

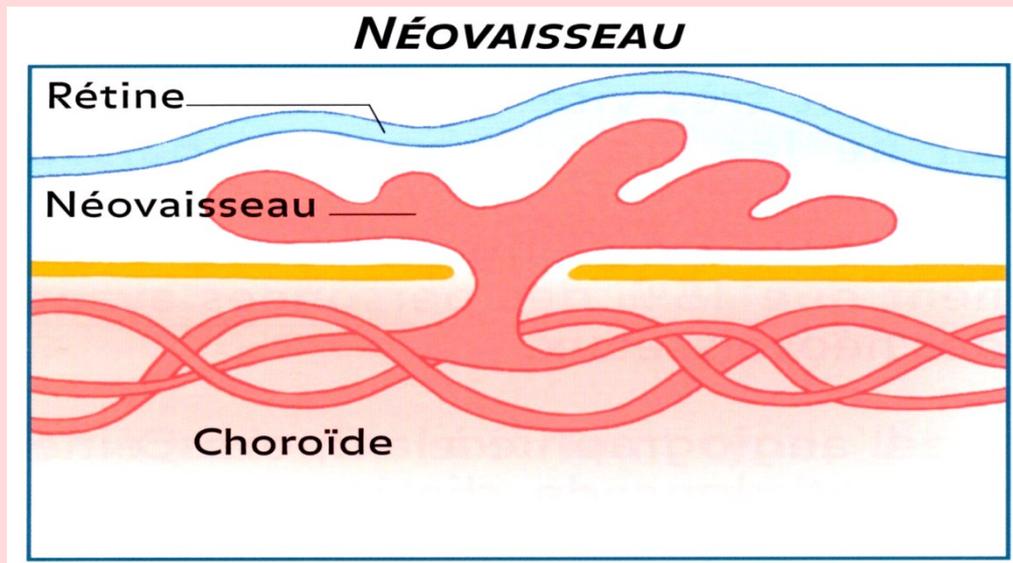
DMLA: une vue d'ensemble

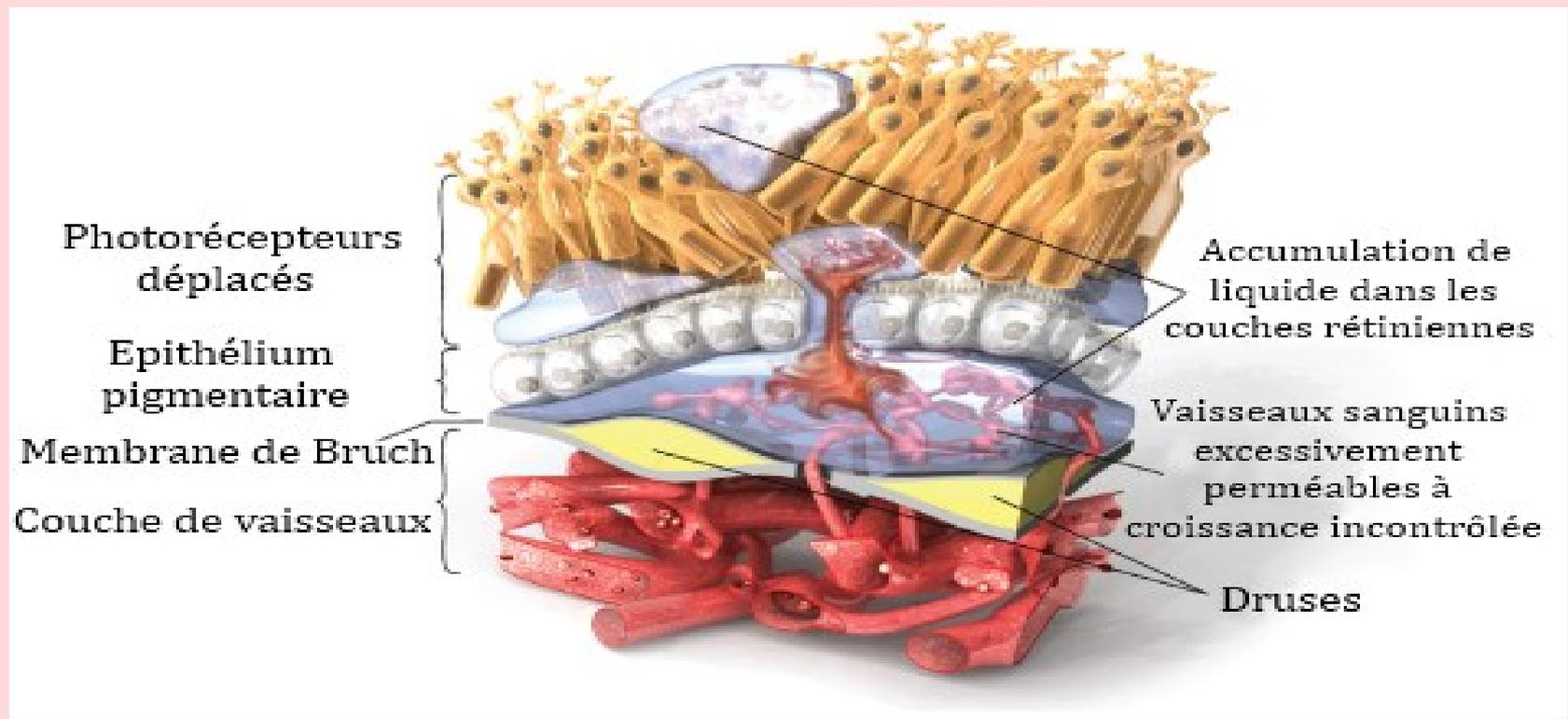
Salomon Yves Cohen

Centre d'Imagerie et de Laser, Paris
Université Paris Est, Créteil

DMLA exsudative

- DMLA néovasculaire
- DMLA humide



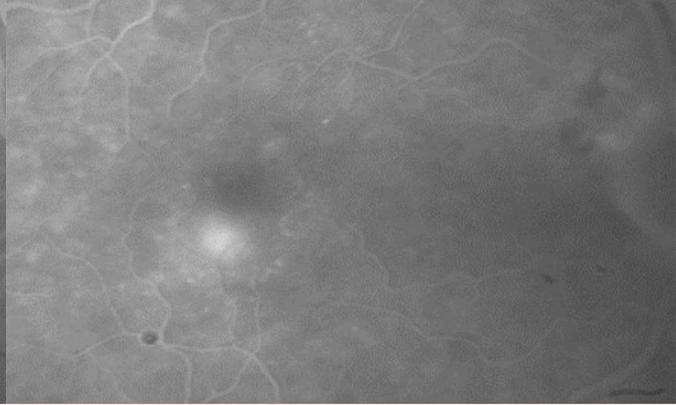
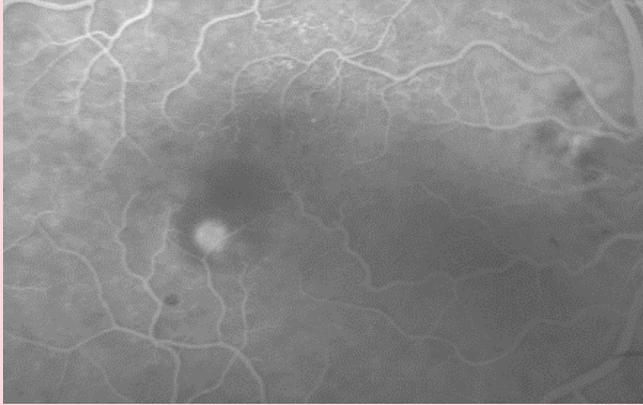
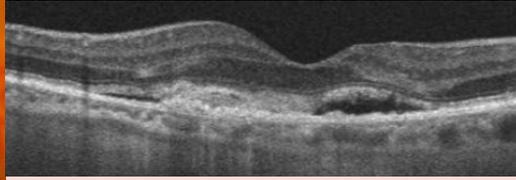
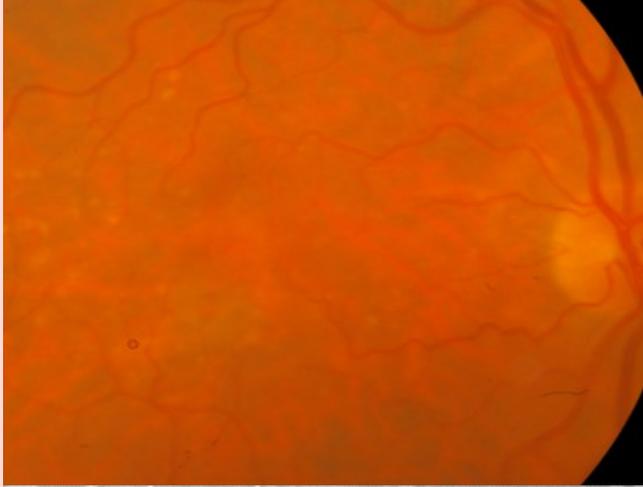


