WET AMD :
TO TREAT OR TO WAIT ?

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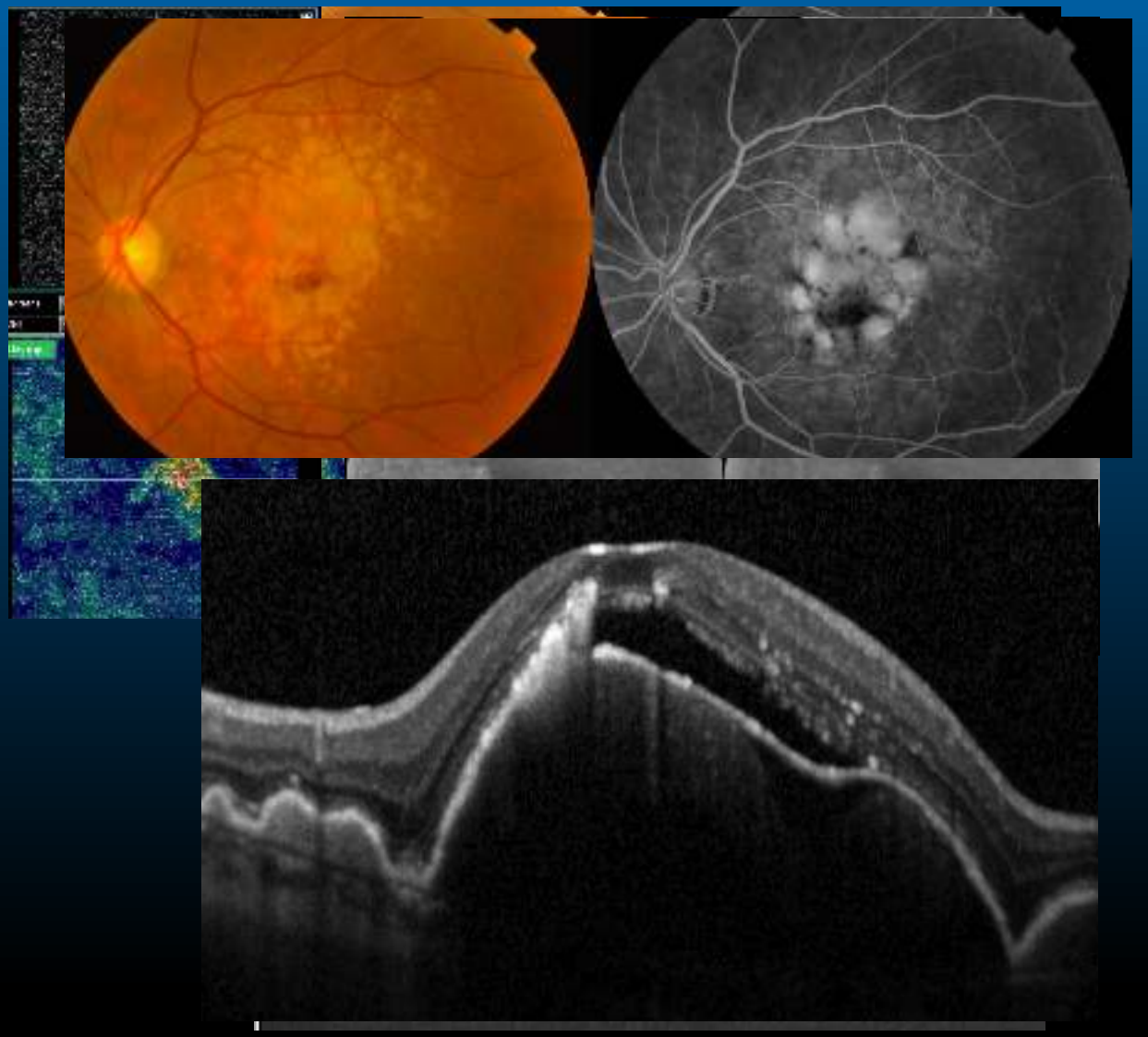
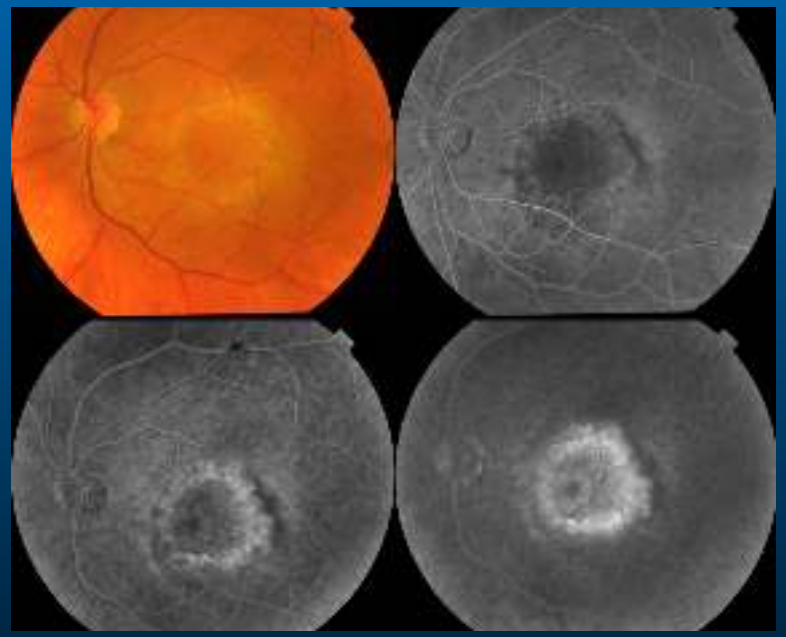
WET AMD : NEW TERMINOLOGY

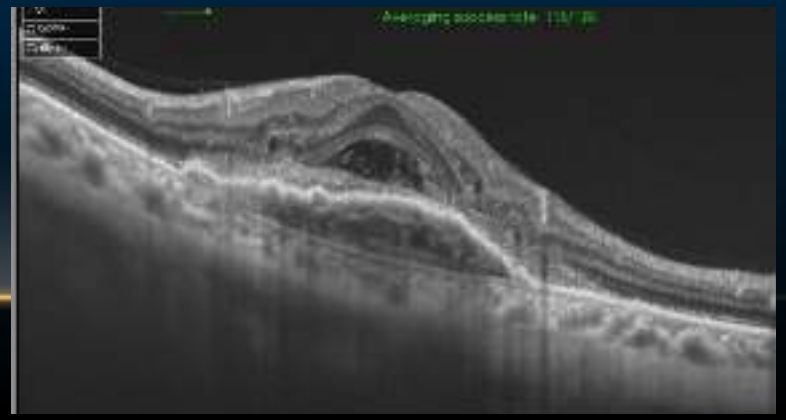
- **Exudative Neovascular AMD**: Evidence of CNV on OCTA and macular fluid by structural OCT, evidence of leakage on FA,
- **Subclinical , silent or non-exudative Neovascular AMD**: Asymptomatic CNV only seen by OCTA that has never received treatment and has never shown evidence of exudation
- **Non-neovascular wet AMD :** retinal pigment epithelium detachment with SRF



MANAGEMNET OF NEOVASCULAR AMD (WET -TYPE)

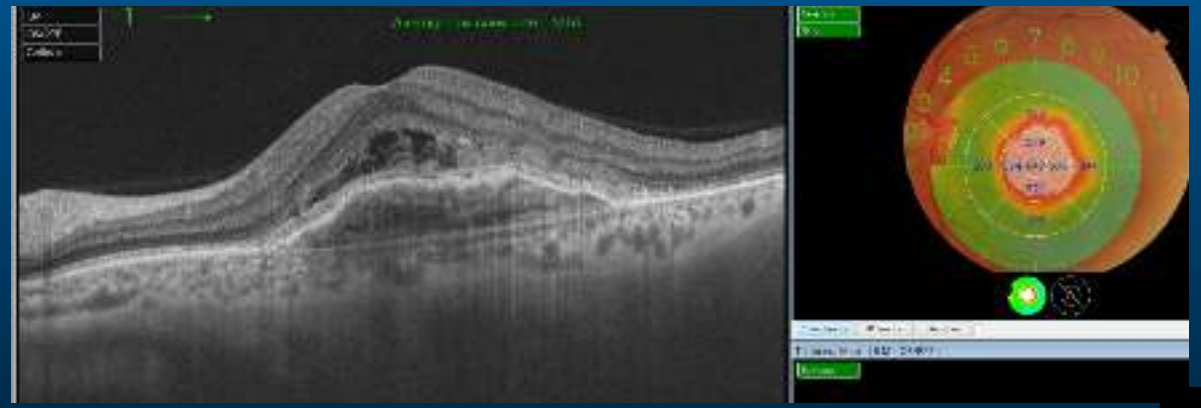
- The aim in CNV management is to dry up the macula form all types of fluid (SRF, IRF and Sub-RPE fkuid)
- The goal is to keep the retina dry at all times either by T&E or PRN Regimen

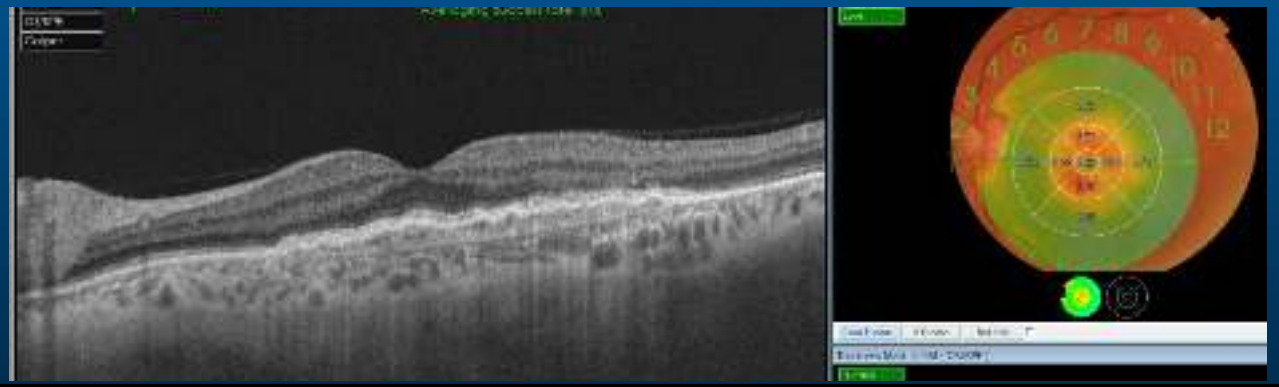




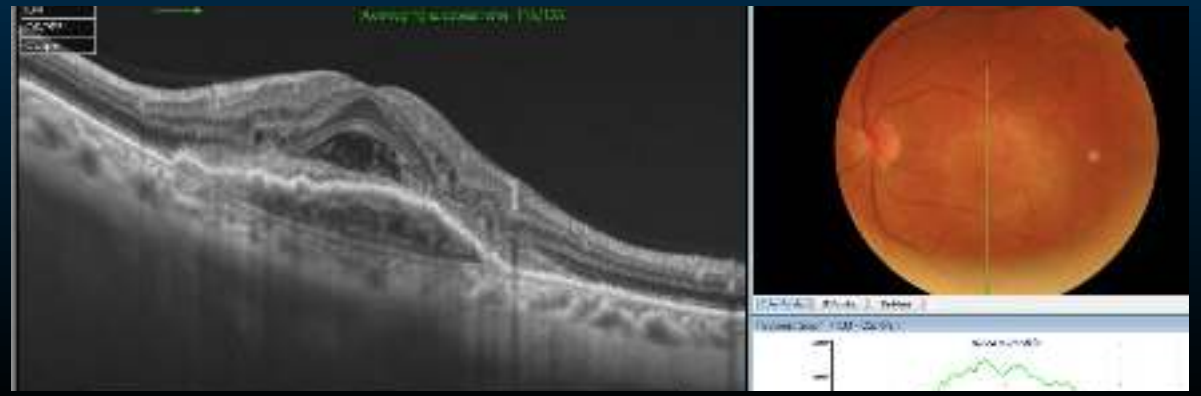
IV ANTI VEGF (3 LOADING DOSE) VA IMPROVED FROM 6/36 TO 6/9

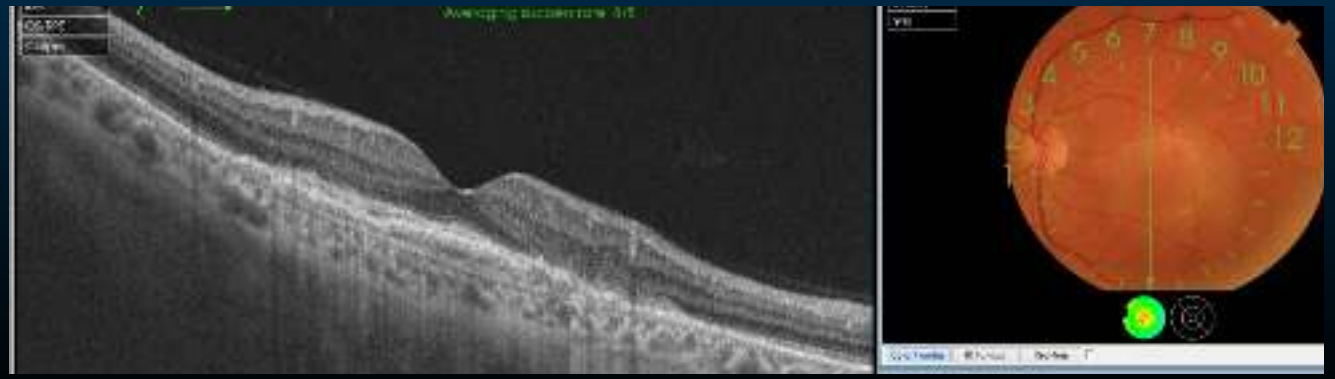
Dry Macula T&E





Flattening of RPE resolution of IRF and SRD

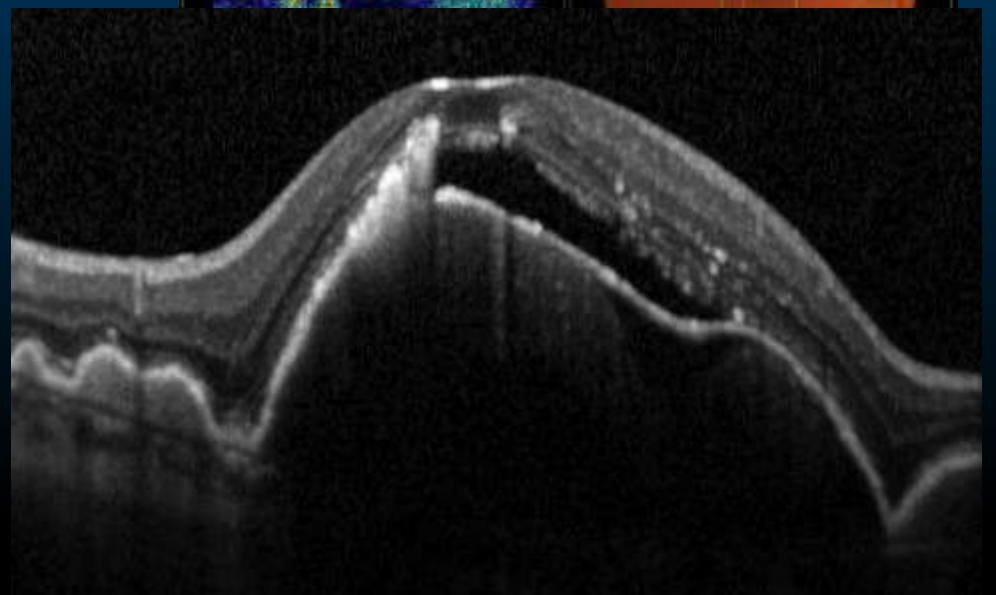




WHEN TO OBSERVE IN WET AMD??

