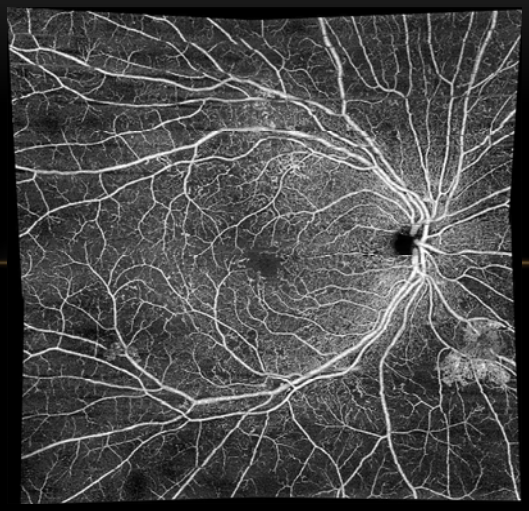
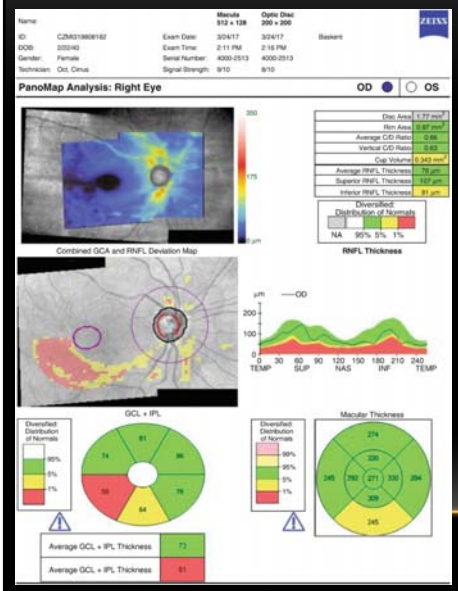
OCT ANGIOGRAPHY



Gregory D. Searcy, M.D.
Erdey Searcy Eye Group

WHAT HAS OUR OCT BEEN DOING ?



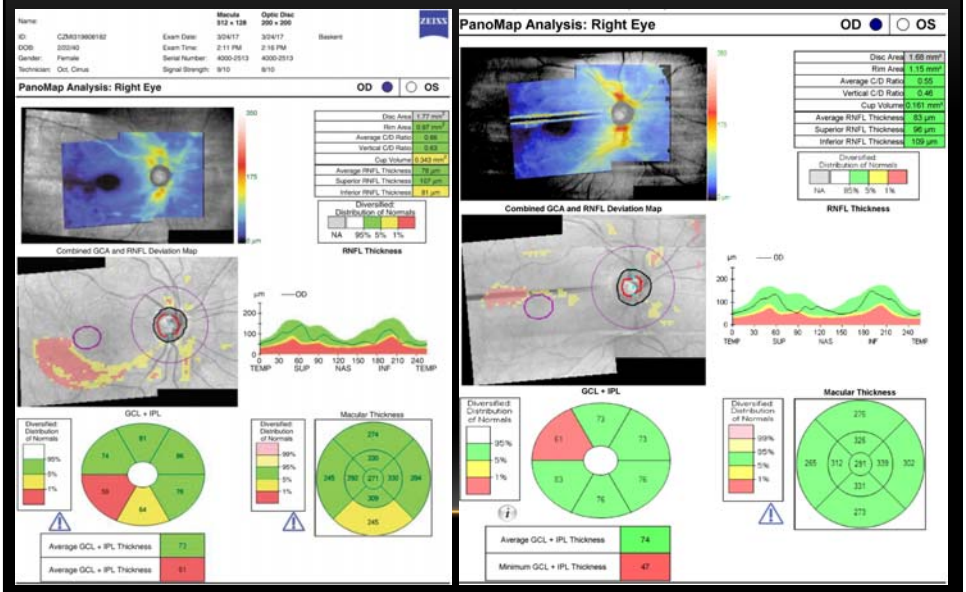
PanoMap Wide Field Analysis

- OPTIC NERVE and MACULA on 1 page per eye
- Two 6x6 cube scans at each location

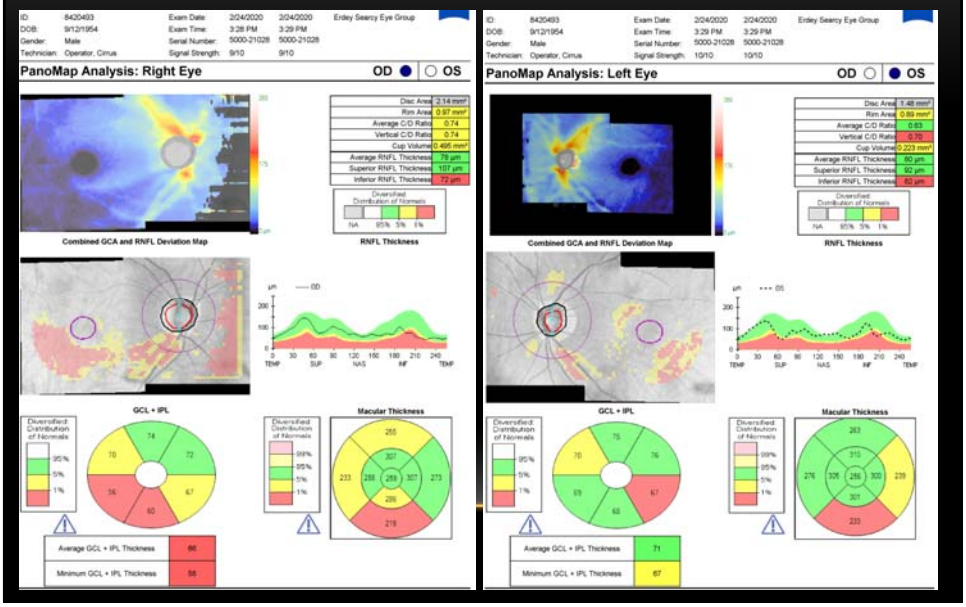
- MACULA = highest RGC density
- 50% total RGCs are within 16 degrees of umbo (which represents 7.3% total retina)

- Early glaucoma: VFI underestimates neural loss
- Visual Field Index Δ 0.3% = 100,000 RGCs

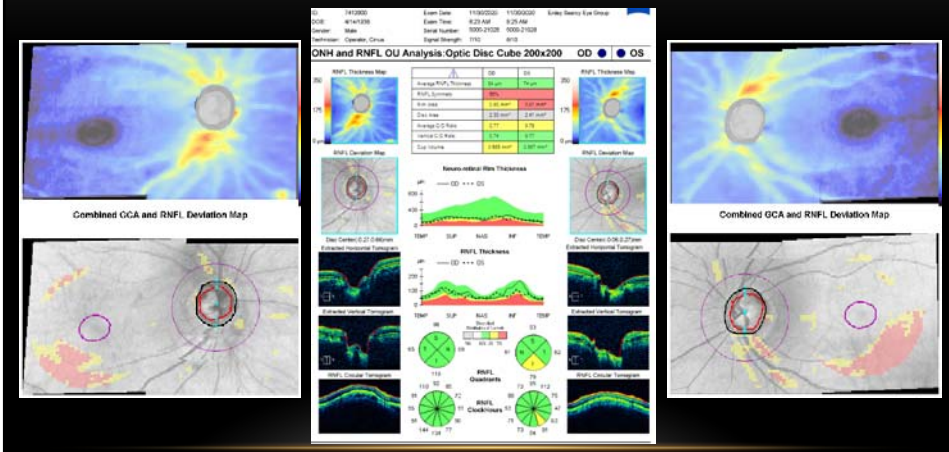
WHAT HAS OUR OCT BEEN DOING ?



WHAT HAS OUR OCT BEEN DOING ?



WHAT HAS OUR OCT BEEN DOING ?

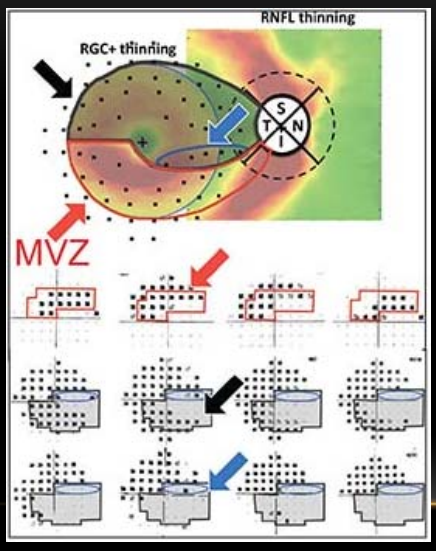


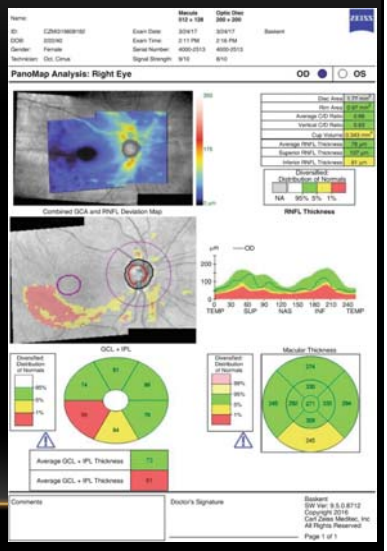
MACULAR VULNERABILITY ZONE

1st sensitive
27º wide
Inferotemporal

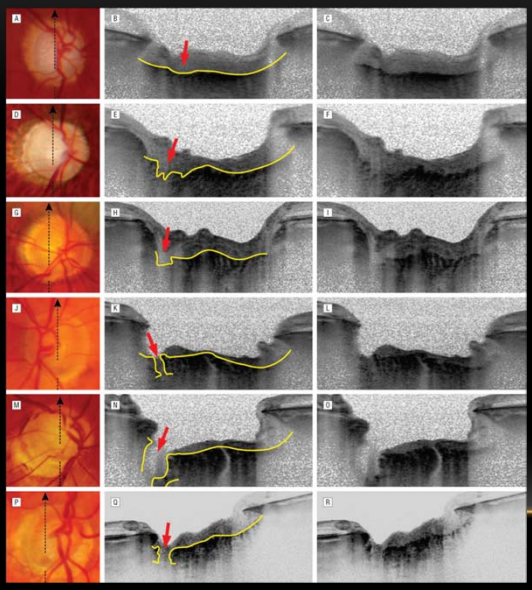
Maculopapular bundle resistant (acuity remains)

2nd sensitive
Superotemporal





RNFL DAMAGE TYPICAL FOR GLAUCOMA



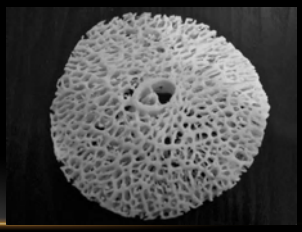
Lamina cribrosa

Inferotemporal region

= lower collagen density

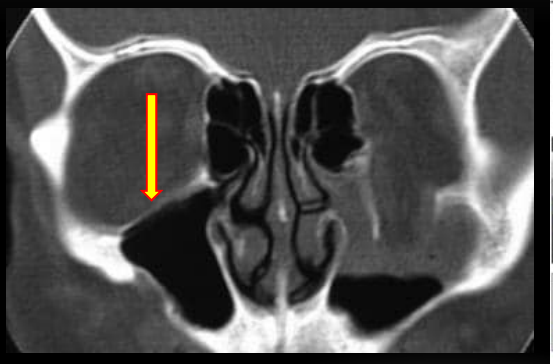
= ↑ pore : inter-pore CT ratio

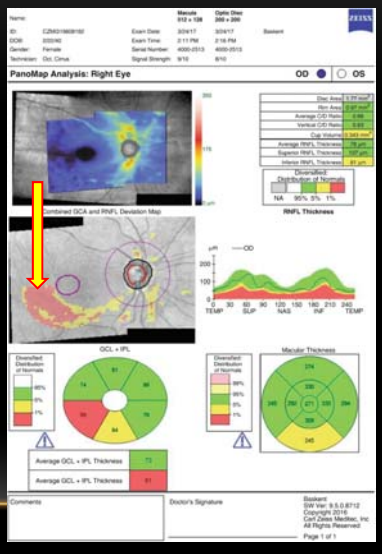
= weakest point (orbital floor fx)



[Brain Res Bull 2010;81(2-3):339-348]

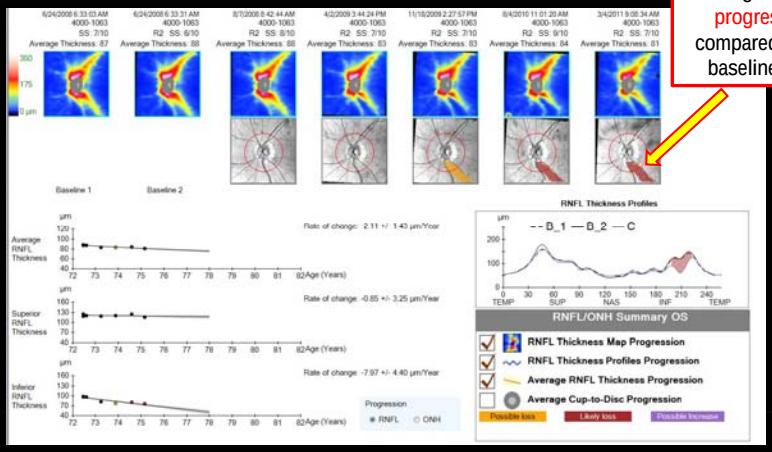
WHAT HAS OUR OCT BEEN DOING ?