Symptômes

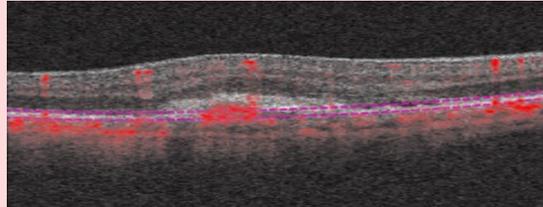
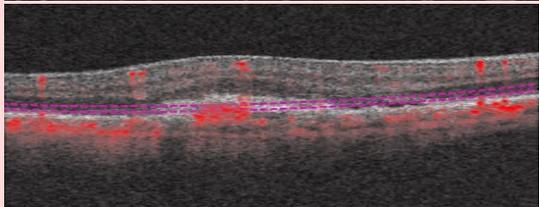
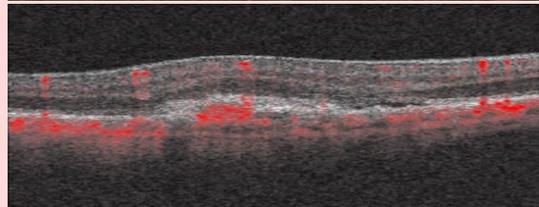
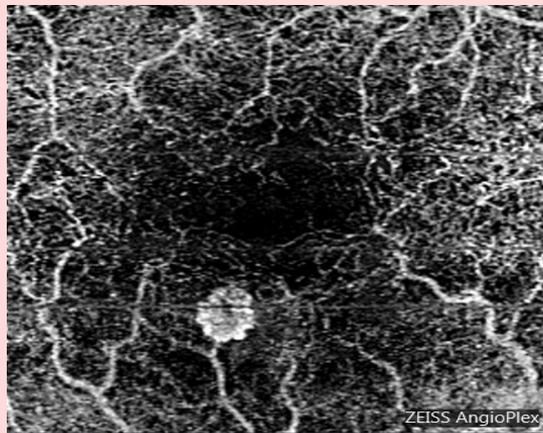
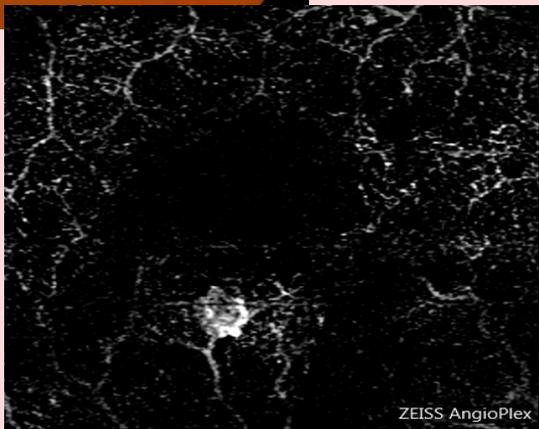
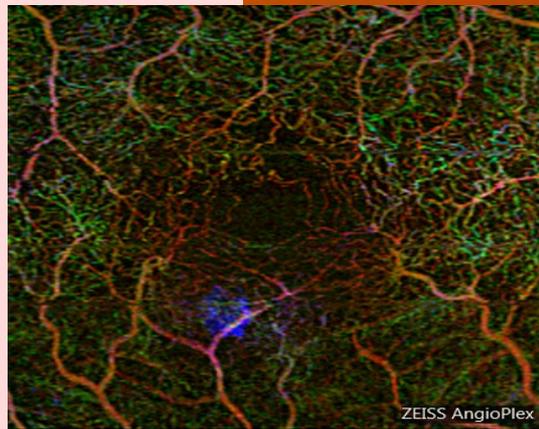
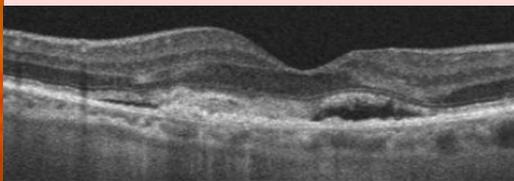
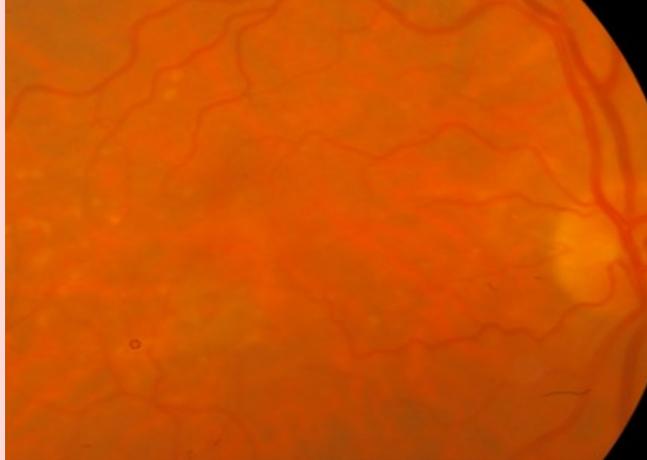
- Métamorphopsies récentes
- Flou visuel
- Scotome central

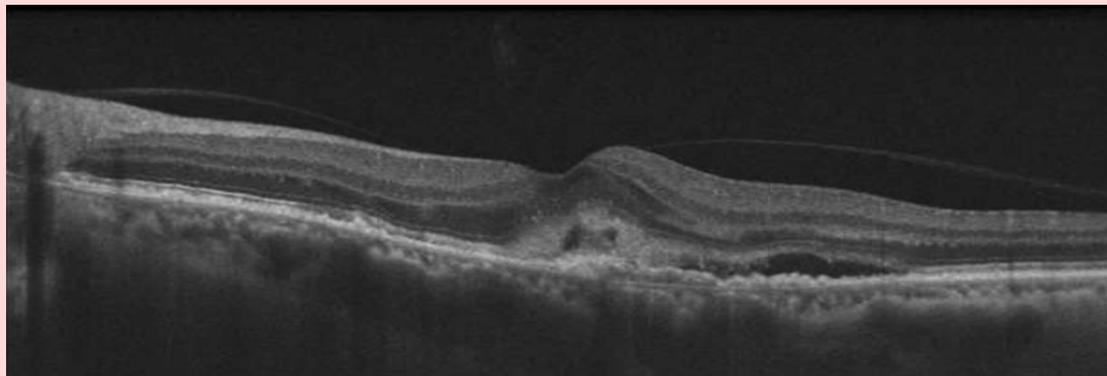
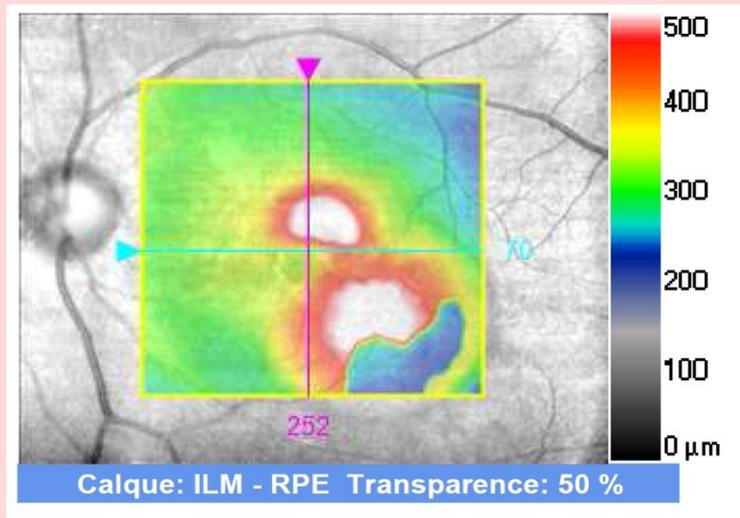
Diagnostic

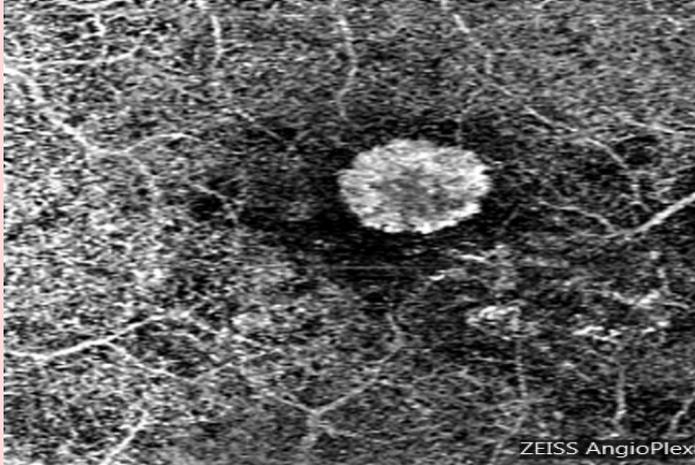
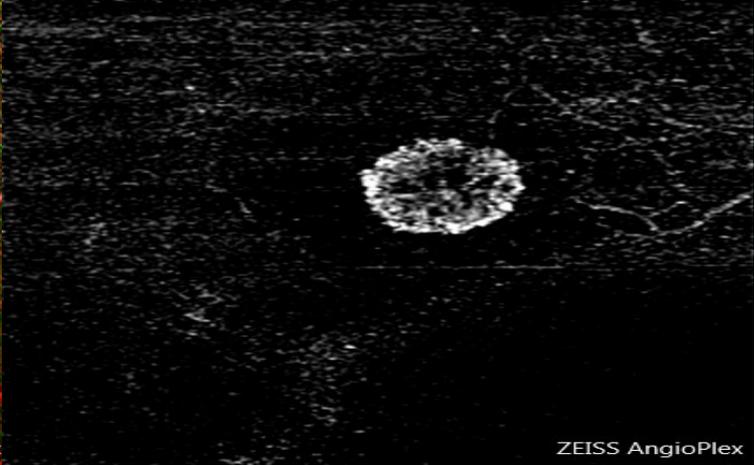
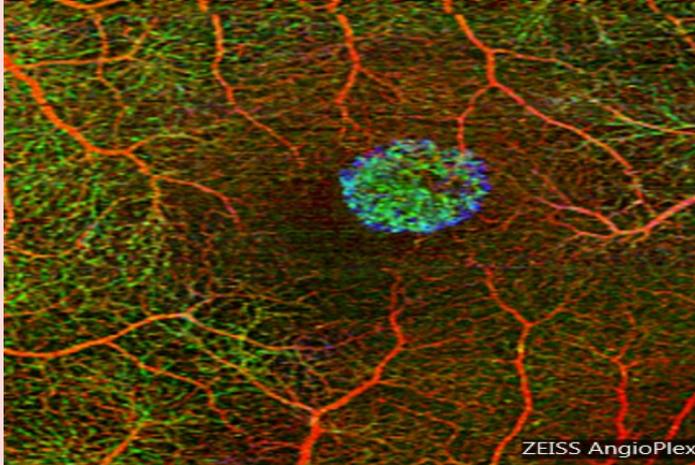
- Interrogatoire
- FO: lésion grisâtre, DSR, hémorragies, parfois exsudats
- OCT couplé à OCT-A
 - Diagnostic des néovaisseaux
 - Classification: type 1, 2 ou 3

