Drusen substructures
  - ★ Drusen load and regression

# Hypo versus Hyper Reflectance





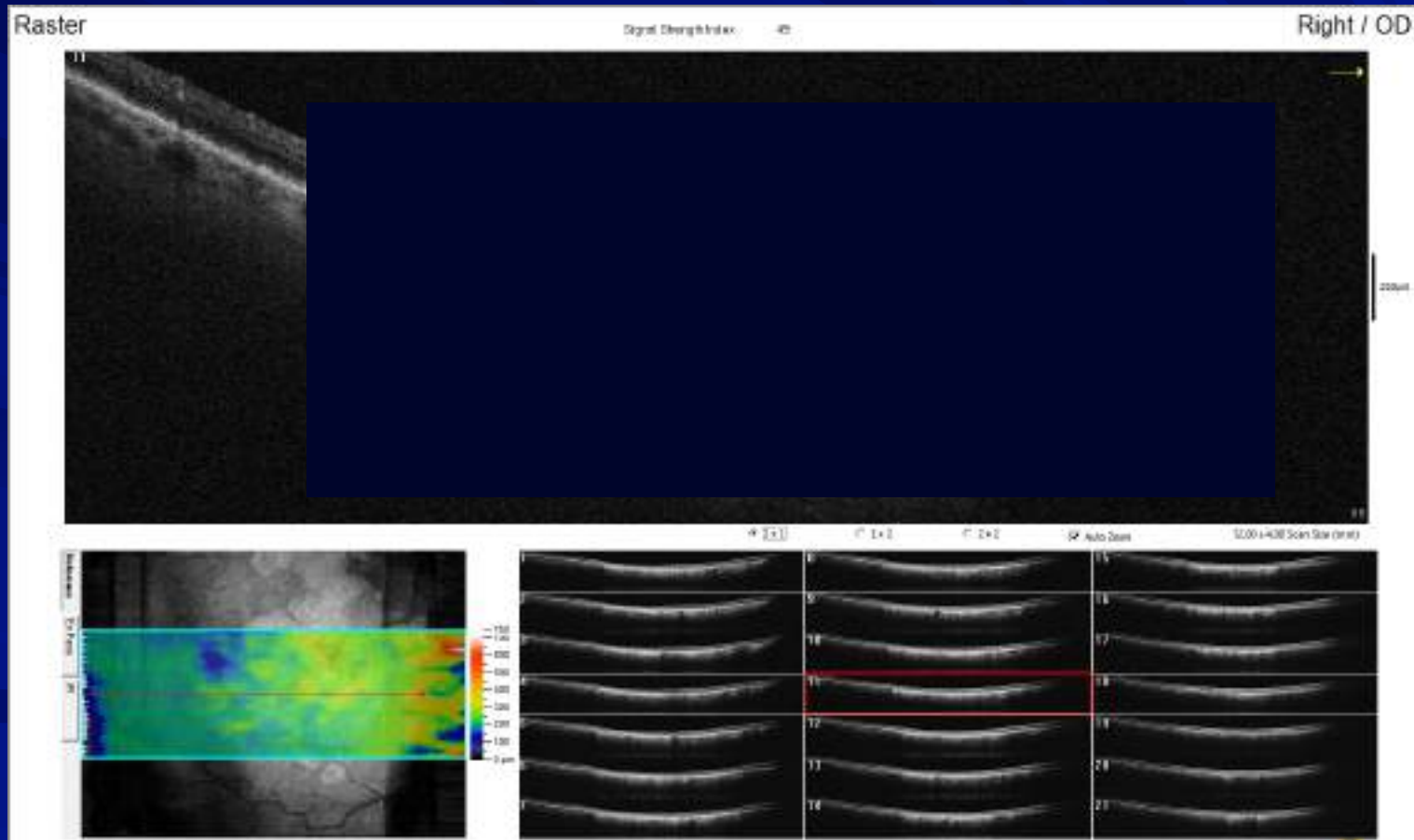
# Can We Learn From These Pictures?



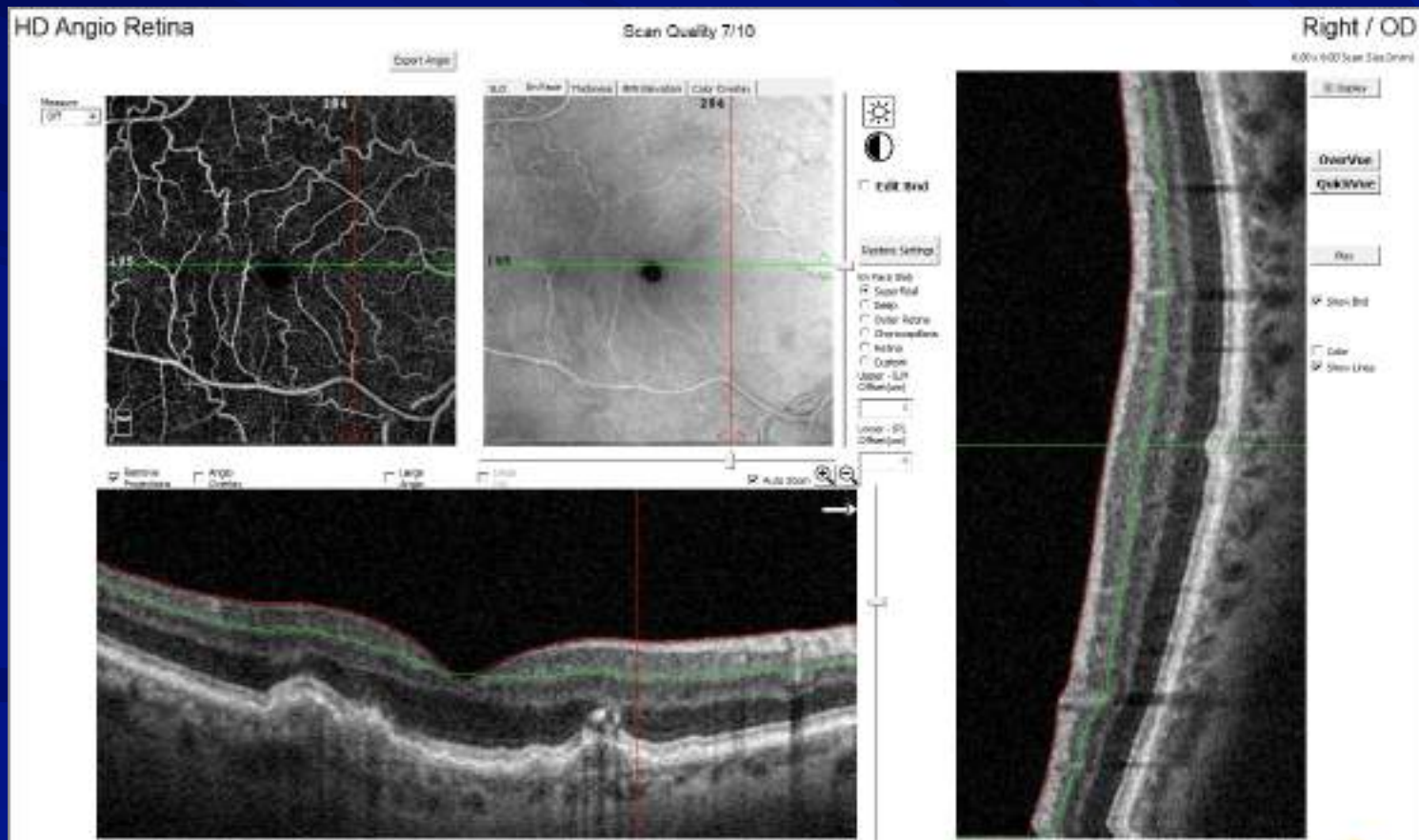
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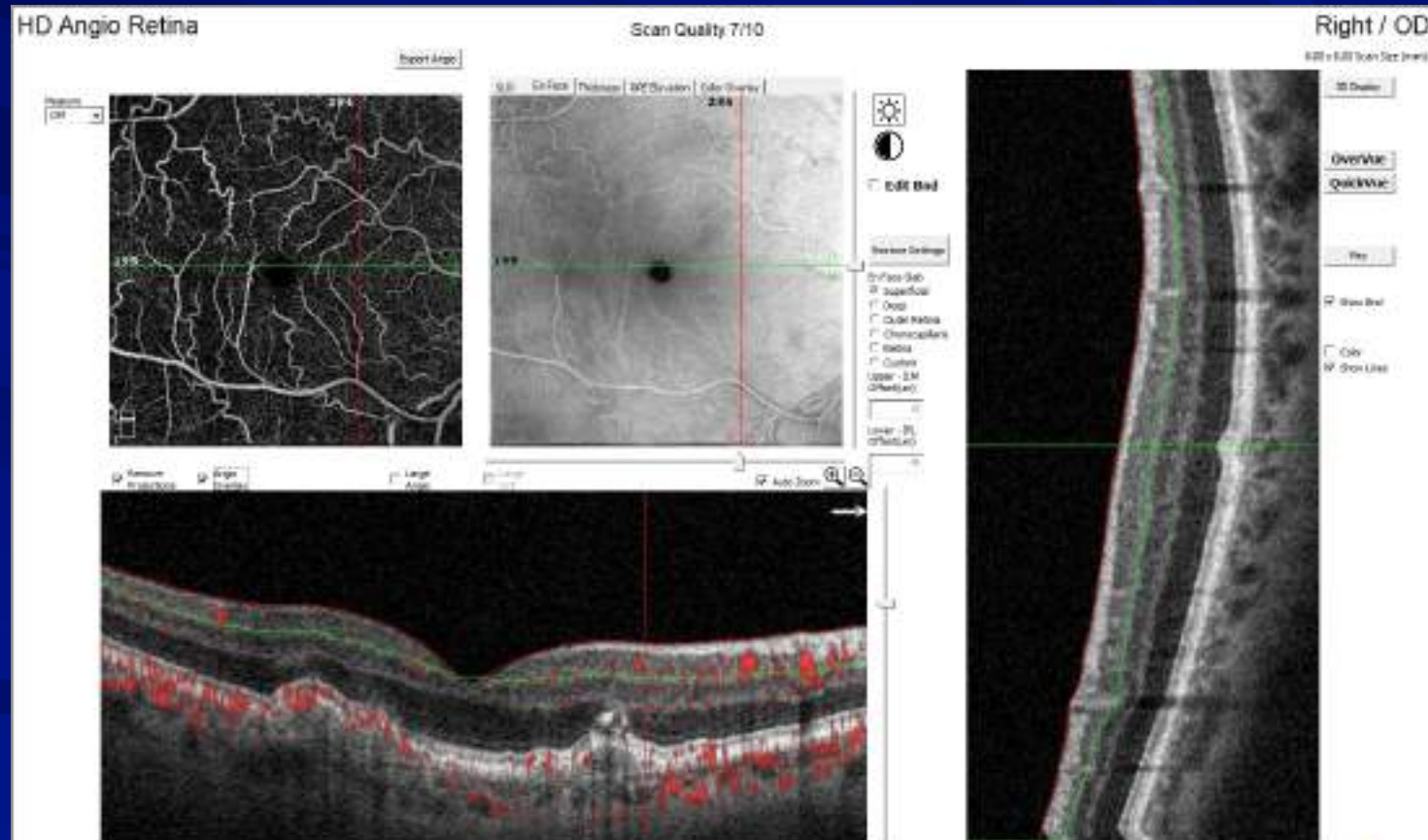
# Hypo versus Hyper Reflectance



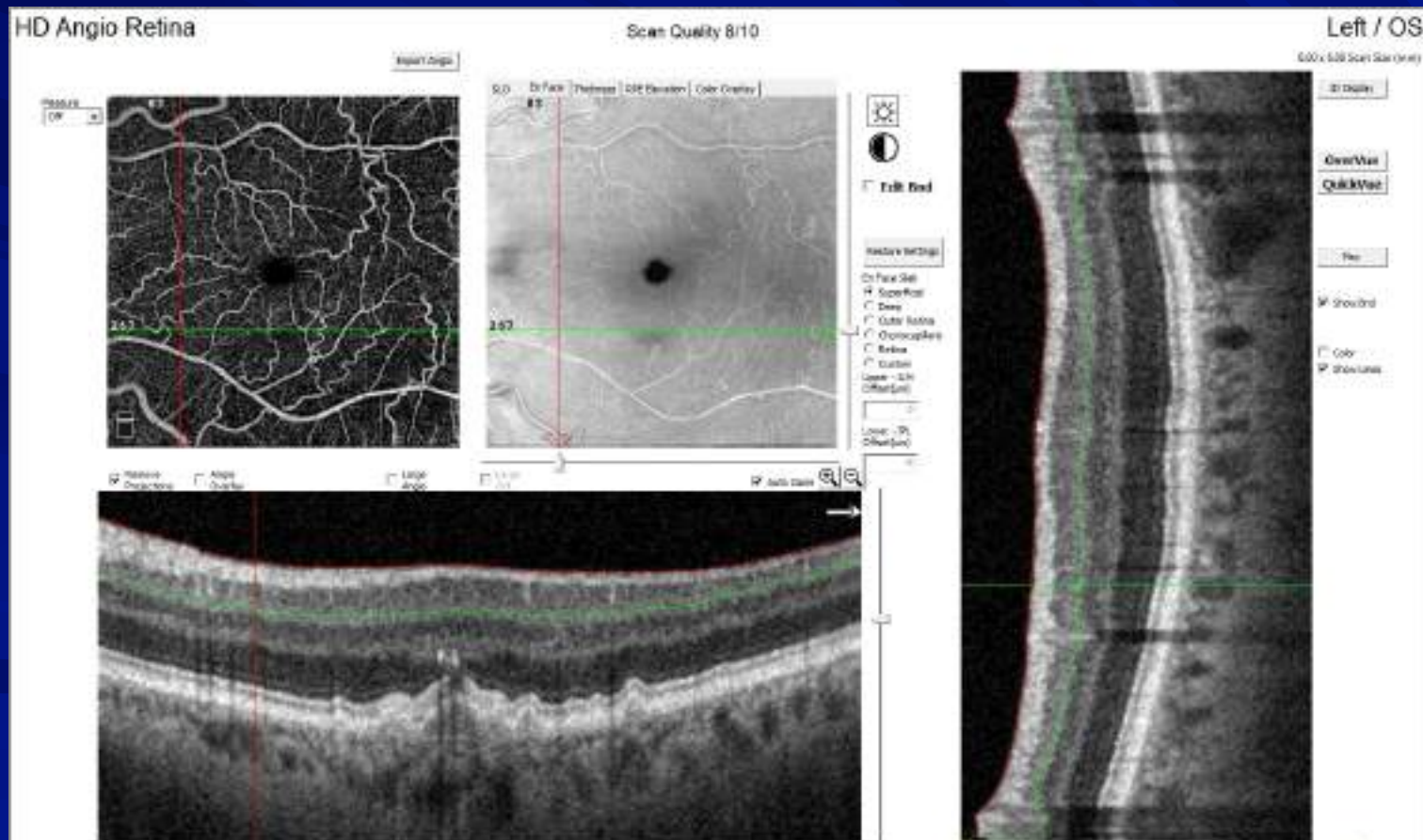
# Case 1 - OCT Predictors of Progression



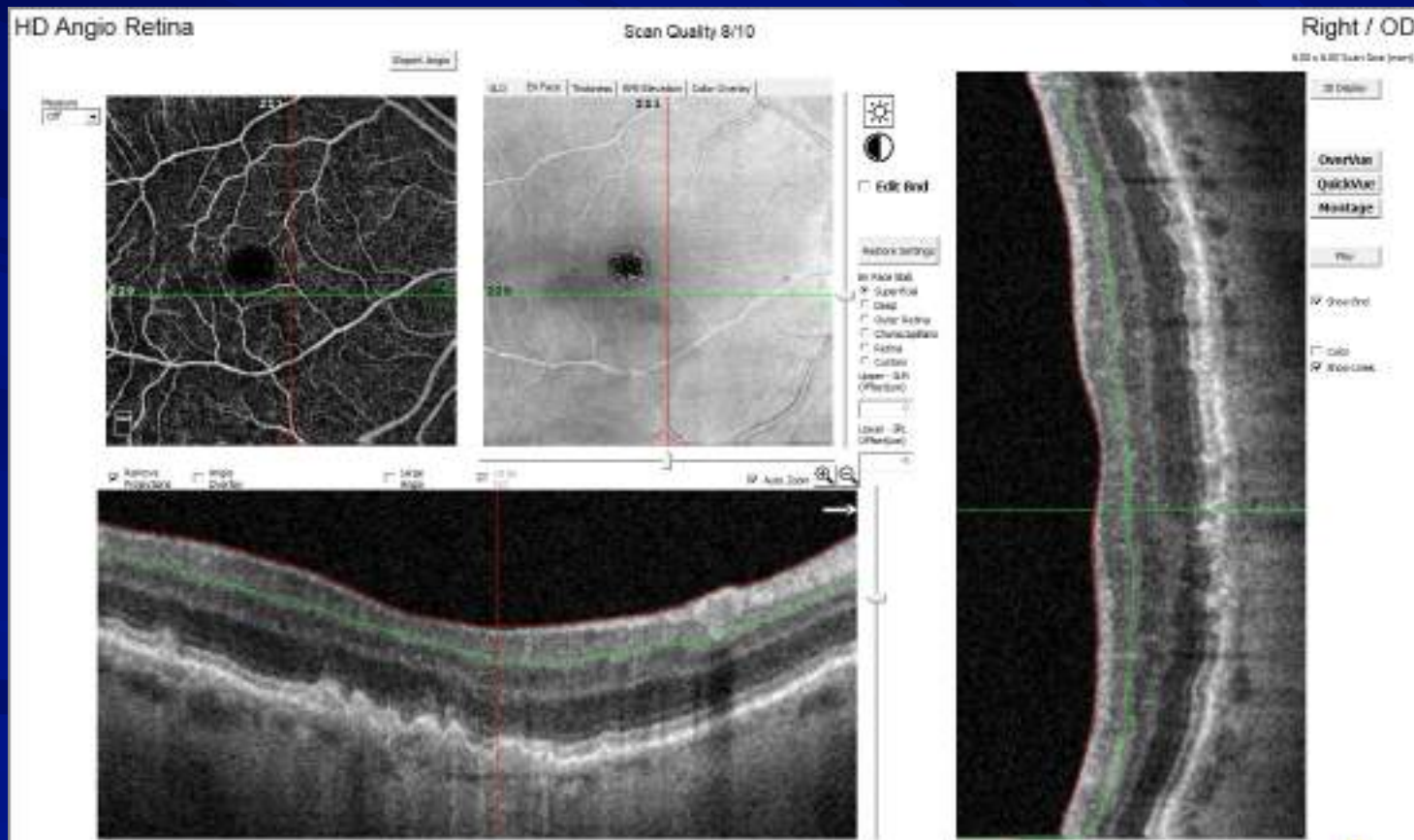
# Case 1 - OCT Predictors of Progression