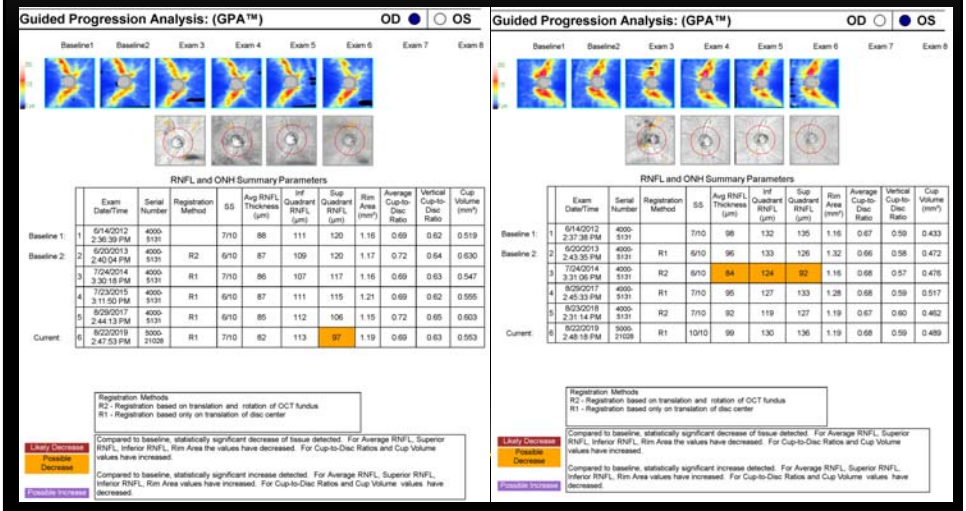
WHAT HAS OUR OCT BEEN DOING ?

Guided Progression Analysis for RNFL changes



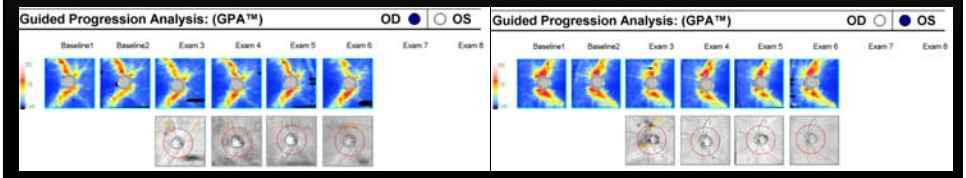
WHAT HAS OUR OCT BEEN DOING ?

Guided Progression Analysis for RNFL changes



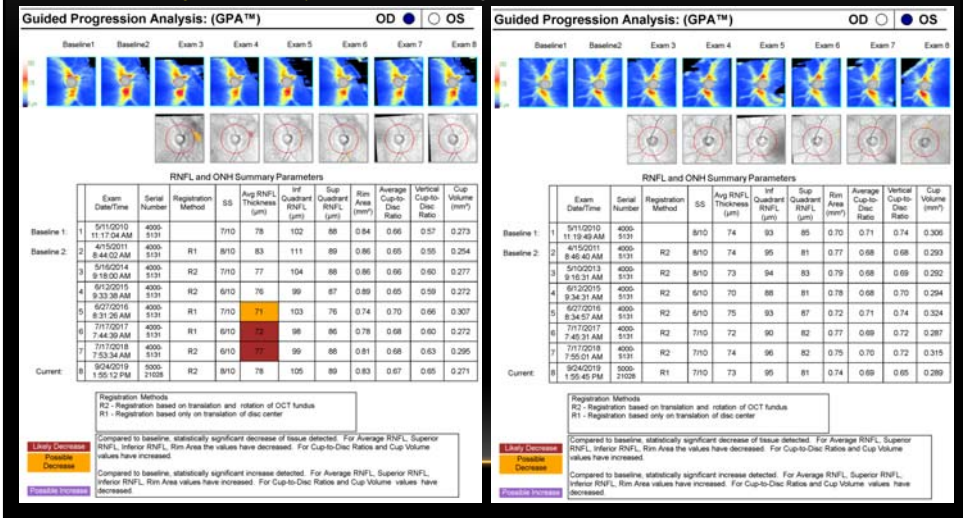
WHAT HAS OUR OCT BEEN DOING ?

Guided Progression Analysis for RNFL changes from baseline 06/2012



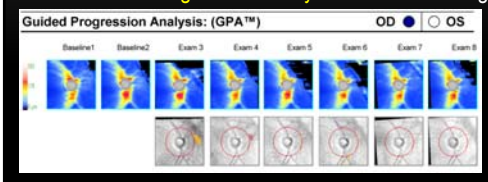
WHAT HAS OUR OCT BEEN DOING ?

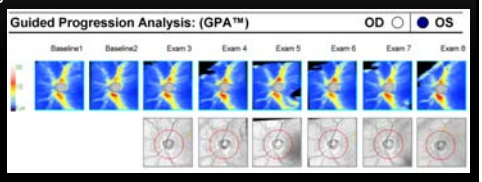
Guided Progression Analysis for RNFL changes



WHAT HAS OUR OCT BEEN DOING ?

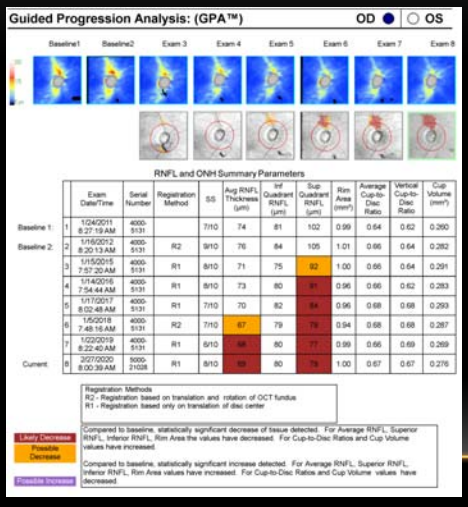
Guided Progression Analysis for RNFL changes from baseline 05/2010

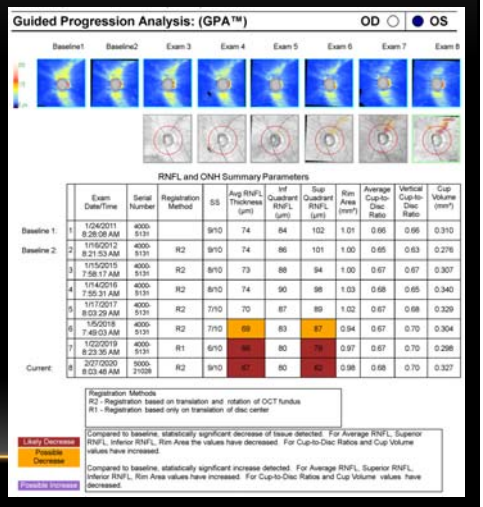




WHAT HAS OUR OCT BEEN DOING ?

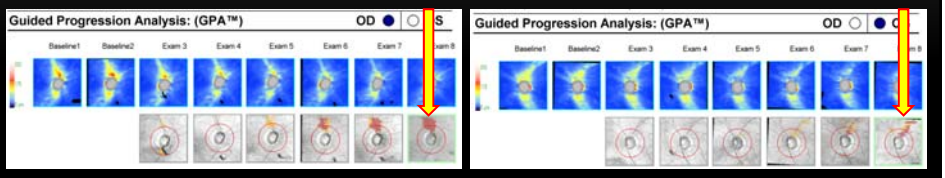
Guided Progression Analysis for RNFL changes





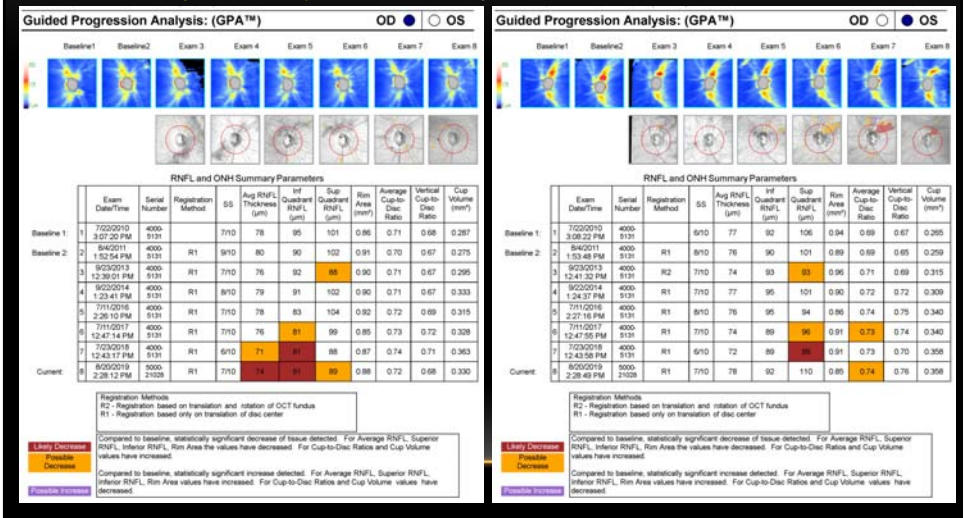
WHAT HAS OUR OCT BEEN DOING ?

Guided Progression Analysis for RNFL changes from baseline 01/2011



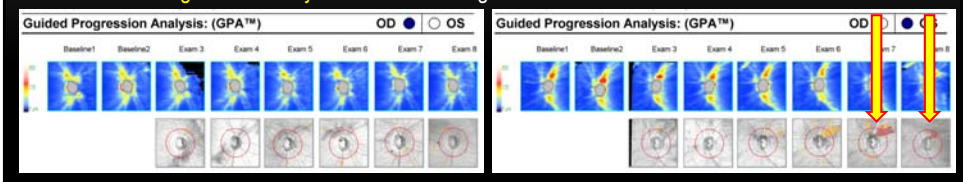
WHAT HAS OUR OCT BEEN DOING ?

Guided Progression Analysis for RNFL changes



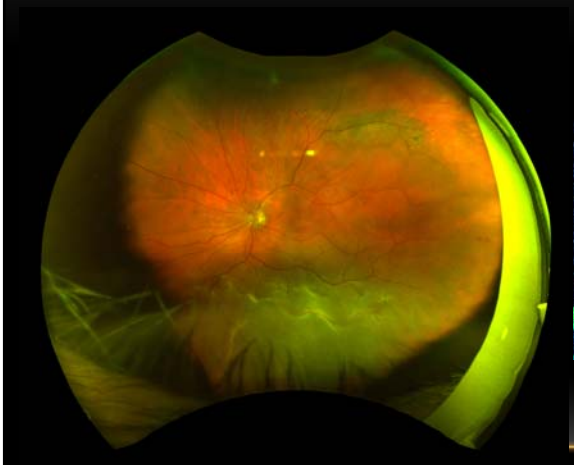
WHAT HAS OUR OCT BEEN DOING ?

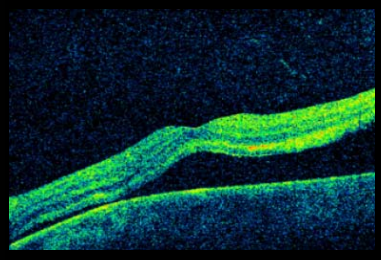
Guided Progression Analysis for RNFL changes from baseline 07/2010



WHAT HAS OUR OCT BEEN DOING ?

55 y male, K OS scratched by daughter 3 wks prior, still seem blurred OS (20/150)



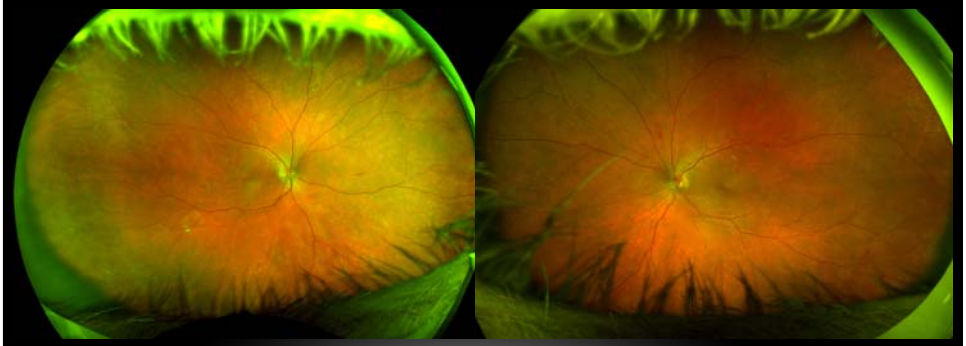


WHAT HAS OUR OCT BEEN DOING ?