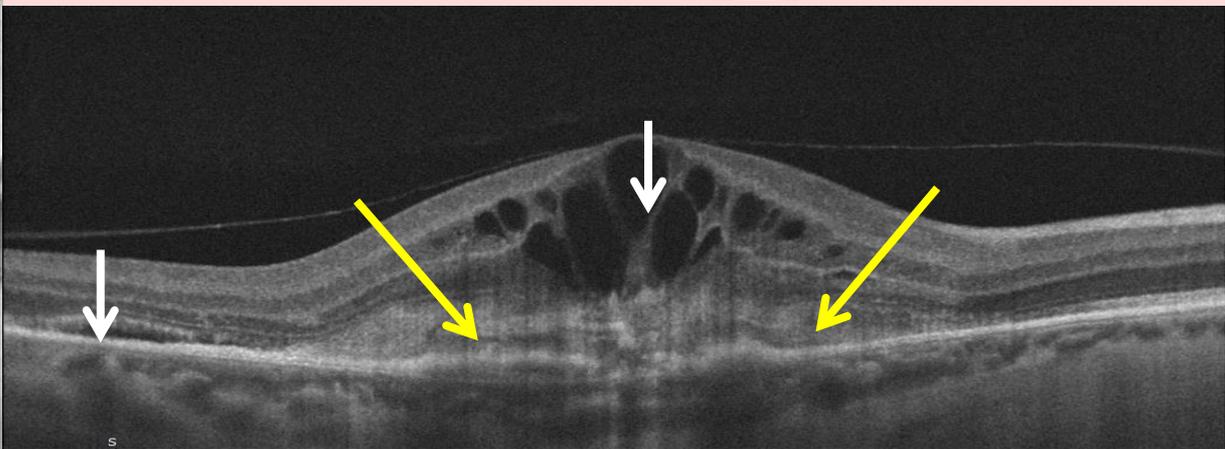
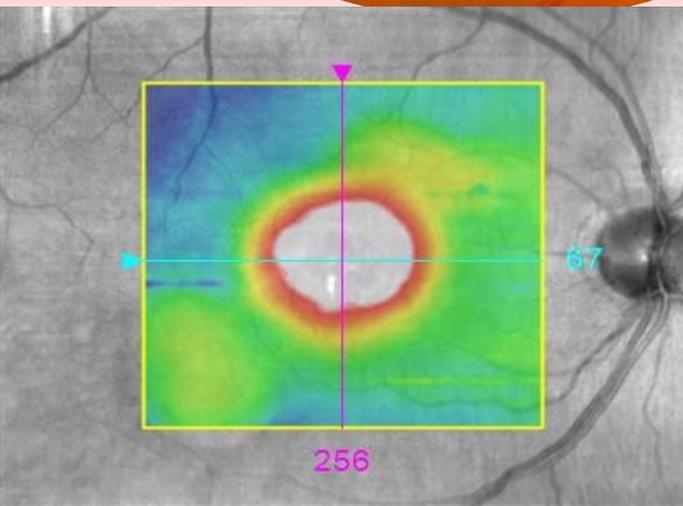


Type 2 ou classique ou visible ou pré-épithélial









Diagnostic

OCT couplé à OCT-A

Diagnostic des néovaisseaux de type 2

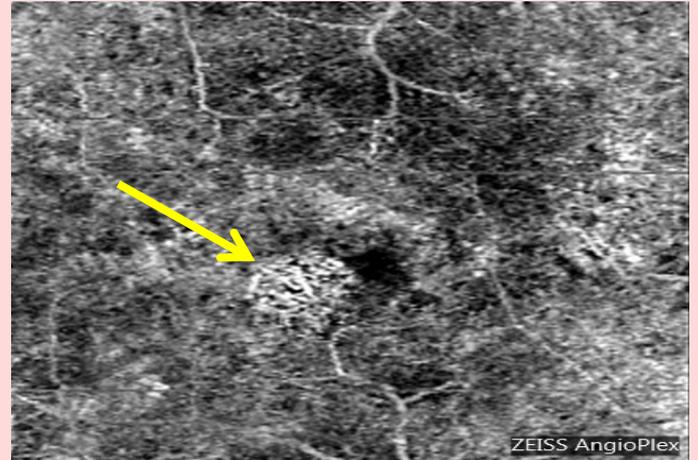
Signes d'exsudation:

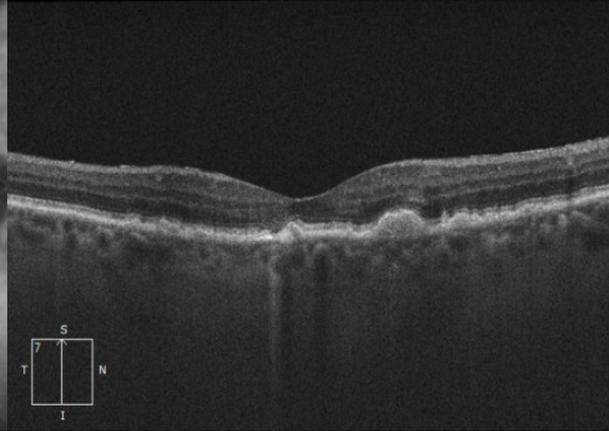
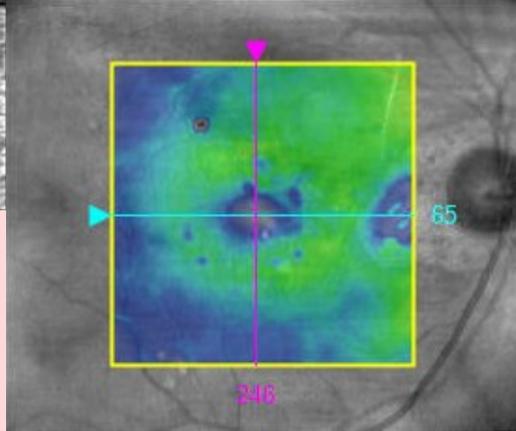
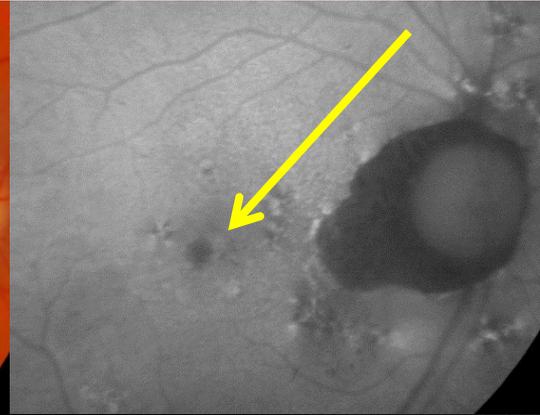
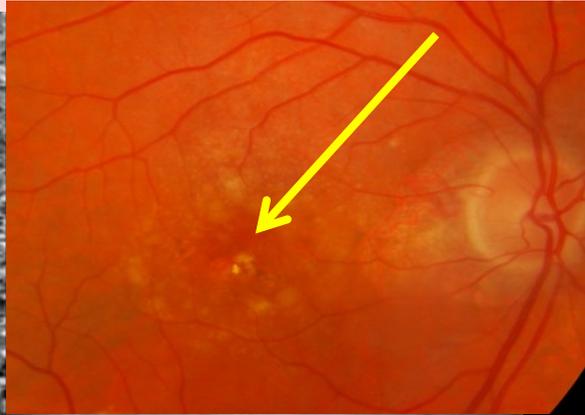
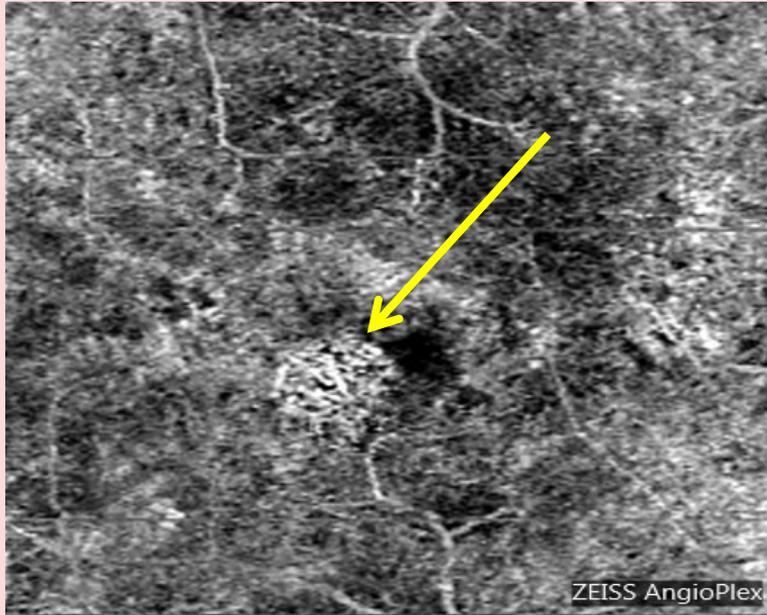
Décollement séreux rétinien