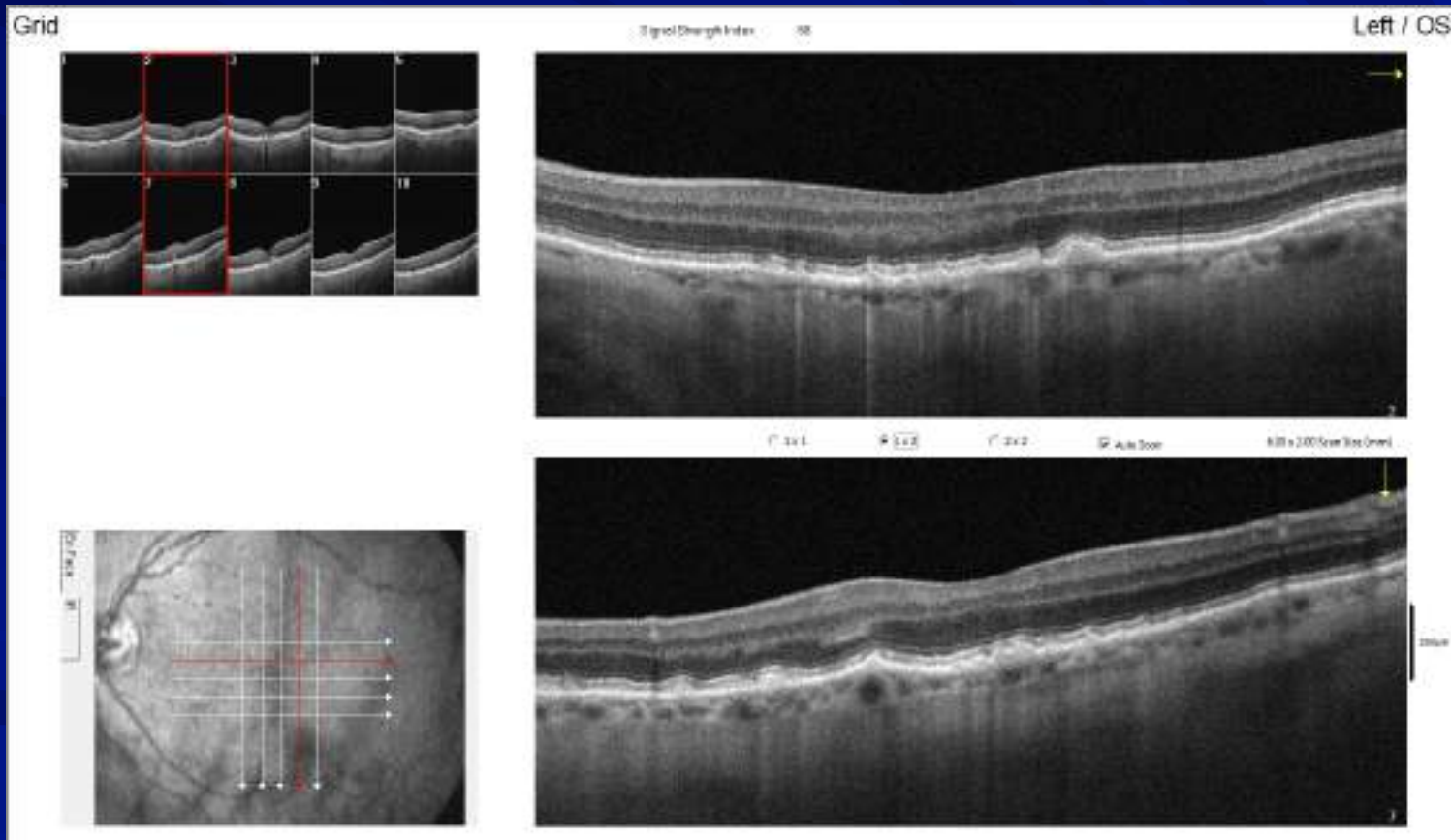
# Case 1 - OCT Predictors of Progression



# Case 2 - OCT Predictors of Progression

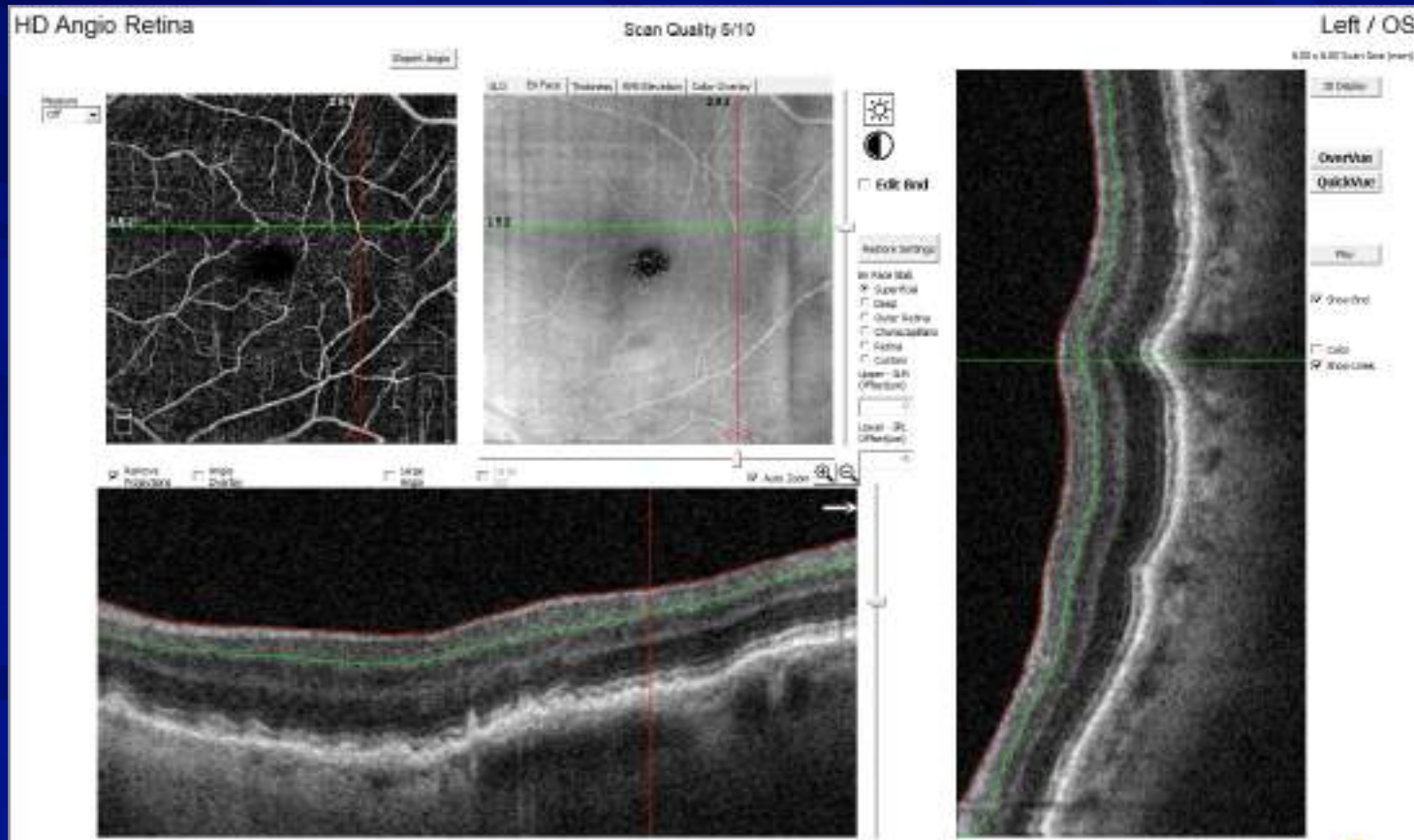


# Case 2 - OCT Predictors of Progression

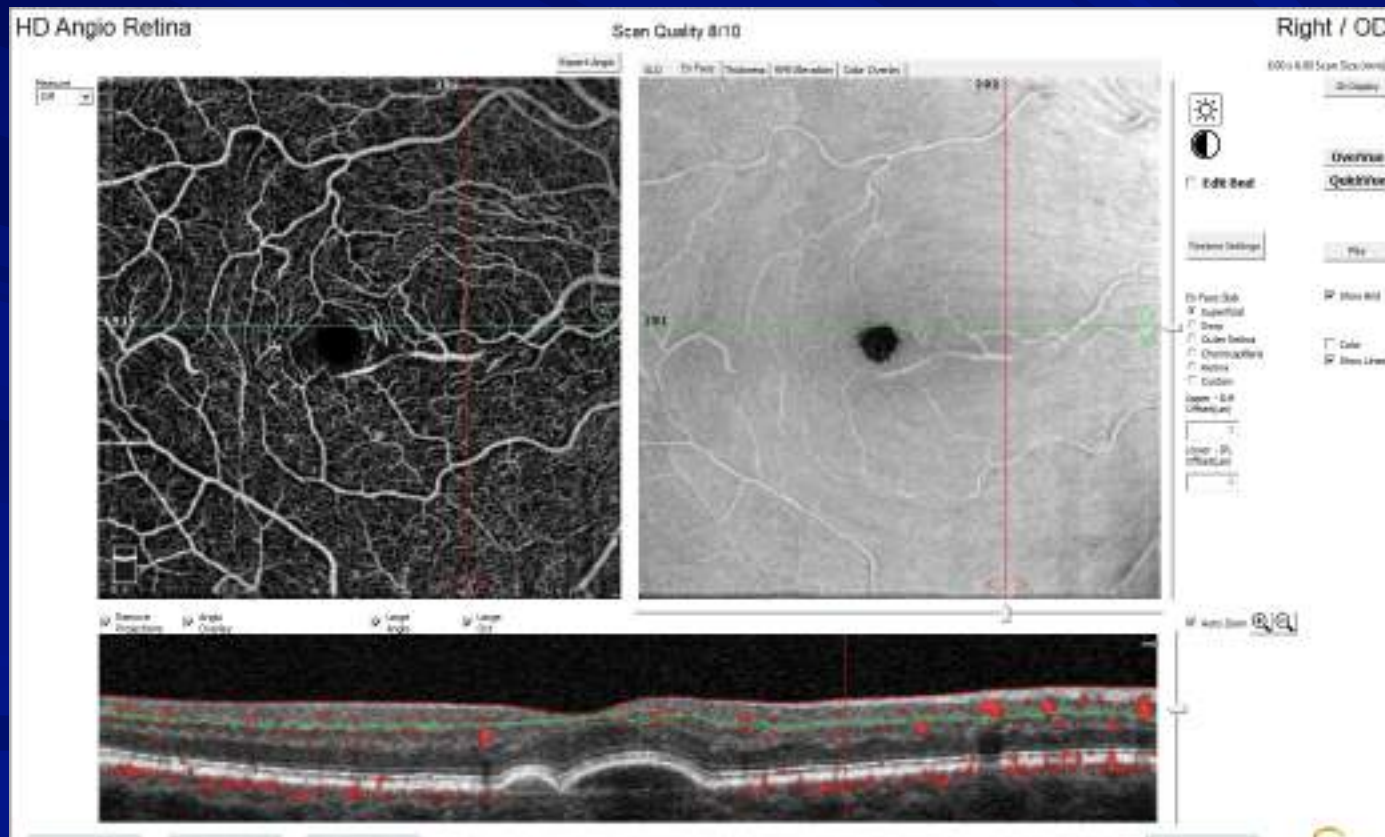




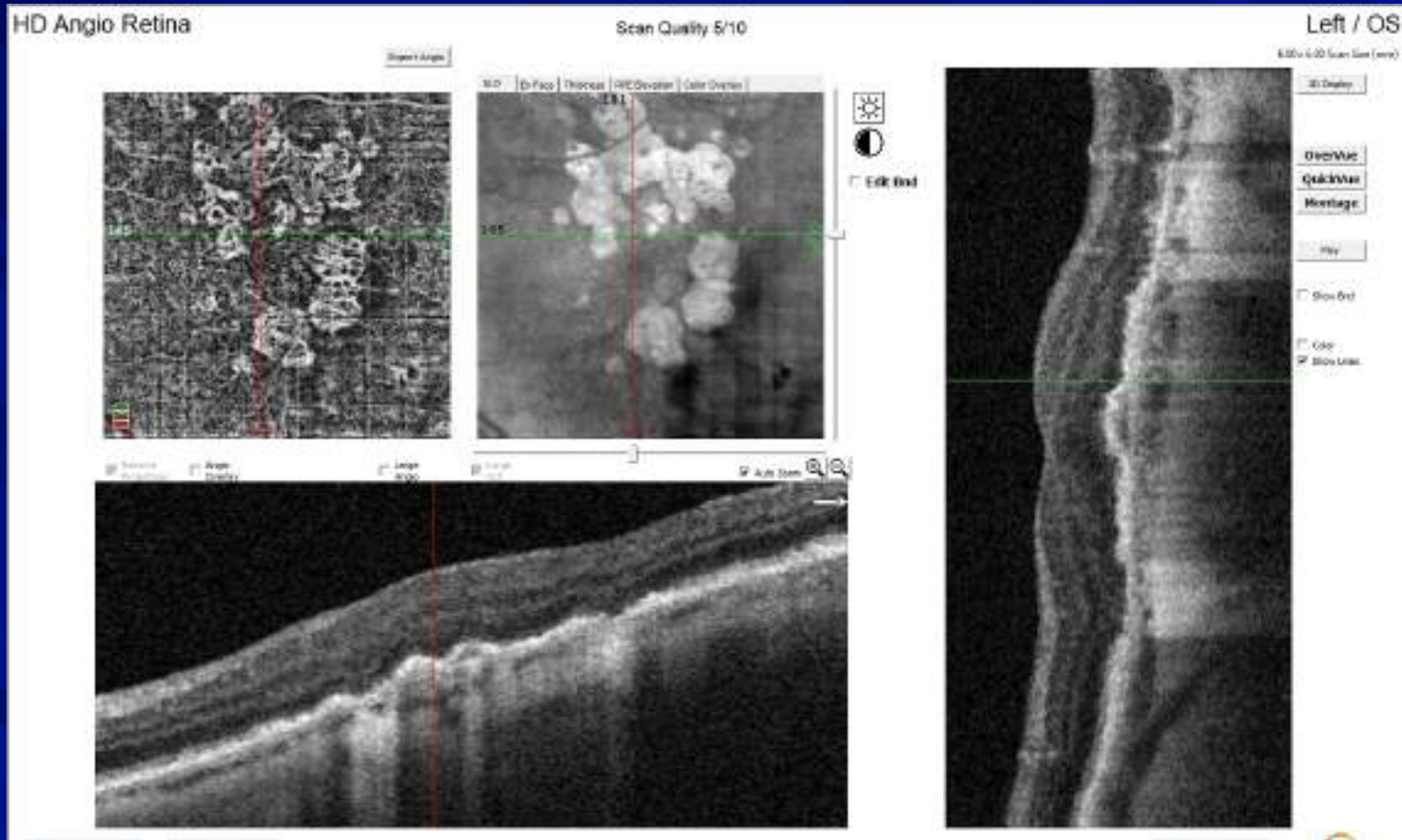
# Case 2 - OCT Predictors of Progression



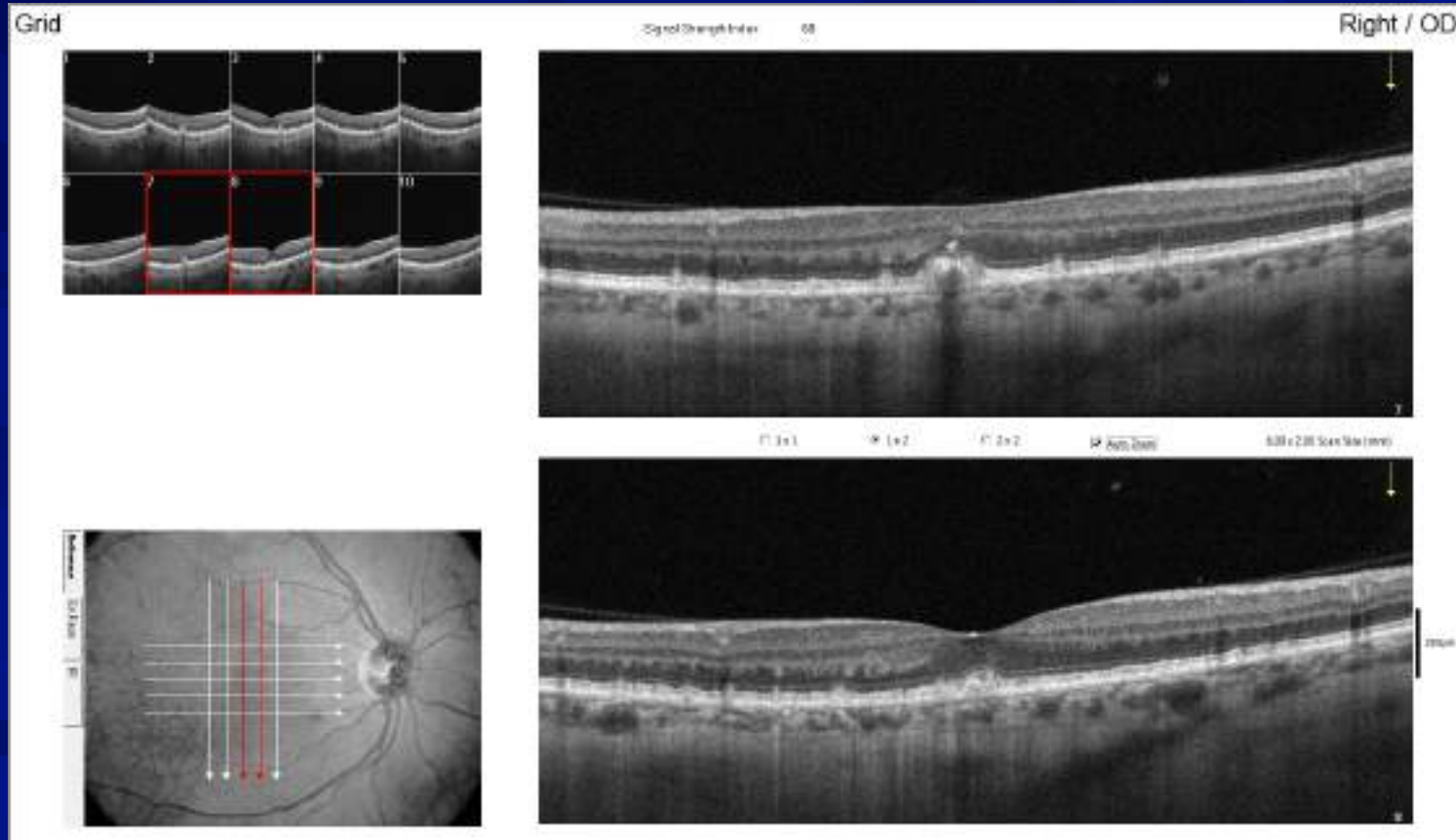
# Case 3 - OCT Predictors of Progression