52 y M with type 1 DM

20/20 UCDVA each eye, J1+ BCNVA each eye

Moderate NPDR both eyes

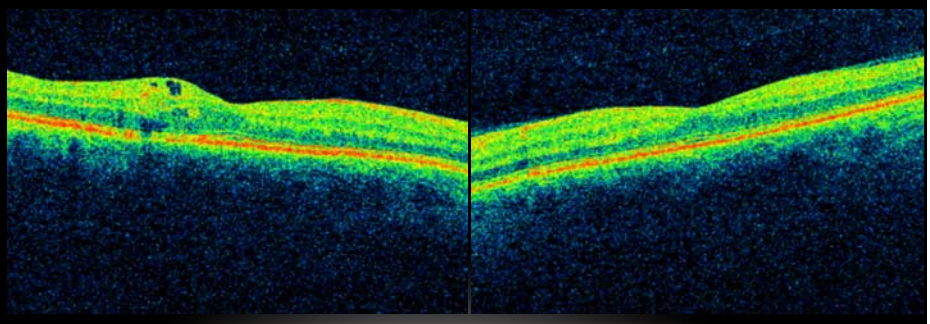


WHAT HAS OUR OCT BEEN DOING ?

52 y M with type 1 DM

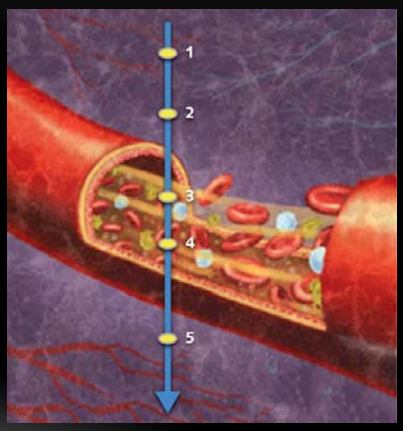
20/20 UCDVA each eye, J1+ BCNVA each eye

Moderate NPDR both eyes



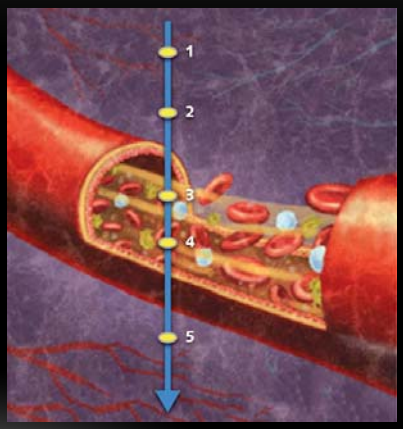
WHAT IS OCT ANGIOGRAPHY ?

- Introduced commercially in 2015
- Newer generation OCT machines
  Non-invasive visualization of microvascular blood flow
- Infrared laser acquires sequential (250+) OCTs, and any change between these scans = movement
- Blood flow = Variation between OCT signals
  - Structural tissue NOT MOVING (1, 2, 5)
  - Blood MOVING (3, 4)



WHAT IS OCT ANGIOGRAPHY ?

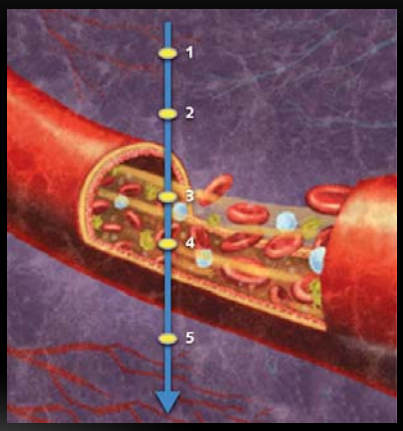
- Introduced commercially in 2015
- Newer generation OCT machines
  Non-invasive visualization of microvascular blood flow
- Infrared laser acquires sequential (250+) OCTs, and any change between these scans = movement
- 3-4 seconds per eye
- NO CONTRAST DYE (unlike FA and ICG)



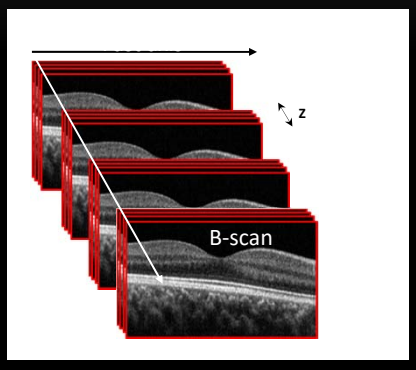
WHAT IS OCT ANGIOGRAPHY ?

- Introduced commercially in 2015
- Newer generation OCT machines
  Non-invasive visualization of microvascular blood flow
- Infrared laser acquires sequential (250+) OCTs, and any change between these scans = movement

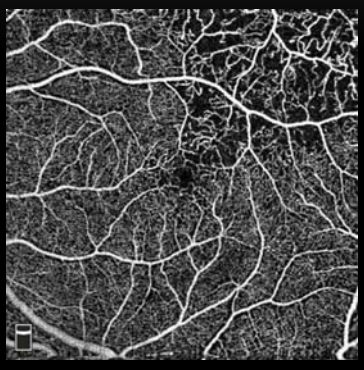
- OCT anatomical structure
- OCTA vascular structure



WHAT IS OCT ANGIOGRAPHY ?



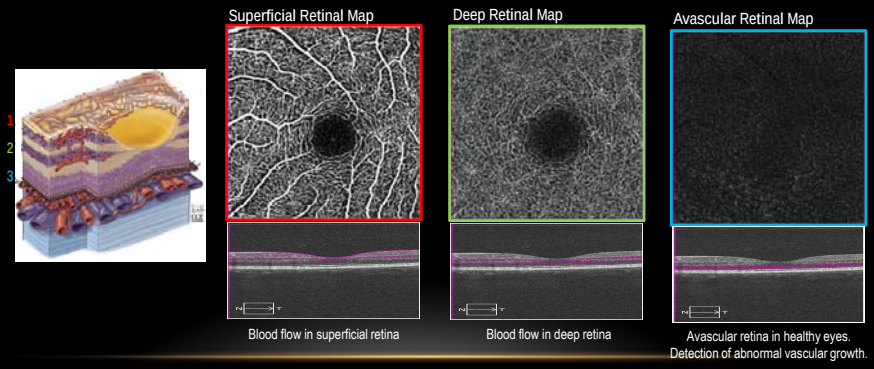
Motion of particles within sequential OCT B-scans performed repeatedly at the same retinal location



Software scans through the Z axis, reconstructing perfused retinal and choroidal microvasculature

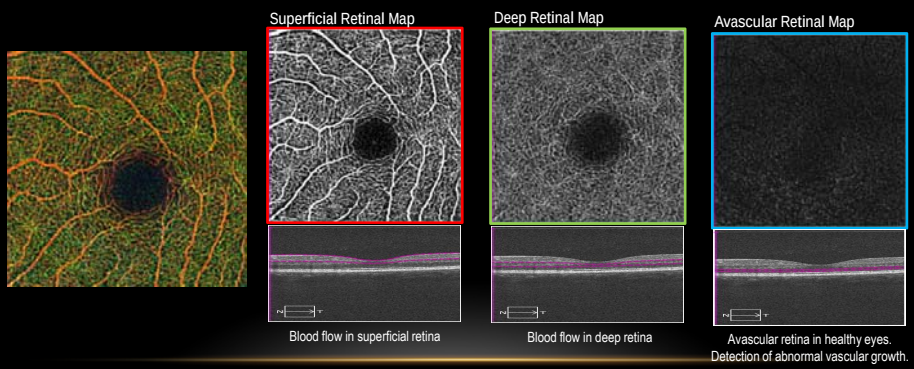
MAPS

OCTA is the collection of B-scans across a specific depth of retina
In OCTA, the slabs are positioned along interesting plexi of the retina

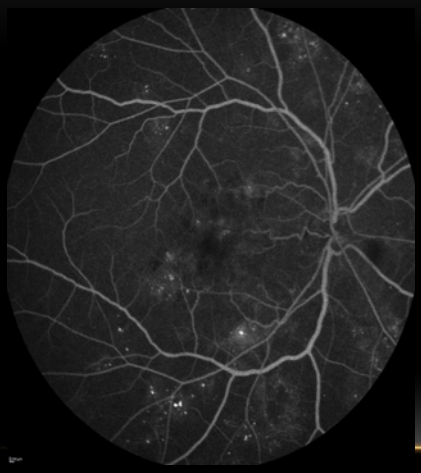


MAPS - COLOR DEPTH MAP

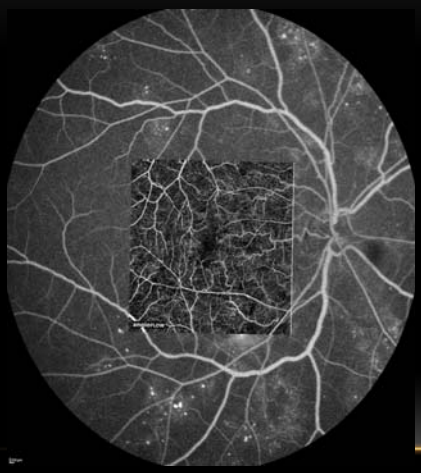
Inherent challenge = display 3D data in a 2D format
Color Depth Map combines superficial, deep and avascular retina maps



HIGH RESOLUTION



HIGH RESOLUTION



Visualize small changes in microvasculature

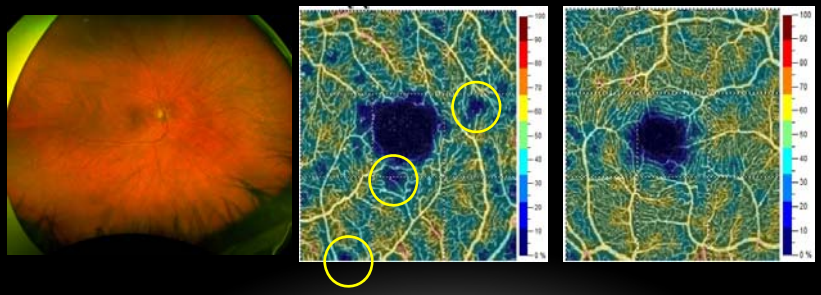
CLINICAL APPLICATIONS

- DR
- Macular telangiectasia
- ARMD
- Vascular abnormalities (CRVO, BRVO)
- Glaucoma

DIABETIC RETINOPATHY EARLY VASCULAR CHANGES

- Subclinical macular ischemia by OCTA identifiable BEFORE CLINICAL RETINOPATHY

"No DR" "No DR" Normal Eye



QUANTIFYING MICROVASCULAR CHANGES USING OCT ANGIOGRAPHY IN DIABETIC EYES WITHOUT CLINICAL EVIDENCE OF RETINOPATHY. OPHTHALMOLOGY RETINA. (10.1016/J.ORET.2017.09.011)

DIABETIC RETINOPATHY
EARLY VASCULAR CHANGES

- CAPILLARY PERFUSION DENSITY in diabetics with and without visible retinopathy

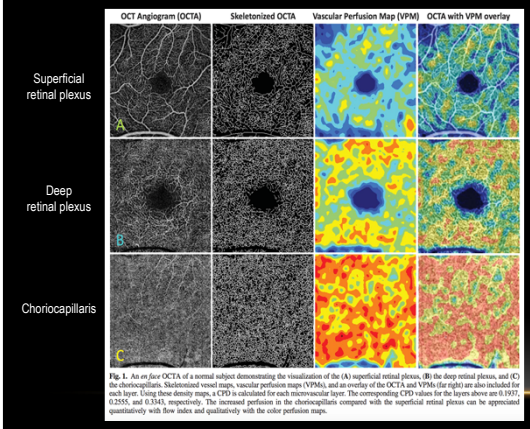
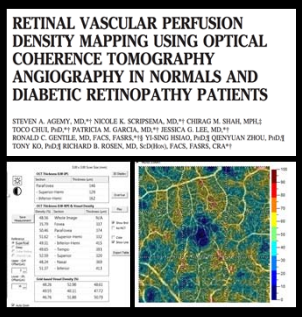


Fig. 1. An *en face* OCTA of a normal subject demonstrating the visualization of the (**A**) superficial retinal plexus, (**B**) the deep retinal plexus, and (**C**) the choriocapillaris. Skeletonized vessel maps, vascular perfusion maps (VPMs), and an overlay of the OCTA and VPMs (far right) are also included for each layer. Using these density maps, a CPD is calculated for each microvascular layer. The corresponding CPD values for the layers above are 0.1937, 0.2555, and 0.3343, respectively. The increased perfusion in the choriocapillaris compared with the superficial retinal plexus can be appreciated quantitatively with flow index and qualitatively with the color perfusion maps.