Œdème

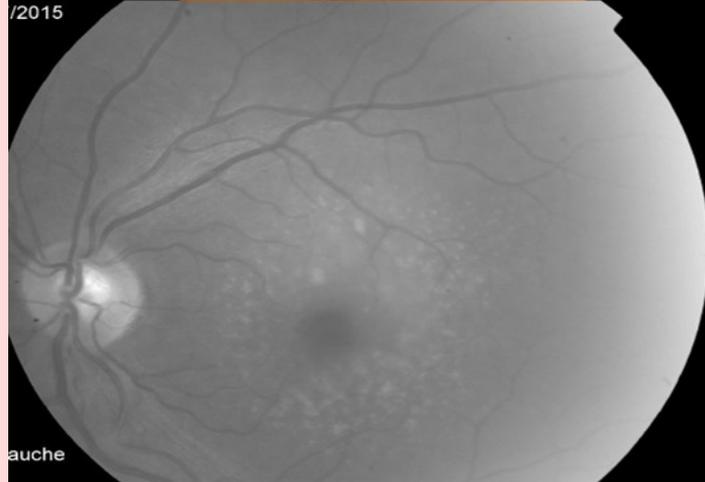
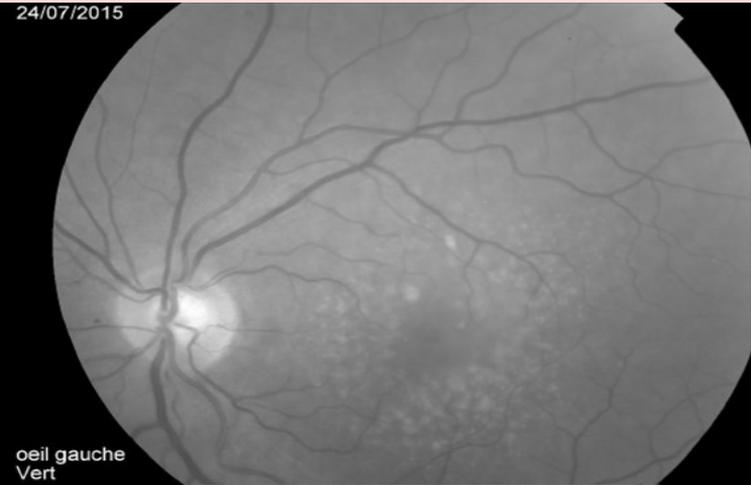
Lésion hyper-réfléctive sous-rétinienne

Mauvaise interpretation of images
= faux positif



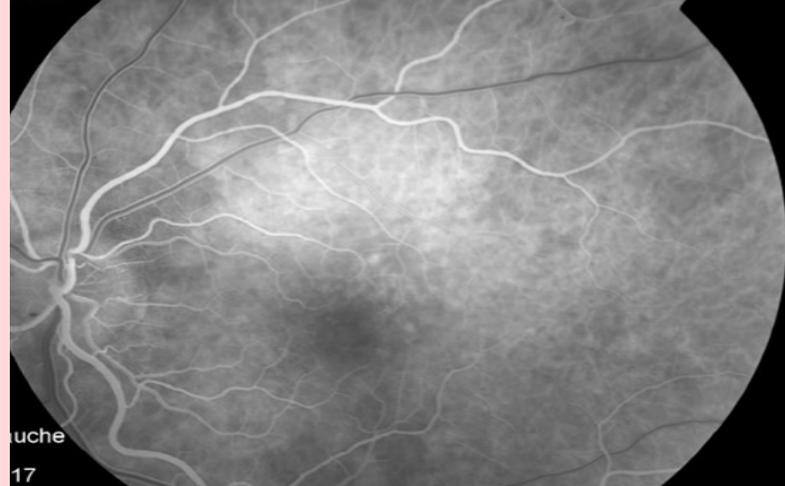


« Effet fenêtre »