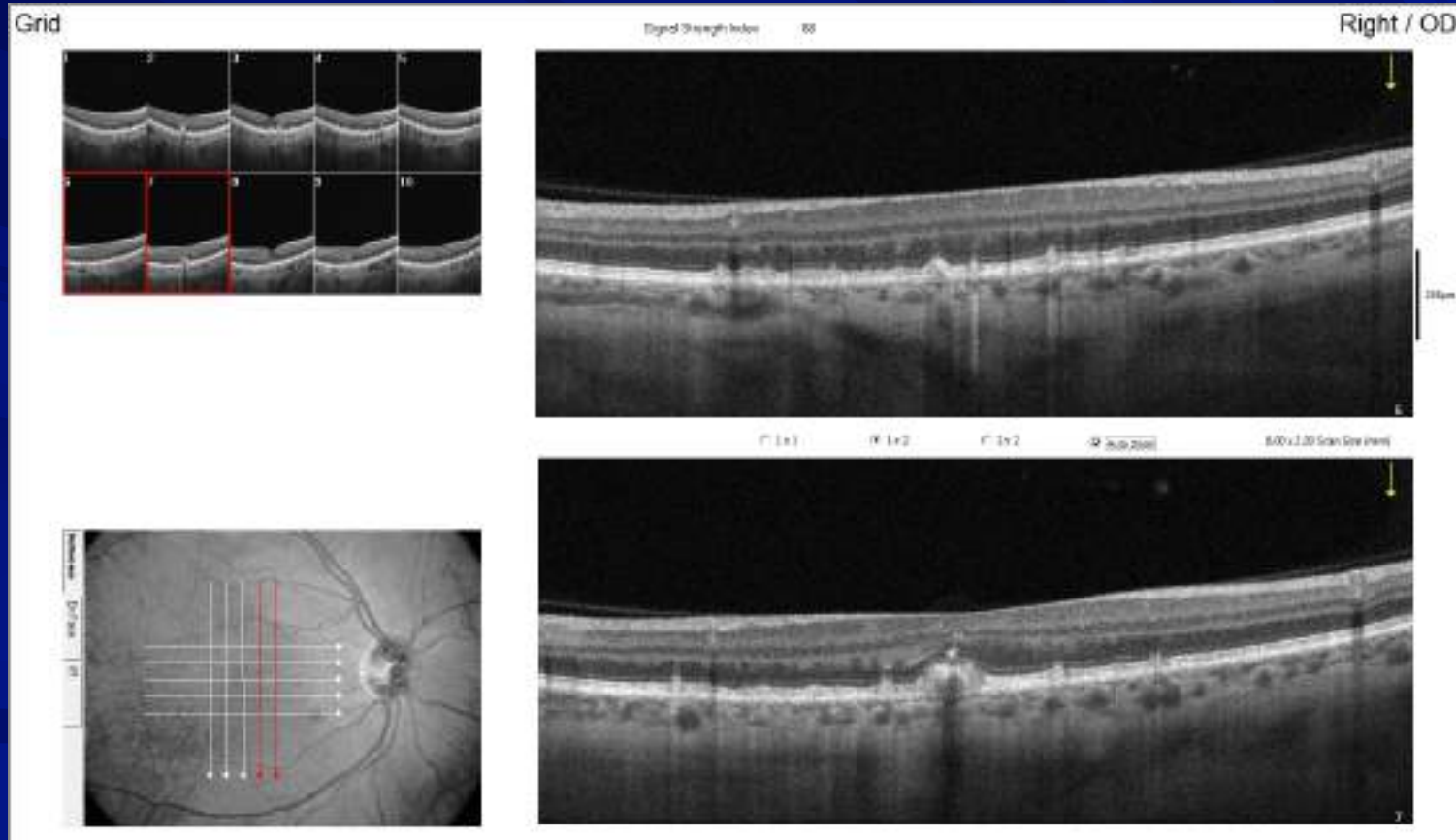
# Case 4 - OCT Predictors of Progression



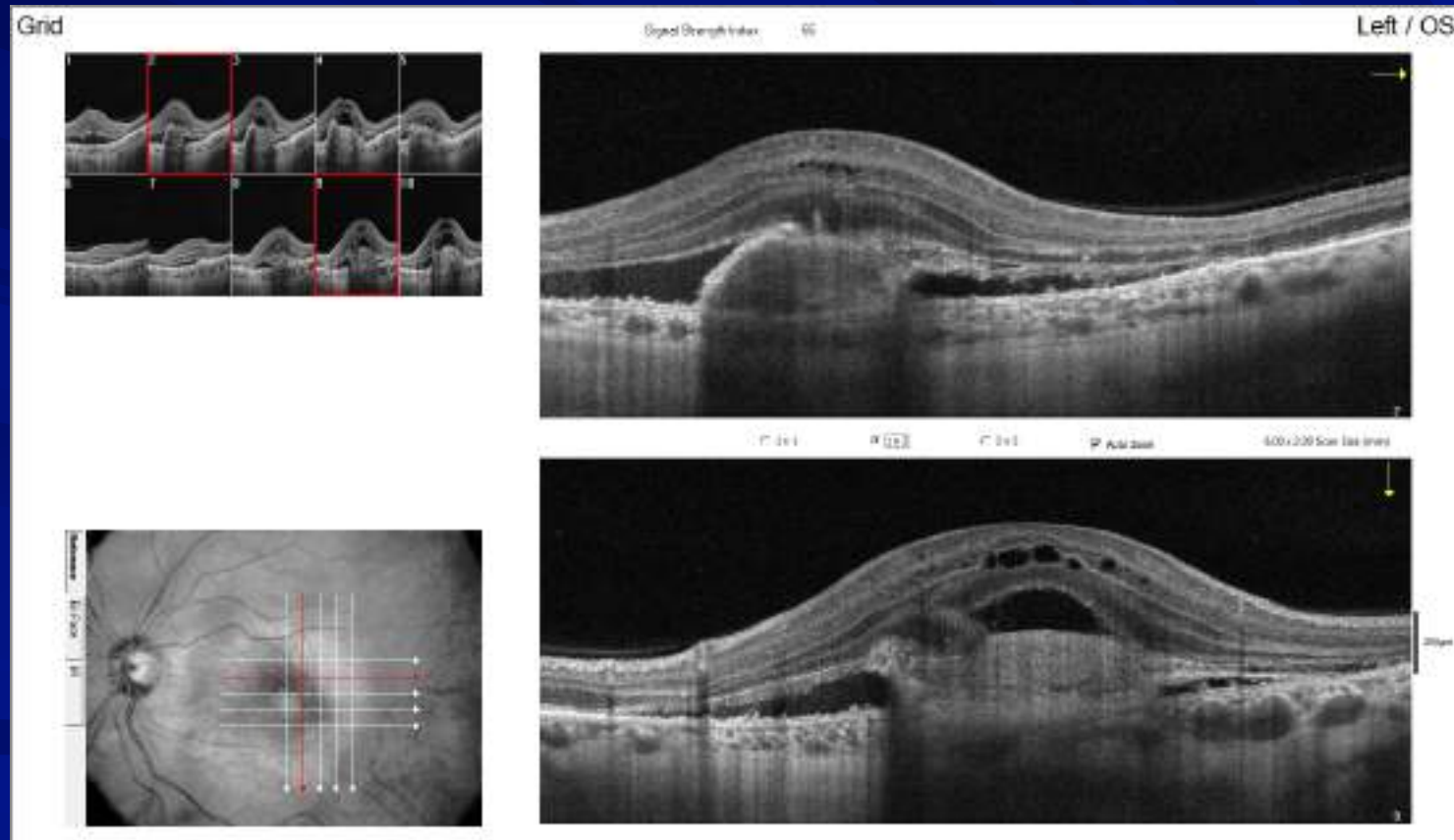
# Case 5 - OCT Predictors of Progression



# Case 5 - OCT Predictors of Progression



# Case 5 - OCT Predictors of Progression



# OCT Angiography in AMD

## Structure Test

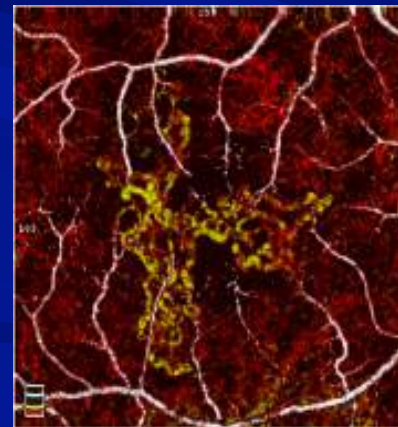
- ↳ Able to identify occult or classic CNV before they leak
- ↳ Non-invasive technique
- ↳ Subclinical CNV or “Occult non-exudative CNV”
  - ★ Risk of exudation at 12 months is 15.2 times greater compared to eyes without subclinical CNV

## OCT Angiography A New Approach to Protecting Vision

- ▶ Non-invasive visualization of individual layers of retinal vasculature
- ▶ Pathology not obscured by fluorescein staining or pooling
- ▶ Image acquisition requires less time than a dye-based procedure
- ▶ Reduced patient burden allows more frequent imaging to better follow disease progression and treatment response



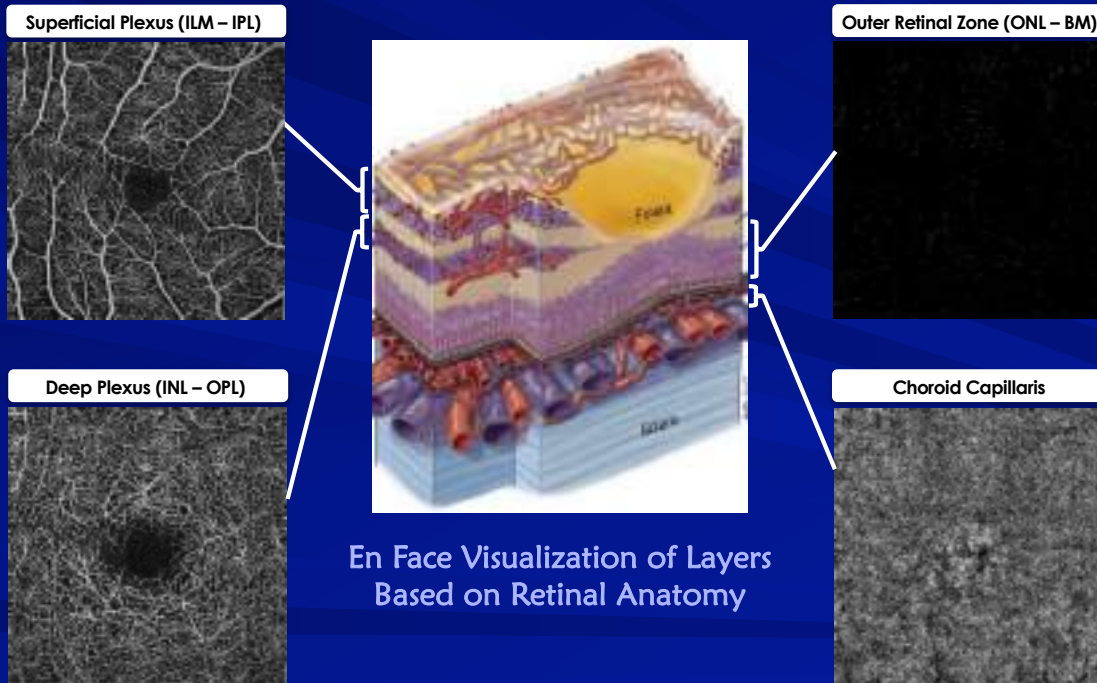
FA of CNV



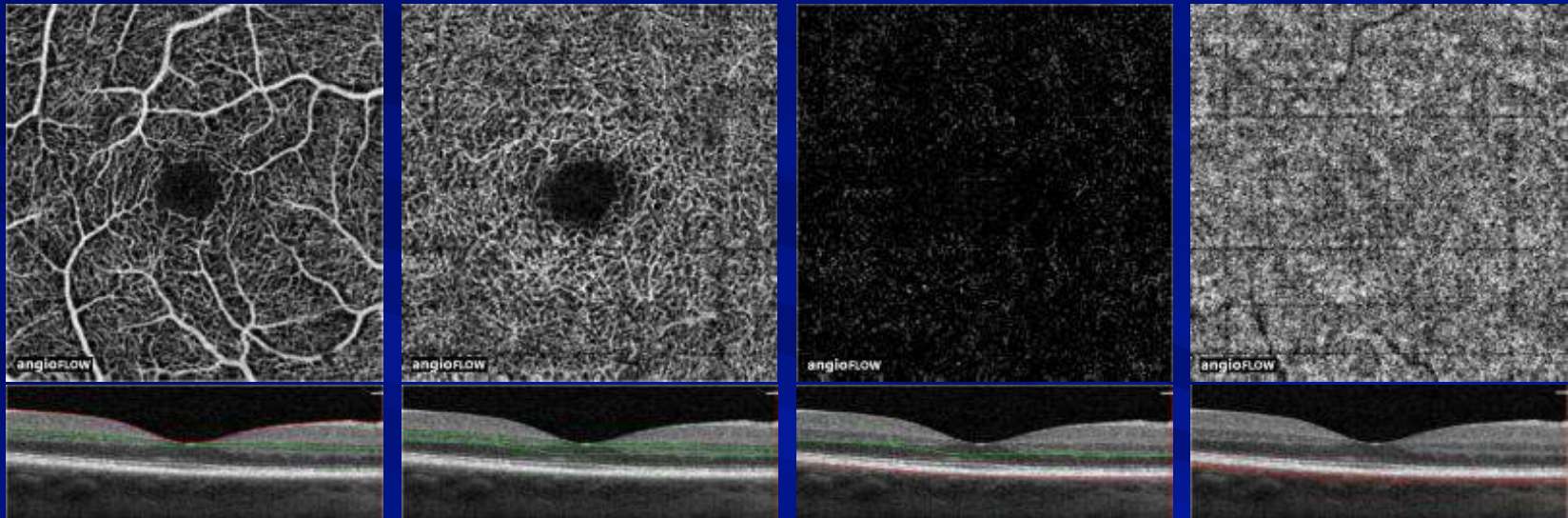
OCTA of CNV



# Enface OCT-A Slabs Based on Retinal Anatomy



# Normal Retinal Vasculature



Superficial Capillary Plexus

3 $\mu$ m Below ILM  $\rightarrow$  15  $\mu$ m  
Below IPL

Deep Capillary Plexus

15 $\mu$ m Below ILM  $\rightarrow$  70  $\mu$ m  
Below IPL

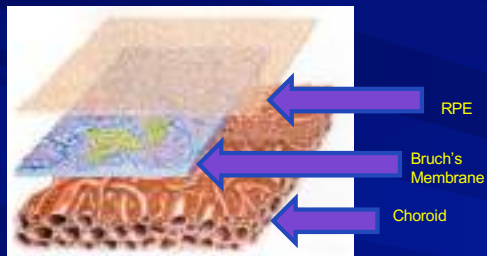
Outer Retina

70 $\mu$ m Below IPL  $\rightarrow$  30  $\mu$ m  
Below RPE Reference

Choriocapillaris

30  $\mu$ m Below RPE Reference  $\rightarrow$  60  $\mu$ m  
Below RPE Reference

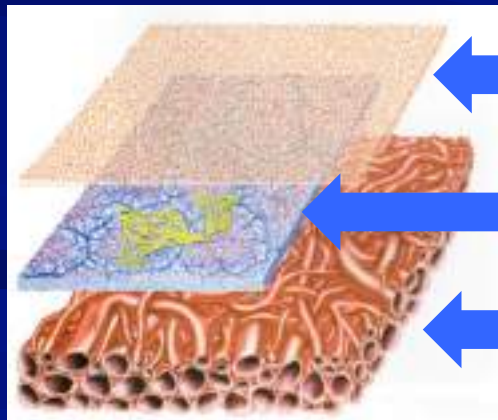
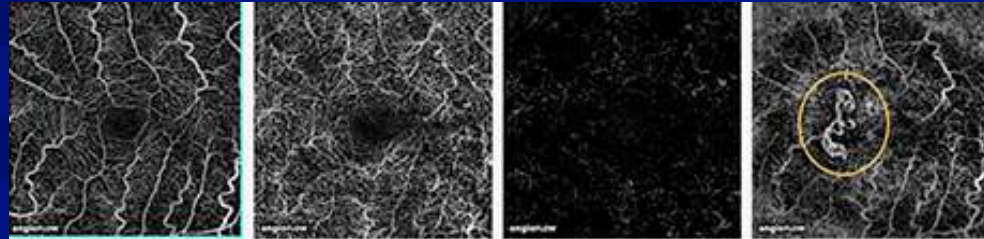
# Type 1 “Occult” CNV