RETINAL VASCULAR PERFUSION DENSITY MAPPING USING OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY IN NORMALS AND DIABETIC RETINOPATHY PATIENTS

STEVEN A. AGEMY, MD,*† NICOLE K. SCRIPSEMA, MD,*† CHIRAG M. SHAH, MPH,‡ TOCO CHUI, PhD,*† PATRICIA M. GARCIA, MD,*† JESSICA G. LEE, MD,*† RONALD C. GENTILE, MD, FACS, FASRS,*†§ YI-SING HSIAO, PhD,‖ QIENYUAN ZHOU, PhD,‖ TONY KO, PhD,‖ RICHARD B. ROSEN, MD, SciD(Hon), FACS, FASRS, CRA*†

21 control eyes compared to 56 diabetic eyes

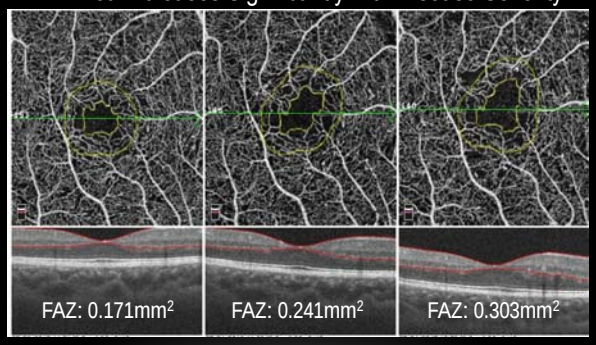
CPD was significantly lower in nearly all layers of all diabetic patients compared to controls

QUANTIFYING MICROVASCULAR CHANGES USING OCT ANGIOGRAPHY IN DIABETIC EYES WITHOUT CLINICAL EVIDENCE OF RETINOPATHY. OPHTHALMOLOGY RETINA. (10.1016/J.ORET.2017.09.011)

DIABETIC RETINOPATHY
EARLY VASCULAR CHANGES

- Assess disease progression

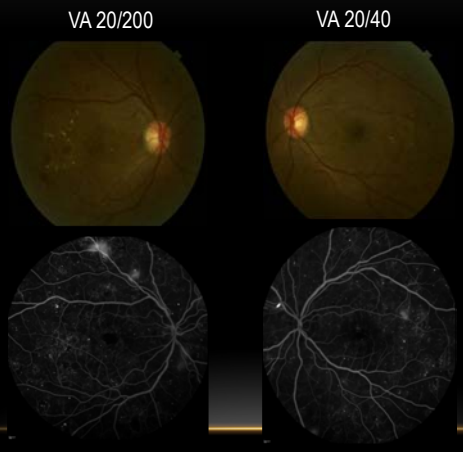
FAZ Area Increases Significantly with Disease Severity



QUANTIFYING MICROVASCULAR ABNORMALITIES WITH INCREASING SEVERITY OF DIABETIC RETINOPATHY USING OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY. INVESTIGATIVE OPHTHALMOLOGY & VISUAL SCIENCE. 2017;58(6):BIO307-BIO315. DOI:10.1167/IOVS.17-21787.

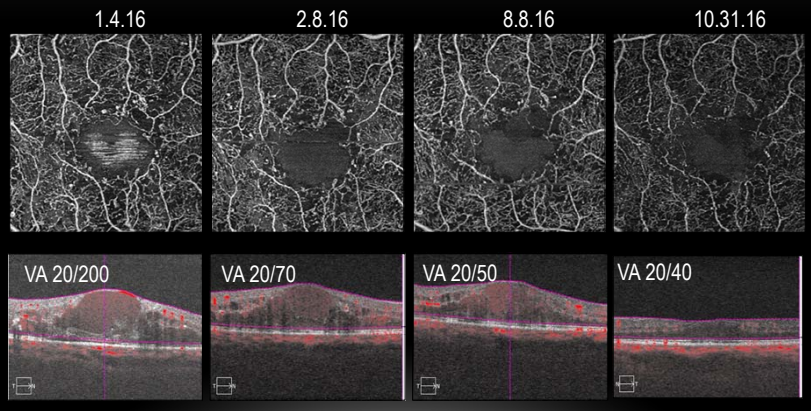
DIABETIC RETINOPATHY MACULAR ISCHEMIA

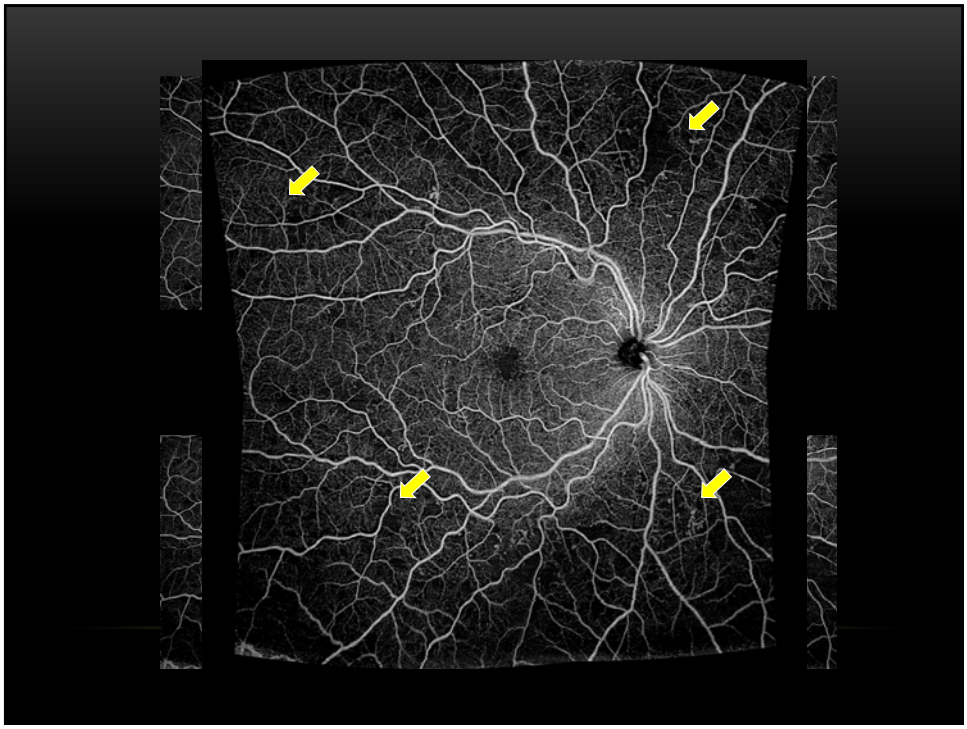
- Case 1: 38 y DM2



DIABETIC RETINOPATHY MACULAR ISCHEMIA

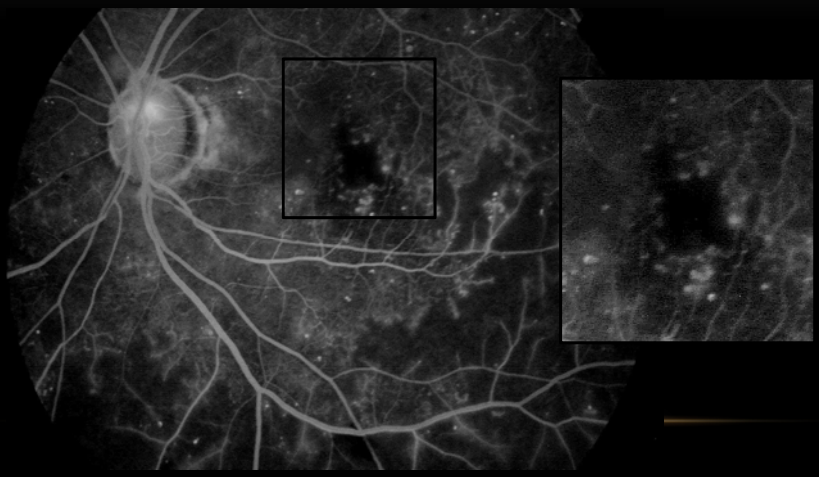
- Case 1: 38 y DM2





DIABETIC RETINOPATHY
MACULAR ISCHEMIA

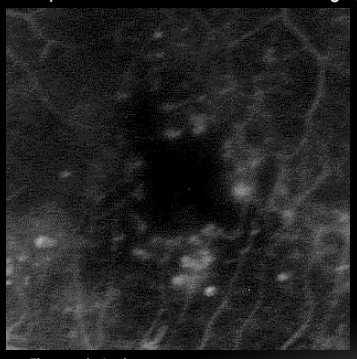
- Case 2: 57 y DM2 FA early phase



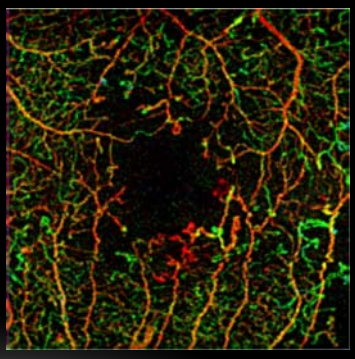
DIABETIC RETINOPATHY MACULAR ISCHEMIA

- Case 2: 57 y DM2

Comparison between Fluorescein Angiography and OCTA



Fluorescein Angiogram
00:37

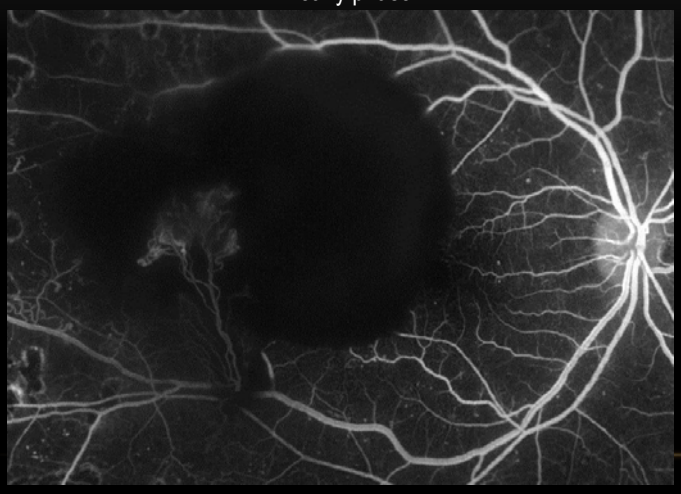


OCTA
Color Depth Retina

PROLIFERATIVE DIABETIC RETINOPATHY

- Case 3: 37 y DM1

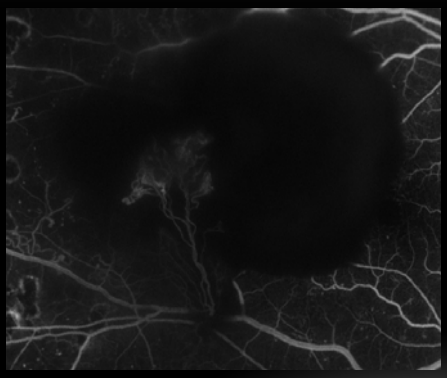
FA early phase



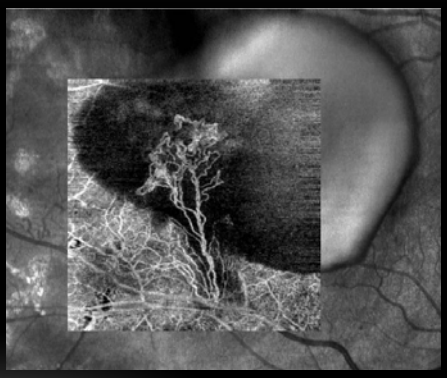
PROLIFERATIVE DIABETIC RETINOPATHY

- Case 3: 37 y DM1

Comparison between Fluorescein Angiography and OCTA



Fluorescein Angiogram
00:34



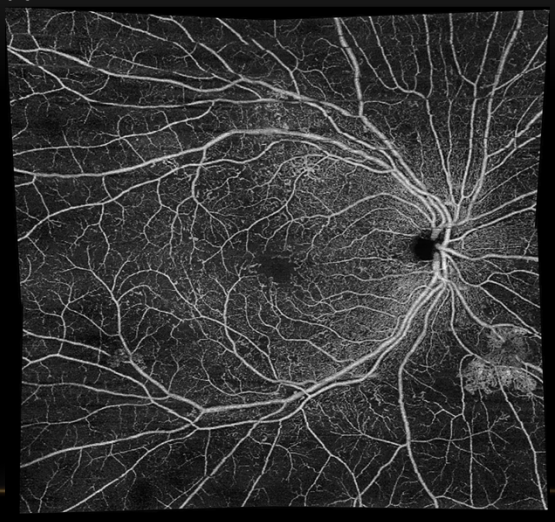
Map overlay on OCT Fundus LSO Full Retina

PROLIFERATIVE DIABETIC RETINOPATHY

- Case 4: 37 y male DM2

Montage 8x8 scan captures vascular abnormalities within the complete 14x14mm area