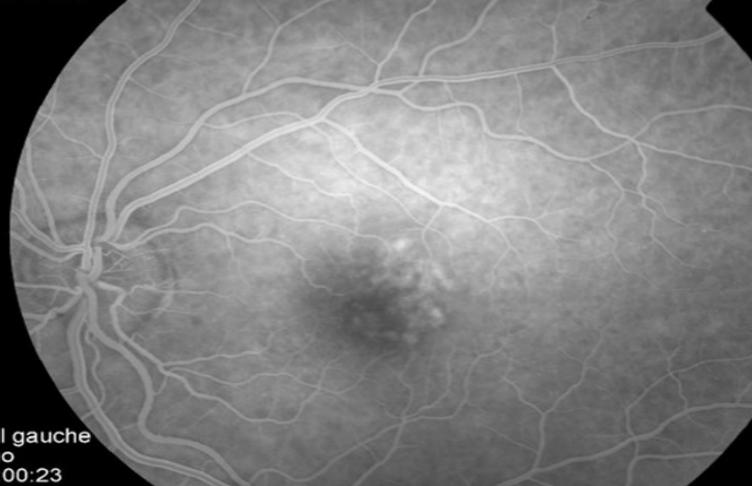
Type 1 ou Occulte ou Rétro-Epithélial

2015

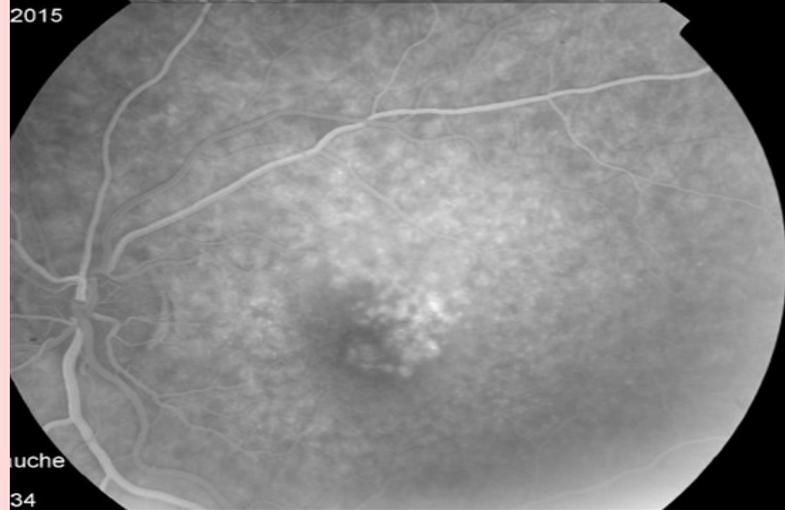


oeil gauche
17
2015

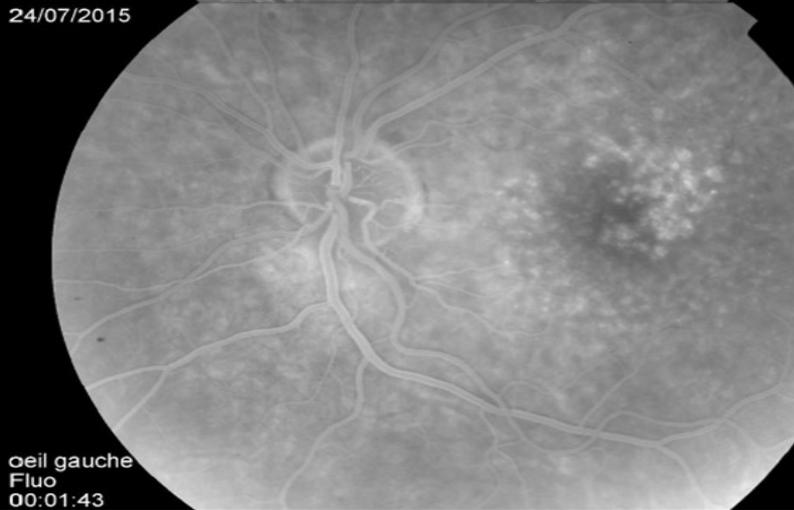
24/07/2015



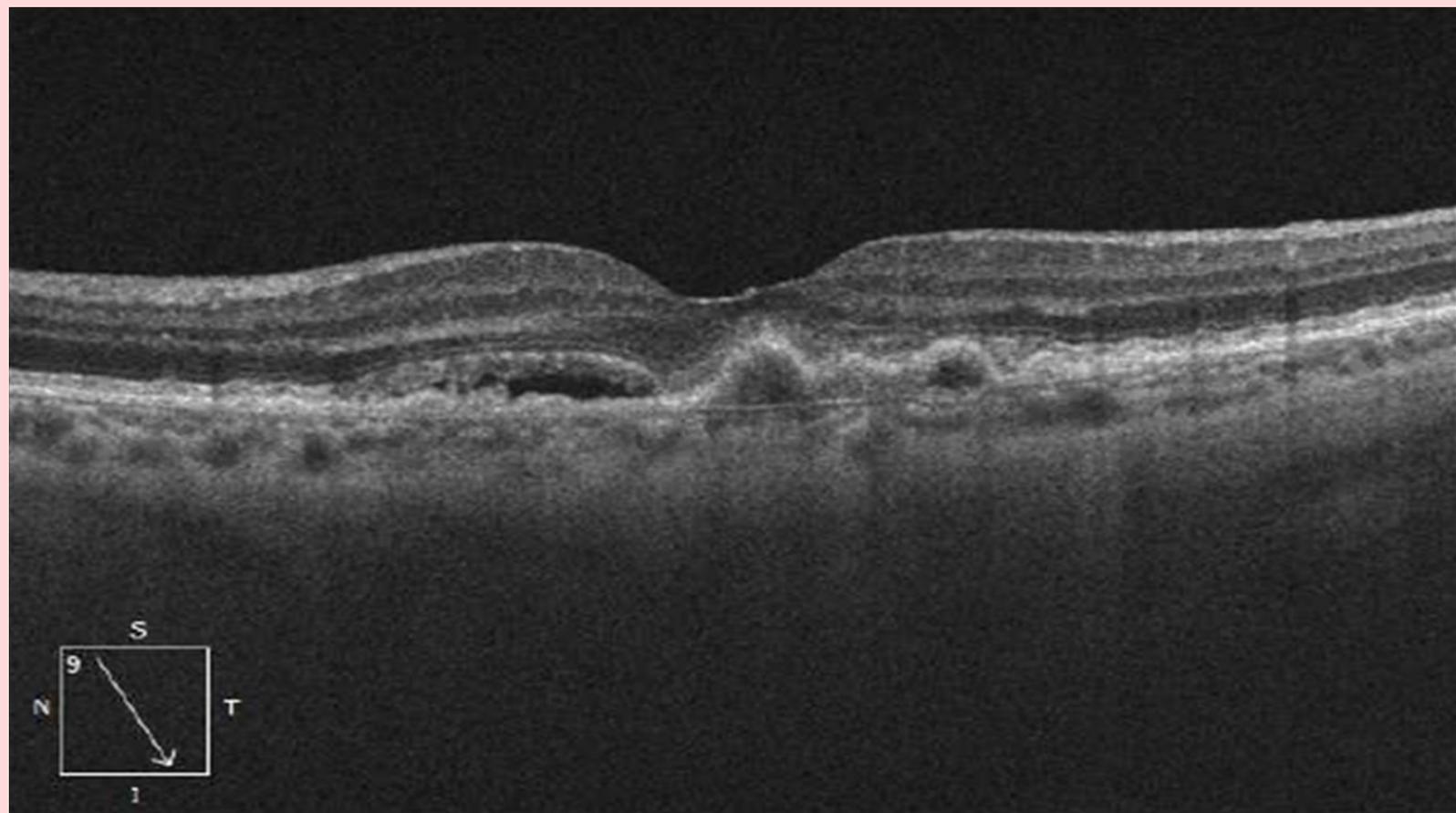
oeil gauche
Fluo
00:00:23
24/07/2015



oeil gauche
34



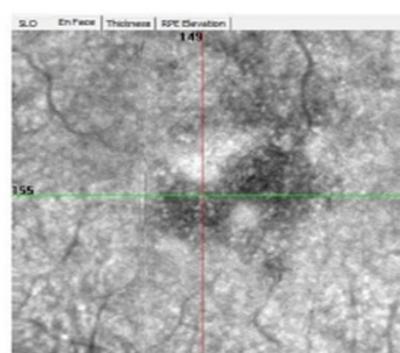
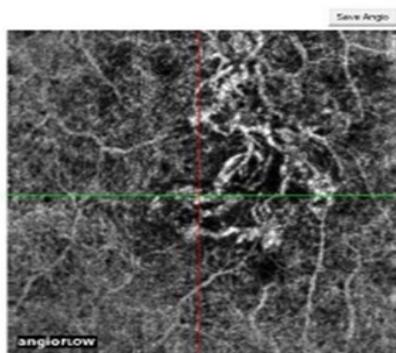
oeil gauche
Fluo
00:01:43



Angio Retina

Signal Strength Index 62

Left / OS



Save Settings

Restore Settings

Reference

Superficial

Deep

Outer Retina

Chorioid Cap

Upper - RPE Ref

Offset (um)

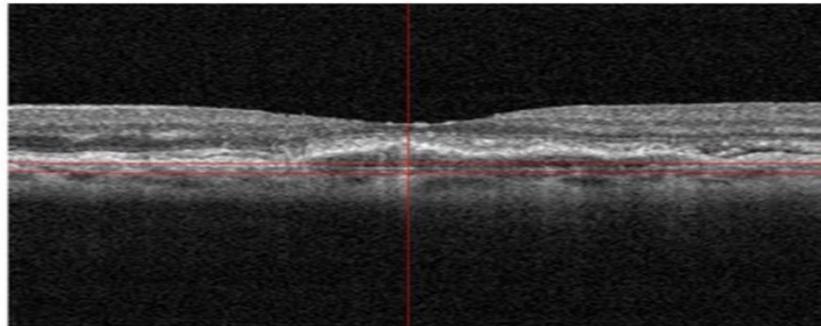
22 ...

Lower - RPE Ref

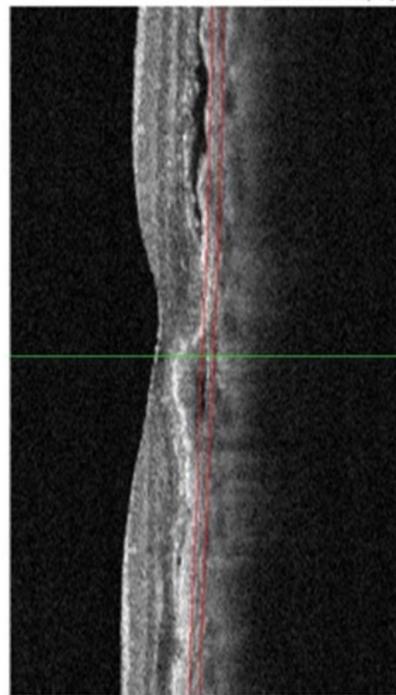
Offset (um)

77 ...

Flatten End



2.00 x 2.00 Scan Size (mm)