- ▶ New vessels develop in the choroid
- ▶ New vessels located below RPE and above Bruch's membrane

# Type 1 “Occult” CNV

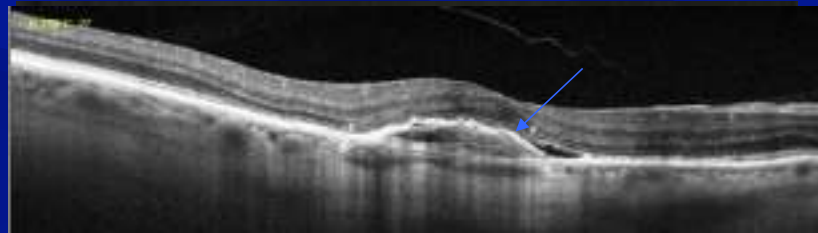
- ↳ New vessels develop in the choroid
- ↳ New vessels located **BELOW RPE** and **ABOVE** Bruch’s membrane



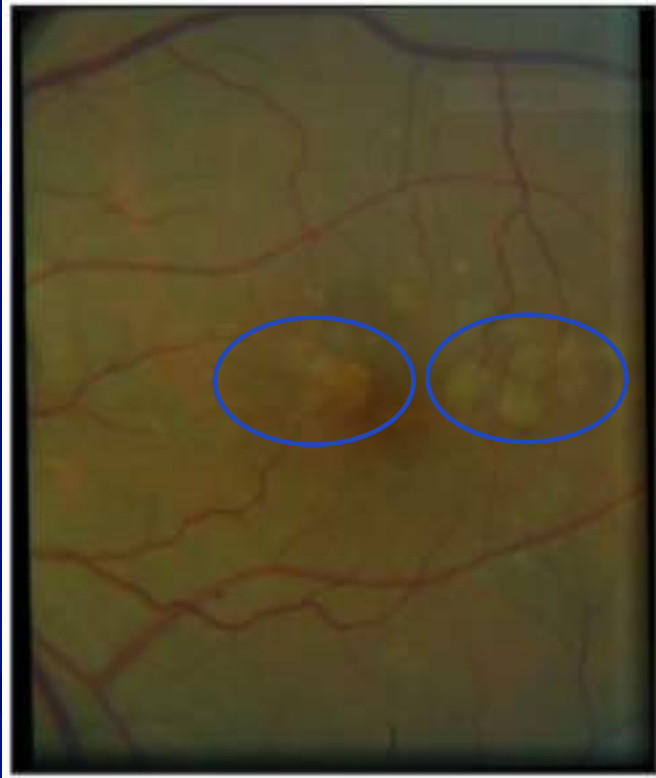
RPE

Bruch's  
Membrane

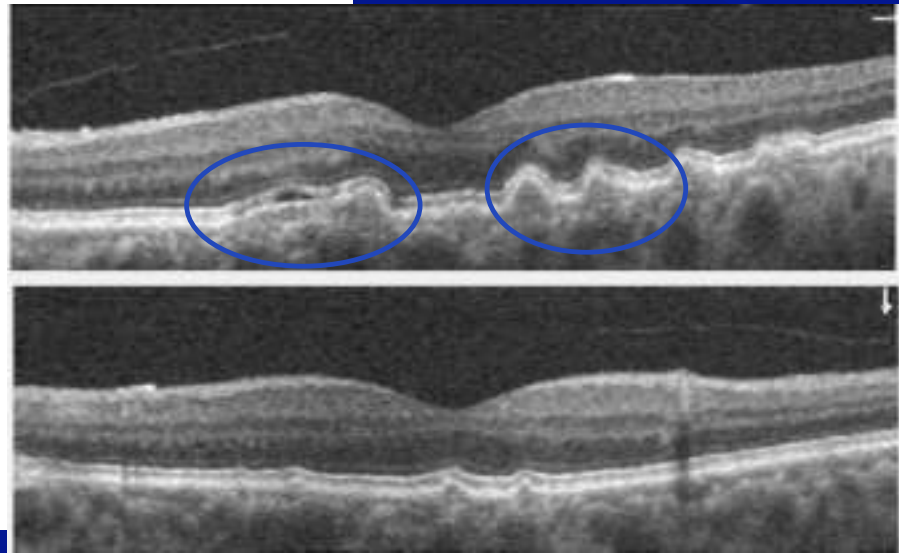
Choroid



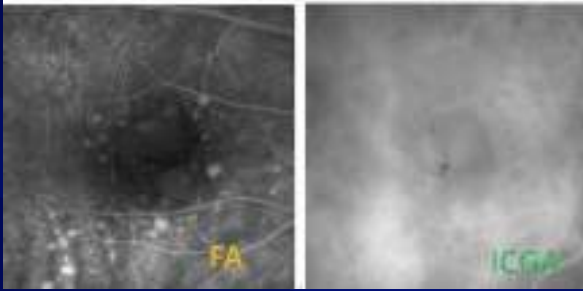
# CNV?



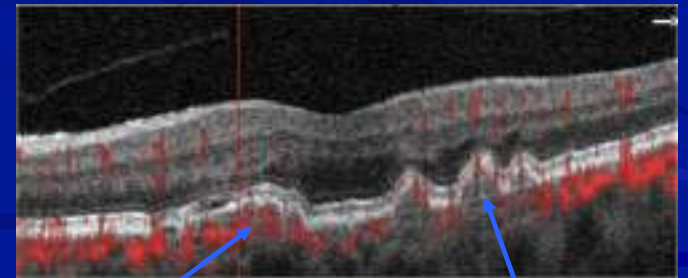
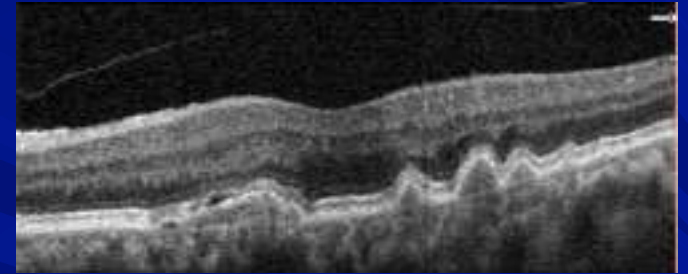
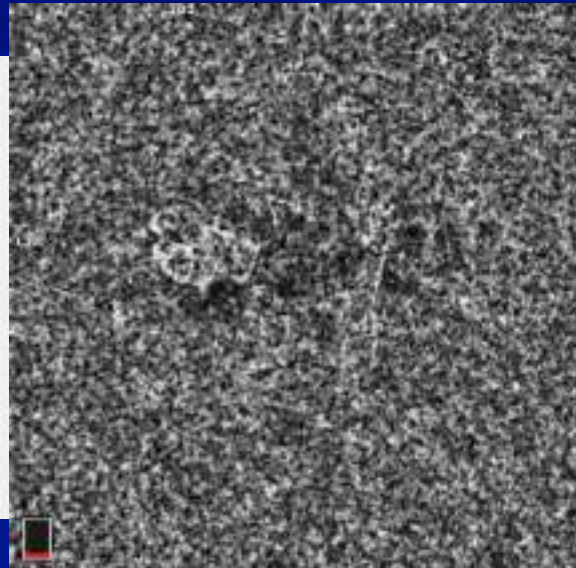
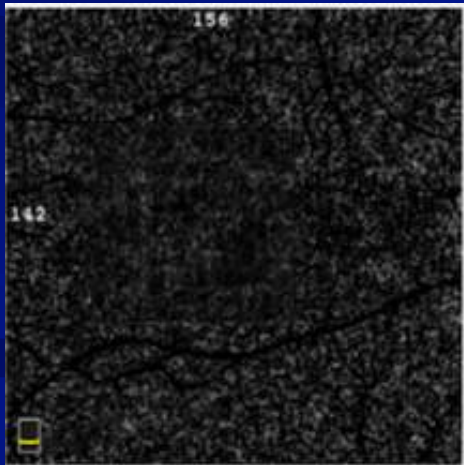
72 y/o Hispanic male  
20/30  
History of "Dry AMD"



# Multimodal imaging and OCTA



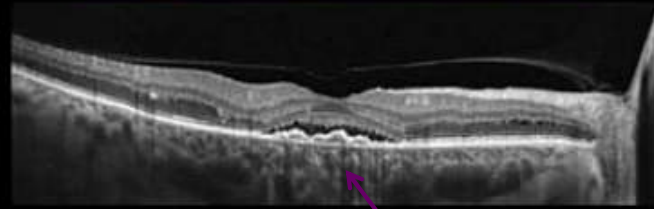
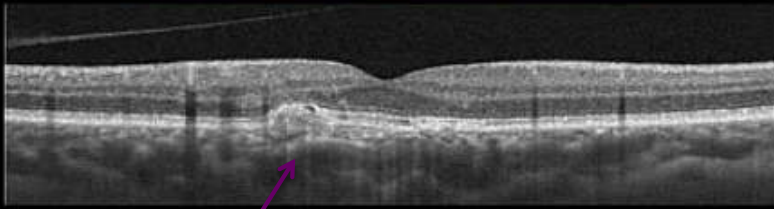
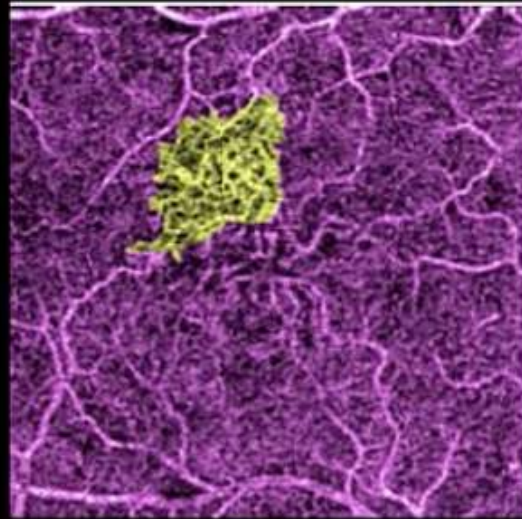
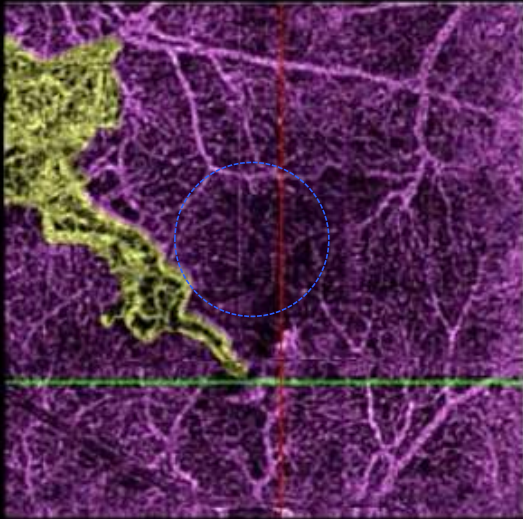
VAGUE???



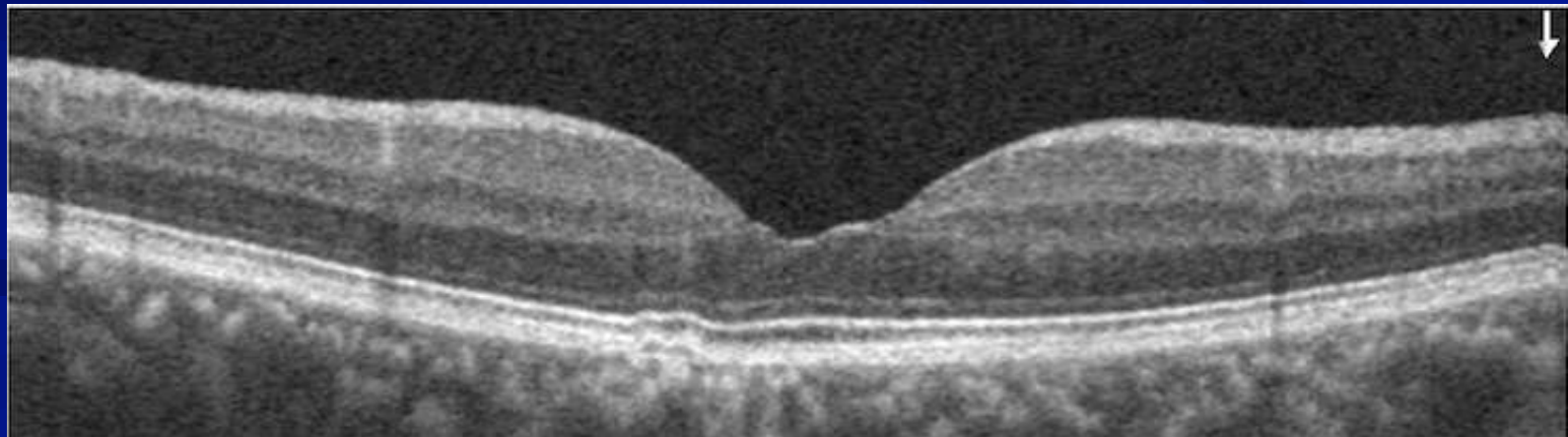
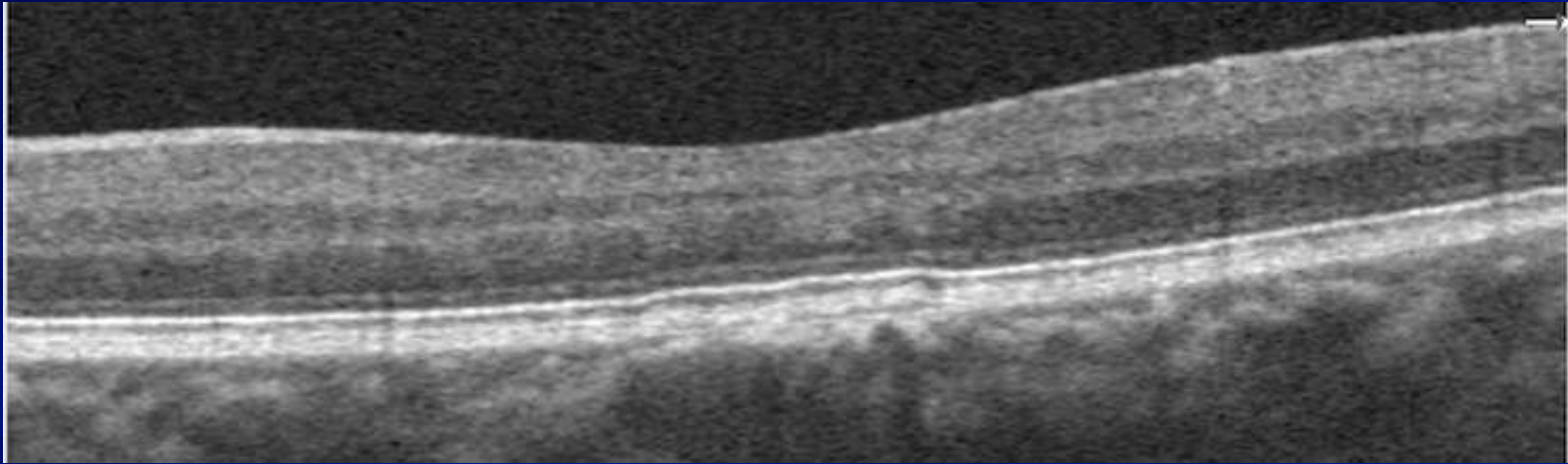
Vascularized

Non-vascularized

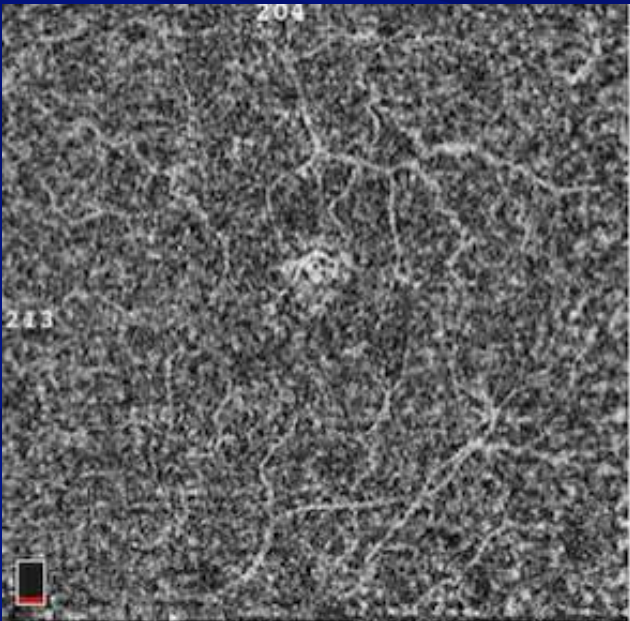
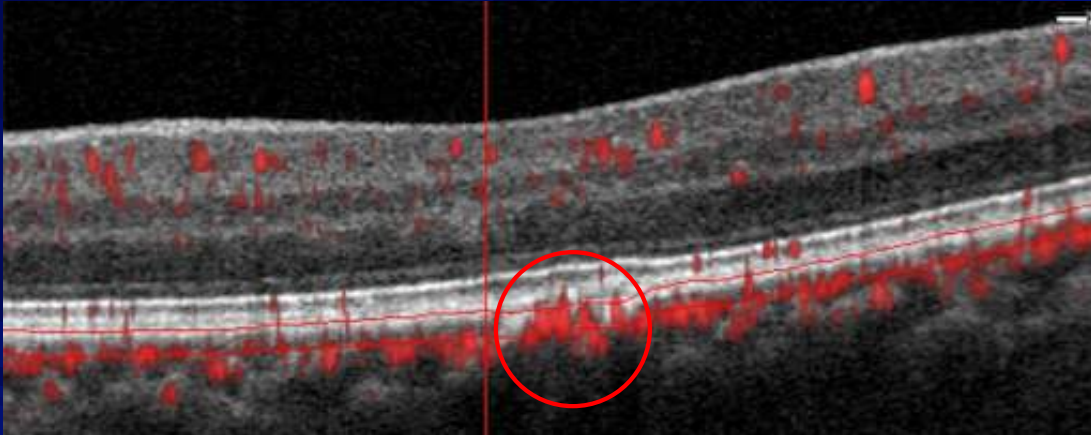
## Type 1 CNV: Below RPE, Wider than Type 2, Avascular Zone Usually Not Involved



And the not so obvious ones...