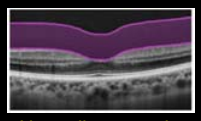
PDR with areas of ischemia and NVE



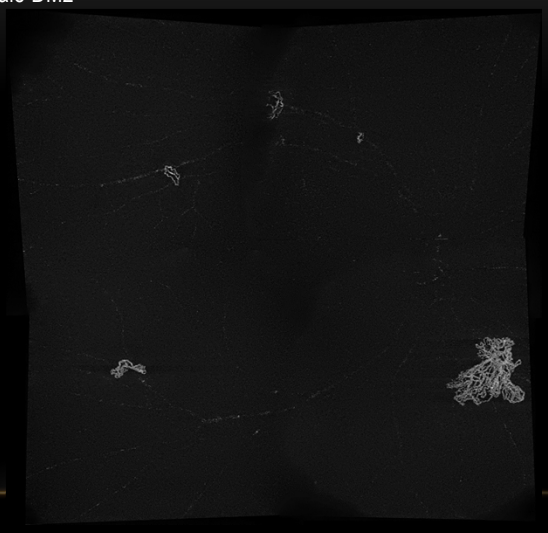
PROLIFERATIVE DIABETIC RETINOPATHY

- Case 4: 37 y male DM2

VRI slab isolates multiple areas of preretinal NVE



Normally avascular

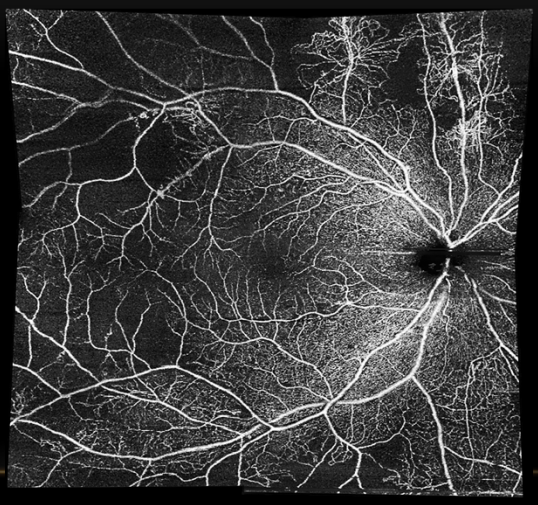


41

PROLIFERATIVE DIABETIC RETINOPATHY

- Case 5: 45 y male DM2

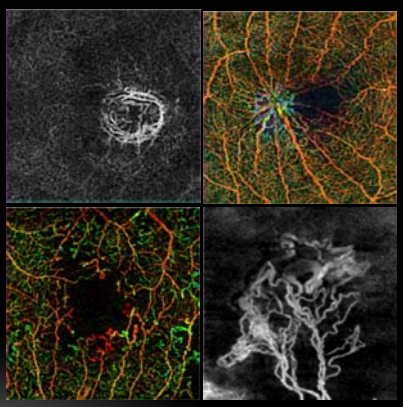
PDR with large areas of ischemia and NVE



42

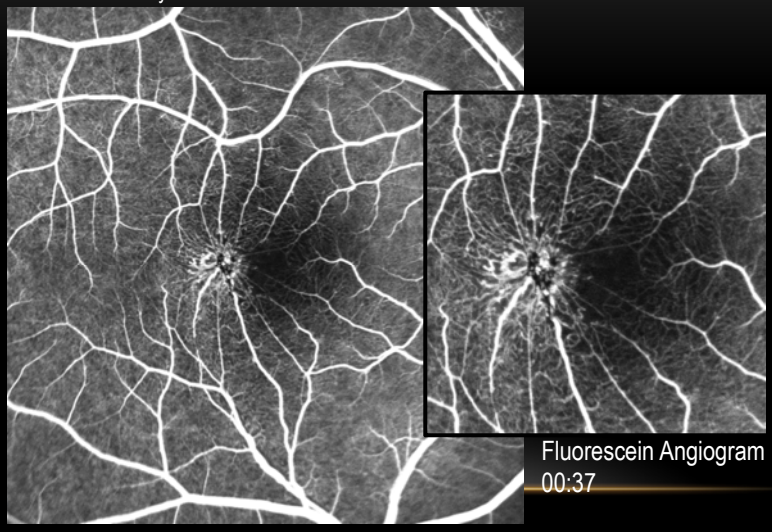
CLINICAL APPLICATIONS

- DR
- Macular telangiectasia
- ARMD
- Vascular abnormalities (CRVO, BRVO)
- Glaucoma



TYPE 2 MACULAR TELANGIECTASIA

- Case 6: 56 y female

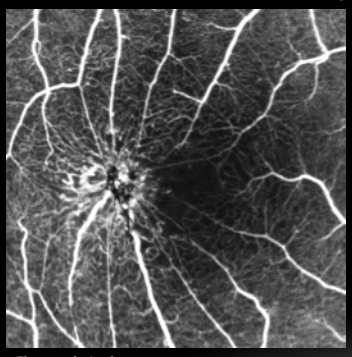


Fluorescein Angiogram
00:37

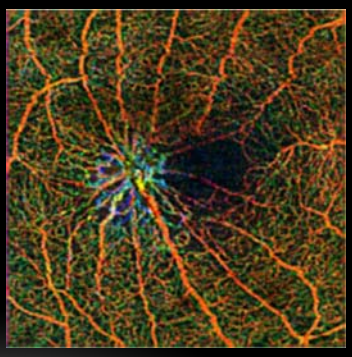
TYPE 2 MACULAR TELANGIECTASIA

- Case 6: 56 y female

Comparison between Fluorescein Angiography and OCTA



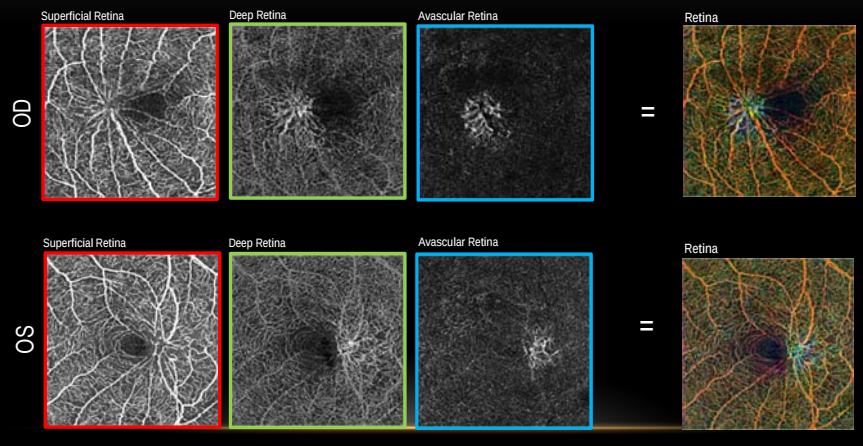
Fluorescein Angiogram
00:37



OCTA
Color Depth Retina

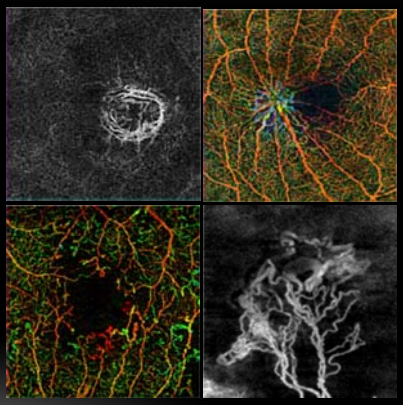
TYPE 2 MACULAR TELANGIECTASIA

- Case 6: 56 y female



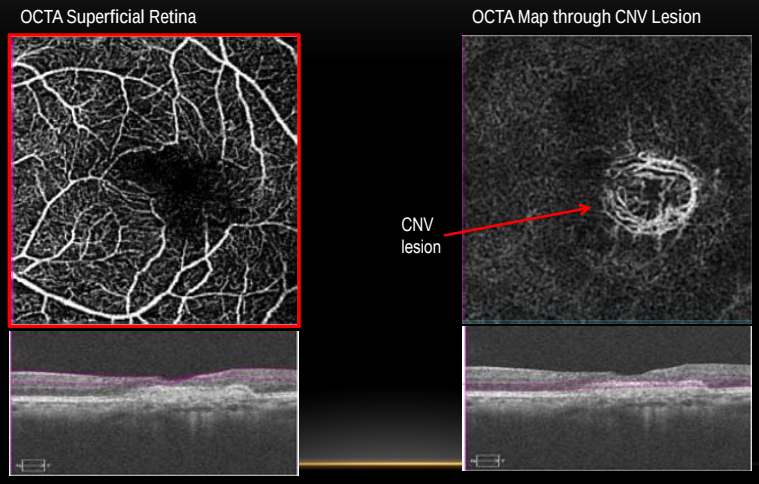
CLINICAL APPLICATIONS

- DR
- Macular telangiectasia
- ARMD
- Vascular abnormalities (CRVO, BRVO)
- Glaucoma



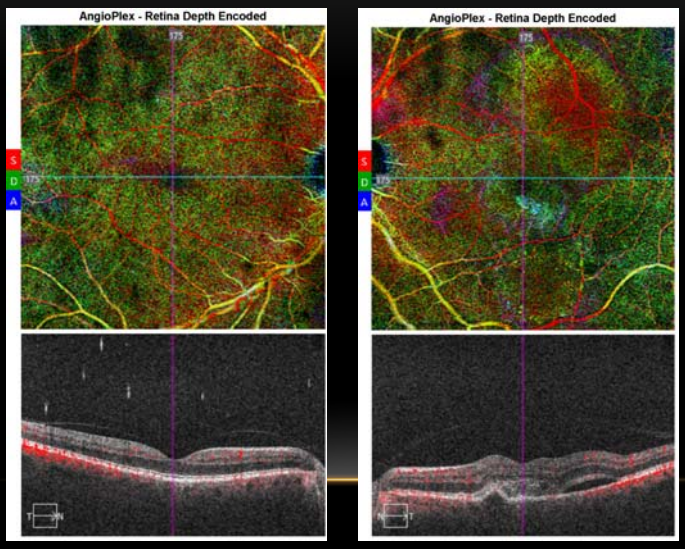
WET MACULAR DEGENERATION

- Case 7: 64 y male



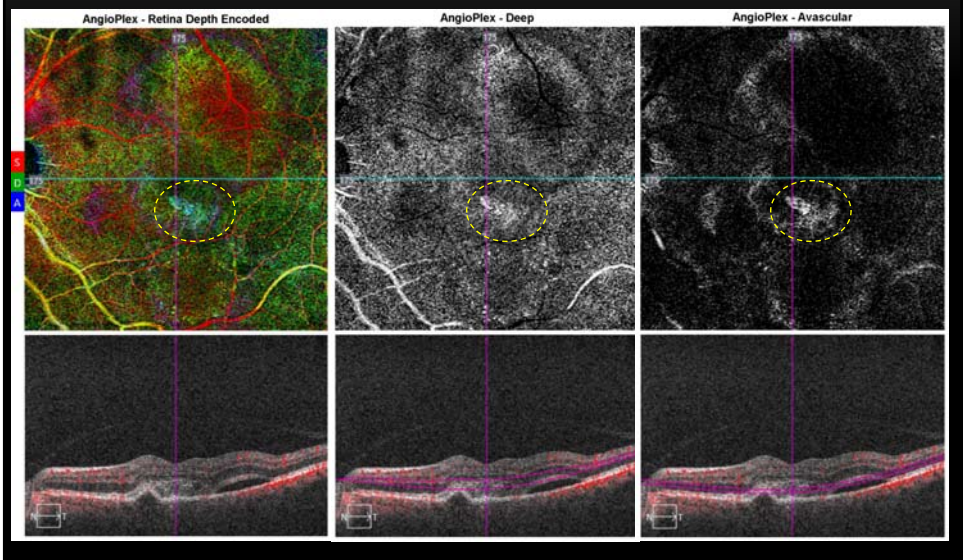
WET MACULAR DEGENERATION

- Case 8: 83 yo M, last exam 7/05/2013, seen 9/19/2019 for 3 weeks of distortion OS



WET MACULAR DEGENERATION

- Case 8: 83 yo M, last exam 7/05/2013, seen 9/19/2019 for 3 weeks of distortion OS



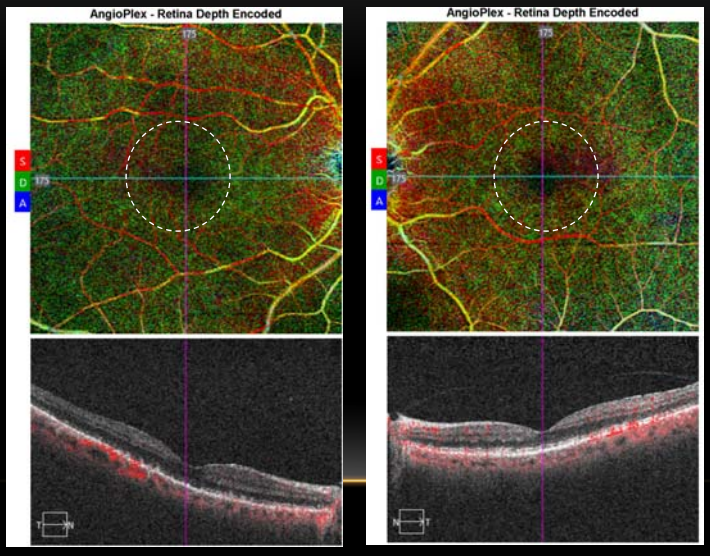
WET MACULAR DEGENERATION

- Case 9: 80 yo F, worse vision both eyes over past 3 years

Date	SC	.	CC	.	PH	.	SC	.	SC	.	CC	.	PH	.	SC	.	CC	.	PH	.
09/24/2019			20/150														20/50	+2		
01/08/2018			20/100	-1	20/40						J5	+2					20/40	+2	20/30	-1
11/28/2016			20/60	+1	20/30	-1					J2	+2					20/25			
11/23/2015			20/40								J1						20/40			