3D Display

Overlay

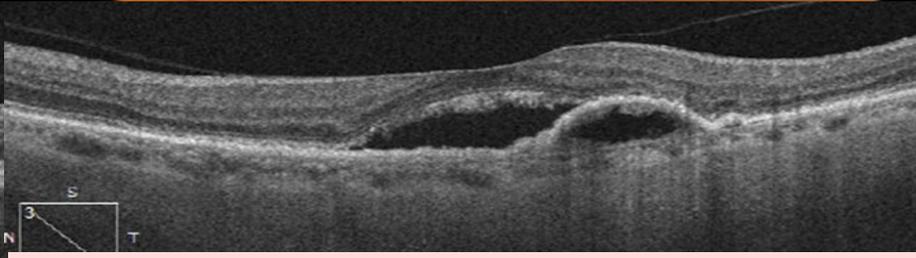
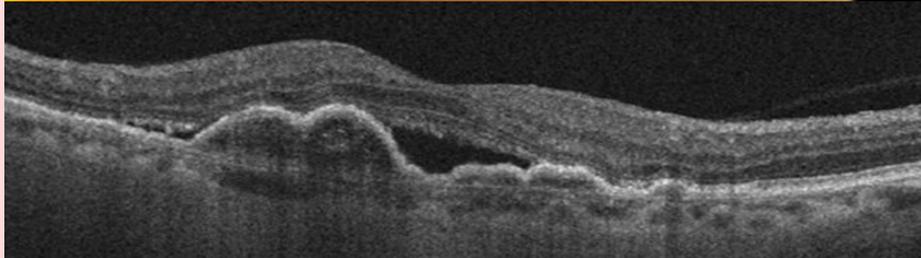
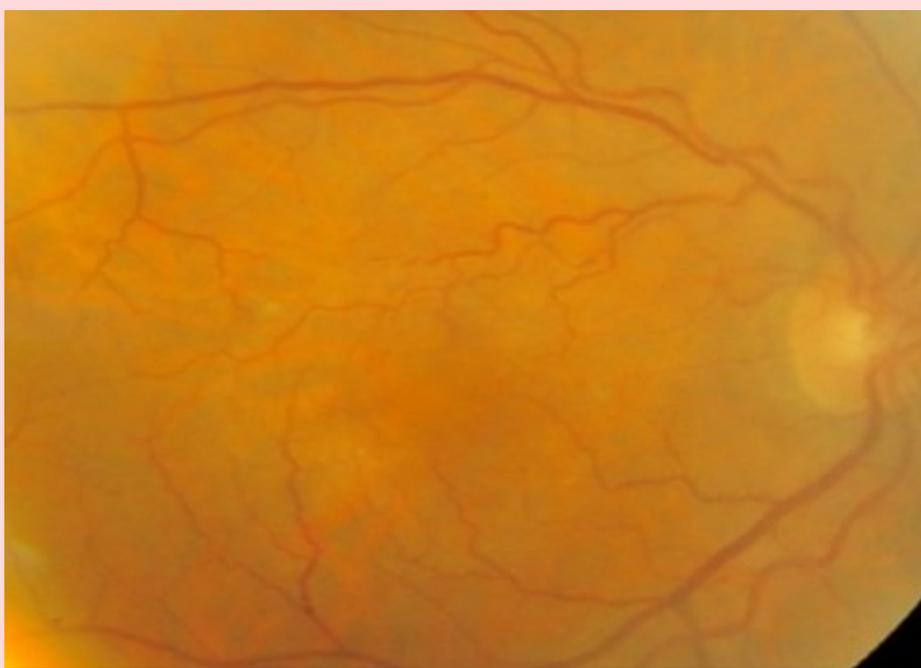
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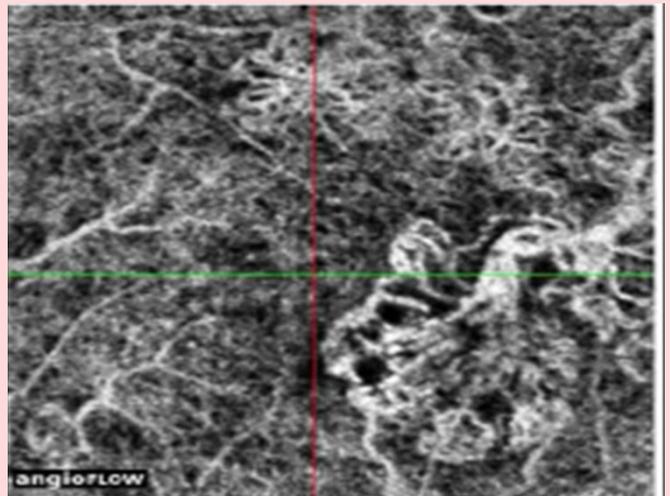
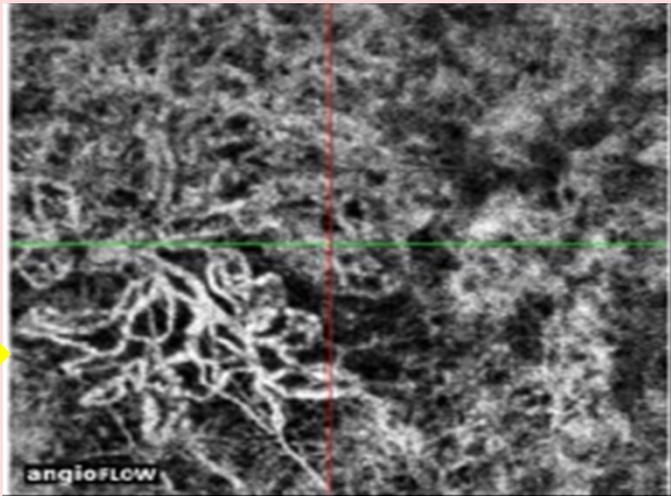
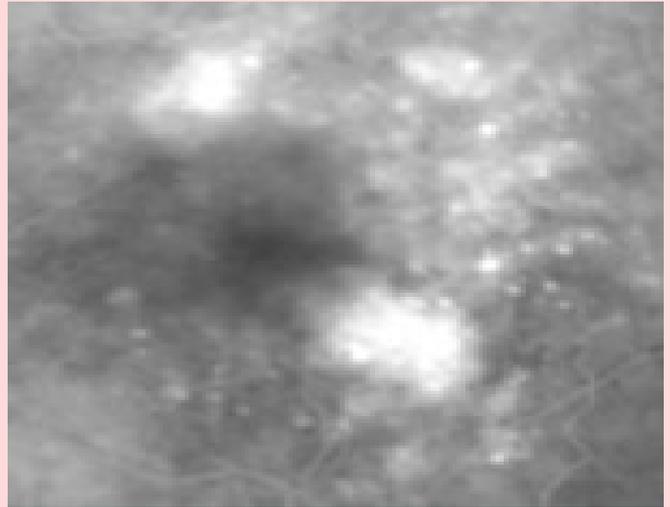
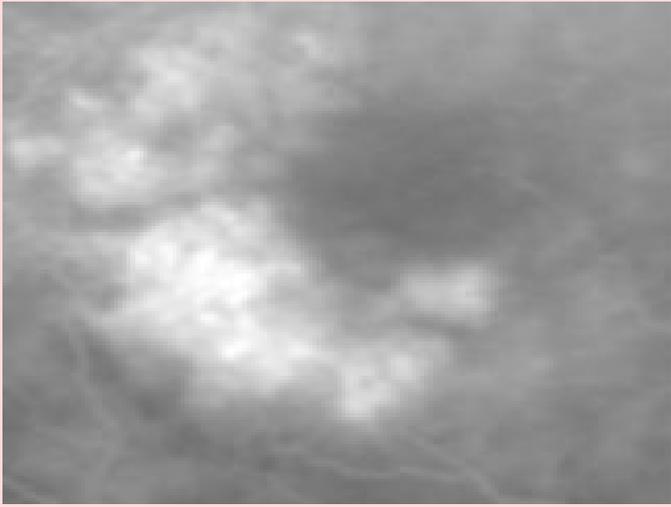
Show End

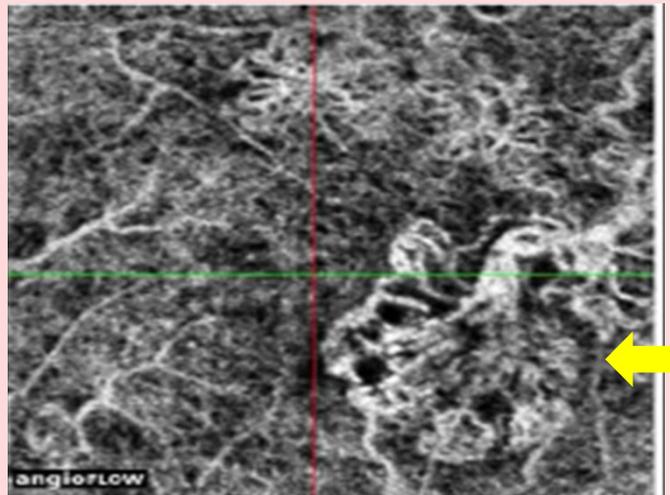
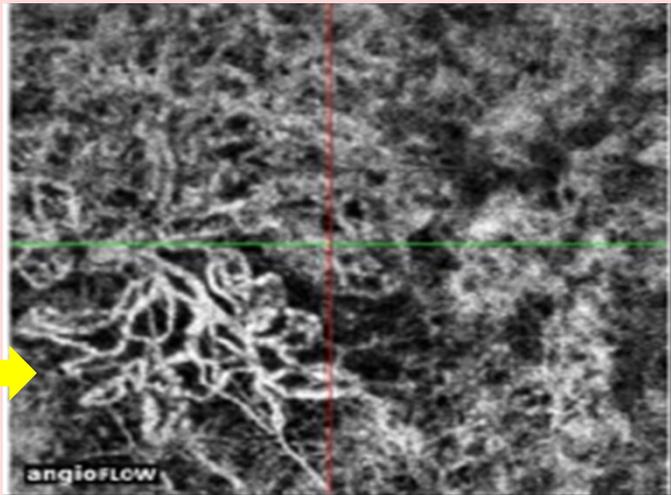
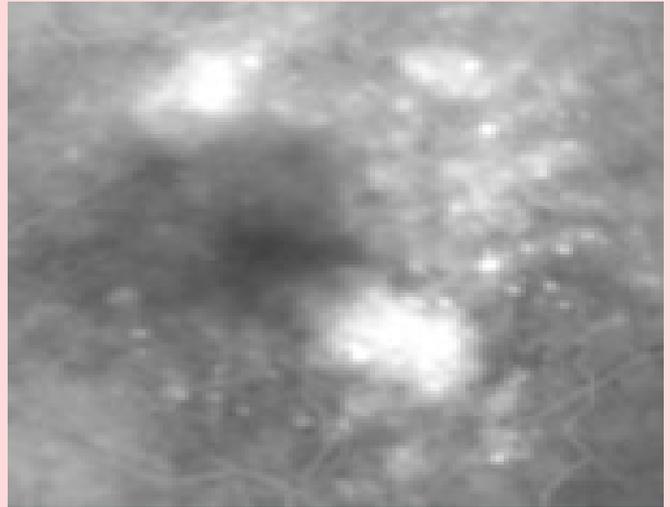
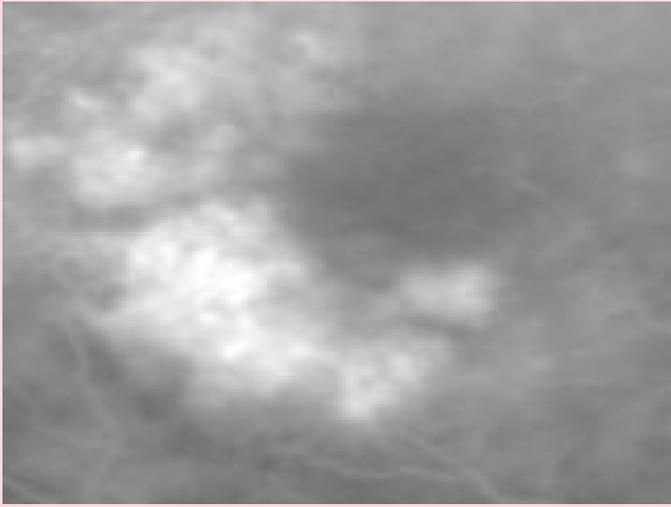
No MCT