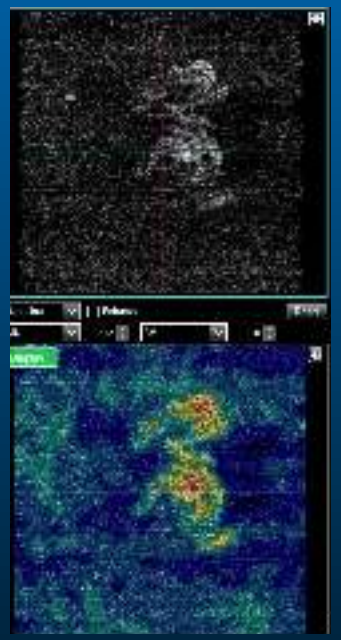
- Non- exudative Wet AMD (silent CNV)

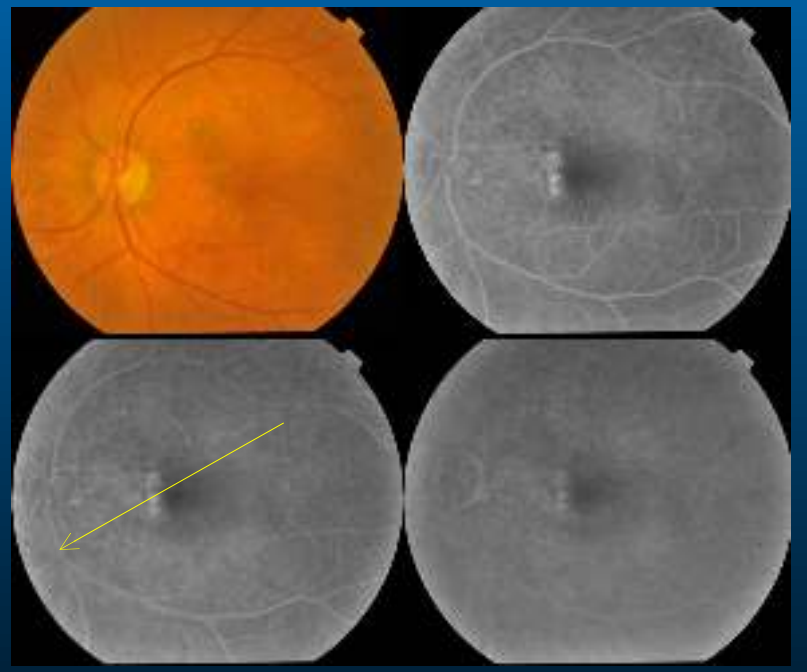
- Non-neovascular AMD with subretinal fluid

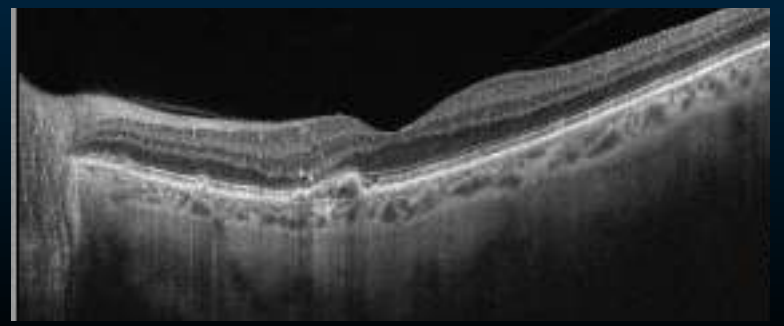


SILENT CNV (NON-EXUDATIVE WET AMD)

- Discovered accidently in the other eye of patients with n-AMD
- Irregular RPED with no sign of activity on FA or structural OCT (no IRF or SRF fluid no hemorrhage , nor exudation)
- Only diagnosed by OCTA
- Vision is usually not affected
- Is called non-exudative wet AMD or subclinical wet AMD







Retina

Prevalence and Risk Factors for Nonexudative Neovascularization in Fellow Eyes of Patients With Unilateral Age-Related Macular Degeneration and Polypoidal Choroidal Vasculopathy

Yasuo Yanagi,[1,2] Aditi Mohla,[1] Won-Ki Lee,[3] Shu Yen Lee,[1,2] Ranjana Mathur,[1,2] Choi Mun Chan,[1,2] Ian Yeo,[1,2] Tien Yin Wong,[1,2] and Chui Ming Gemmy Cheung[1,2]

[1]Singapore Eye Research Institute, Singapore National Eye Centre, Singapore
[2]Ophthalmology and Visual Sciences Program, Duke-NUS Medical School, National University of Singapore, Singapore
[3]Department of Ophthalmology, Seoul St. Mary's Hospital, The Catholic University of Korea, Seoul, South Korea

Conclusions. Approximately one in five fellow eyes with unilateral tAMD and PCV have features of nonexudative neovascularization. The use of multimodal imaging including ICGA and OCT-A can identify these features. The presence of pachychoroid epitheliopathy should alert clinicians to the possibility of underlying neovascularization.

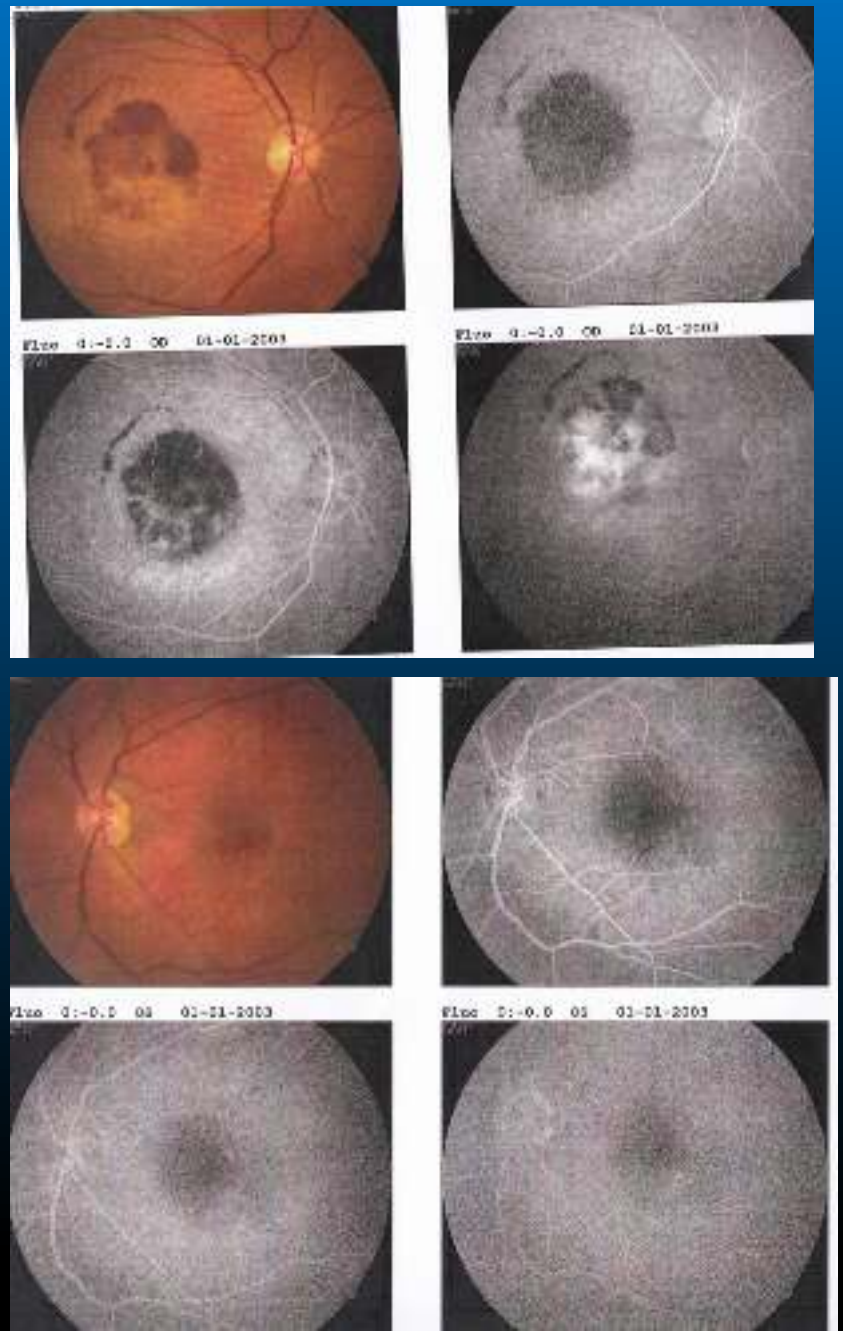
Diagnosis and Follow-Up of Nonexudative Choroidal Neovascularization With Multiple Optical Coherence Tomography Angiography Devices: A Case Report

Mark Lane, MD, **Daniela Ferrara, MD, PhD**, **Ricardo Noguera Louzada, MD**, **James G. Fujimoto, PhD**, and **Johanna M. Seddon, MD, ScM**

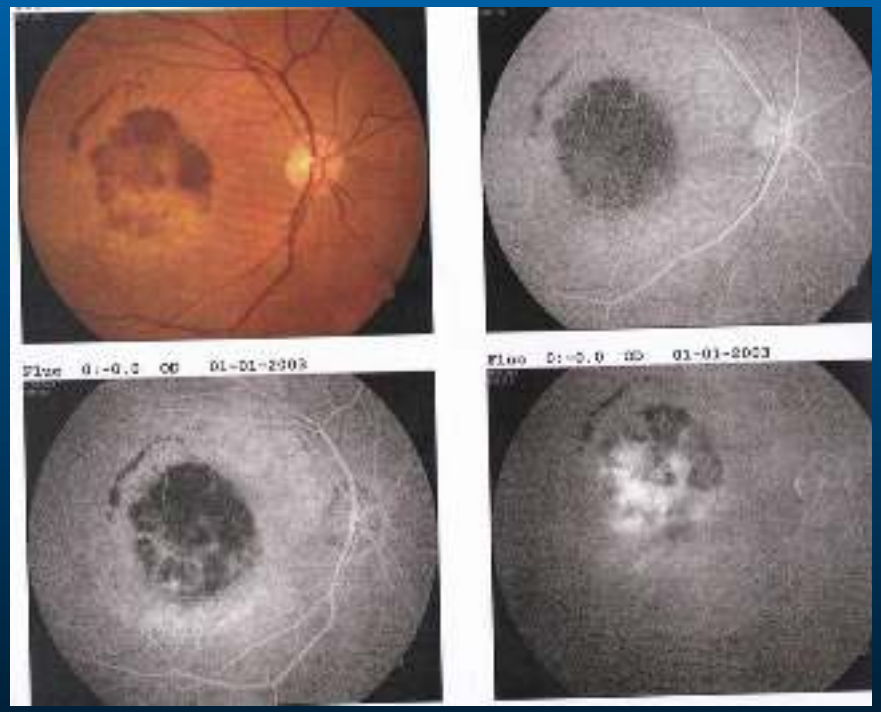
Nonexudative choroidal neovascularization (CNV) is a new phenomenon that has only recently been described in the literature with the advent of optical coherence tomography angiography (OCTA) imaging. The authors present a 1-year longitudinal follow-up of a nonexudative CNV lesion secondary to age-related macular degeneration. This report describes the appearance of the lesion on two commercially available spectral-domain OCTA devices and one prototype swept-source OCTA device. Management of these cases is still debatable. Watchful waiting with regular follow-up using serial OCTA to monitor disease progression has been valuable in this case.