WET MACULAR DEGENERATION

- Case 9: 80 yo F, worse vision both eyes over past 3 years, but still dry OU



NEOVASCULAR "DRY" MACULAR DEGENERATION

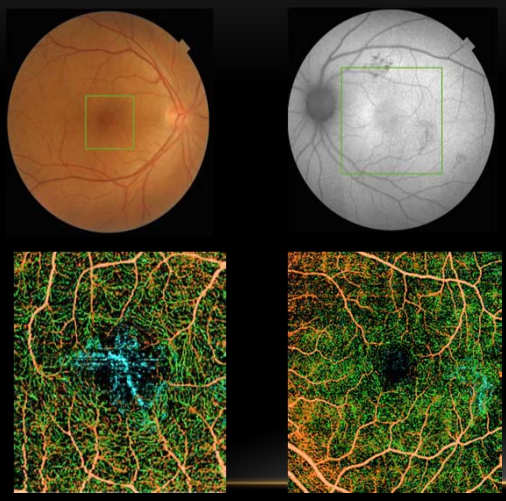
- Case 10: 58 y Asian male followed for dry ARMD

OD 20/50

OS 20/70+2

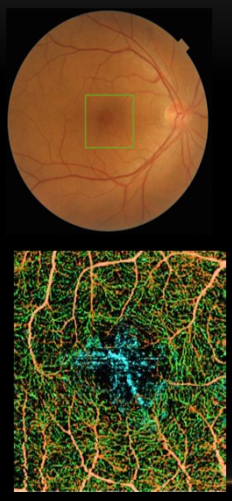
NEOVASCULAR "DRY" MACULAR DEGENERATION

- Case 10: 58 y Asian male followed for dry ARMD



OD *Depth-encoded OCTA* OS

NEOVASCULAR "DRY" MACULAR DEGENERATION

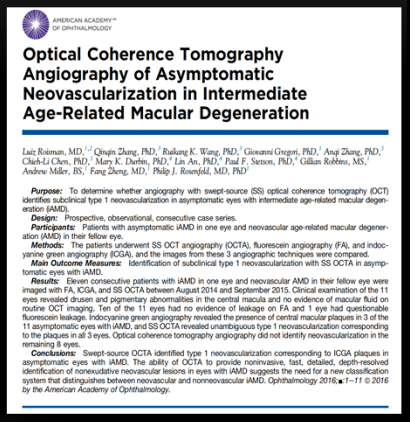


11 consecutive patients
August 2014 to September 2015

Asymptomatic iARMD one eye
History wet ARMD fellow eye

All imaged FA, ICG and OCTA
All eyes: No OCT macular leakage

10/11: No leakage by FA
(one questionable FA leakage)



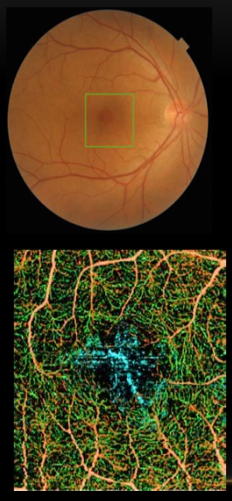
AMERICAN ACADEMY OF OPHTHALMOLOGY

Optical Coherence Tomography Angiography of Asymptomatic Neovascularization in Intermediate Age-Related Macular Degeneration

Luiz Roisman, MD,[1,2] Qinqin Zhang, PhD,[3] Ruikang K. Wang, PhD,[3] Giovanni Gregori, PhD,[1] Anqi Zhang, PhD,[3] Chieh-Li Chen, PhD,[1] Mary K. Durbin, PhD,[4] Lin An, PhD,[4] Paul F. Stetson, PhD,[4] Gillian Robbins, MS,[1] Andrew Miller, BS,[1] Fang Zheng, MD,[1] Philip J. Rosenfeld, MD, PhD[1]

Purpose: To determine whether angiography with swept-source (SS) optical coherence tomography (OCT) identifies subclinical type 1 neovascularization in asymptomatic eyes with intermediate age-related macular degeneration (iAMD).
Design: Prospective, observational, consecutive case series.
Participants: Patients with asymptomatic iAMD in one eye and neovascular age-related macular degeneration (AMD) in their fellow eye.
Methods: The patients underwent SS OCT angiography (OCTA), fluorescein angiography (FA), and indocyanine green angiography (ICGA), and the images from these 3 angiographic techniques were compared.
Main Outcome Measures: Identification of subclinical type 1 neovascularization with SS OCTA in asymptomatic eyes with iAMD.
Results: Eleven consecutive patients with iAMD in one eye and neovascular AMD in their fellow eye were imaged with FA, ICGA, and SS OCTA between August 2014 and September 2015. Clinical examination of the 11 eyes revealed drusen and pigmentary abnormalities in the central macula and no evidence of macular fluid on routine OCT imaging. Ten of the 11 eyes had no evidence of leakage on FA and 1 eye had questionable fluorescein leakage. Indocyanine green angiography revealed the presence of central macular plaques in 3 of the 11 asymptomatic eyes with iAMD, and SS OCTA revealed unambiguous type 1 neovascularization corresponding to the plaques in all 3 eyes. Optical coherence tomography angiography did not identify neovascularization in the remaining 8 eyes.
Conclusions: Swept-source OCTA identified type 1 neovascularization corresponding to ICGA plaques in asymptomatic eyes with iAMD. The ability of OCTA to provide noninvasive, fast, detailed, depth-resolved identification of nonexudative neovascular lesions in eyes with iAMD suggests the need for a new classification system that distinguishes between neovascular and nonneovascular iAMD. *Ophthalmology 2016;■:1–11 © 2016 by the American Academy of Ophthalmology.*

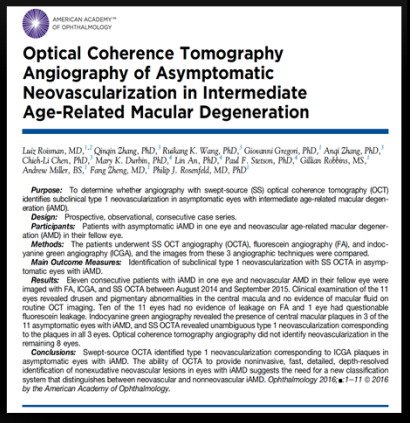
NEOVASCULAR "DRY" MACULAR DEGENERATION



11 consecutive patients
August 2014 to September 2015

Asymptomatic iARMD one eye
History wet ARMD fellow eye

Subclinical net by OCT-A
= 27.3% (3/11)



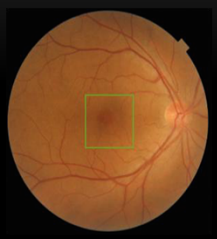
AMERICAN ACADEMY OF OPHTHALMOLOGY

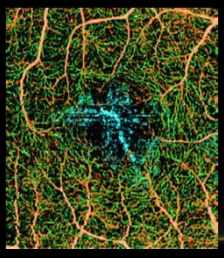
Optical Coherence Tomography Angiography of Asymptomatic Neovascularization in Intermediate Age-Related Macular Degeneration

Luiz Roisman, MD,[1,2] Qinqin Zhang, PhD,[3] Ruikang K. Wang, PhD,[3] Giovanni Gregori, PhD,[1] Anqi Zhang, PhD,[3] Chieh-Li Chen, PhD,[1] Mary K. Durbin, PhD,[4] Lin An, PhD,[4] Paul F. Stetson, PhD,[4] Gillian Robbins, MS,[1] Andrew Miller, BS,[1] Fang Zheng, MD,[1] Philip J. Rosenfeld, MD, PhD[1]

Purpose: To determine whether angiography with swept-source (SS) optical coherence tomography (OCT) identifies subclinical type 1 neovascularization in asymptomatic eyes with intermediate age-related macular degeneration (iAMD).
Design: Prospective, observational, consecutive case series.
Participants: Patients with asymptomatic iAMD in one eye and neovascular age-related macular degeneration (AMD) in their fellow eye.
Methods: The patients underwent SS OCT angiography (OCTA), fluorescein angiography (FA), and indocyanine green angiography (ICGA), and the images from these 3 angiographic techniques were compared.
Main Outcome Measures: Identification of subclinical type 1 neovascularization with SS OCTA in asymptomatic eyes with iAMD.
Results: Eleven consecutive patients with iAMD in one eye and neovascular AMD in their fellow eye were imaged with FA, ICGA, and SS OCTA between August 2014 and September 2015. Clinical examination of the 11 eyes revealed drusen and pigmentary abnormalities in the central macula and no evidence of macular fluid on routine OCT imaging. Ten of the 11 eyes had no evidence of leakage on FA and 1 eye had questionable fluorescein leakage. Indocyanine green angiography revealed the presence of central macular plaques in 3 of the 11 asymptomatic eyes with iAMD, and SS OCTA revealed unambiguous type 1 neovascularization corresponding to the plaques in all 3 eyes. Optical coherence tomography angiography did not identify neovascularization in the remaining 8 eyes.
Conclusions: Swept-source OCTA identified type 1 neovascularization corresponding to ICGA plaques in asymptomatic eyes with iAMD. The ability of OCTA to provide noninvasive, fast, detailed, depth-resolved identification of nonexudative neovascular lesions in eyes with iAMD suggests the need for a new classification system that distinguishes between neovascular and nonneovascular iAMD. *Ophthalmology 2016;■:1–11 © 2016 by the American Academy of Ophthalmology.*

NEOVASCULAR "DRY" MACULAR DEGENERATION





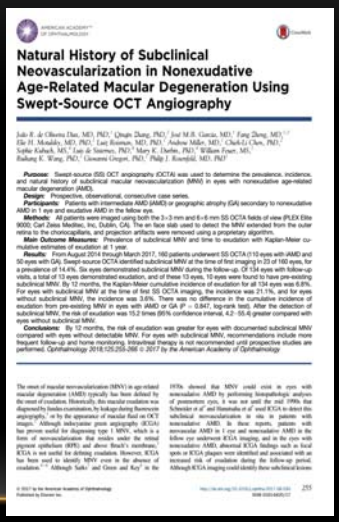
160 consecutive patients
August 2014 through March 2017

iARMD (110) or geographic dry atrophy (50) one eye, history wet ARMD fellow eye

Subclinical net by OCT-A
= 18.1% (29/160)

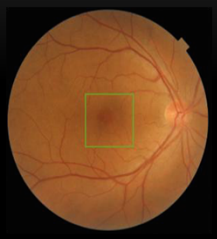
1st OCTA imaging
Subclinical net 14.4% (23/160)

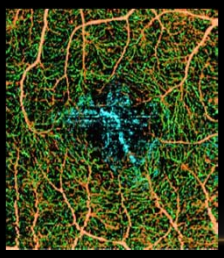
2nd OCTA imaging (one year later)
Subclinical net 3.7% (6/160)



Natural History of Subclinical Neovascularization in Nonexudative Age-Related Macular Degeneration Using Swept-Source OCT Angiography

NEOVASCULAR "DRY" MACULAR DEGENERATION





160 consecutive patients
August 2014 through March 2017

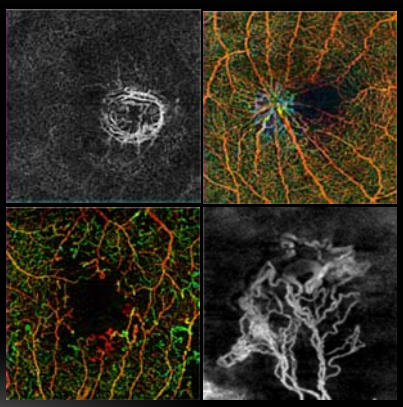
iARMD (110) or geographic dry atrophy (50) one eye, history wet ARMD fellow eye

Subclinical net by OCT-A
= 18.1% (29/160)

** Annual OCT-Angiography **
iARMD+ (history wet ARMD other eye)
= 18% chance of ASYMPTOMATIC net

CLINICAL APPLICATIONS

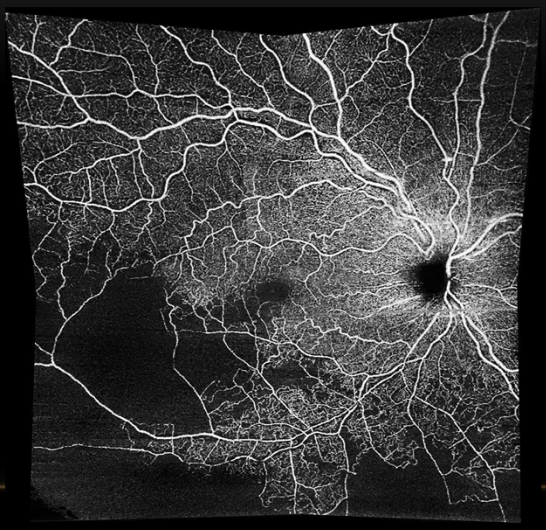
- DR
- Macular telangiectasia
- ARMD
- Vascular abnormalities (CRVO, BRVO)
- Glaucoma