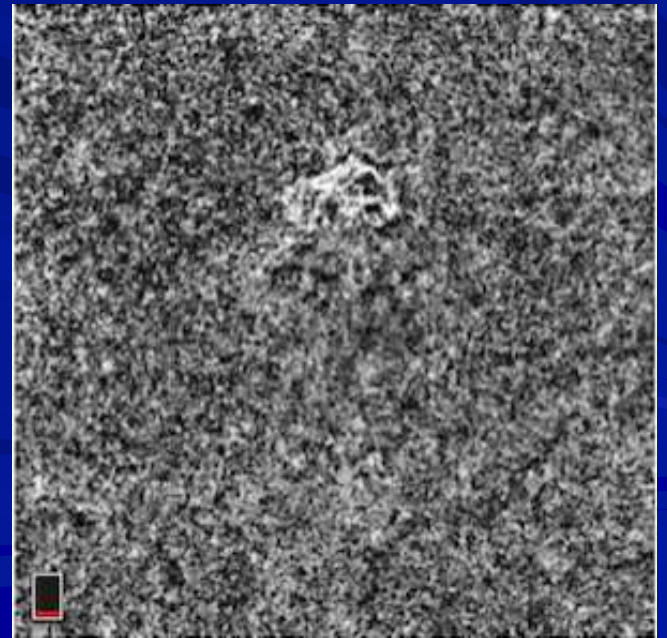




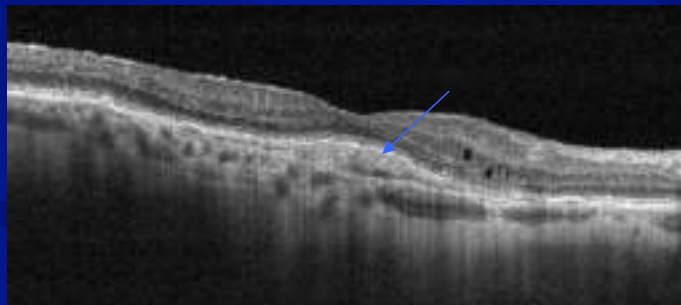
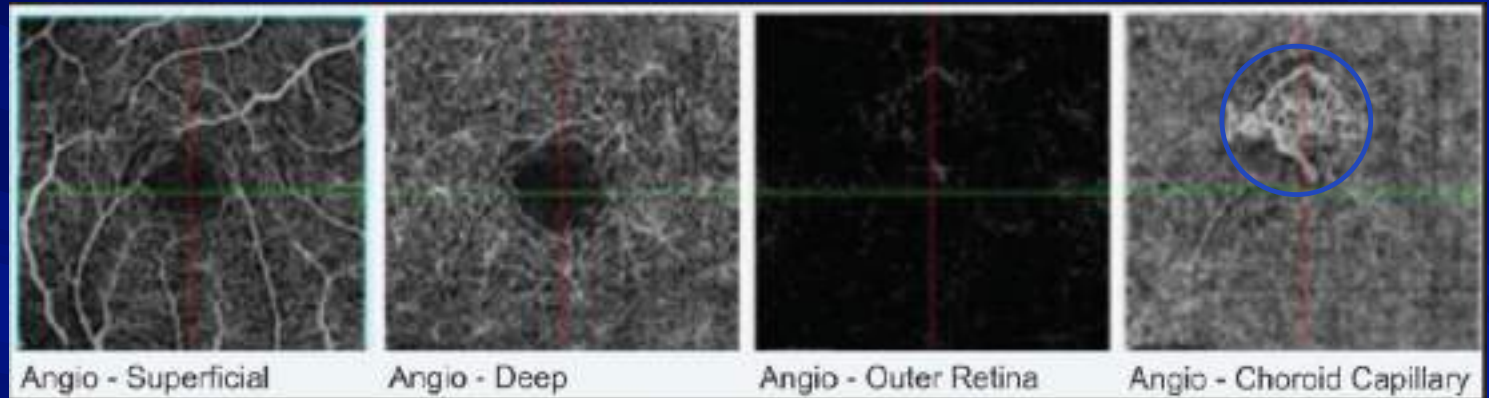
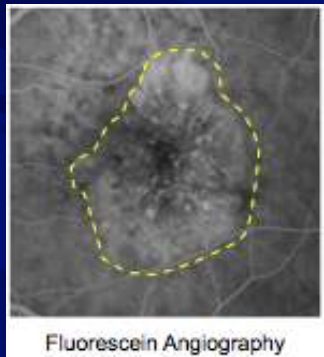


6x6

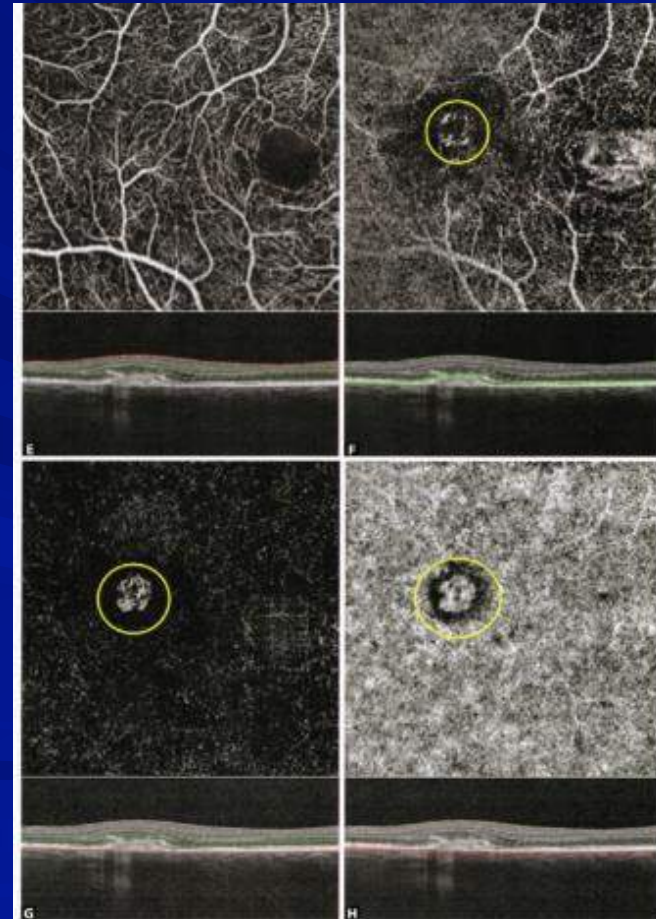
3x3



# Case example: 70 y/o WM, AMD



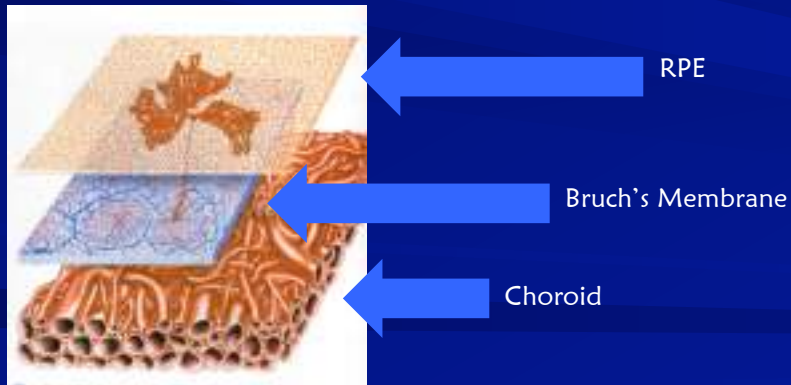
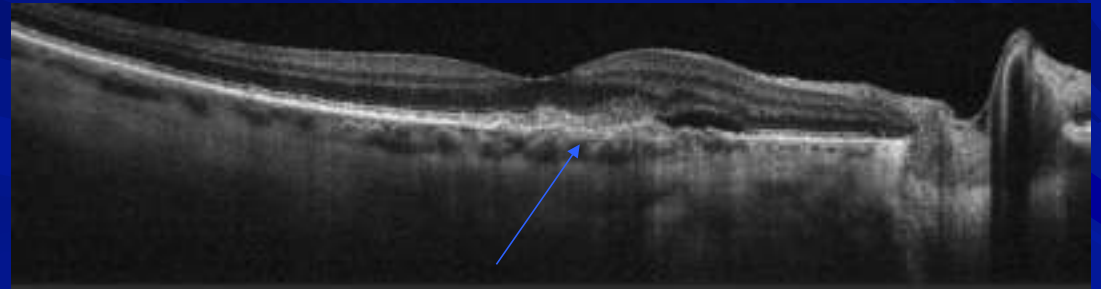
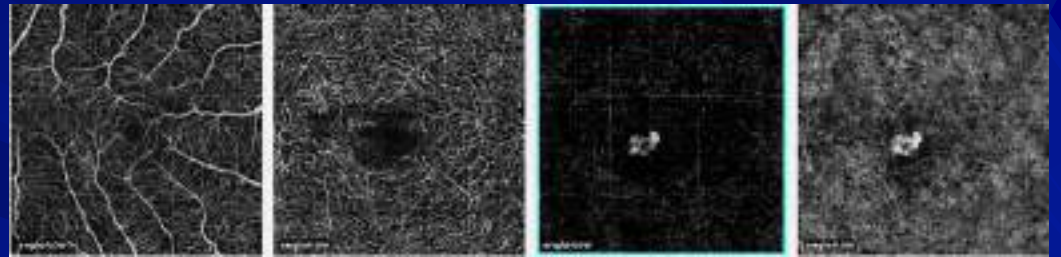
# Type 2 “Classic” CNV



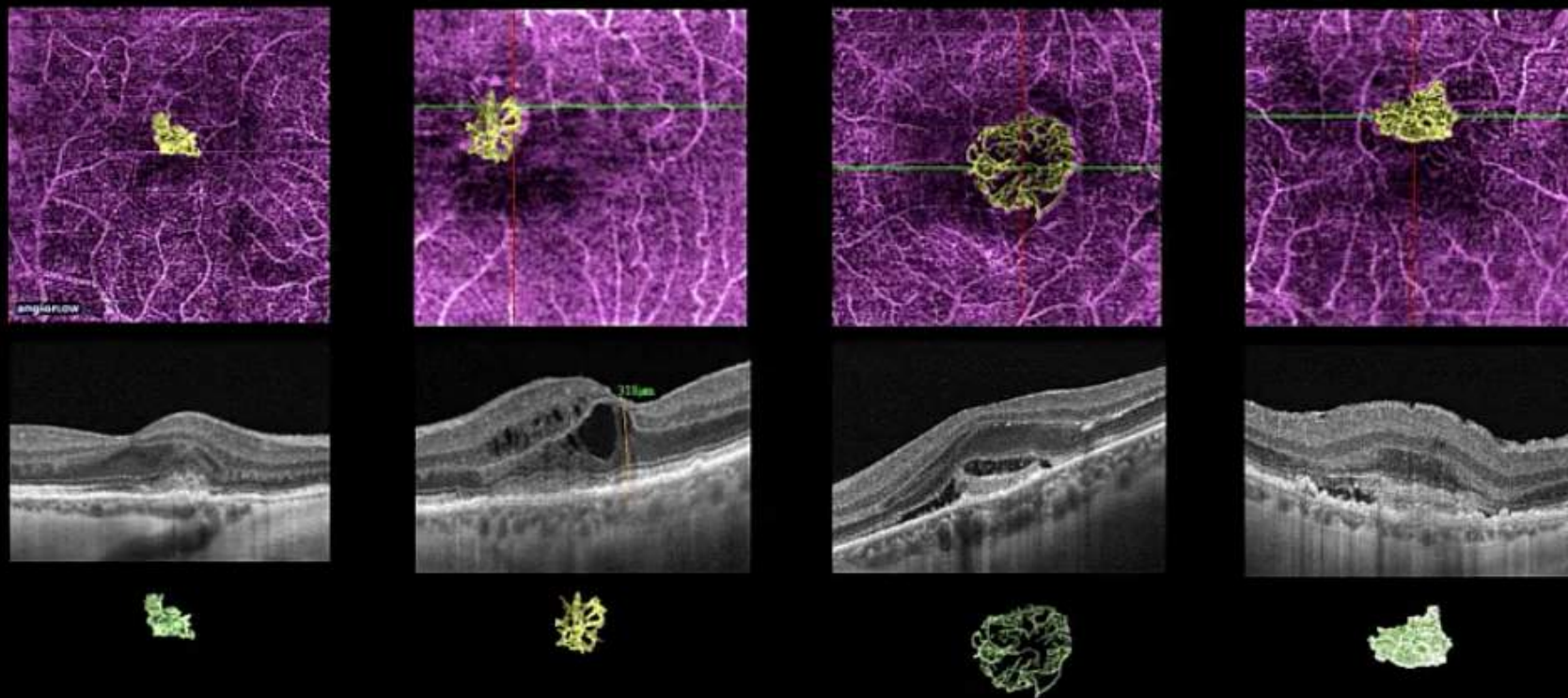
- ☞ New vessels develop in choroid
- ☞ New vessels located above the RPE and above Bruch's membrane

# Type 2 “Classic” CNV

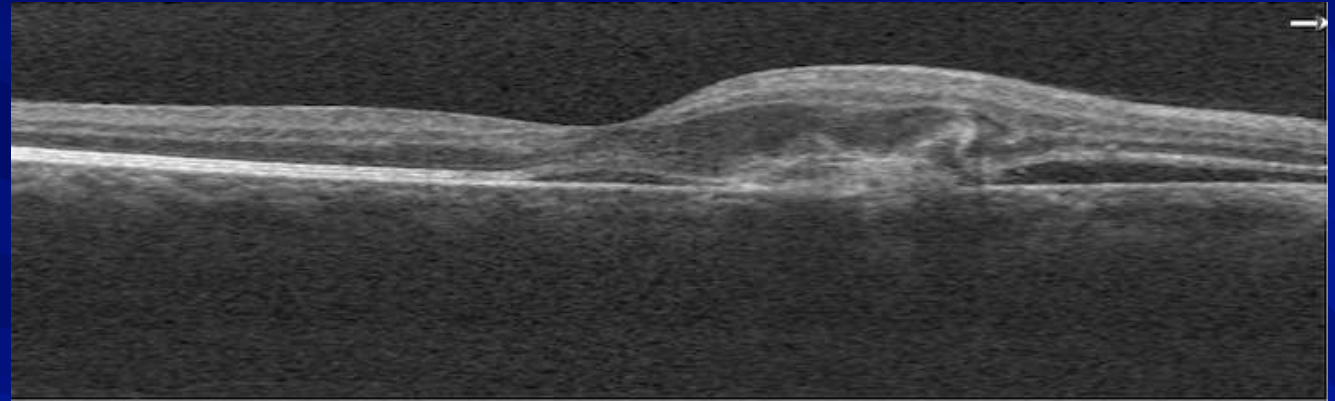
- ↪ New vessels develop in choroid
- ↪ New vessels located **ABOVE** the RPE and **ABOVE** Bruch’s membrane



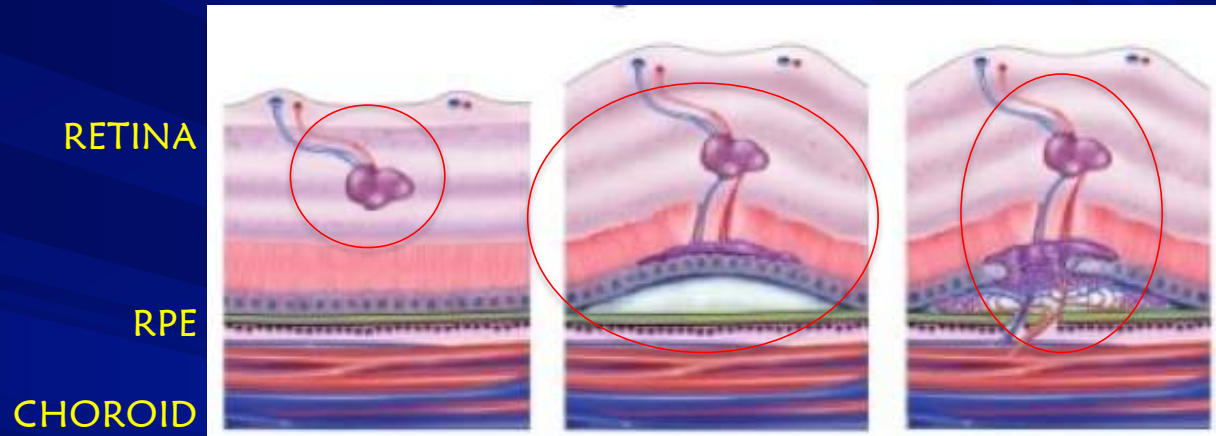
**Type 2 CNV: Above RPE, Smaller than Type 1, Avascular Zone Always Involved.  
Very Heterogeneous Shapes**