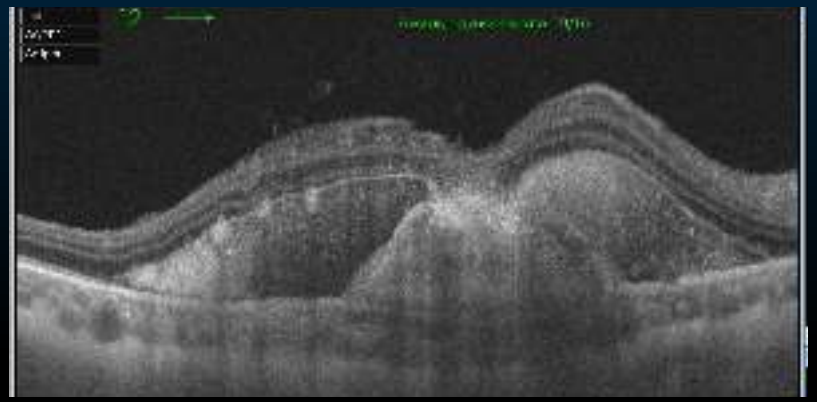
CASE PRESENTATION

- Female patients aged 65 years
- Right marked diminution of vison since few months
- BCVA Right CF 5/60 and left 6/12
- Diagnosis: Right CNV
- Left eye: RPED