BRANCH RETINAL VEIN OCCLUSION

- Case 11: 53 y female

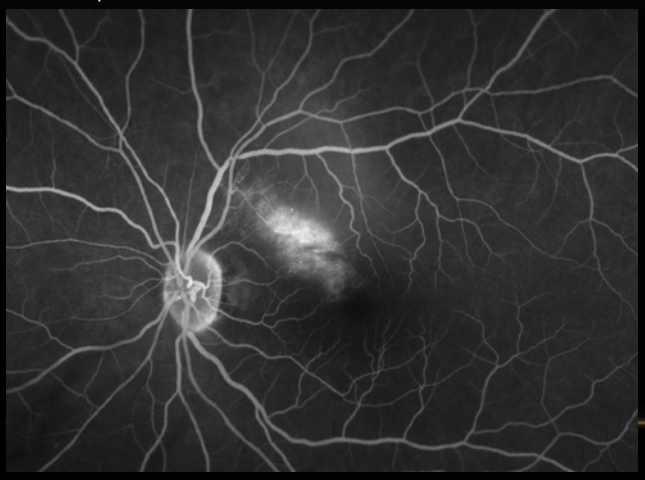
BRVO showing large areas of ischemia with collateral vessels



BRANCH RETINAL VEIN OCCLUSION

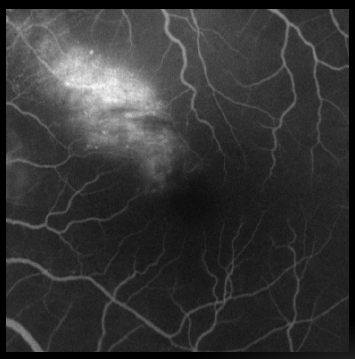
- Case 12: 44 y female

FA late phase

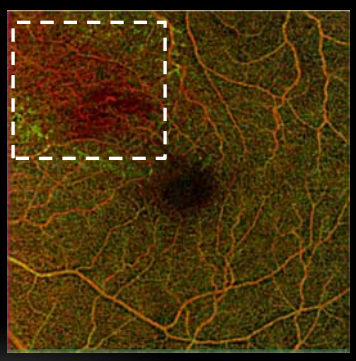


BRANCH RETINAL VEIN OCCLUSION

- Case 12: 44 y female



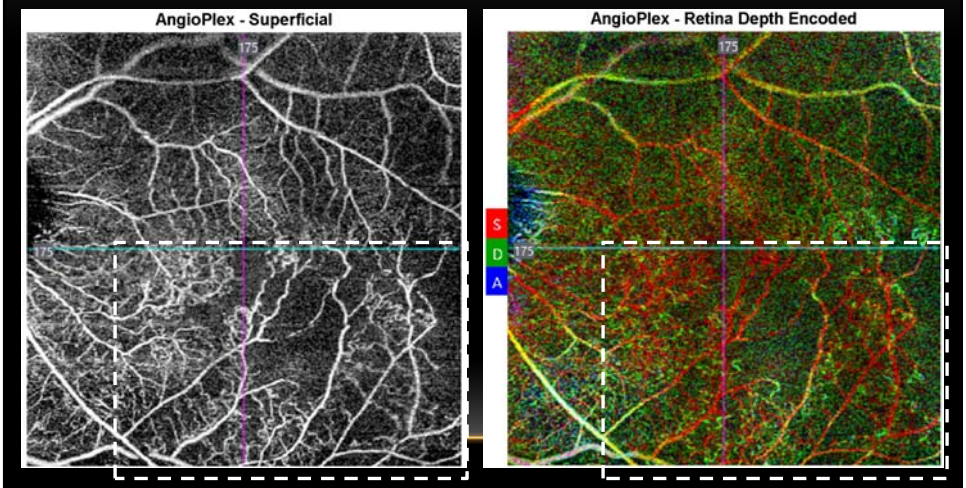
Fluorescein Angiogram
10 mins



OCTA
Color Depth Retina

BRANCH RETINAL VEIN OCCLUSION

- Case 13: 68 y male, BRVO OS x 1 year (s/p anti-VEGF x 6) = 20/60 J5 OS



BRANCH RETINAL ARTERY OCCLUSION

- Case 14: 60 y M, 6 week “blind spot” vision OS

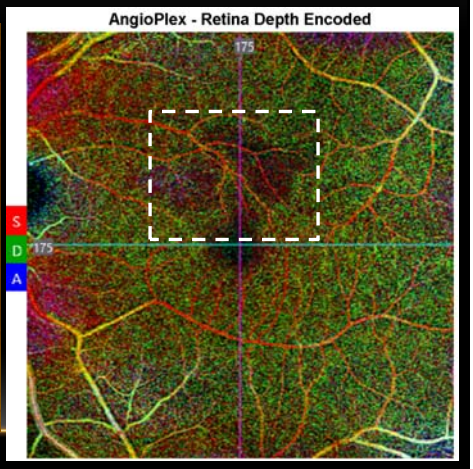
  Hollenhorst plaque

BRANCH RETINAL ARTERY OCCLUSION

- Case 14: 60 y M, 6 week "blind spot" vision OS

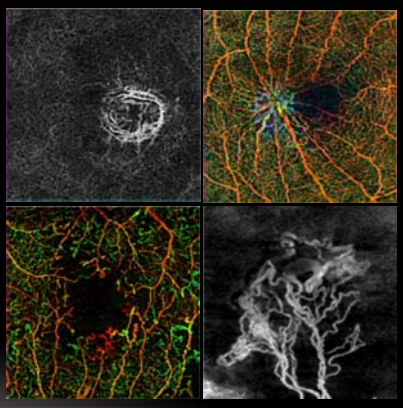
Hollenhorst plaque

branch macular artery occlusion



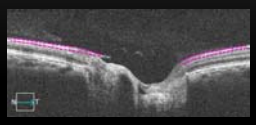
CLINICAL APPLICATIONS

- DR
- Macular telangiectasia
- ARMD
- Vascular abnormalities (CRVO, BRVO)
- Glaucoma

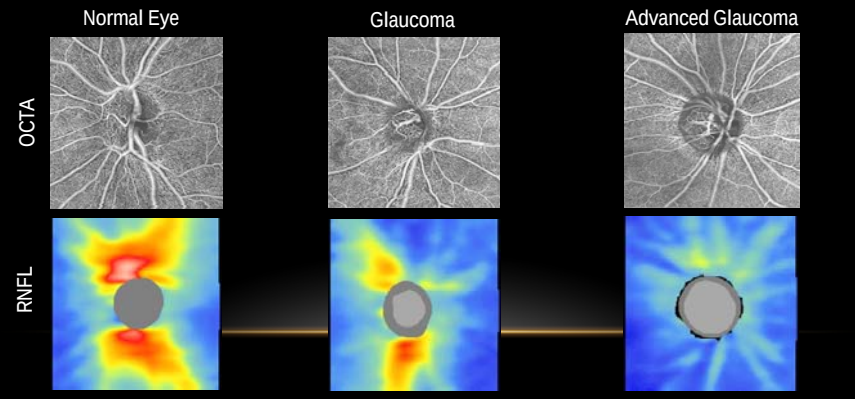


OCTA VISUALIZATION OF ONH PERFUSION

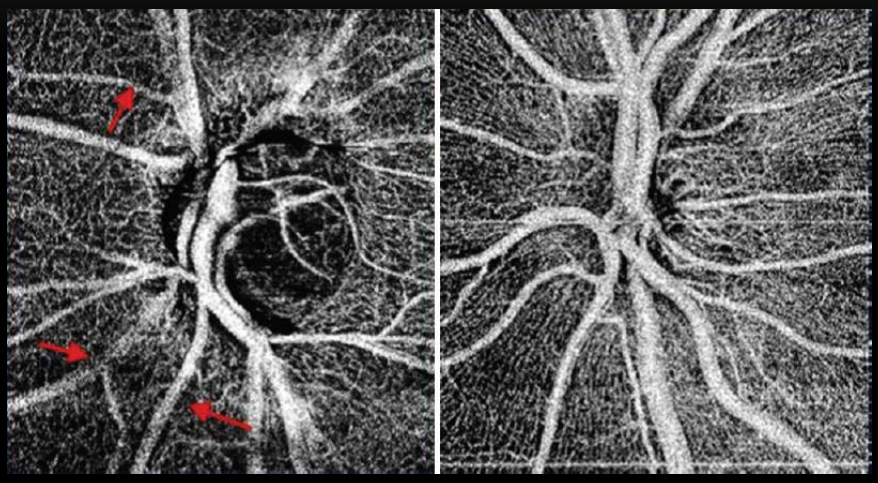
OCT-A of optic nerve (4.5 x 4.5 mm)



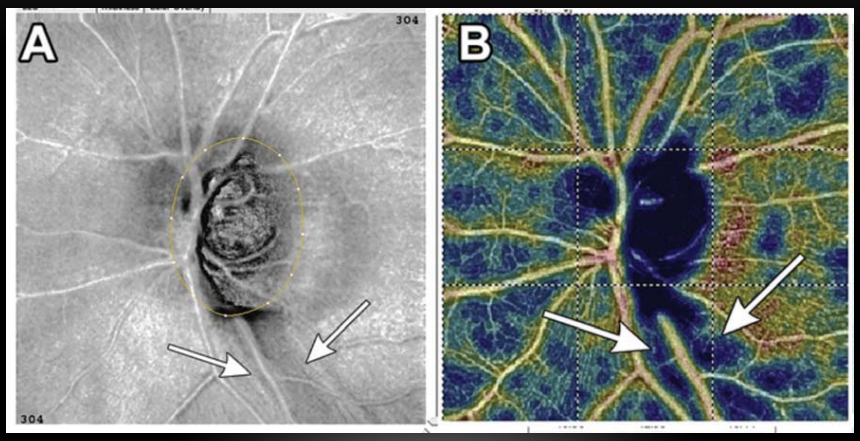
Radial Peripapillary Capillary Network supplies parapapillary RNFL



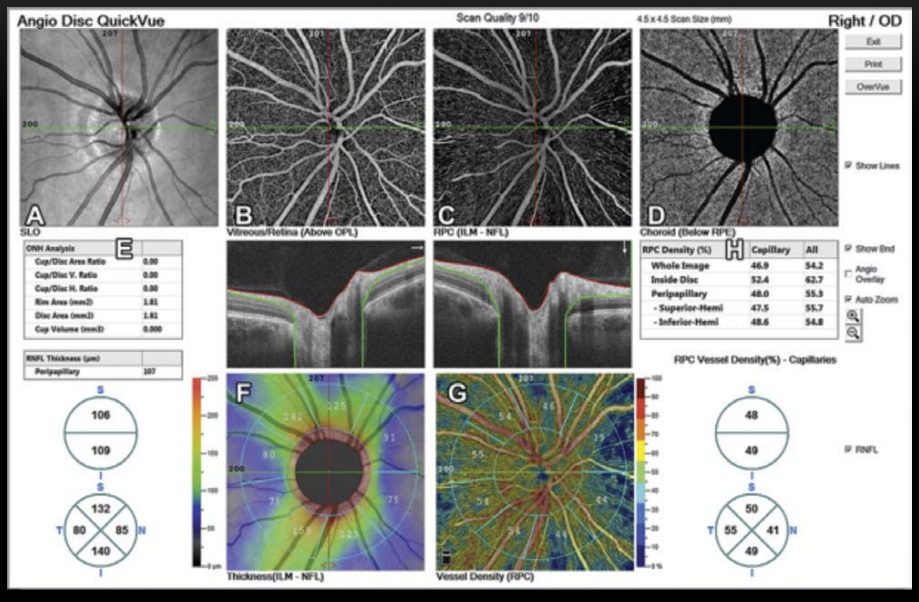
OCTA VISUALIZATION OF ONH PERFUSION
DIFFUSE GLAUCOMA LOSS



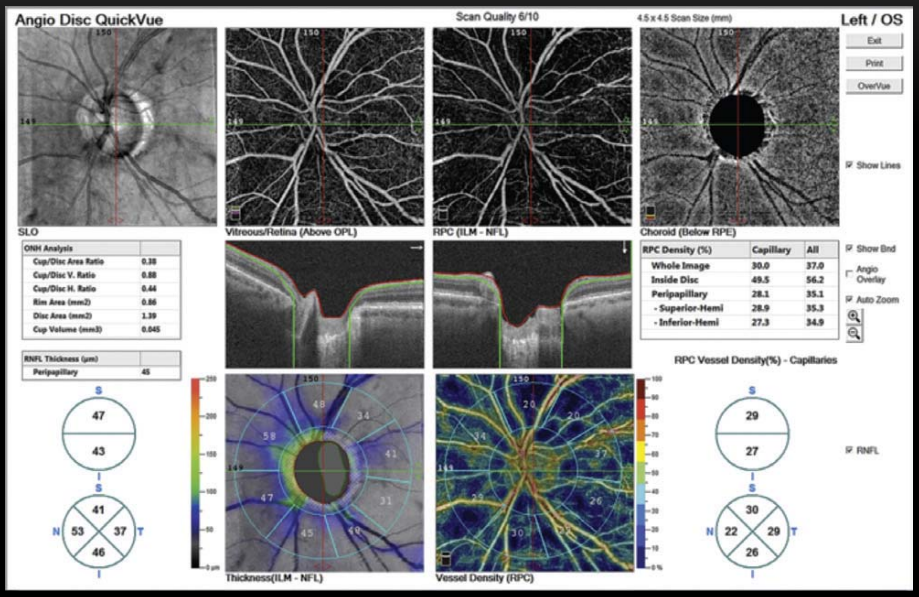
OCTA VISUALIZATION OF ONH PERFUSION
LOCALIZED GLAUCOMA LOSS



HEALTHY RIGHT EYE

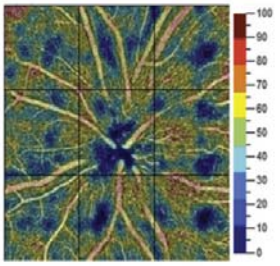


ADVANCED GLAUCOMA LEFT EYE

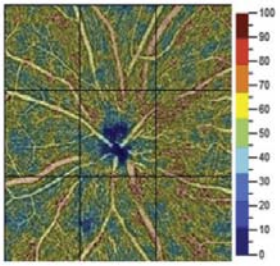


IOP REDUCTION AND OPTIC NERVE PERFUSION

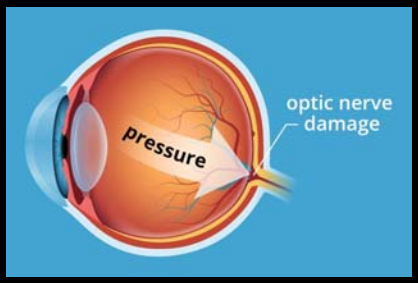
UNTREATED
HIGH IOP



SAME EYE
1 MONTH LATER
IOP 50% LOWER



DO WE REALLY NOT
UNDERSTAND GLAUCOMA?