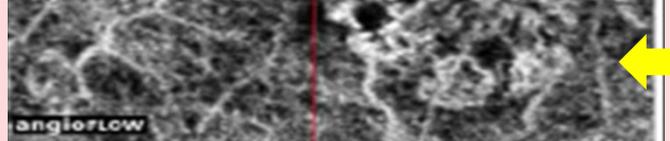
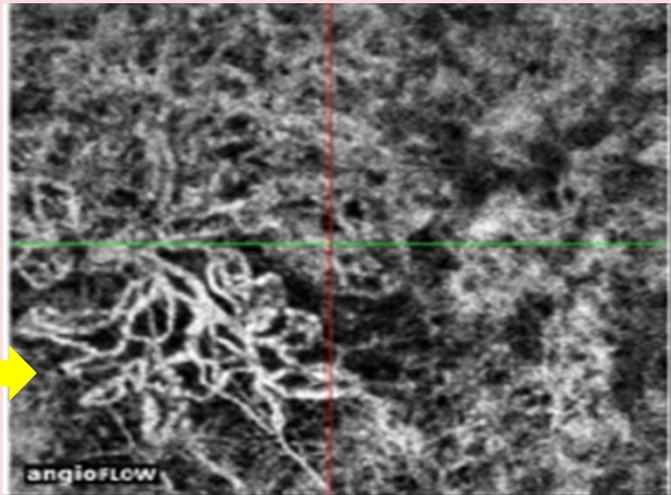
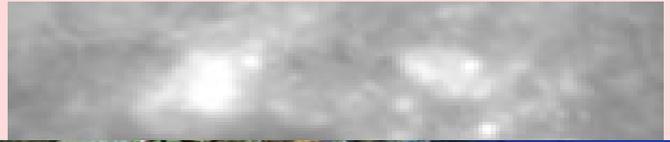
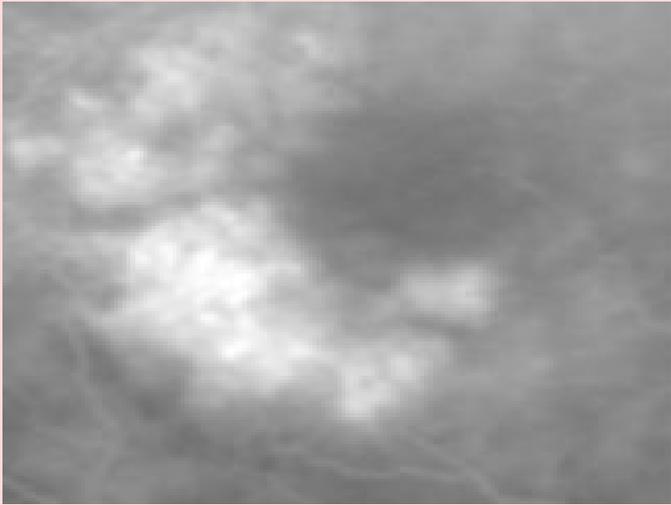
Color

Show Line









Diagnostic

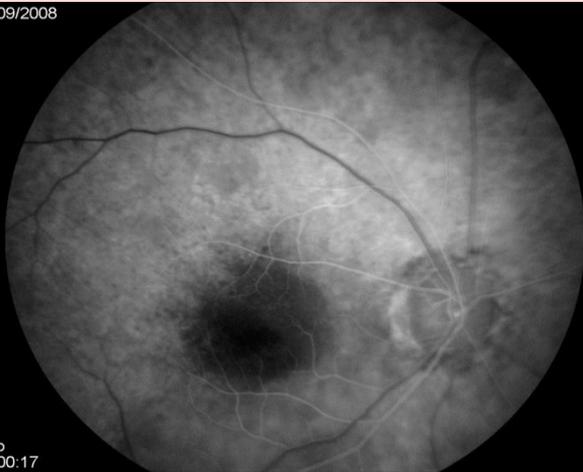
Signes angiographiques en fluo

- hyperfluorescence inhomogène, différée, modérée
- diffusion d'origine imprécise
- pin-points

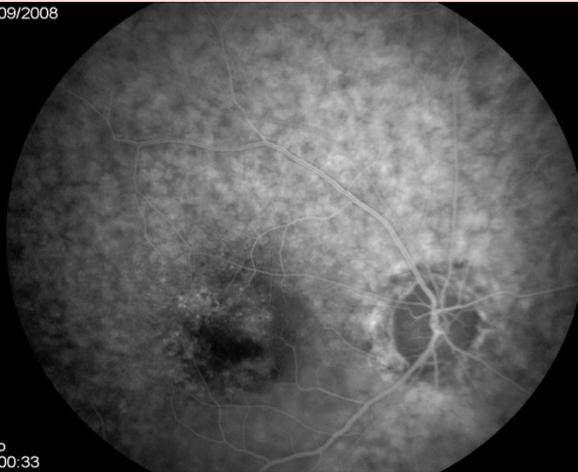
Signes angiographiques indocyanine

- Parfois image du lacis aux temps précoces
- Plaque tardive

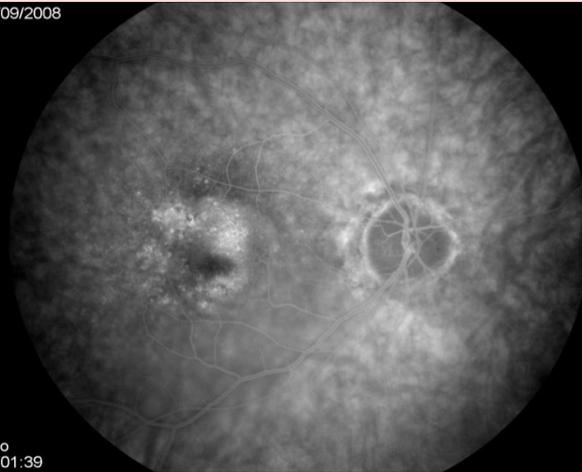
29/09/2008



29/09/2008



29/09/2008

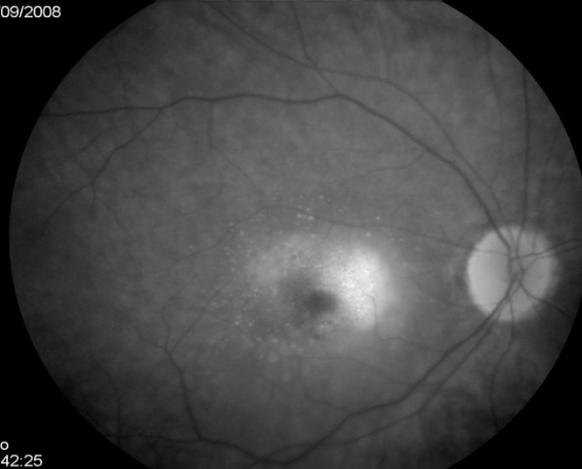
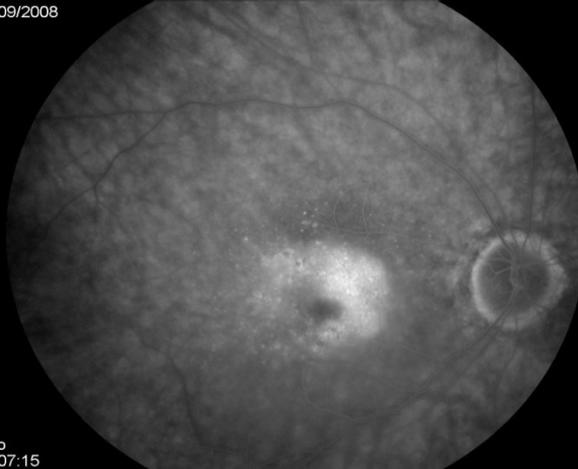
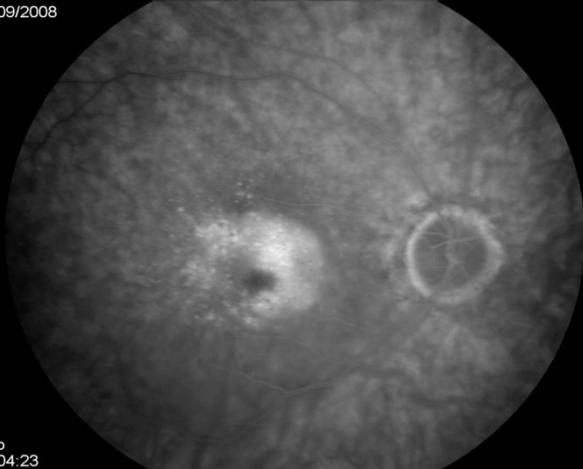