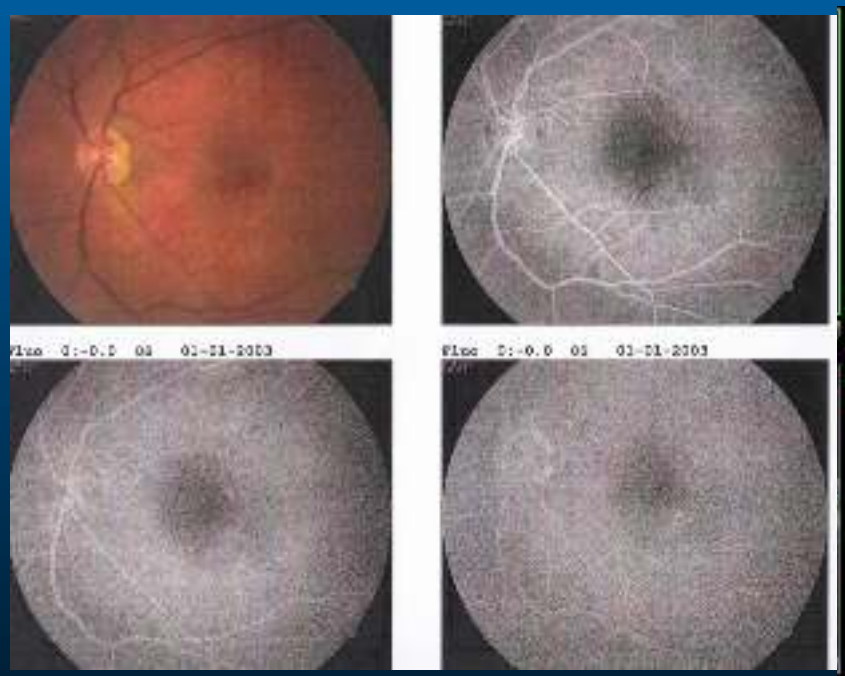


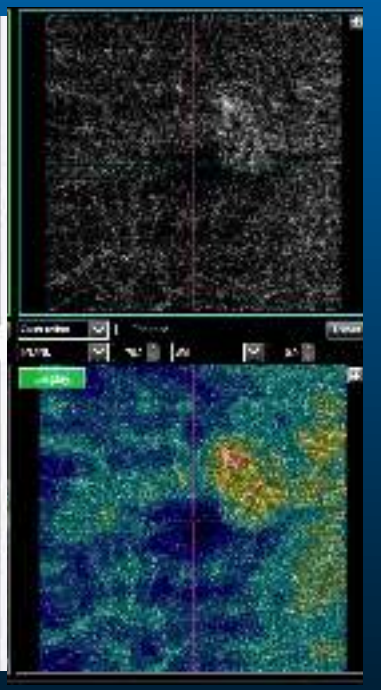
RT. EYE : TYPE 1CNV

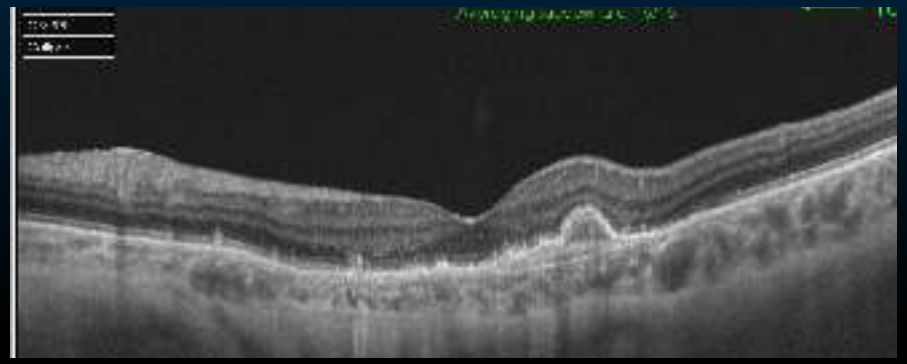




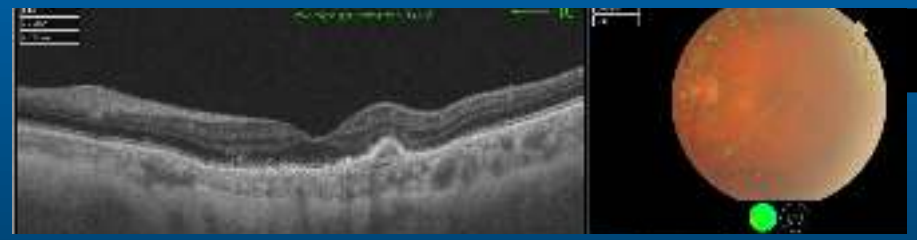
LT. EYE RPED WITH SILENT CNV





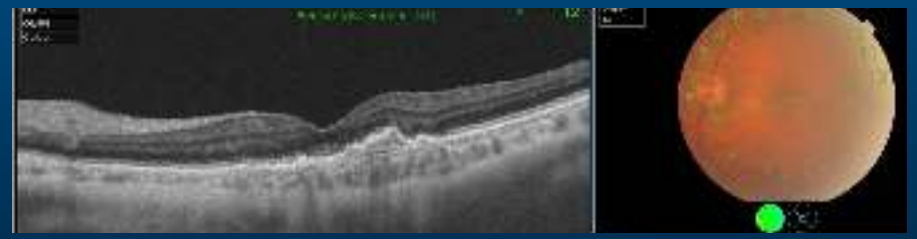


OCTA IN FOLLOW UP OF SILENT CNV: SIZE AND FLOW

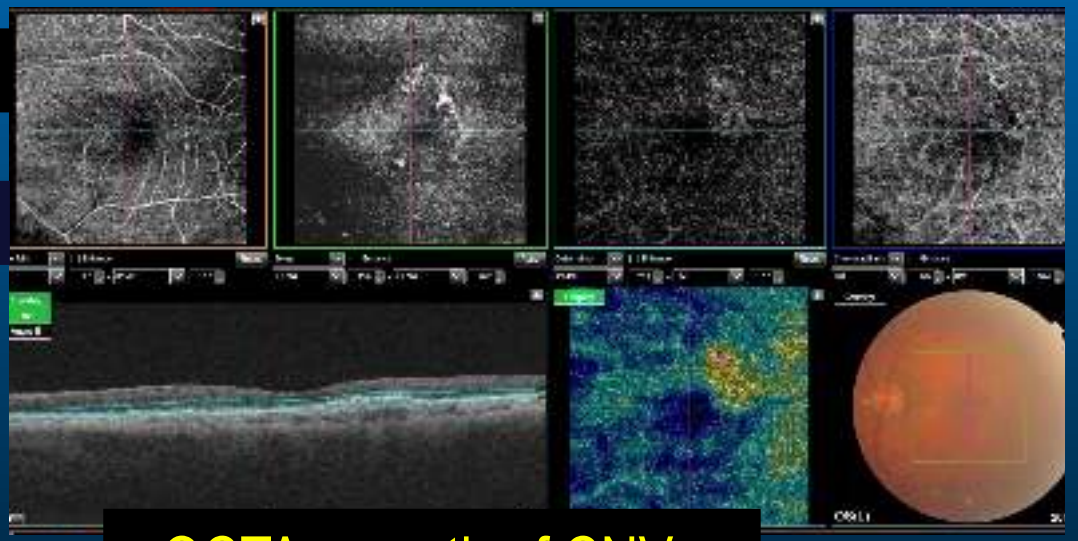


3/11/15

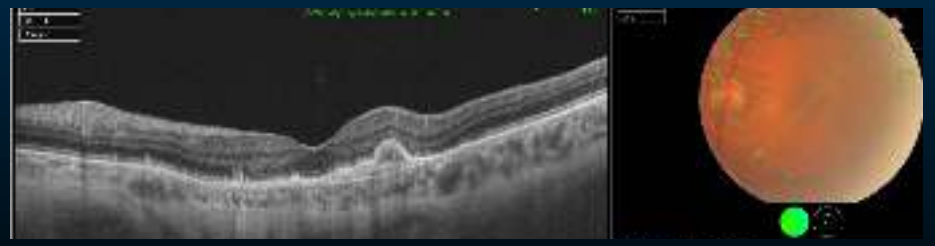
VA 6/9



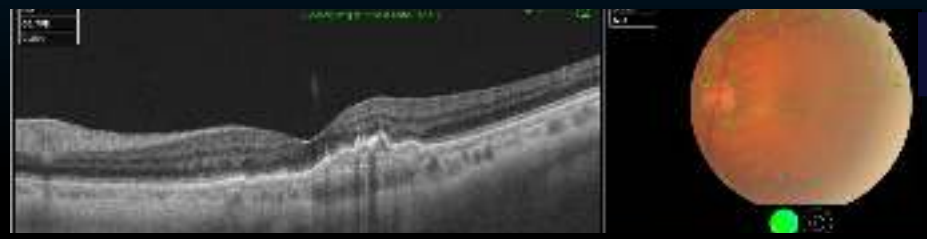
Structural OCT : inactive



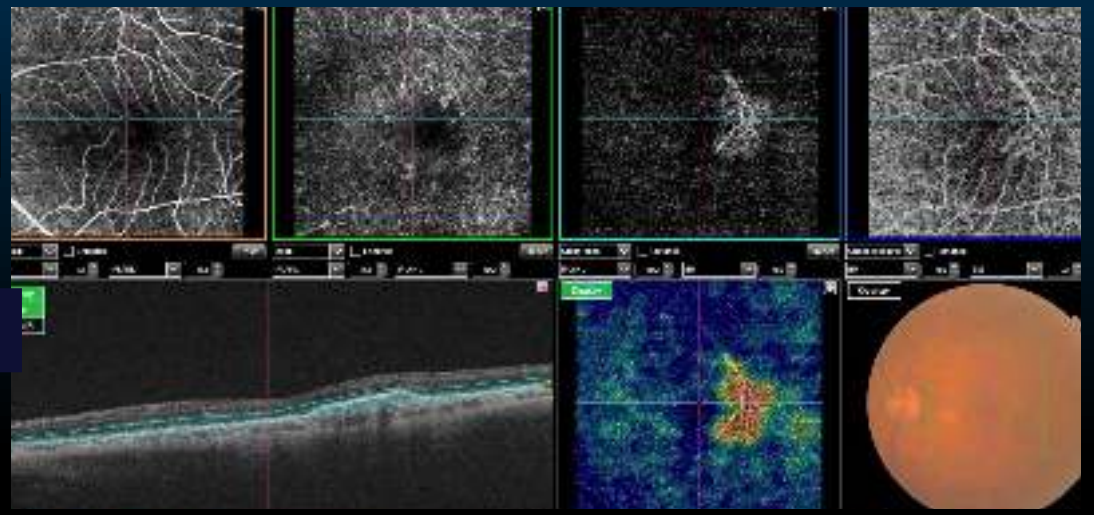
OCTA: growth of CNV



3/1/16



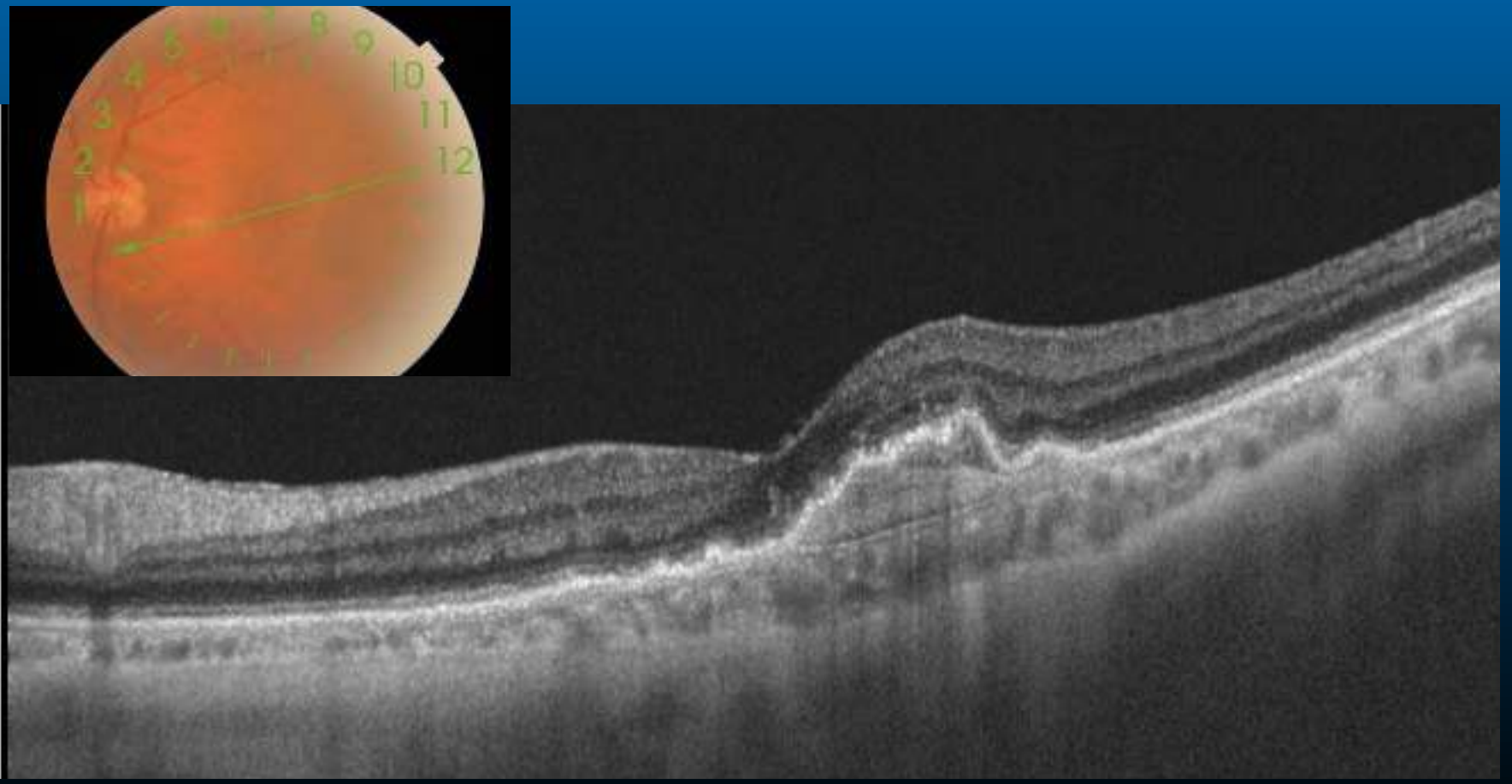
VA 6/9

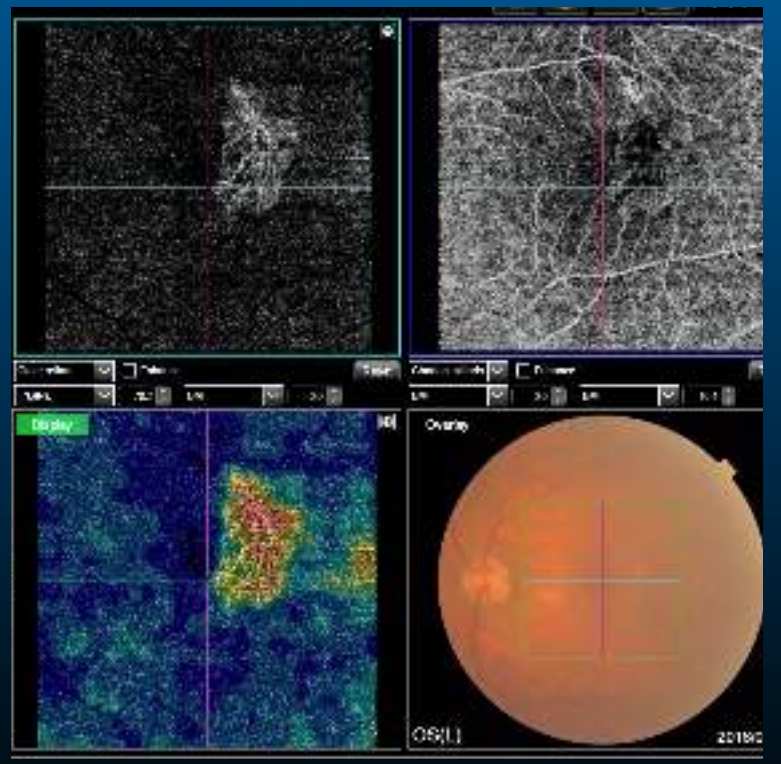


2 MONTHS LATER: METAMORPHOPSIA AND VA DECREASED TO 6/12