IS POAG PRIMARILY
… OR SIGNIFICANTLY …
A VASCULAR DISEASE ?

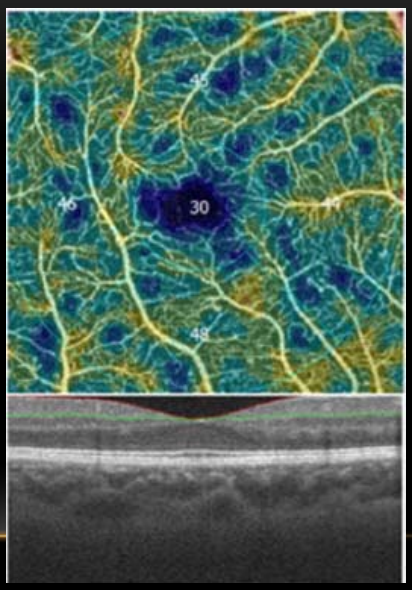
OCT-A: SUMMARY

- Fast & non-invasive
- Acquisition time 3-4 seconds per eye
  - No dye … but also NO CPT CODE = EVERY ONE IS FREE !!!

DIABETIC RETINOPATHY

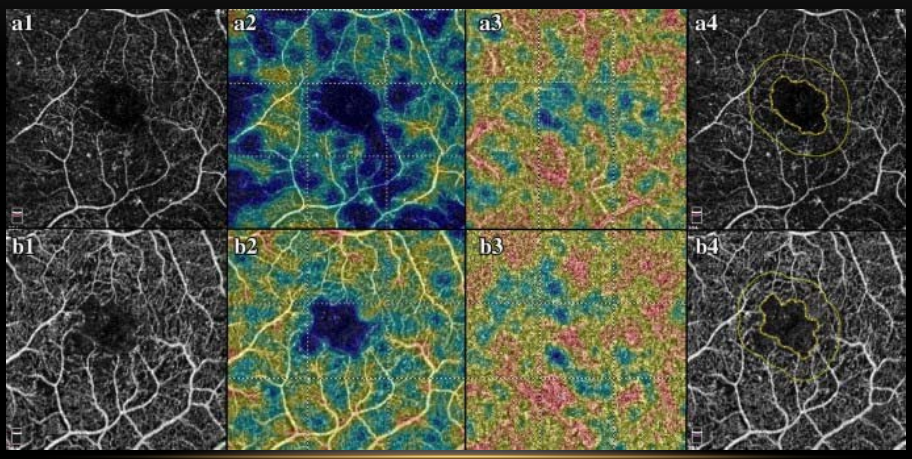
- "No DR"

MICROVASCULAR CHANGES
WITHOUT CLINICAL
DIABETIC RETINOPATHY



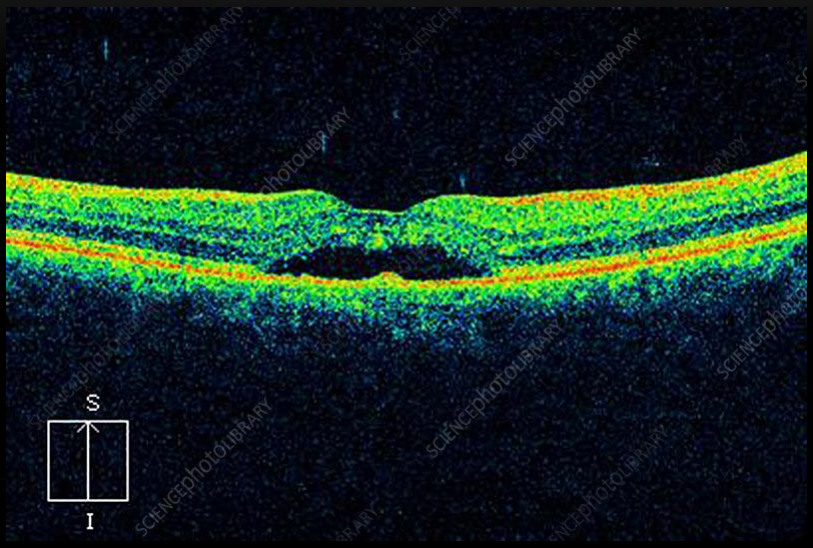
DIABETIC RETINOPATHY

- "No DR" vs CAPILLARY PERFUSION DENSITY



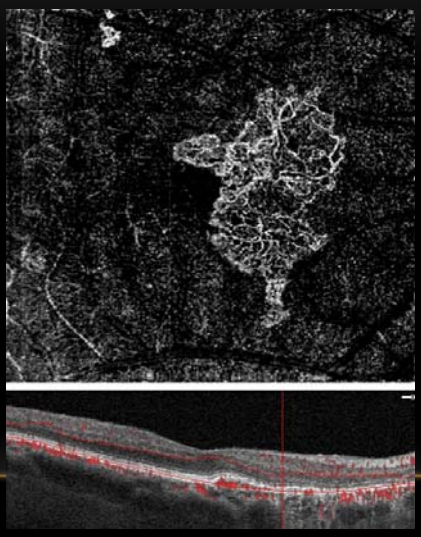
MACULAR DEGENERATION

- Possible net ?



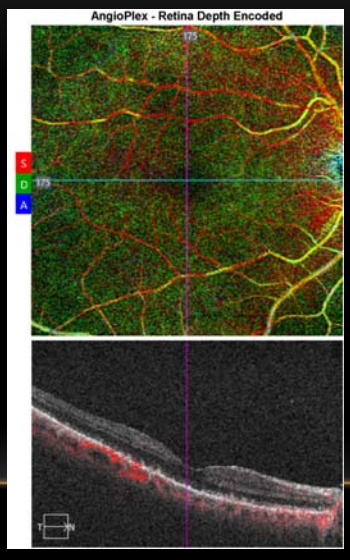
MACULAR DEGENERATION

- Possible net ? YES



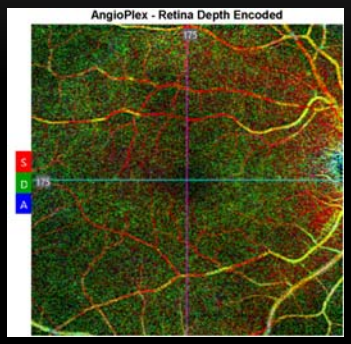
MACULAR DEGENERATION

- Possible net ? NO



MACULAR DEGENERATION

- Possible net ? NO



- Distinguishes dry vs wet BEFORE you potentially refer

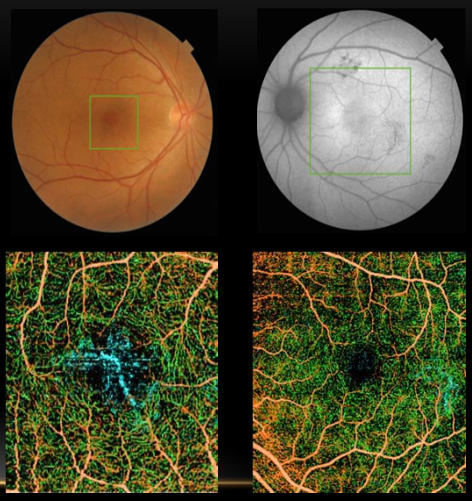
MACULAR DEGENERATION

- "Dry" ARMD

  (asymptomatic)

Any history of wet ARMD
= obtain OCT-A every year
if intermediate+ dry ARMD

Despite NORMAL OCT
= asymptomatic net in 18.1% by OCT-A



MACULAR DEGENERATION

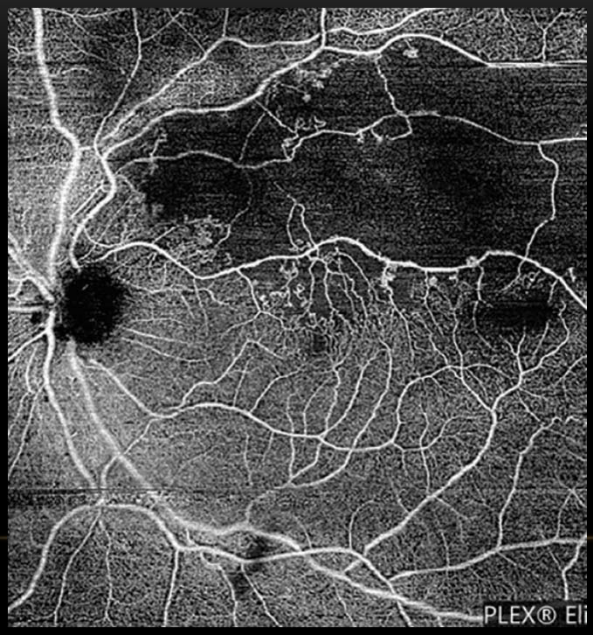
- "Dry" ARMD (asymptomatic)

Any history of wet ARMD
= obtain OCT-A every year
if intermediate+ dry ARMD

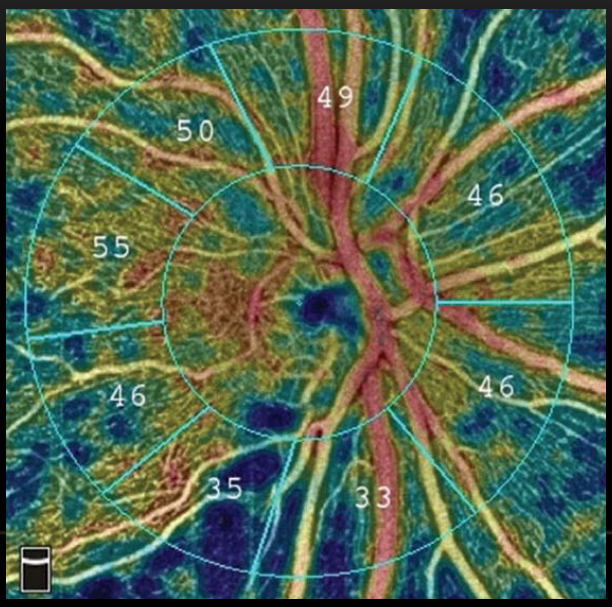
Despite NORMAL OCT
= asymptomatic net in 18.1%

ARMD Classification	Characteristics
No abnormal findings	No aging changes: • Absence of drusen • No pigmentary abnormalities
	Normal aging changes: • All small drusen (≤63 µm) • No pigmentary abnormalities
Early ARMD	• Medium-sized drusen (>63 µm and ≤125 µm) • No pigmentary abnormalities
Intermediate ARMD	• Large drusen (>125 µm) and / or RPE abnormalities
Late ARMD	• Neovascular membrane and / or geographic atrophy

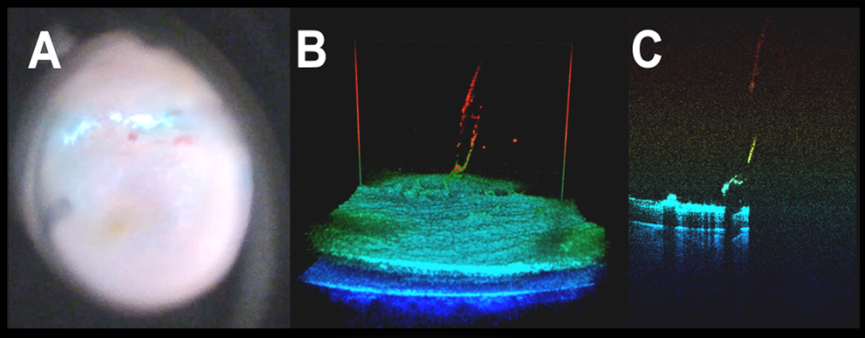
VASCULAR OCCLUSIONS



GLAUCOMA



INTRAOPERATIVE IMAGING



- ERM peel: Color encoded depth to visualize tissues in 3D
- OCT-A: Emerging technology, glad we have it, excited to see its clinical future

Thank you !!!