48 y/o WM 2 week history of “dark spot” OD



# Retinal Angiomatous Proliferation



Stage 1

Intra-retinal proliferation

- \*Hemes
- \*Edema
- \*Exudate

Stage 2

Neovascularization penetrates the sub-retinal space

- \*Neurosensory detachment
- \*Serous PED

Stage 3

Neovascularization penetrates the RPE space

- \*Vascularized PED; CNVM

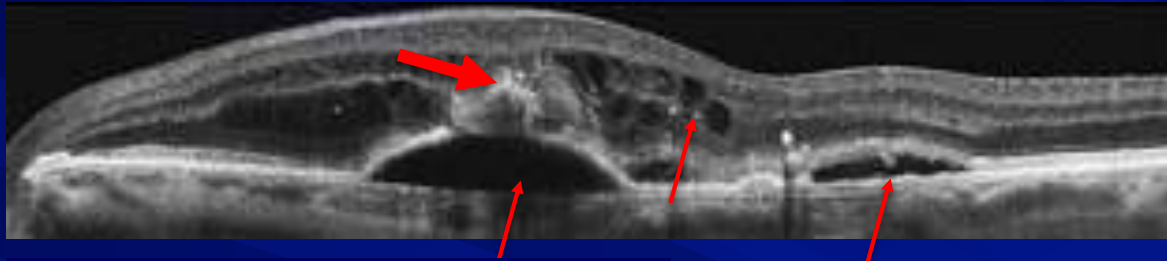


[https://www.researchgate.net/figure/In-retinal-angiomatous-proliferation-fluorescein-angiography-FA-shows-a-hot-spot-in\\_fig8\\_264903506](https://www.researchgate.net/figure/In-retinal-angiomatous-proliferation-fluorescein-angiography-FA-shows-a-hot-spot-in_fig8_264903506)

<https://jamanetwork.com/journals/jamaophthalmology/fullarticle/42089>



# Inspect the SD-OCT carefully!!



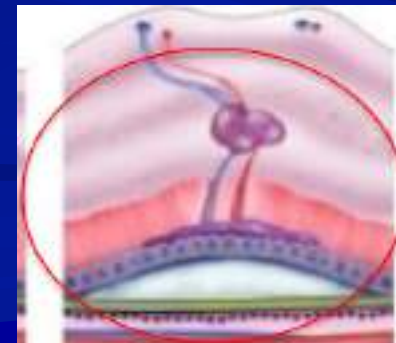
VA 20/40

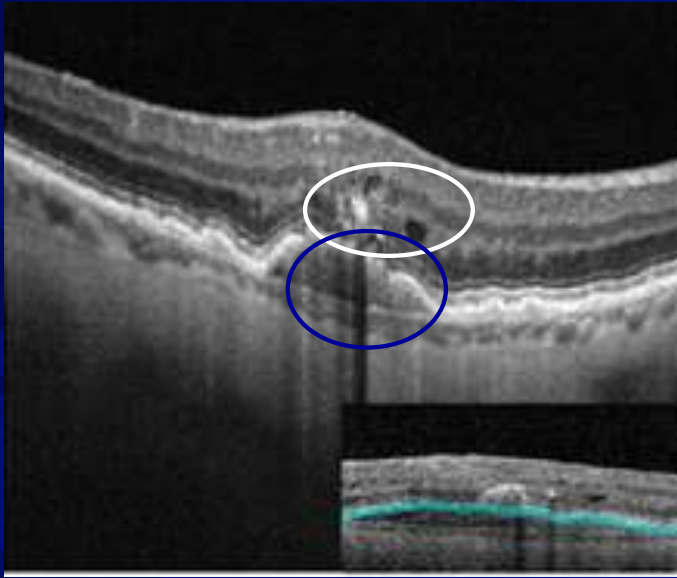
HYPER-REFLECTIVE lesion above pigment epithelial detachment

Intraretinal cysts

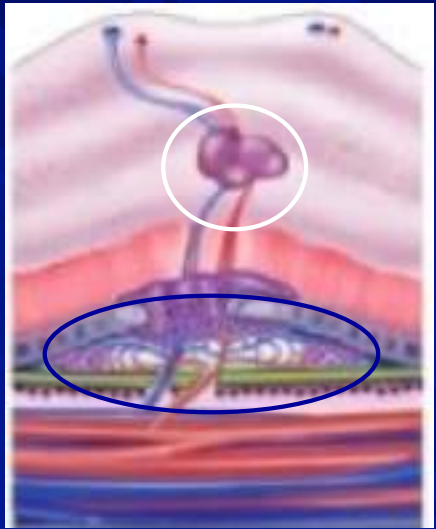
Serous pigment epithelial detachment/ neurosensory detachment

Stage 2





Stage 3



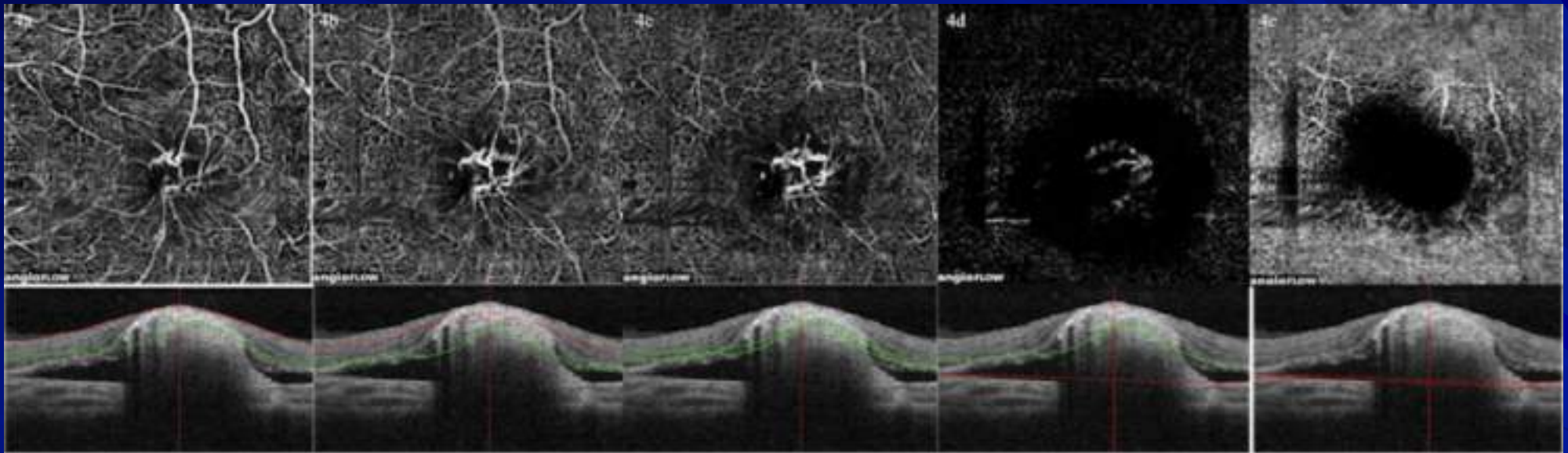
<http://imagebank.asrs.org/file/26943/retinal-angiomatous-proliferation>  
<https://www.ncbi.nlm.nih.gov/ezproxylocal.library.nova.edu/pubmed/29019795>

# What about the OCTA?

OCT angiography demonstrates retinal angiomatous proliferation and chorioretinal anastomosis of type 3 neovascularization

Swati Bansal · Virendra Bansal · Sameek Mukherjee · Rameshwar Singh ·  
Yishai Gupta · Manoj K. Datta · Anand Gupta

## Type 3 CNV: Intraretinal Anastomosis: THROUGH RPE



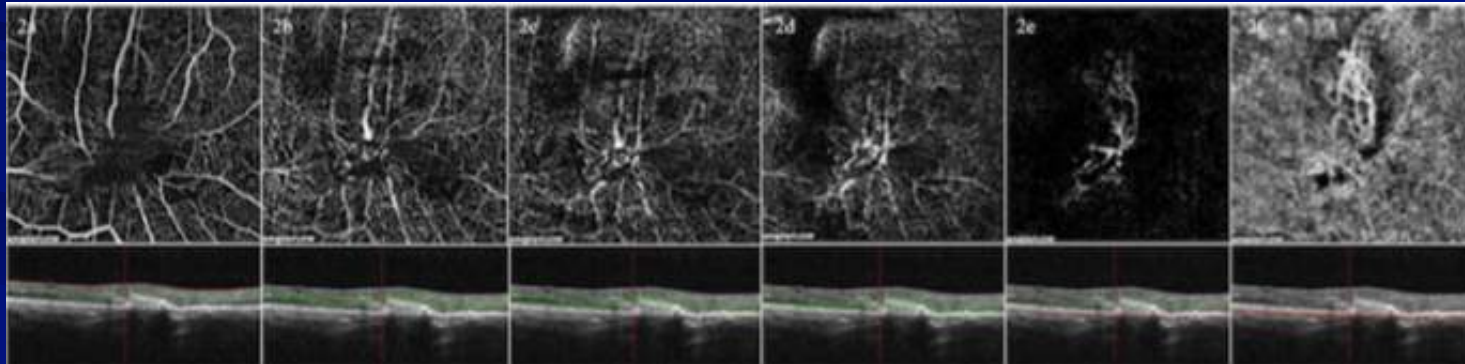
Inner retina (SCP+DCP) to Outer retina (Avascular/choriocapillaris)

# What about the OCTA?

OCT angiography demonstrates retinal angiomatic proliferation and choriorretinal anastomosis of type 3 neovascularization

Roopa Bansal - Srividhya Demuthi - Suryak Mishra - Ramesh Singh -  
Yashu Gupta - Manoj K. Datta - Anand Gupta.

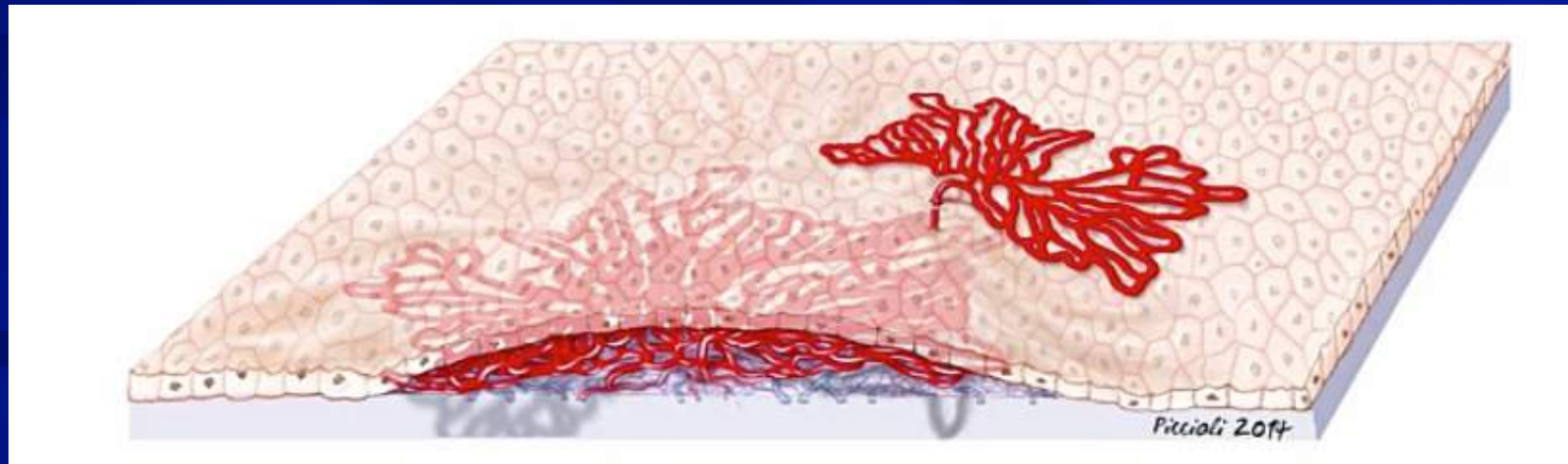
## Type 3 CNV: Retinal/Choroidal Anastomosis: INTO CHOROID



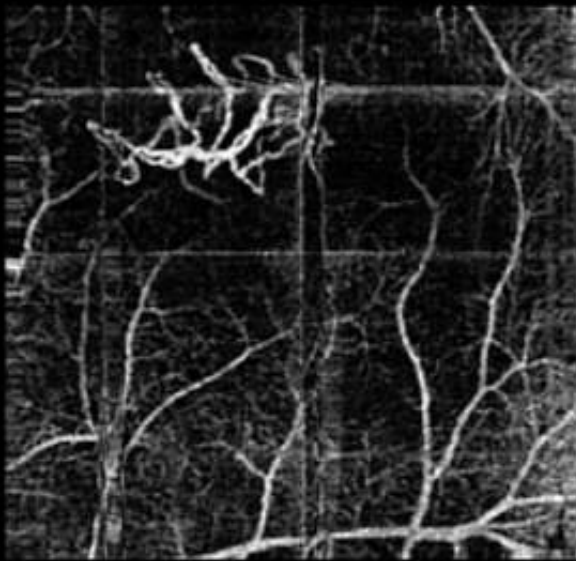
Inner retina (SCP+DCP) to Outer retina (Avascular/choriocapillaris)

# Type 4 “Mixed” - Subretinal and Sub-RPE

- Two or more CNV layers
  - ★ One above the RPE, one below the RPE
- High flow lesions



## Type 4 CNV : Initially Located Below the RPE, NV Spreads into the Outer Retina



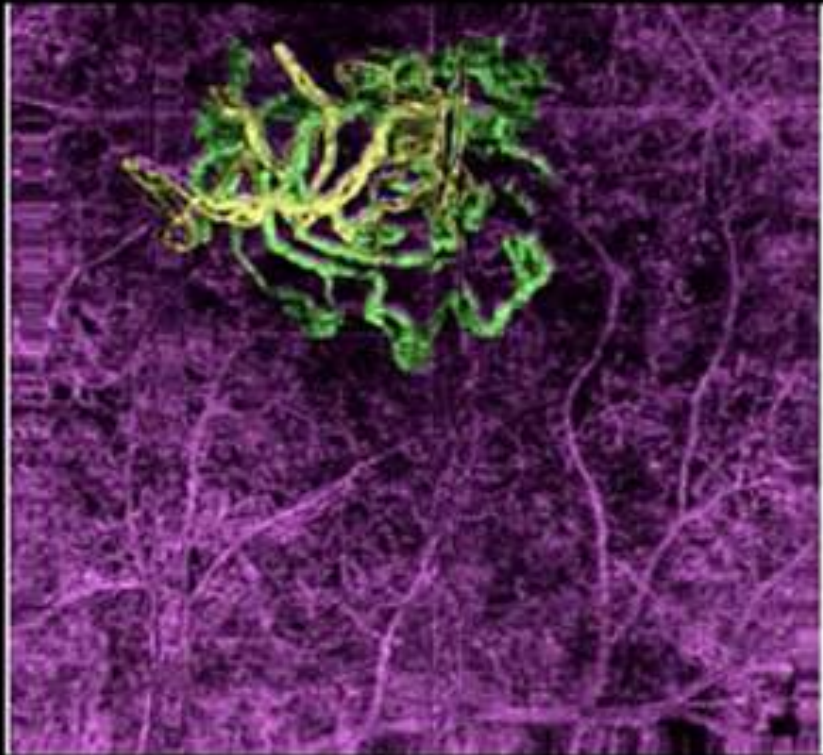
Angio - Deep



Angio - Outer Retina



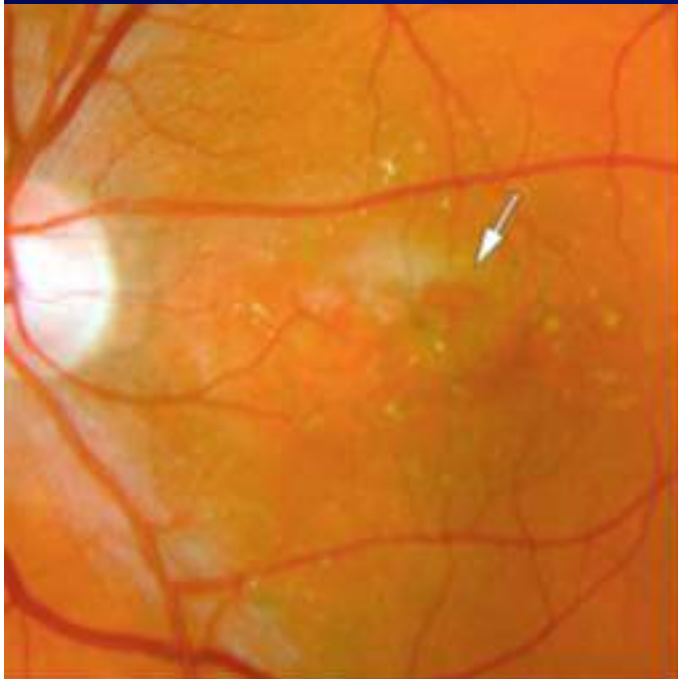
Angio - Choroid Capillary



Green: Type 1 (Sub RPE)

Yellow: Type 2 (Subretinal)

# Case Example: Multimodal imaging of 66 y/o Caucasian male



Fundus image  
and Occult



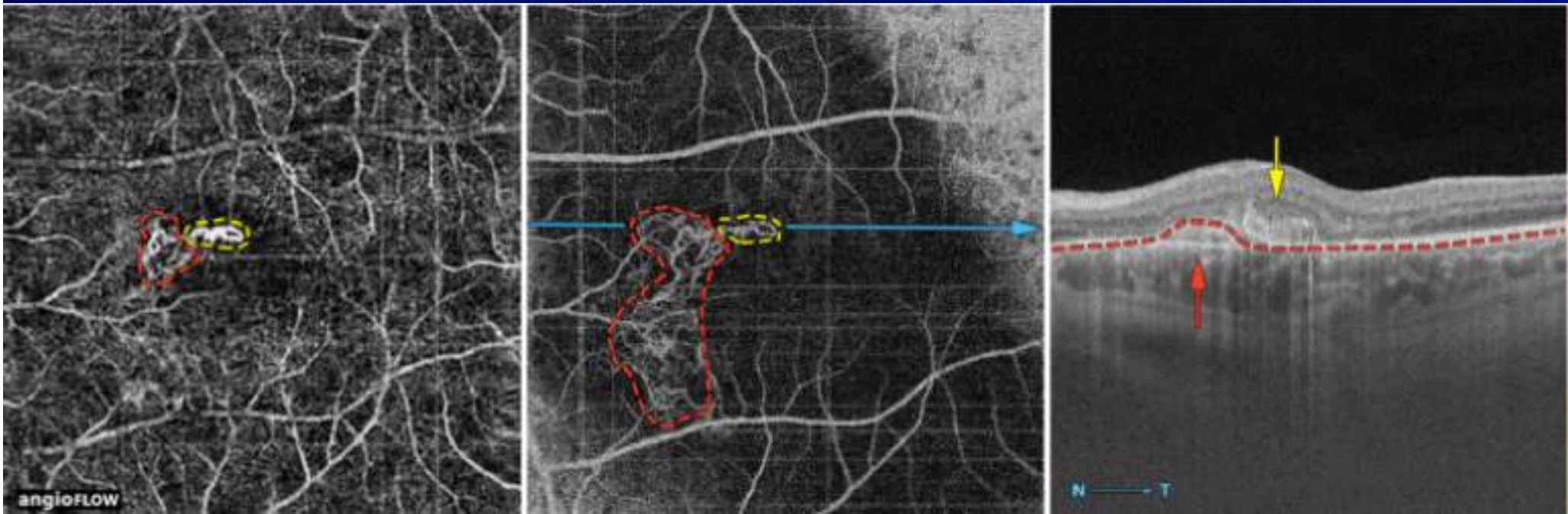
FFA: Early; Classic component



FFA: Late; Classic

Courtesy of Novais et al.