OCT SPONGY EDEMA (EXUDATIVE)

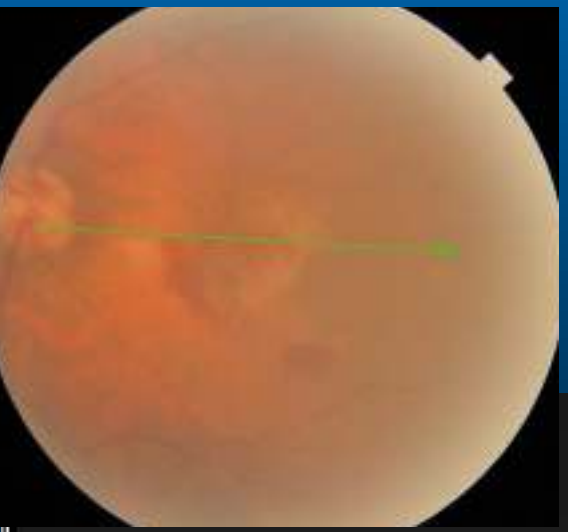
OCTA : INCREASED SIZE AND FLOW



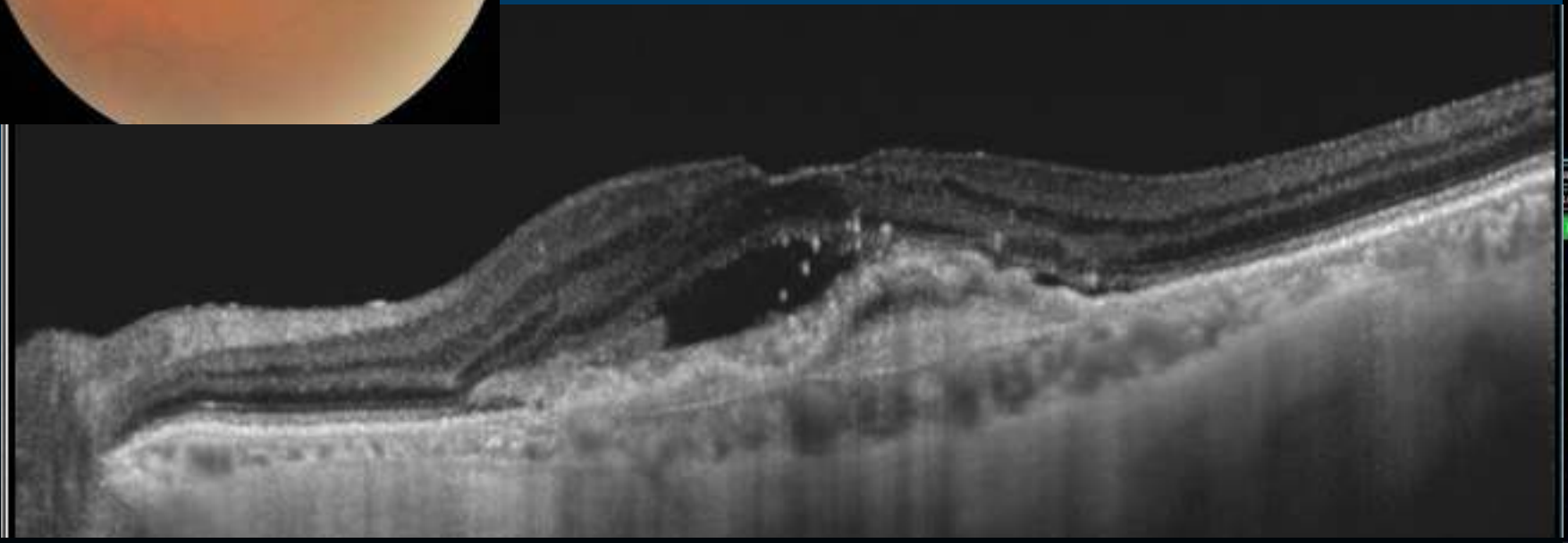


IV Anti VEGF injection once then lost follow up

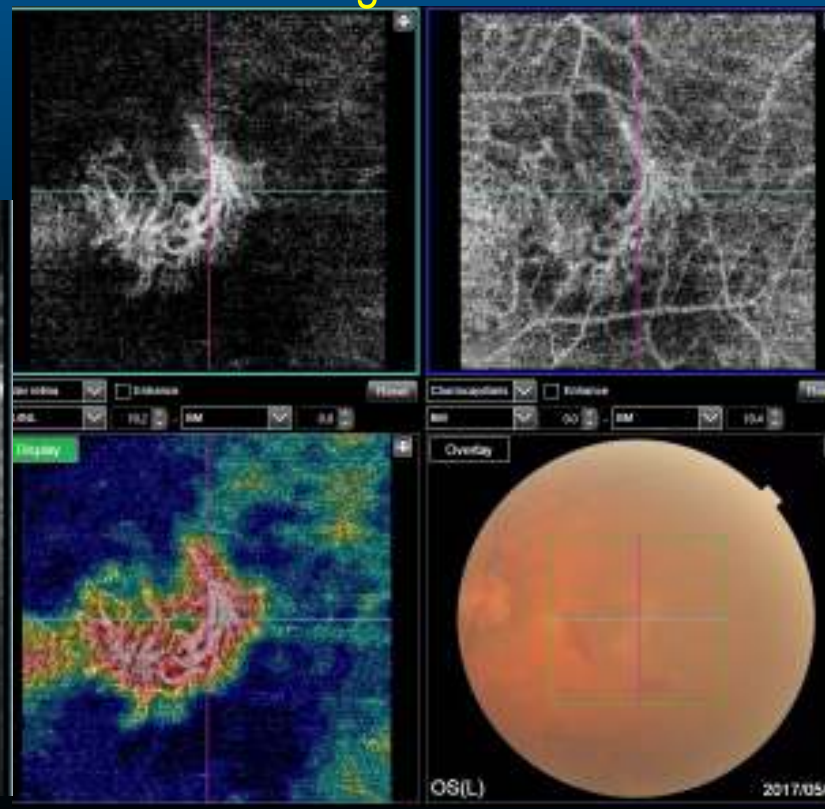
6 MONTHS LATER : EXUDATIVE CNV : VA 6/60



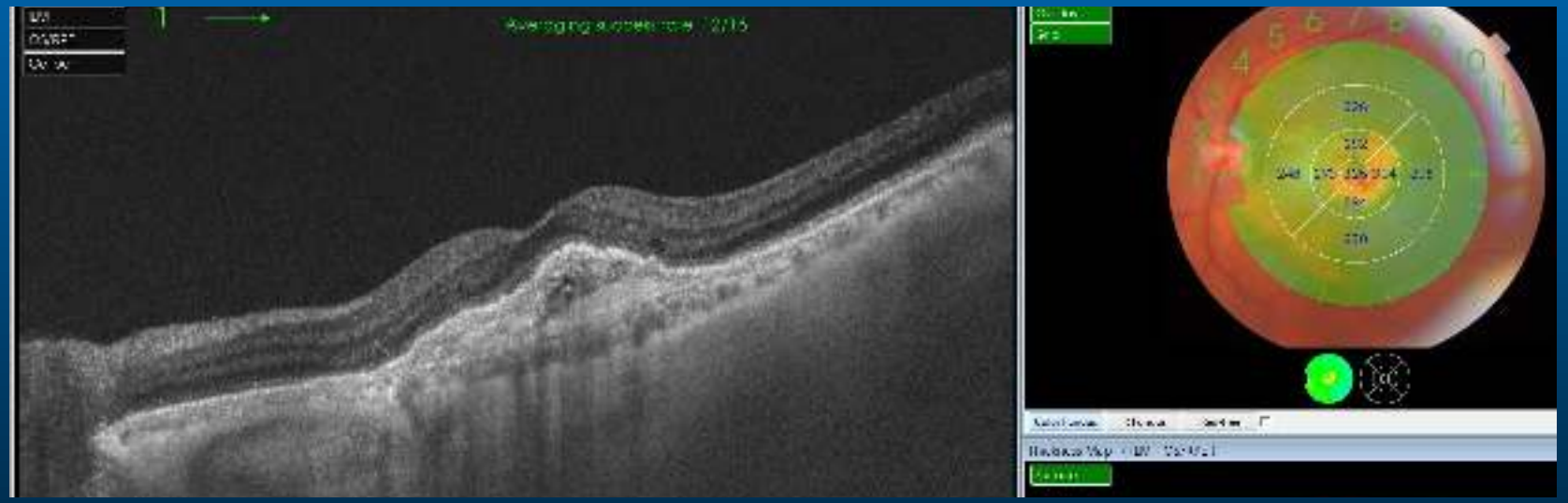
OCT : IRF and SRF

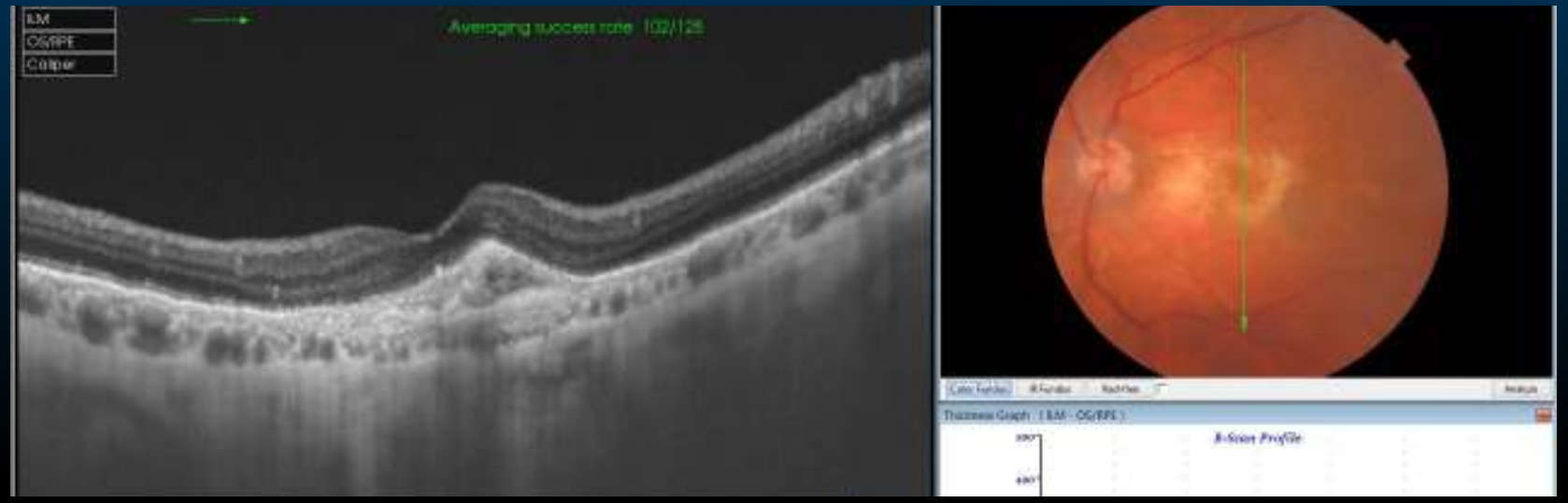


OCTA: marked growth, increased flow and more branching



AFTER 8 IV ANTI VEGF : DRY MACULA BC VA 6/18





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ARTICLE OPEN

Growth of nonexudative macular neovascularization in age-related macular degeneration: an indicator of biological lesion activity

Yusong Wang[1,2,6], Junran Sun[1,2,6], Jiali Wu[1,2], Huixun Jia[1,2], Jingyang Feng[1,2], Jieqiong Chen[1,2], Quan Yan[1,2], Peirong Huang[1,2], Fenghua Wang[1,2,3,4,5], Qiyu Bo[1,2] and Xiaodong Sun[1,2,3,4,5]

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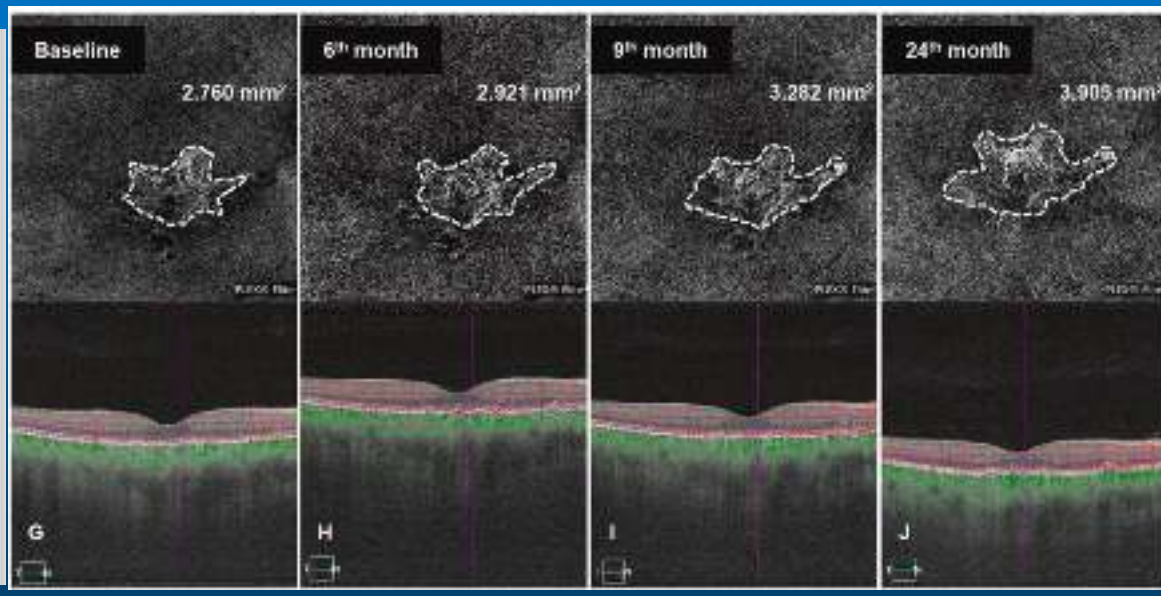
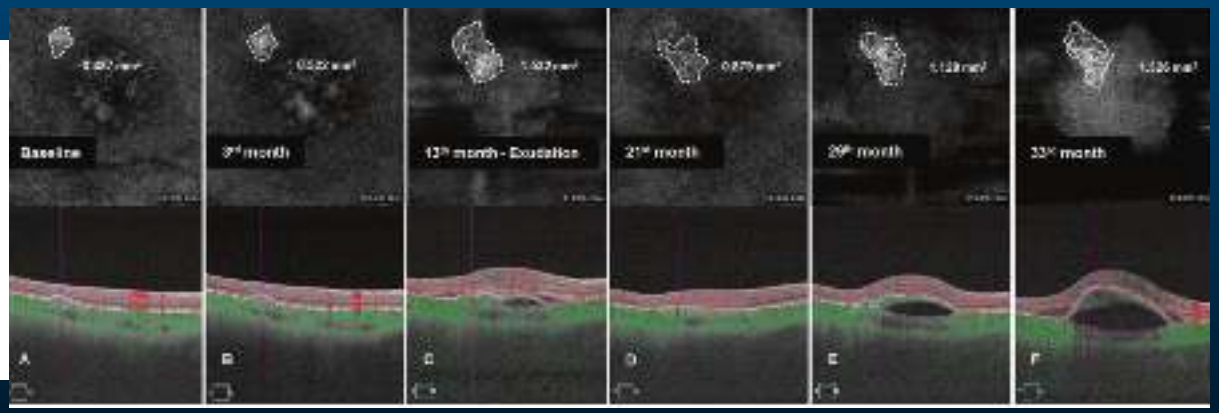




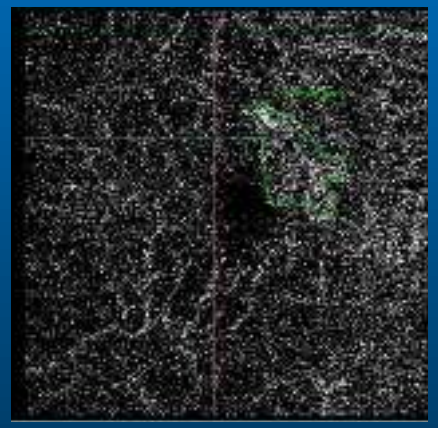
PURPOSE: To investigate the growth of nonexudative macular neovascularization (MNV) in age-related macular degeneration (AMD) using swept-source optical coherence tomography angiography (SS-OCTA).

METHODS: Patients with treatment-naïve nonexudative AMD in one eye and exudative AMD in the fellow eye who underwent SS-OCTA imaging for at least 12 months were retrospectively reviewed. The MNV area measurement was quantified in eyes with treatment-naïve nonexudative MNV using ImageJ for analysing the correlation between MNV growth and the onset of exudation, as well as evaluating the consistency of the MNV growth rate during the subclinical and exudative stages. Kaplan-Meier survival analysis and logistic regression analyses were used.

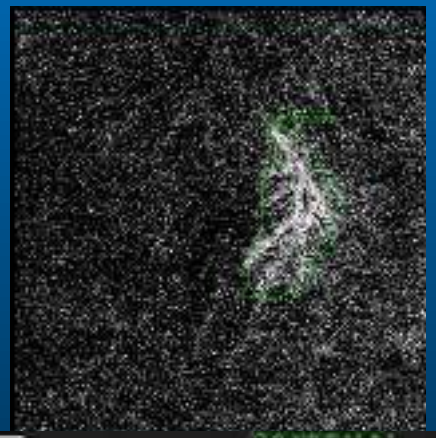
CONCLUSION: SS-OCTA allows to qualitatively and quantitatively evaluate nonexudative MNV in AMD patients. Growing MNV involved higher probabilities and a faster onset of exudation compared to stable MNV. Identifying the growth of MNV on OCTA might be helpful for establishing treatment strategies and follow-up planning.

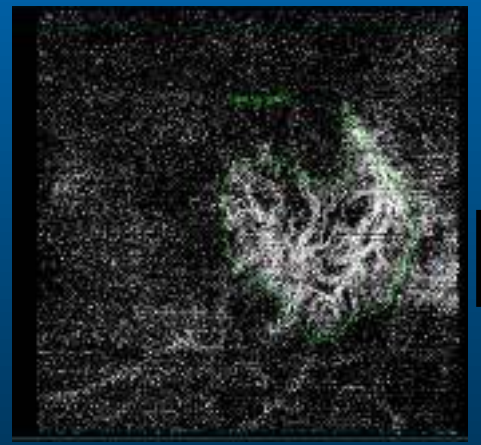
Eye (2023) 37:2048–2054; https://doi.org/10.1038/s41433-022-02282-1