## Choriocapillaris

Red: Occult; Yellow: Classic

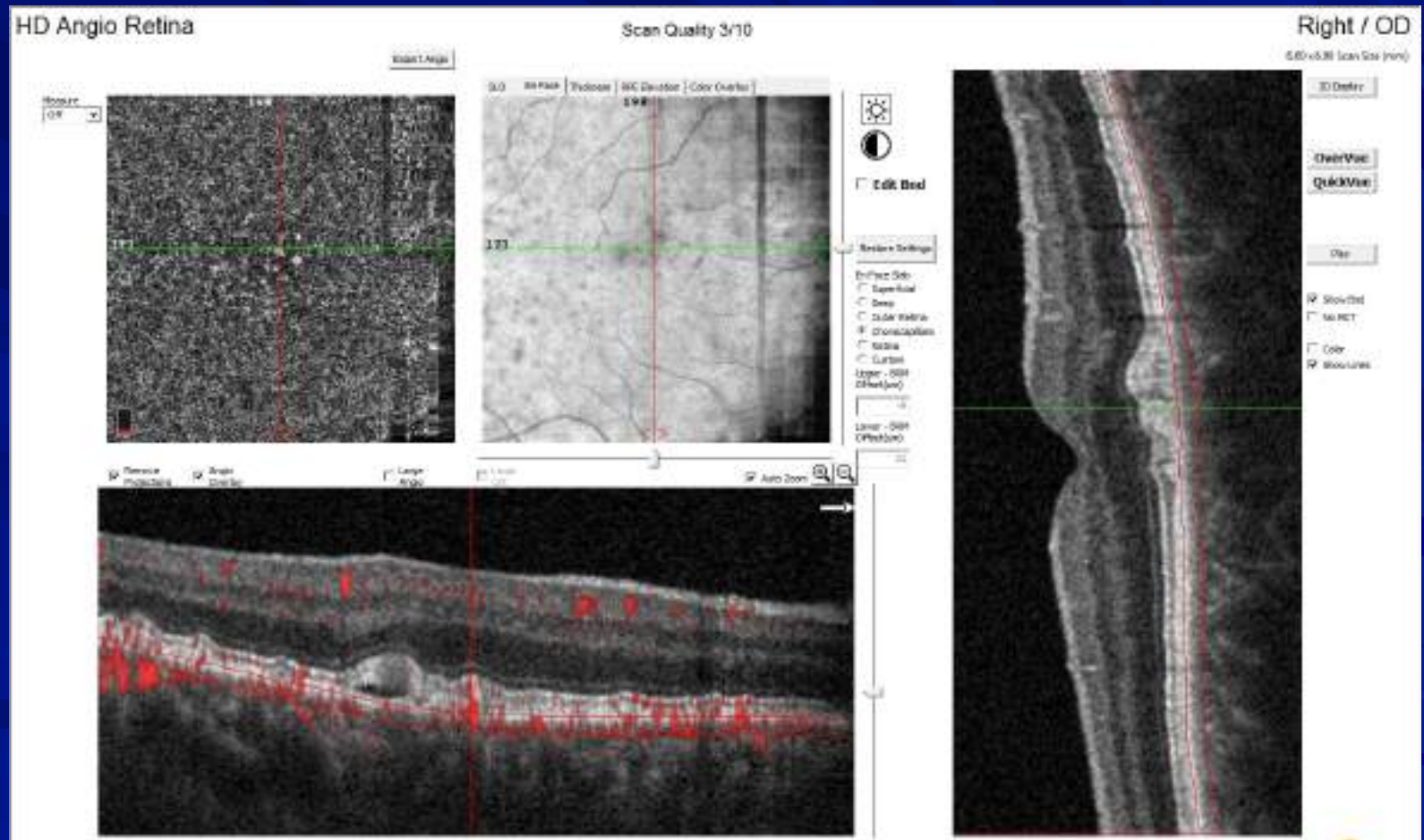
Courtesy of Novais et al.

## OCT Angiography

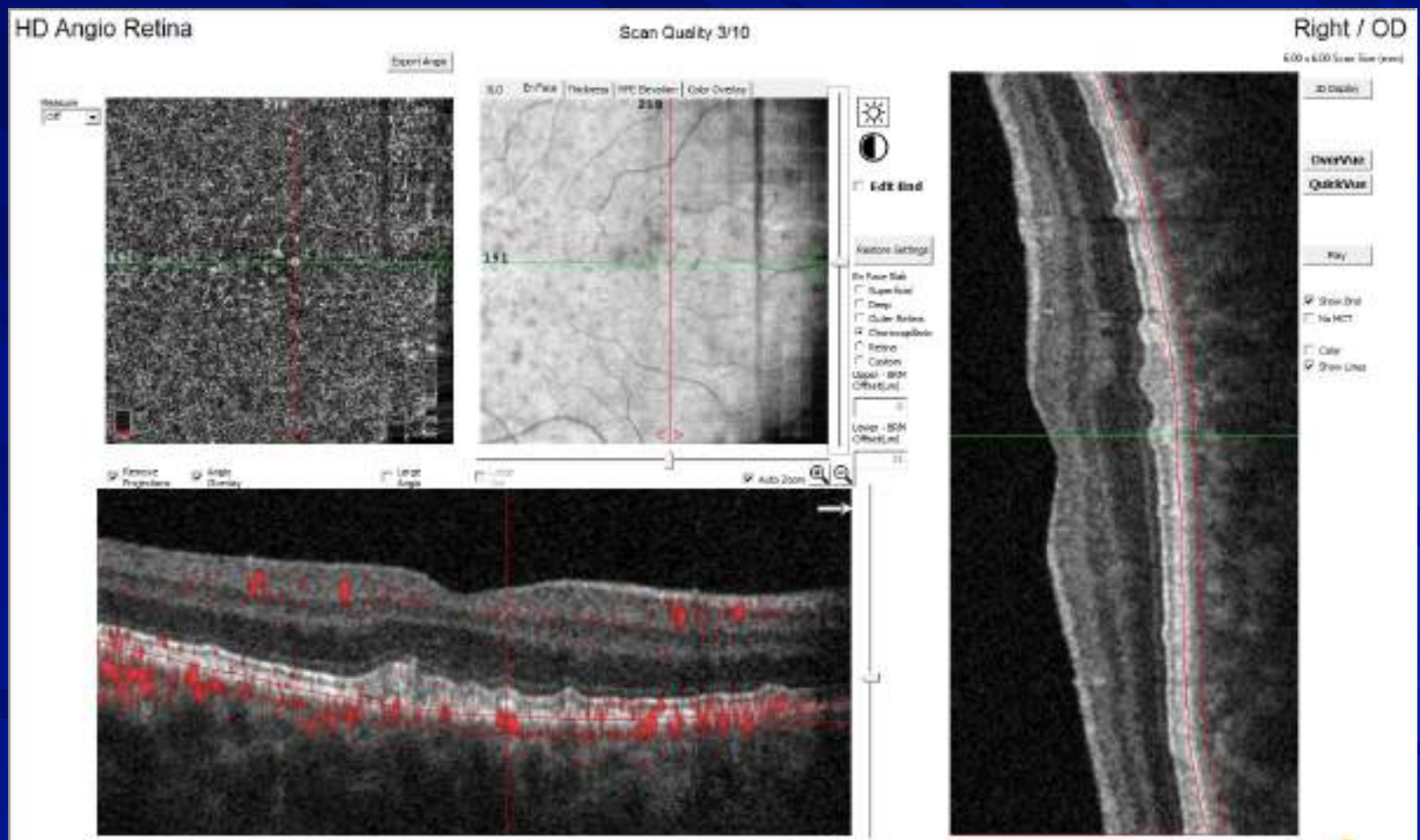
Subclinical CNV or “Occult non-exudative CNV”

Risk of exudation at 12 months is 15.2 times greater compared to eyes without subclinical CNV

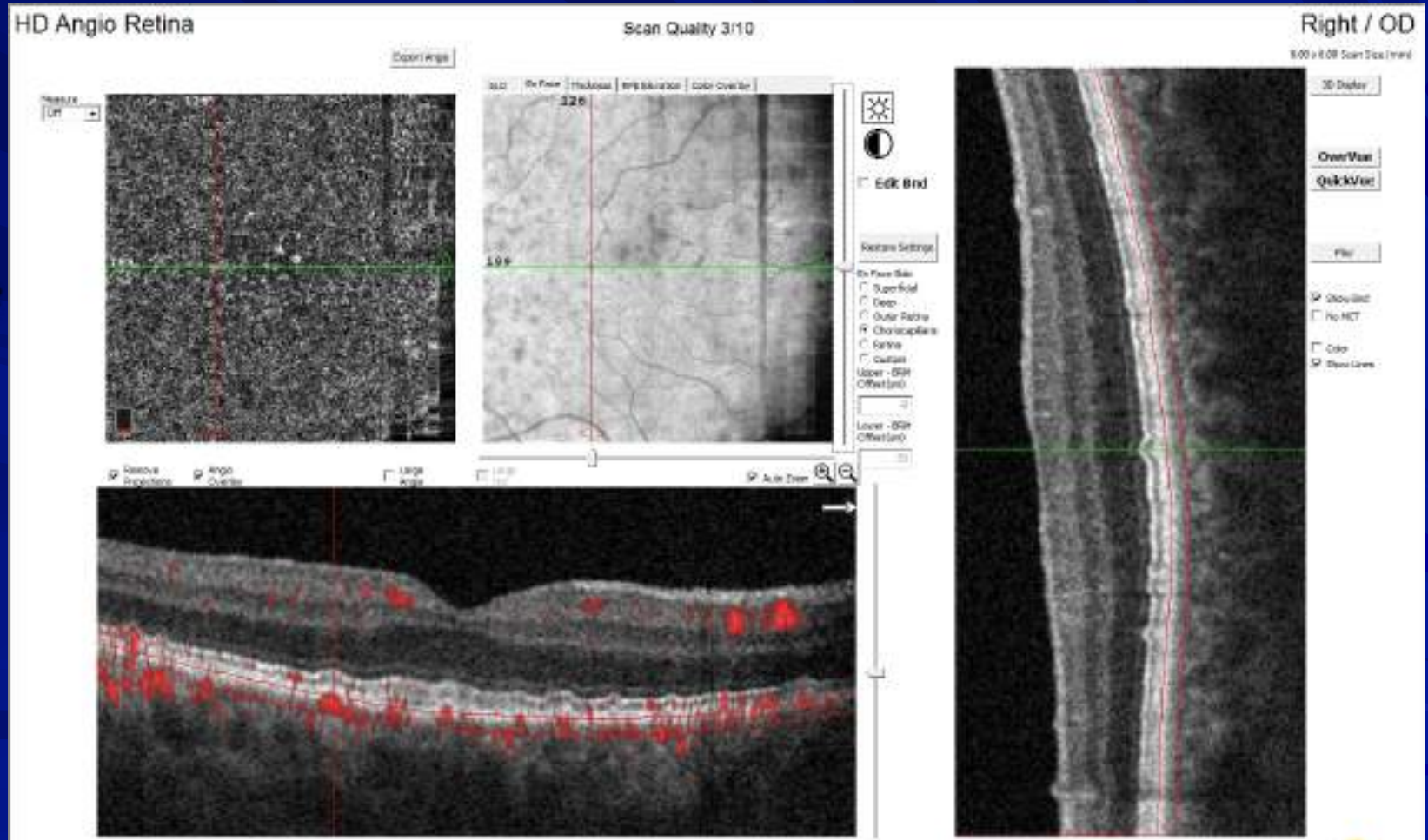
Occult  
Non-Exudative  
CNV  
Patient A



Occult  
Non-Exudative  
CNV  
Patient A



Occult  
Non-Exudative  
CNV  
Patient A



# Which is More Suspicious?

HD Angio Retina

Scan Quality 7/10

Right / OD

6.00 x 5.00 Scan Size (mm)