GROWTH OF CNV ON OCTA IS A BIOLOGICAL INDICATOR

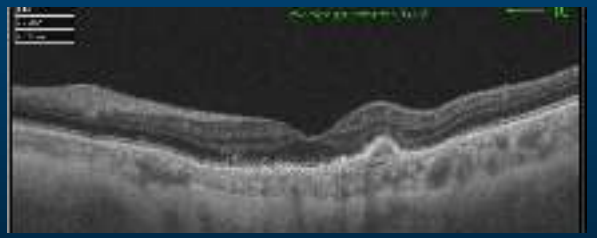


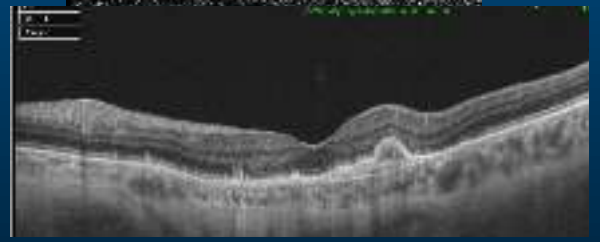
Silent CNV

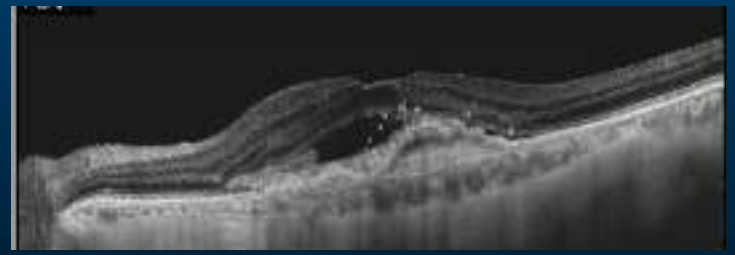


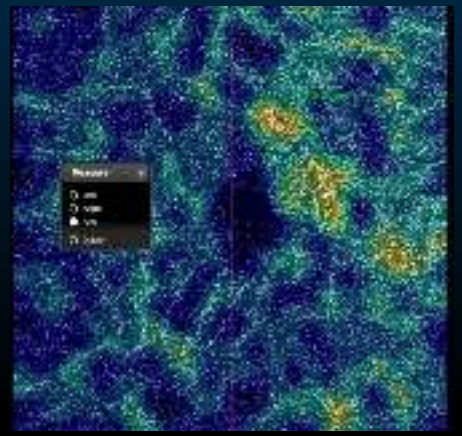


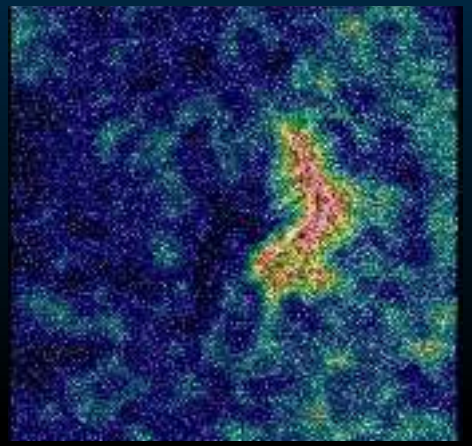
Exudative

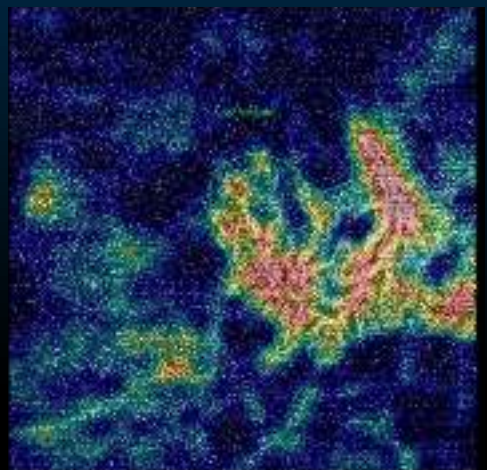






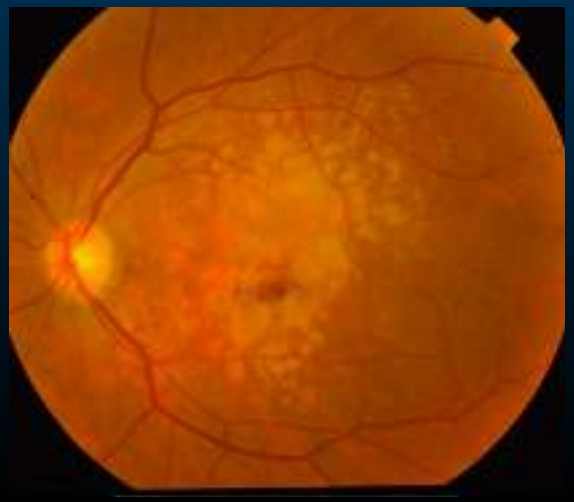






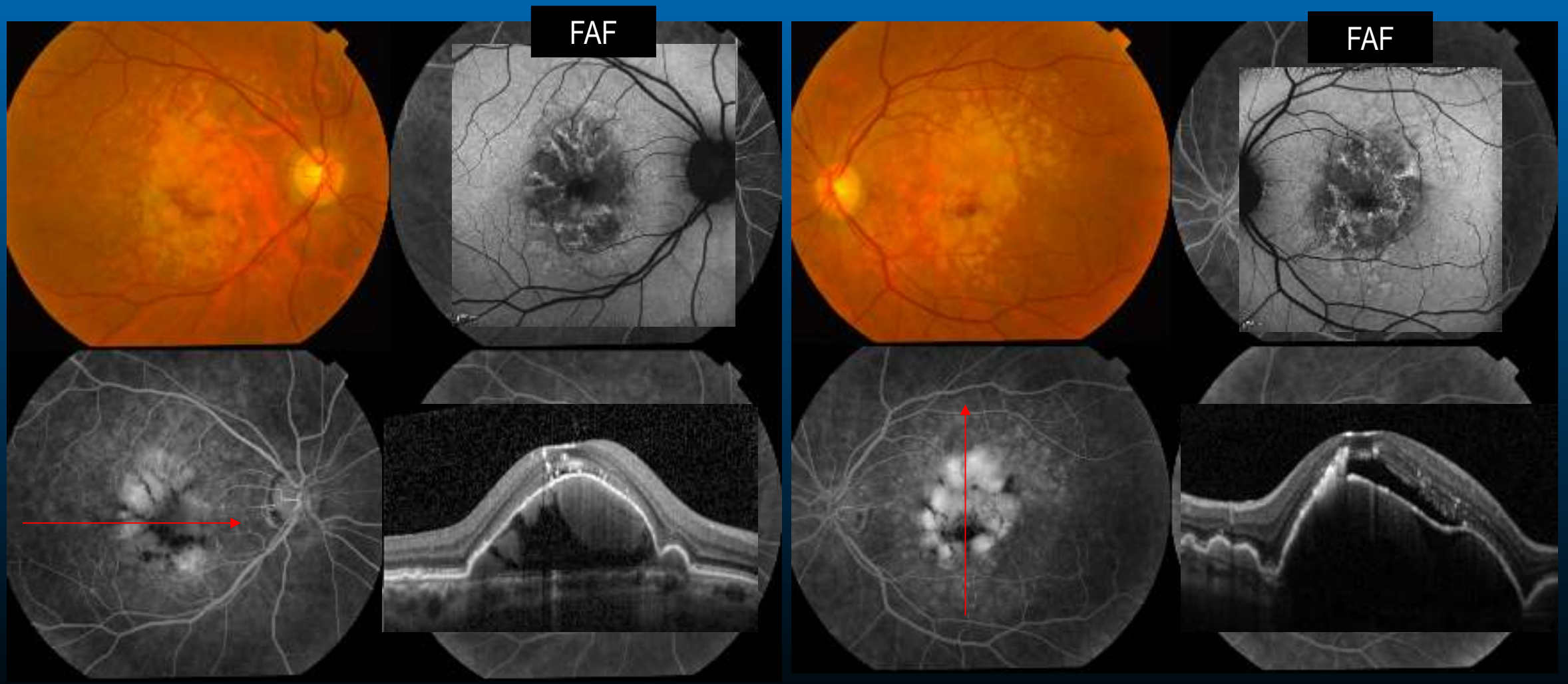
RPED WITH SUBRETINAL FLUID

- Female patient aged 59 years
- Bilateral progressive diminution of vision since 6 months
- No systemic illness
- BC VA 6/60 OU
- No error of refraction
- Anterior segment : unremarkable
- Fundus picture



RIGHT EYE

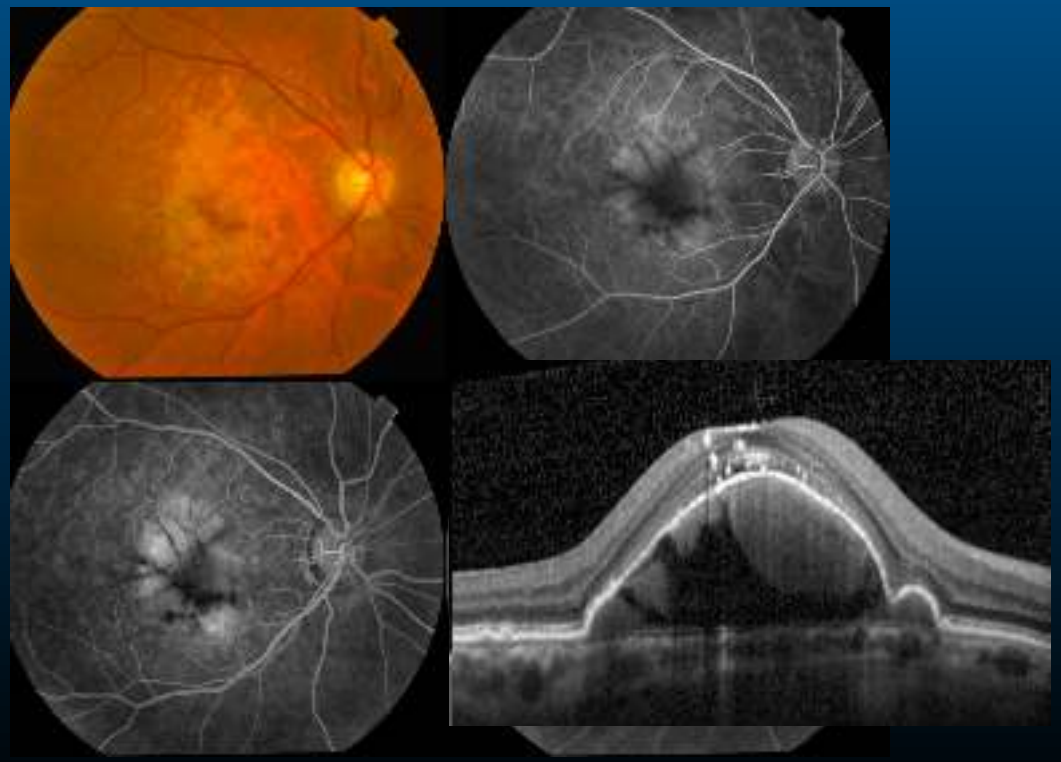
LEFT EYE

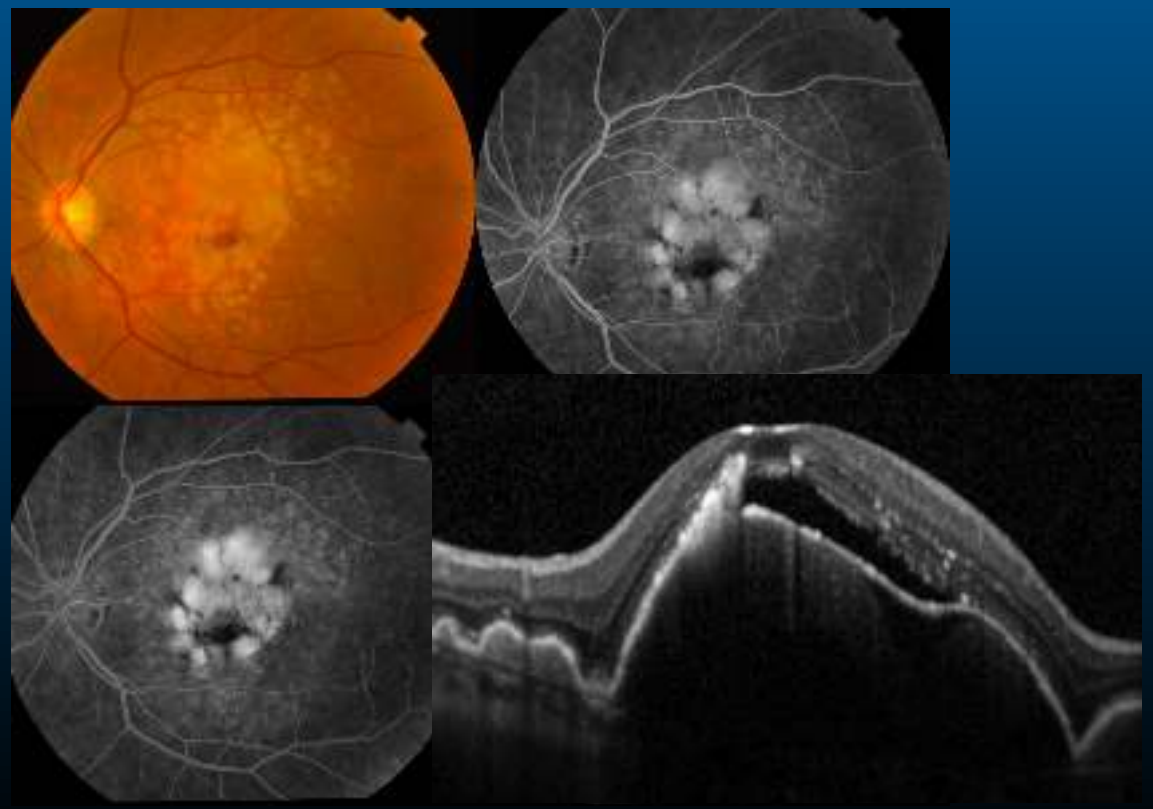


SD-OCT illustrates drusenoid PED with crest of SRF associted with acquired vitelliform lesion and focal RPE thickening , including intraretinal hyper-reflective foci

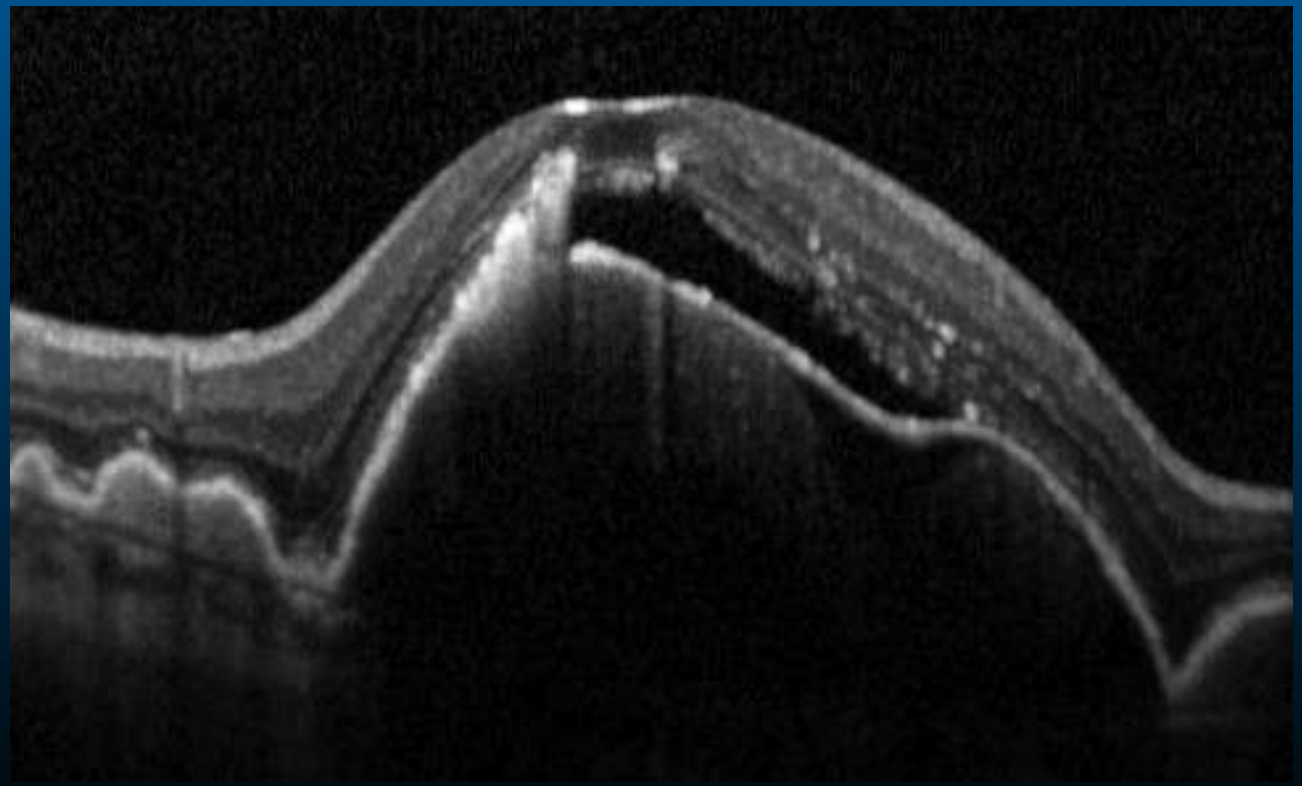
OCTA WAS NOT AVAILABLE AT THE TIME 2013

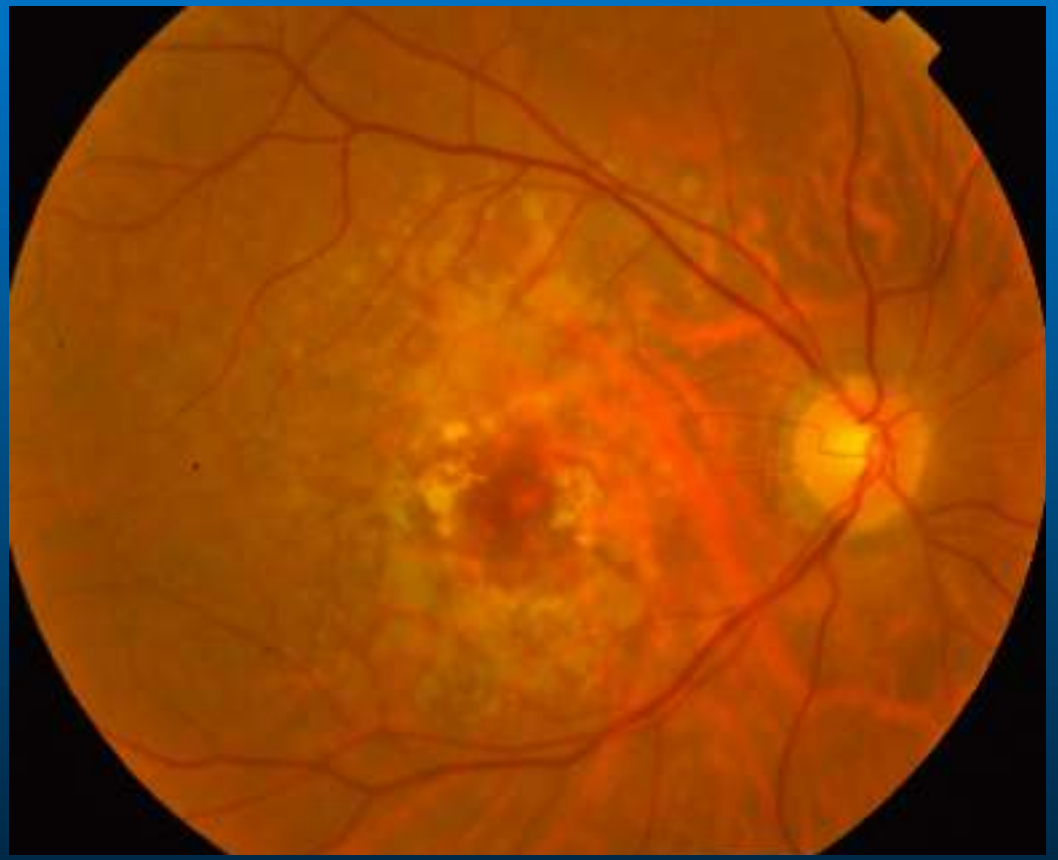
- How to Manage ? Visual prognosis , High RPED and RIP…….