3D Display

OverVue

QuickVue

Edit Bnd

Restore Settings

Play

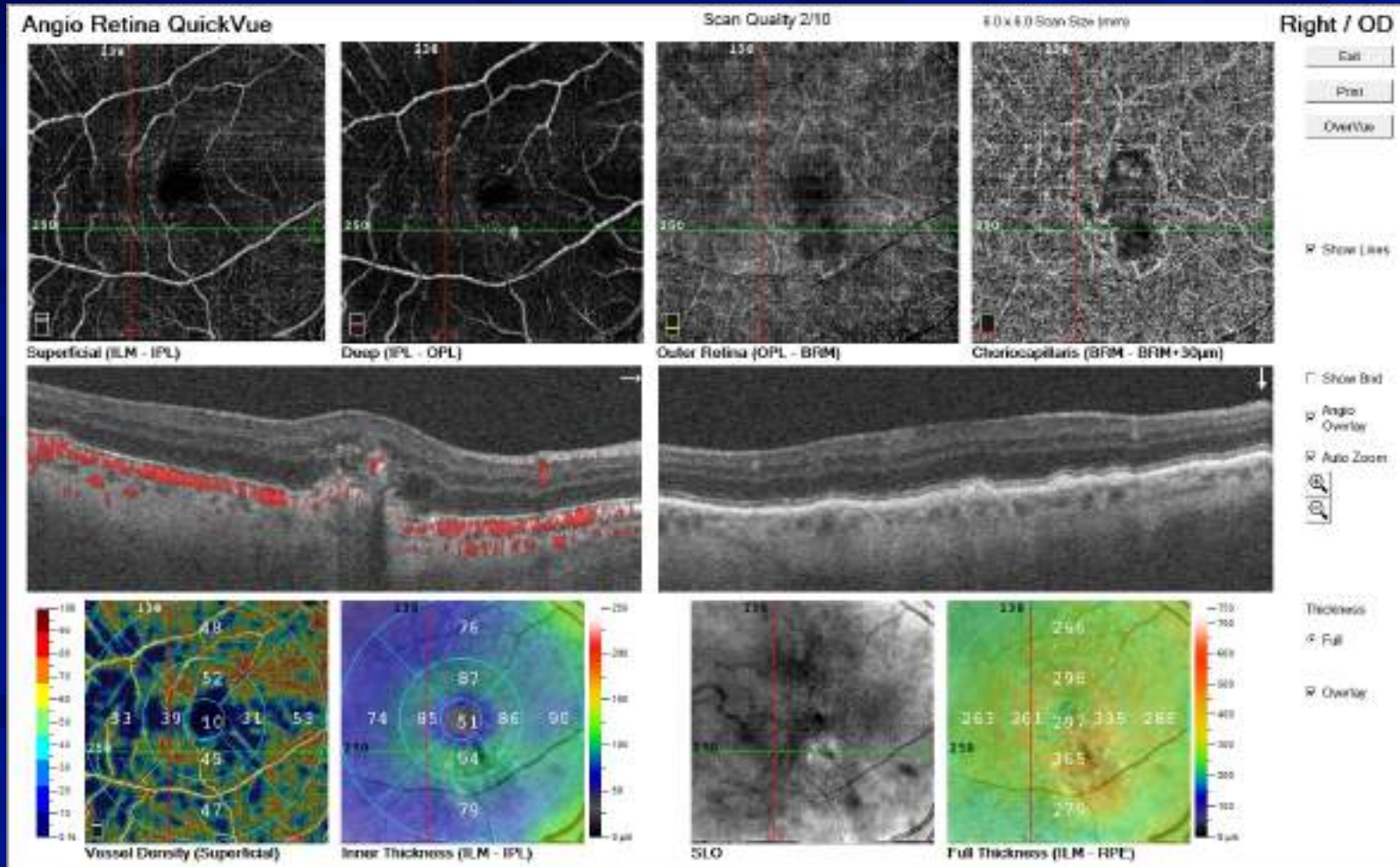
Export Angio

SLD En Face Thickness RPE Elevation Color Overlay

Measure OCT

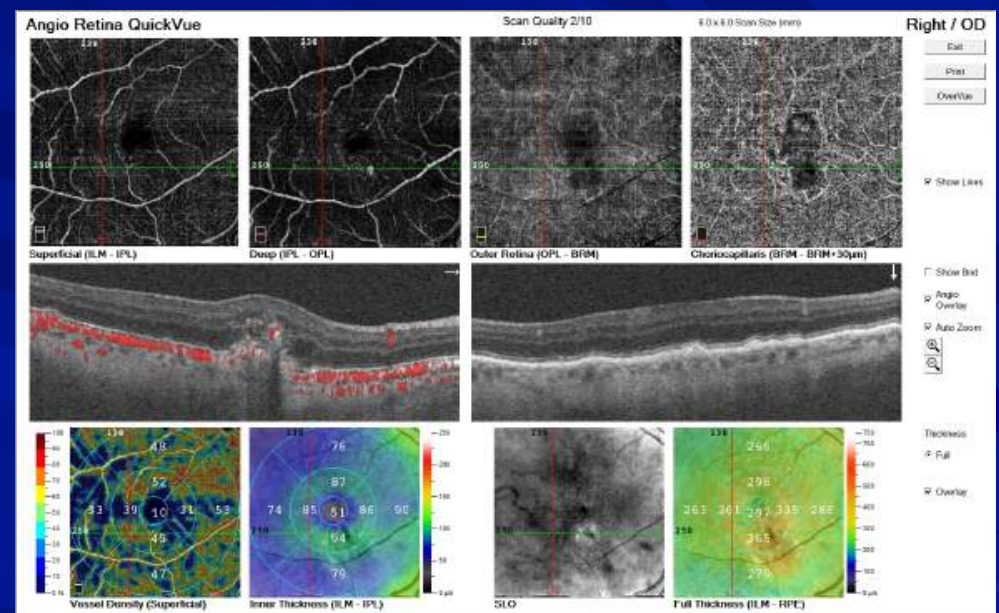
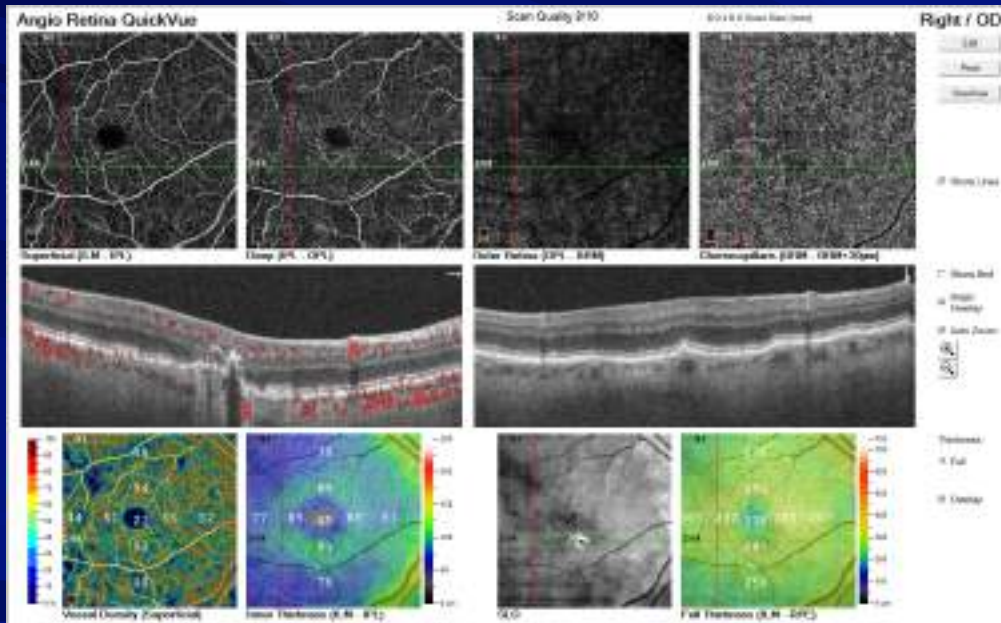
The image displays a side-by-side comparison of two OCT scans. The top row shows the 'En Face' view, where the left scan has a smooth, regular retinal surface and the right scan shows a highly irregular, wavy surface. The bottom row shows the corresponding cross-sectional B-scans. The left B-scan shows a smooth retinal profile with red areas indicating fluid or leakage. The right B-scan shows a similar profile but with a more pronounced, irregular undulation of the retinal layers. The interface includes various controls like 'Measure OCT', 'Export Angio', and '3D Display'.

# OCT Angiography Evaluation AMD



# OCT Angiography Evaluation AMD

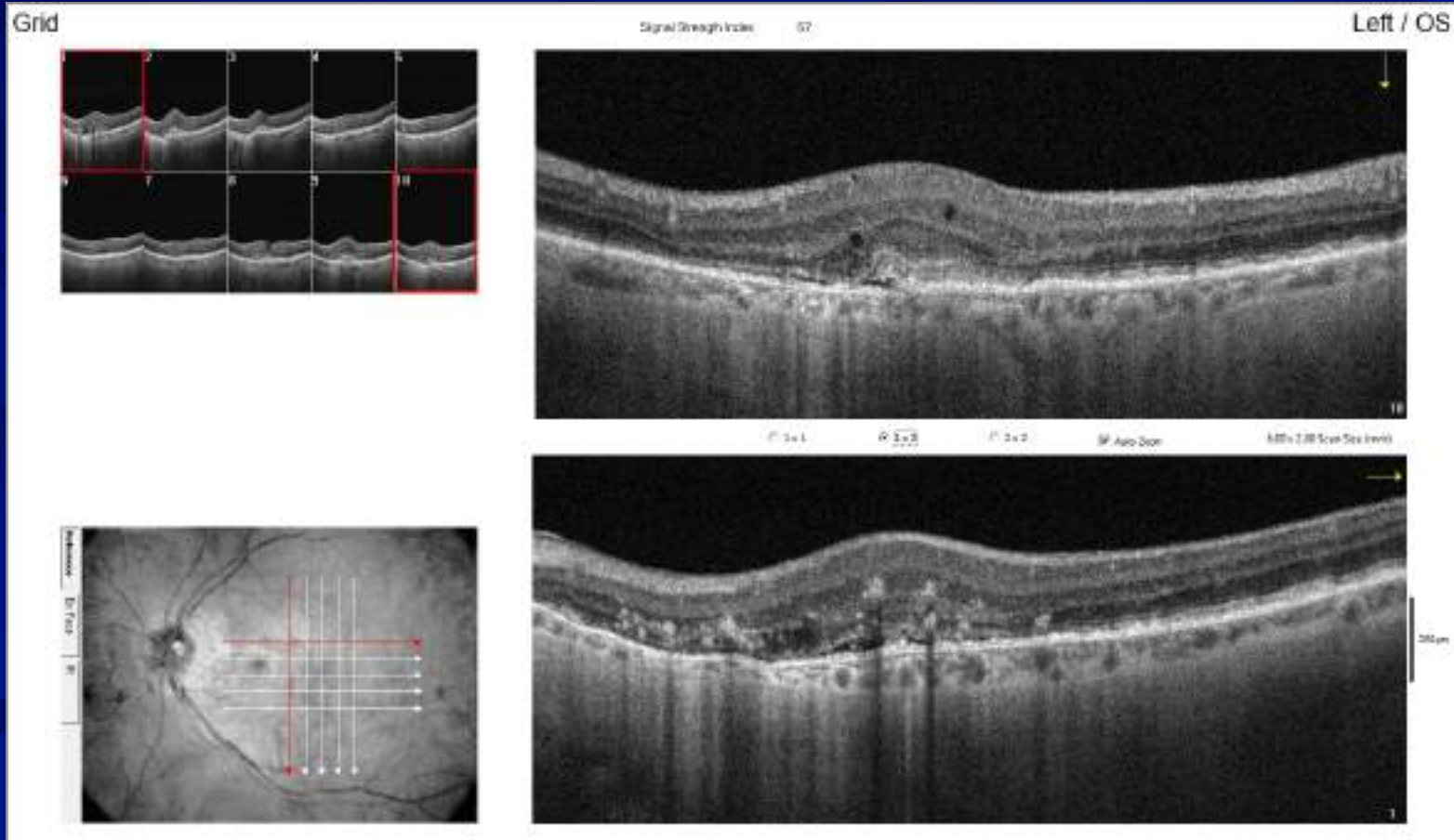
## After and Before Bevacizumab (Avastin)





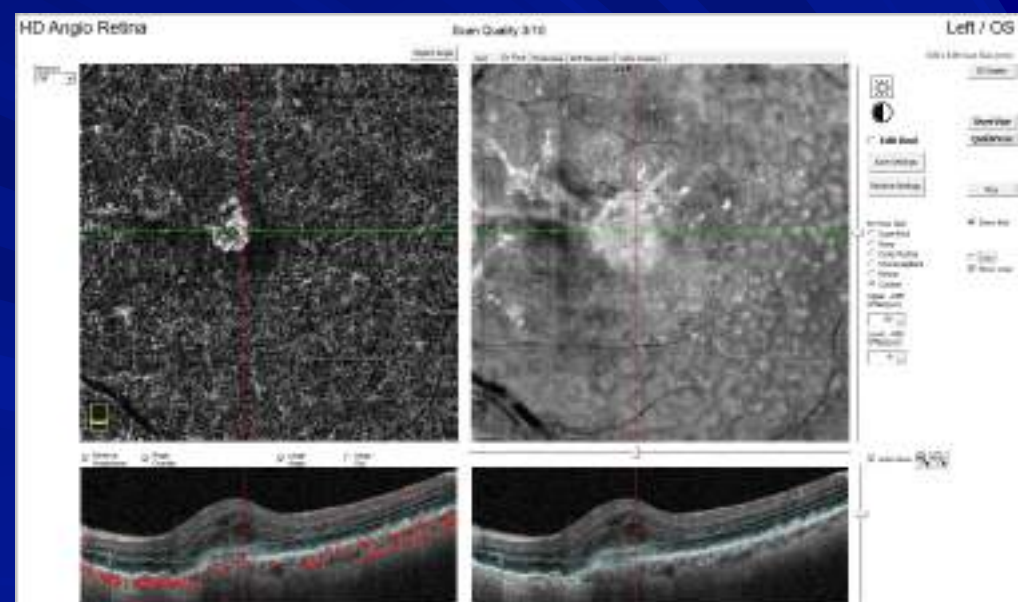
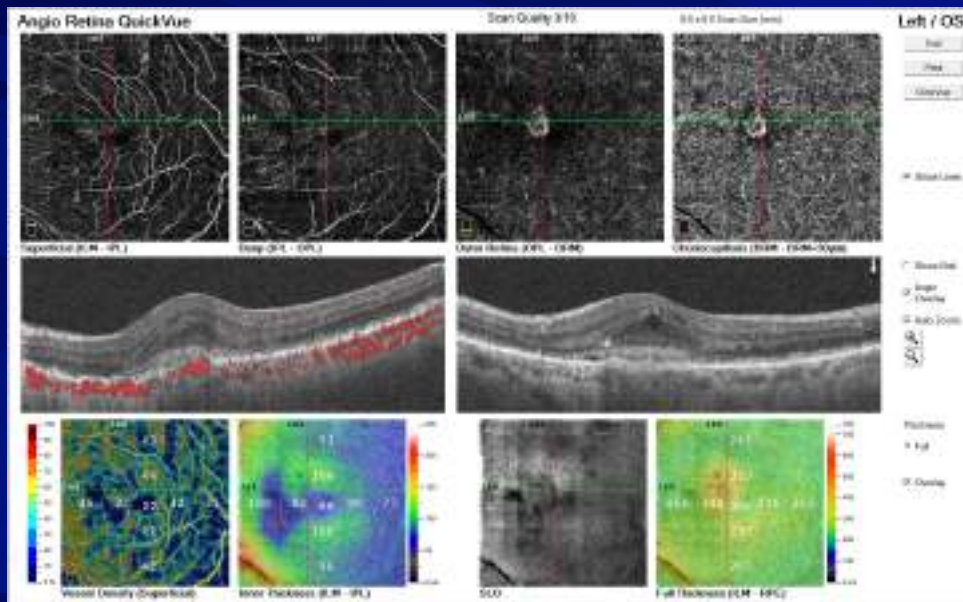
# Evaluation AMD Patients for Neovascularization

## OCT Grid



# Evaluation AMD Patients for Neovascularization

## Using OCT Angiography



# Treatments for AMD

🔗 Early detection and meaningful treatments with significant value, do not cure, but have been shown to slow or halt progression. Not limited to early stages but all stages of AMD

- ★ Prescribe smoking cessation programs

- 📄 Smoking and AMD

- Depletes serum antioxidants
    - Decreases pigmentary density
    - Increases risk to advanced AMD

- ★ Lifestyle changes

- 📄 Diet

- 📄 Exercise

- ★ Systemic disease management

- 📄 Cardiovascular disease, DM, obesity, high cholesterol

# Treatment for AMD

## 🌀 Nutritional supplements

### ★ Sub-clinical/sub-structural or early disease

- 📄 Controversy flourishes
  - No definitive guideline exists
  - Despite consensus evidence suggests using supplements

### ★ Intermediate – advance disease

- 📄 No controversy on advocating for supplements

### ★ AREDS 1

- 📄 Contains Beta-carotene and no lutein or zeaxanthin, no longer recommended
- 📄 Investigated early AMD, no statistically significant benefit

### ★ AREDS 2

- 📄 Recommended for intermediate and advanced AMD, study protocol

### ★ The Practical Guide for the Treatment of AMD - 3 primary options

- 📄 Macular pigment supplement
  - Carotenoids: lutein, zeaxanthin, meso-zeaxanthin
- 📄 Carotenoids, antioxidants, zinc, and vitamins C & E
  - AREDS 2
- 📄 Carotenoid macular supplement in subclinical and early AMD. Carotenoid and antioxidant is intermediate and AMD that is progressing

# Treatment for AMD

## Retinal light protection

- ★ Sun exposure

## Closer follow up

- ★ 12 months is currently accepted as being too long to detect progression
- ★ 6 months or sooner based on risk of CNV

## Low vision and rehabilitation consultation

# Treatments for Choroidal Neovascularization (CNV)

## 🔗 Current Anti-VEGF treatments

- ★ Bevacizumab (Avastin)
  - 📄 Humanized full length monoclonal antibody
  - 📄 AMD
- ★ Ranibizumab (Lucentis)
  - 📄 Humanized monoclonal antibody fragment
  - 📄 AMD, DME, DR, RVO
- ★ Aflibercept (Eylea)
  - 📄 Fusion protein
  - 📄 AMD, DME, DR
- ★ brolucizumab-dbll (Beovu)
  - 📄 Humanized single-chain antibody fragment
  - 📄 Up to 3 months dosing intervals, most are 4-6 weeks
    - 50% remained 3 months after 1 year
- ★ Pegaptanib (Macugen)
  - 📄 RNA aptamer
  - 📄 AMD

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- Mik Weber Munk  
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Like · 1 day · 24

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then going in. Tough call.

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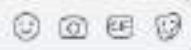


Greg Caldwell 🇺🇸 Chad, great case to present. Regarding the ERM I agree with my colleagues about monitor. I agree this does not need to see retina based on the ERM and drusen. I am going to respectfully disagree about just monitoring these drusen and this patient. I will start off by saying there are only 4 OCTs to review, looking at more would help support my thoughts, but the two here are enough for me to weigh in. The OCTs on the left side top and bottom are showing signs of progression and that the RPE is sicker than just monitor. At the top of these drusen are hyper-reflective foci a sign of progression. In the top left OCT I see two columns of sub-RPE hyper-reflective columns and the bottom left 5-6 columns. The RPE absorbs the OCT (coherent) light typically keeping the choroid black. These hyper-reflective columns are like rays of sunlight poking through on a cloudy day. The RPE is atrophied here and the OCT coherent light is making its way into the choroid. This RPE is sicker than you think, it's oxidized, inflamed, it's sick. Rather than monitor based upon hyper-reflective foci and sub-RPE hyper-reflective columns I would treat this patient. Treatment would be to stop smoking if the patient is a smoker, discuss his/her diet and exercise, discuss the best possible management for his/her (systemic health) DM, cholesterol, obesity, cardiovascular, as these are all risk factors in AMD. Sunglasses in any ultraviolet light. Prescribe nutritional supplements, this RPE is sick enough to recommend AREDS2, if you want to avoid the high zinc levels then do something with 25 mg of zinc, or at least triple carotenoid therapy (lutein, zeaxanthin, and meso-zeaxanthin). These OCTs with the drusen size, foci, and columns are signs the patient is moving toward advanced AMD which is geographic atrophy and/or CNV. Julie Friedman Rodman any other comments? Alan Glazier this would be a great case to present when we share the podium again on cases from ODs on FB. Respectfully, Greg

Like Reply · 2m



Writes a comment...



Message

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# OCT CONNECT

Post your questions & cases so we can #OCTConnect!

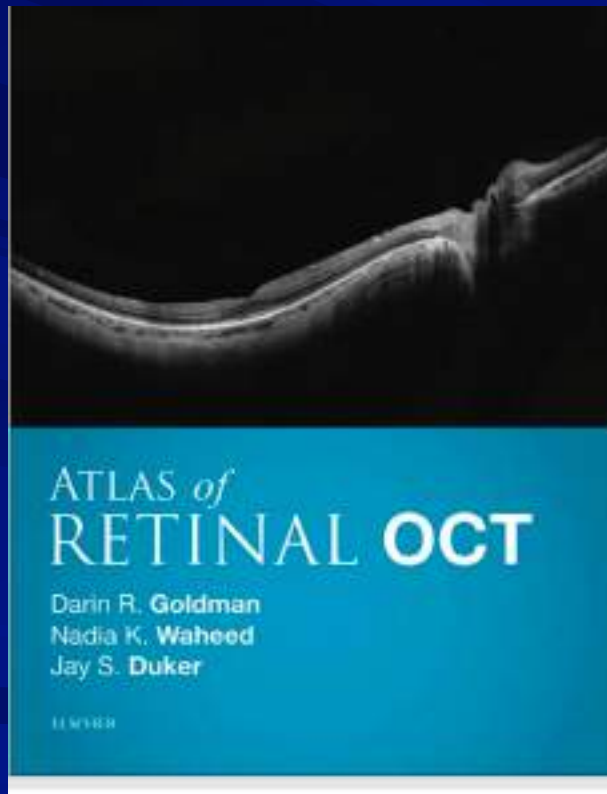


Join this group to become part of our  
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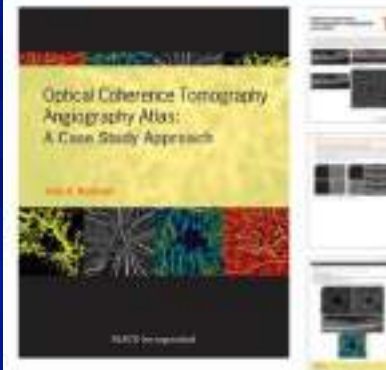


# Book Resources



## Optical Coherence Tomography Angiography Atlas: A Case Study Approach

Julie A Rodman, OD MSc FAAO



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# Thank-You and Hope You Enjoyed

Greg Caldwell, OD, FAAO  
Grubod@gmail.com