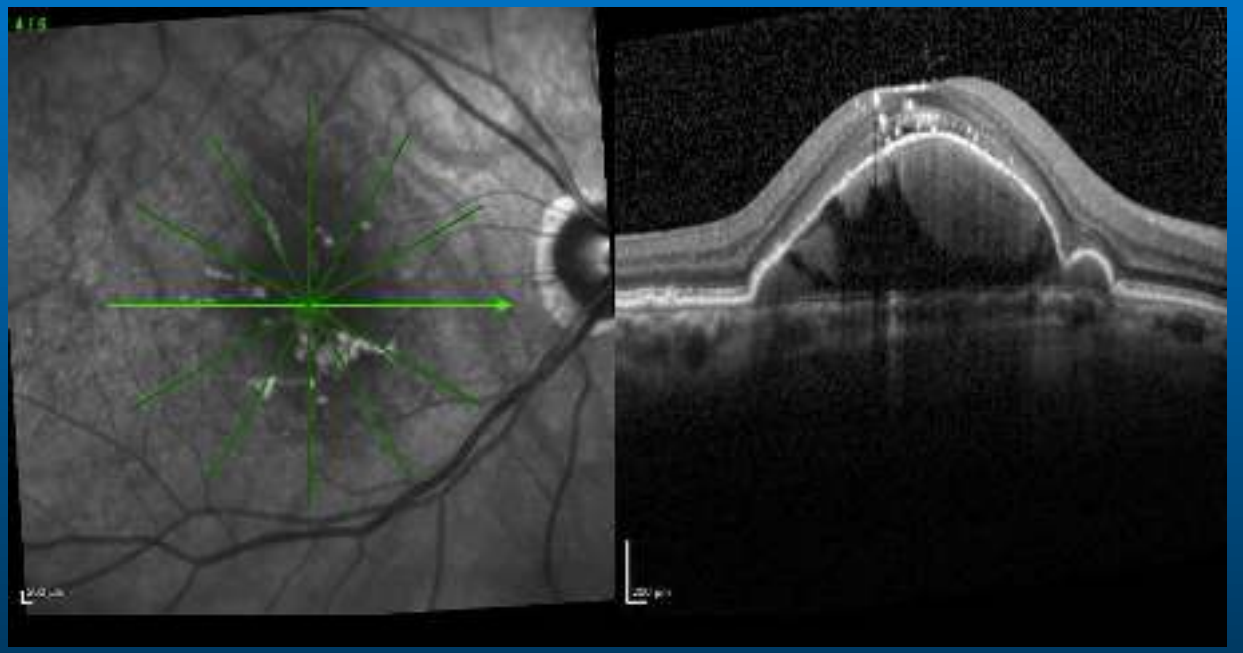


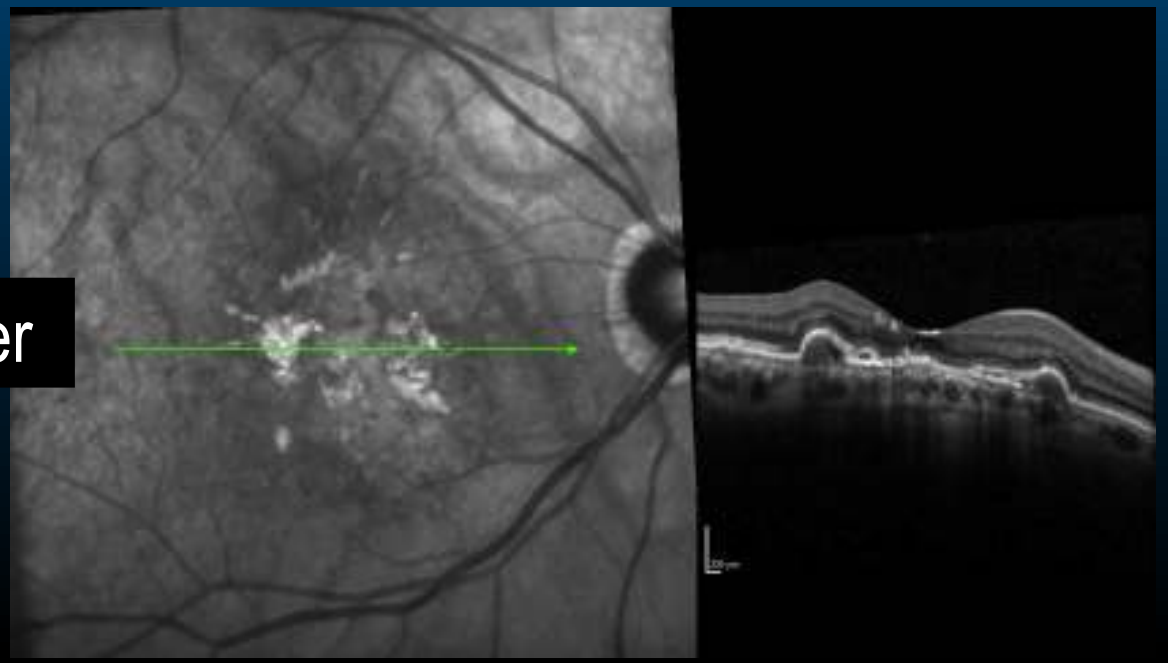


Left eye treated with 3 Anti VEGF : no response

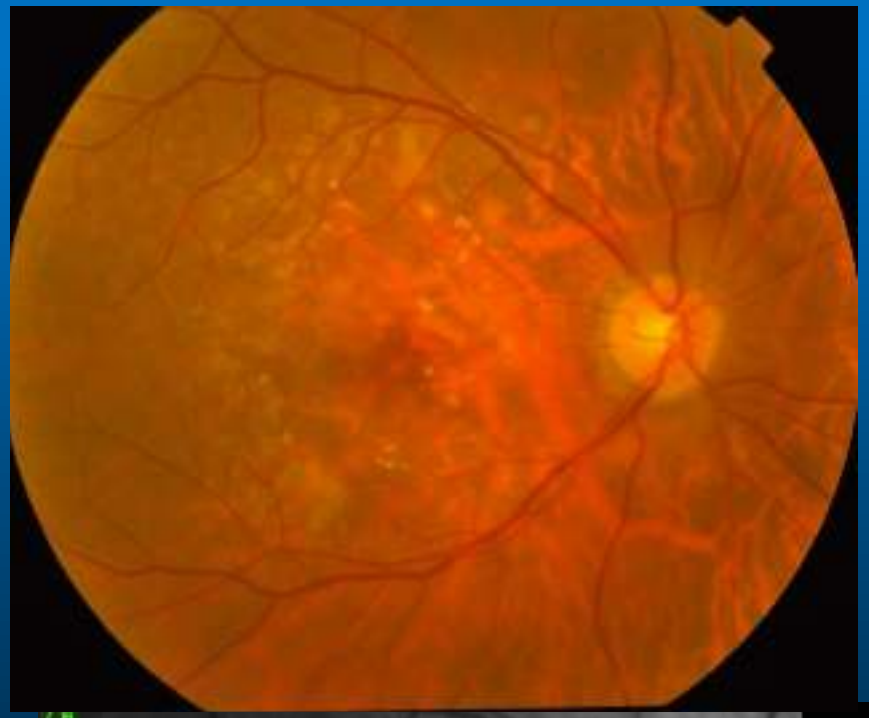


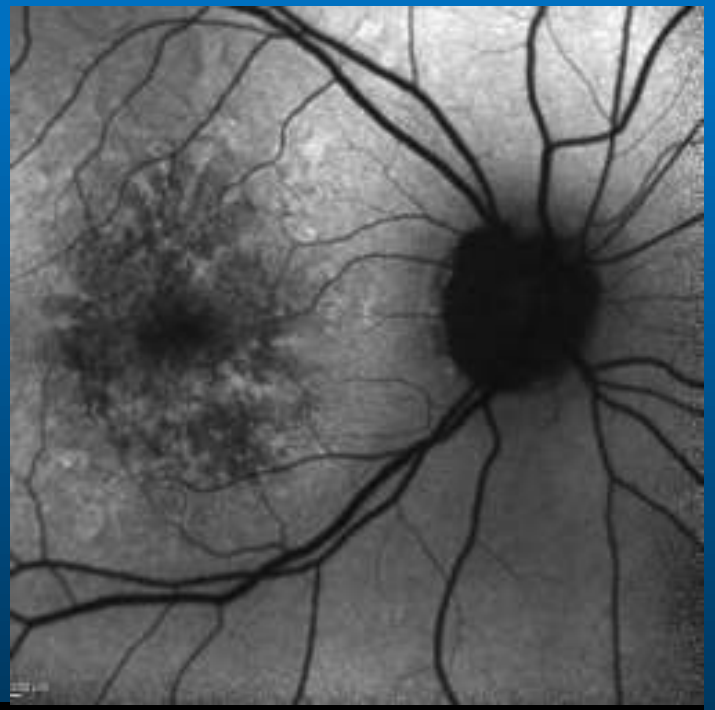


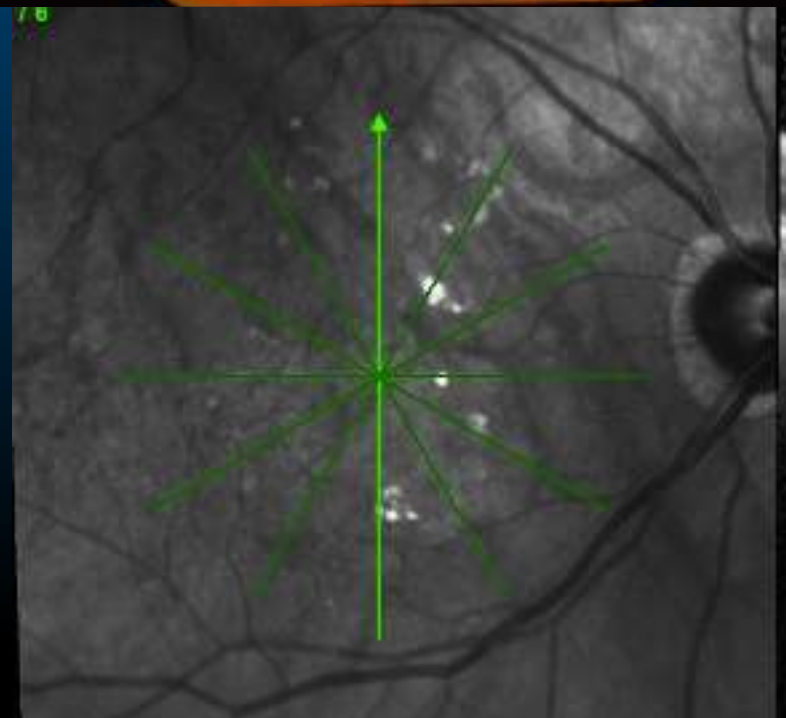


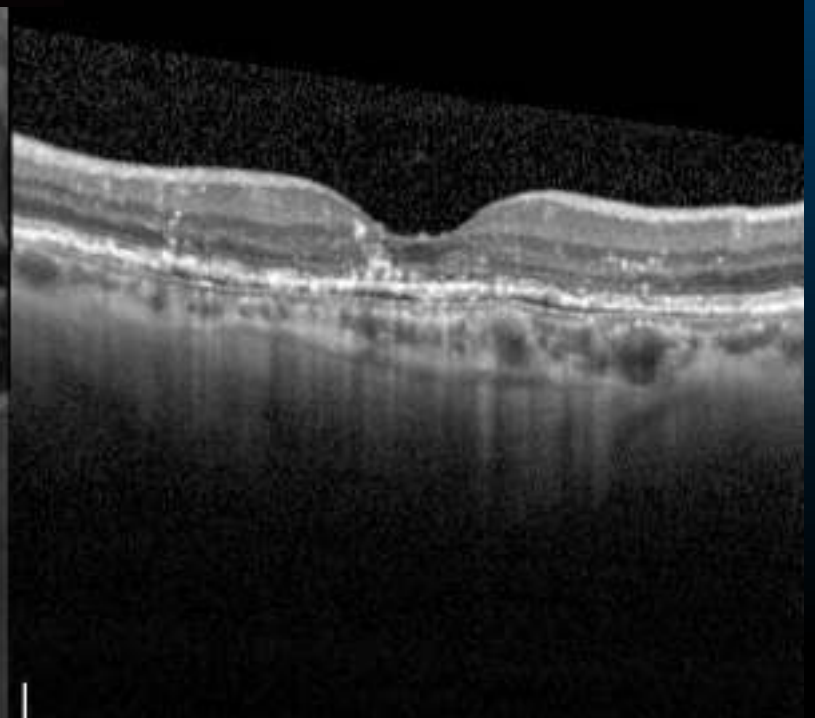


Right eye : follow up without Tx 9 months later

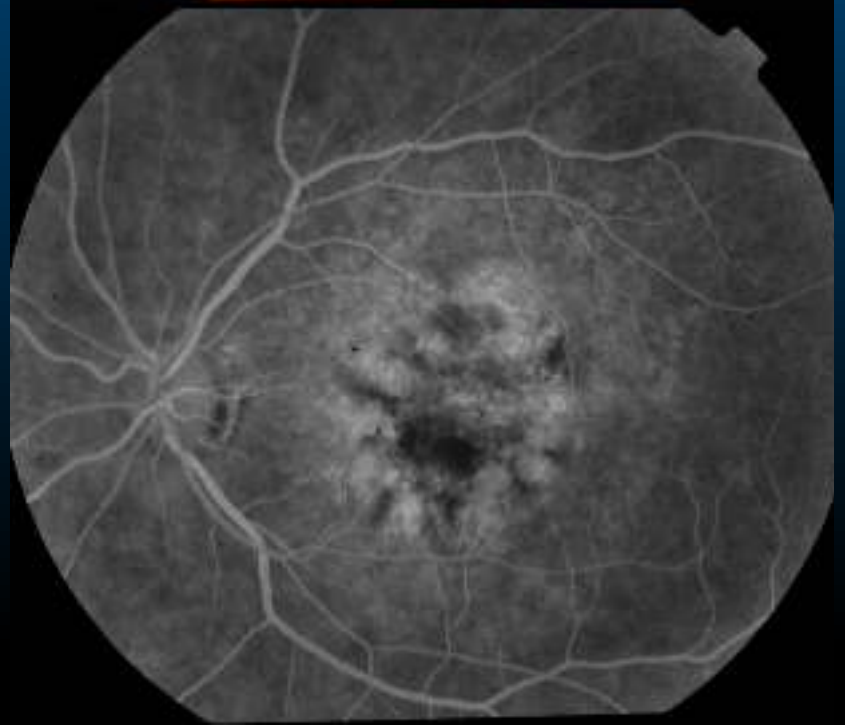


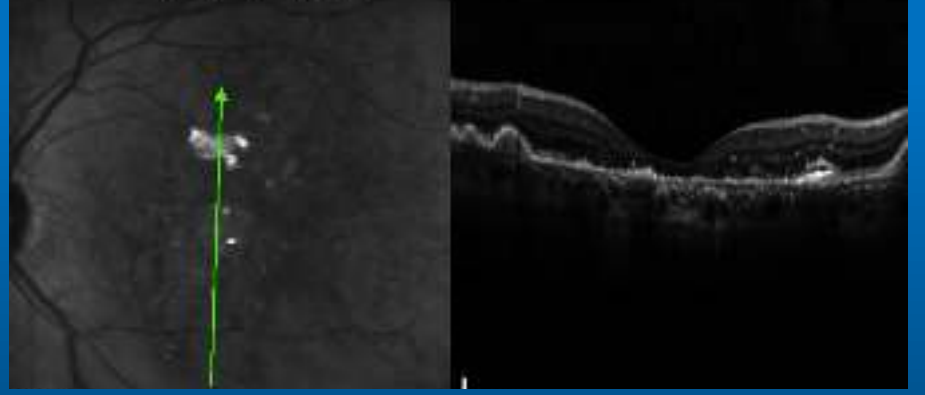


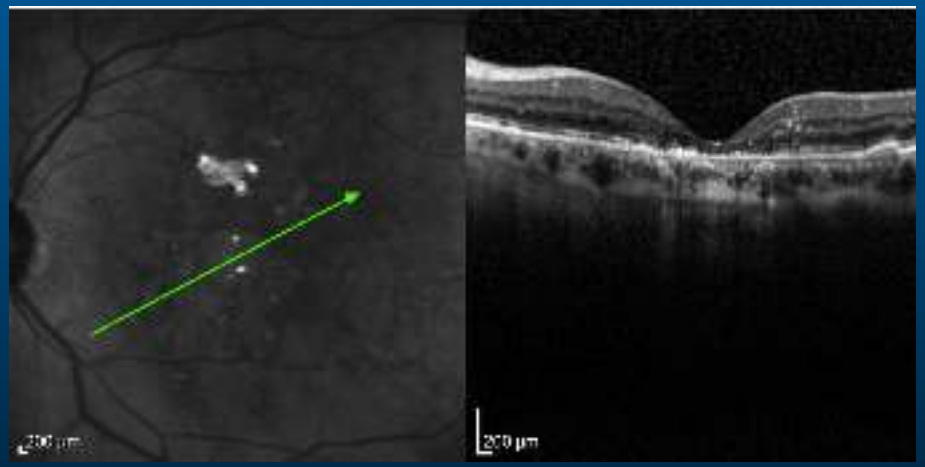


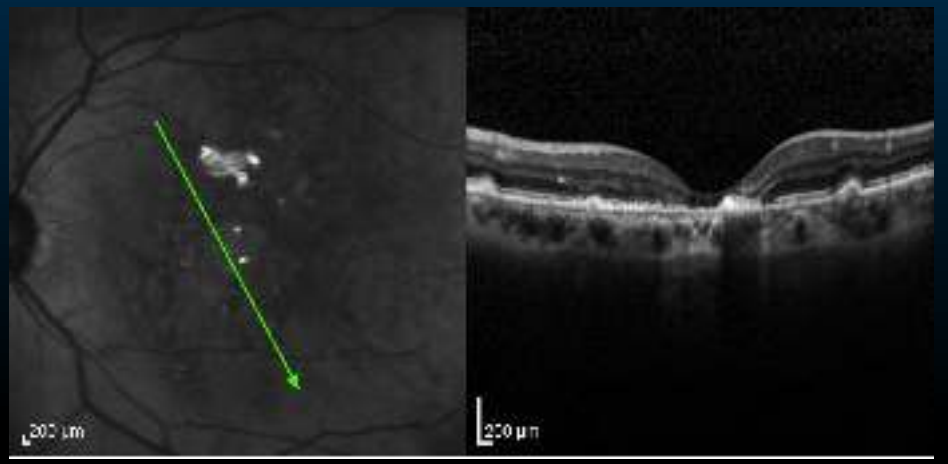


Right eye
1 year later VA 6/36









1.5 years later
VA CF 5/60

Non-neovascular age-related macular degeneration with subretinal fluid

Assaf Hilely,[1] Adrian Au,[2] K Bailey Freund,[3] Anat Loewenstein,[1] Eric H Souied,[4] Dinah Zur ,[1] Riccardo Sacconi,[5] Enrico Borrelli ,[5] Enrico Peiretti ,[6] Claudio Iovino,[6] Yoshimi Sugiura,[7] Abdallah A Ellabban,[8,9] Jordi Monés,[10] Nadia K. Waheed ,[11] Sengul Ozdek,[12] Duygu Yalinbas ,[12] Sarah Thiele ,[13] Luísa Salles de Moura Mendonça,[11] Mee Yon Lee,[14] Won Ki Lee,[15] Pierre Turcotte,[16] Vittorio Capuano,[4] Meryem Filali Ansary,[4] Usha Chakravarthy,[17] Albrecht Lommatzsch,[18] Frederic Gunnemann,[18] Daniel Pauleikhoff,[18] Michael S Ip,[19] Giuseppe Querques ,[5] Frank G Holz,[13] Richard F Spaide,[3] SriniVas Sadda ,[19] David Sarraf[2,20]

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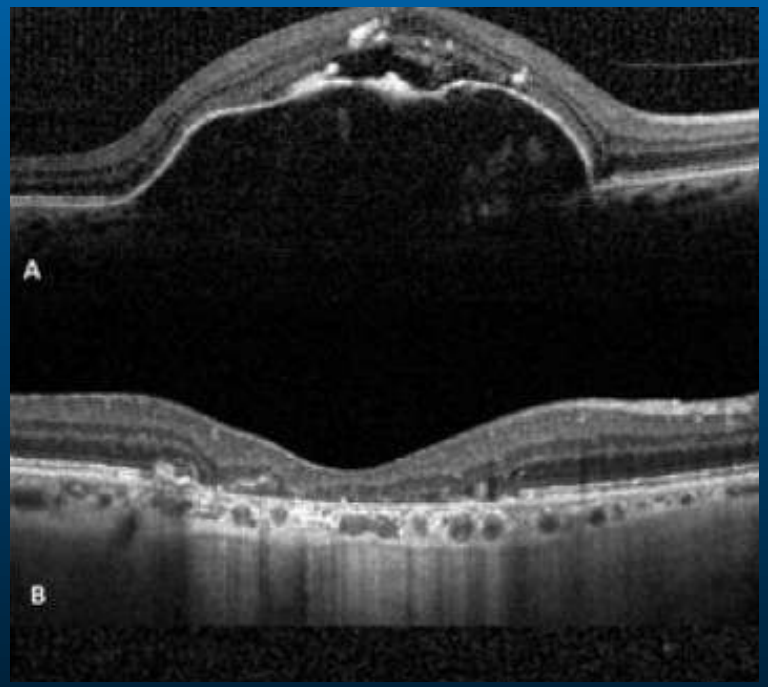
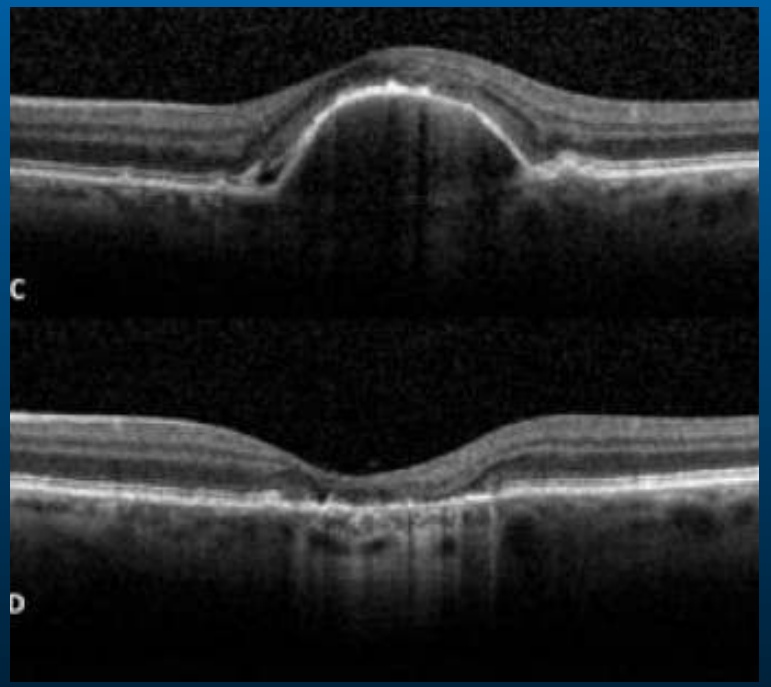
Conclusion Non-neovascular AMD with SRF is an important clinical entity to recognise to avoid unnecessary anti-vascular endothelial growth factor therapy. Clinicians should be aware that SRF can be associated with drusen or drusenoid PED in the absence of MNV and may be the result of retinal pigment epithelial (RPE) decompensation and RPE pump failure.

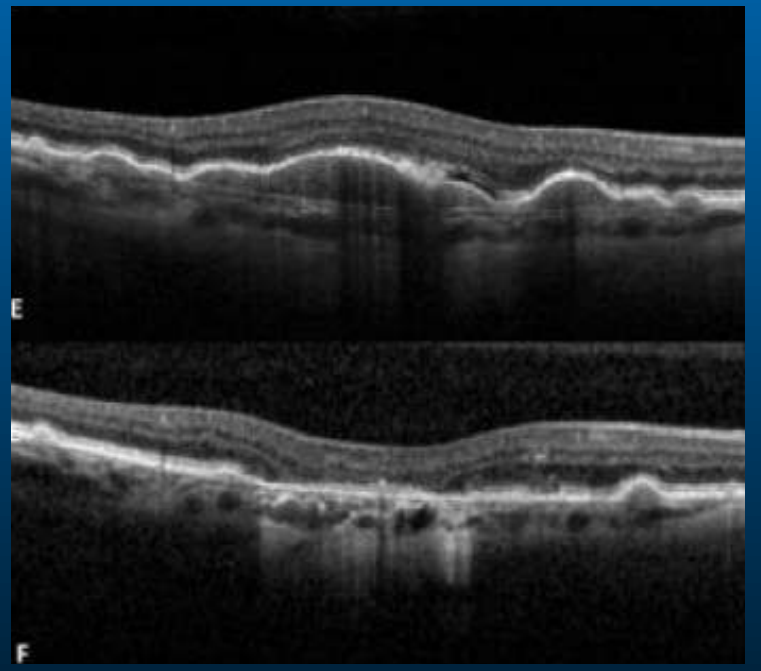
3 PATTERNS OF NON-NEOVASCULAR INTERMEDIATE AMD



(A) Spectral-domain optical coherence tomography (SD-OCT) illustrates drusenoid PED with crest of SRF associated with an acquired vitelliform lesion and focal retinal pigment epithelium (RPE) thickening, including intraretinal hyper-reflective foci. (B) At the 5-year follow-up visit, the drusenoid PED is collapsed with development of complete RPE and outer retinal atrophy (cRORA).



[redacted] (C) SD-OCT illustrates drusenoid PED with SRF located at the angle or crypt of the PED. (D) At the 10-month follow-up visit, the PED is collapsed with progression to cRORA. (E) SD-OCT illustrates



[redacted] (E) SD-OCT illustrates drusenoid PED with low-lying drape of SRF. (F) At the 7-year follow-up visit, the drusenoid PED is collapsed with progression to cRORA.

TAKE HOME MESSAGE

- Clinically Silent CNV is a newly introduced stage of AMD and only diagnosed by OCTA
- Follow up of these cases by structural OCT and OCTA is the method of choice in evaluating the activity of silent CNV
- IV Anti VEGF injections is only indicated when the CNV shows sign of activity
- Patients with growing MNV or developing more vascularization suffer from a higher probability of and a shorter time period before the onset of exudation

TAKE HOME MESSAGE

- Non-neovascular AMD (RPED with SRF) describe AMD eyes with fluid in the absence of documented evidence of CNV (confirmed by multimodal imaging including OCTA)
- Pathogenesis : hypoxia-induced RPE pump failure due to the large distance of the outer retina and RPE from the underlying choroid
- Non-neovascular AMD with SRF is an important to recognize to avoid unnecessary anti-vascular endothelial growth factor therapy.

THANK YOU