Fluo
00:00:17
29/09/2008

Fluo
00:00:33
29/09/2008

Fluo
00:01:39
29/09/2008

29/09/2008

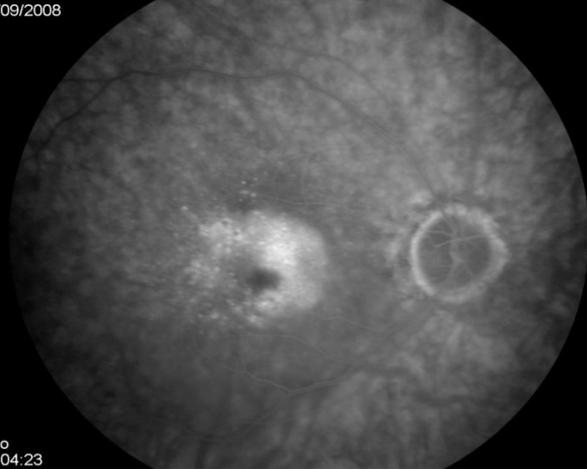


Fluo
00:04:23

Fluo
00:07:15

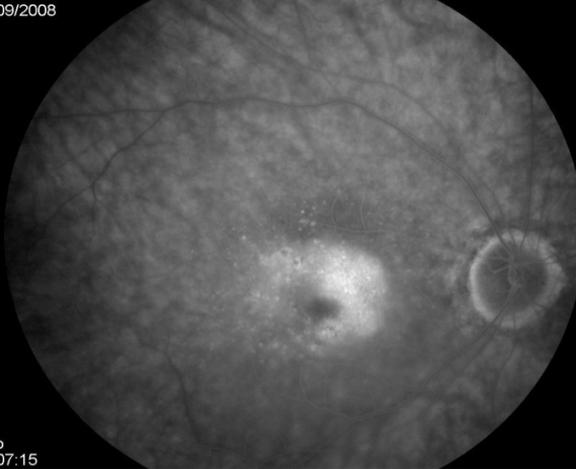
Fluo
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29/09/2008



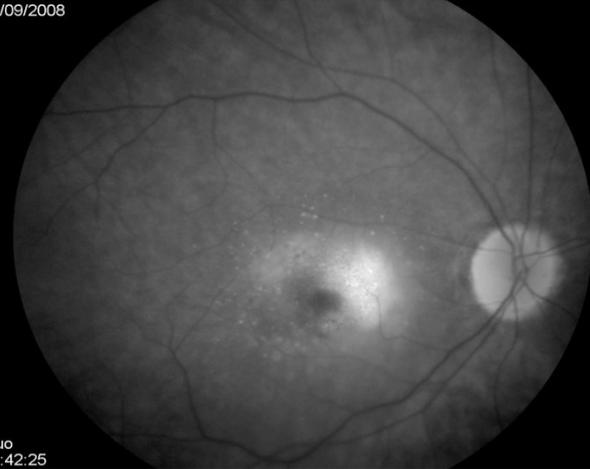
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29/09/2008



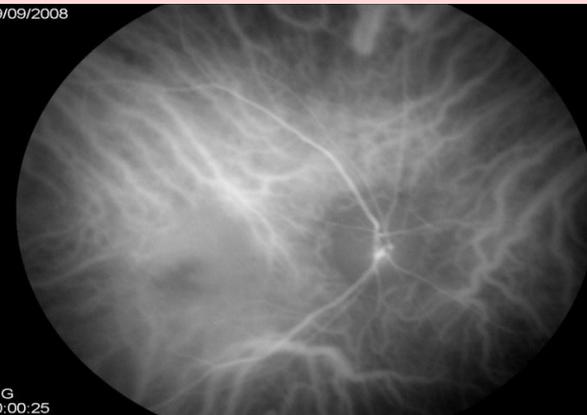
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29/09/2008



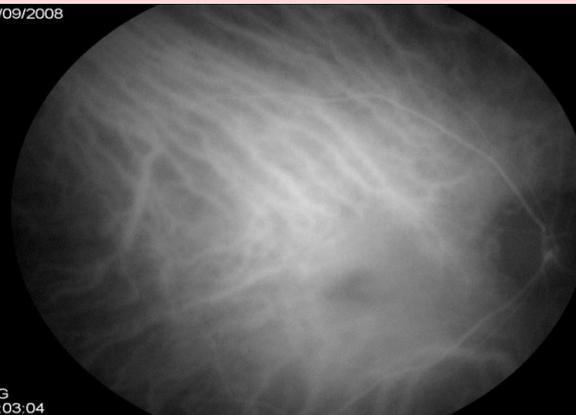
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29/09/2008



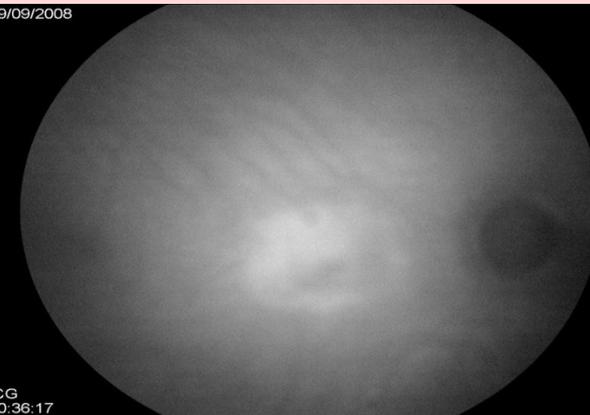
ICG
00:00:25

29/09/2008



ICG
00:03:04

29/09/2008



ICG
00:36:17

Diagnostic actuel

OCT couplé à OCT-A

Diagnostic des néovaisseaux de type 1

Signes d'exsudation:

Soulèvement inhomogène de l'EP

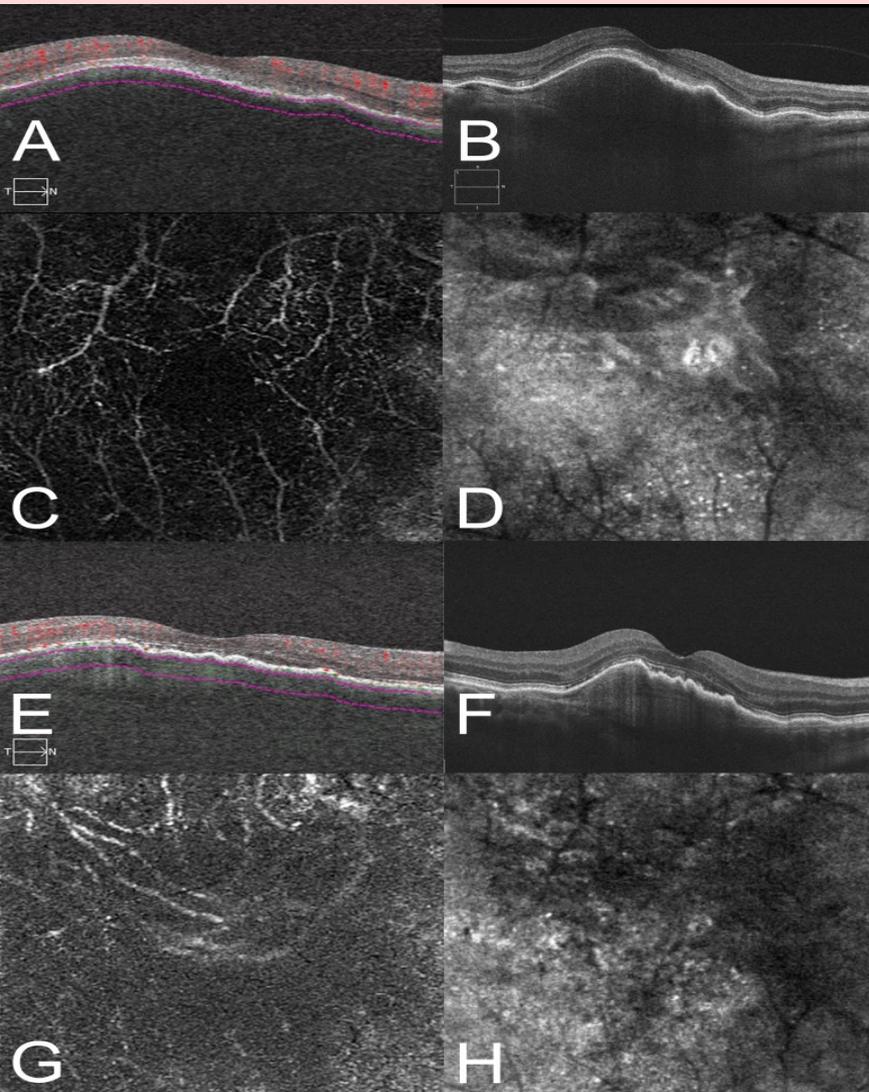
Décollement séreux rétinien

Œdème

Lésion hyper-réfléctive sous-rétinienne

Image du néovaisseau

Méduse, sea-fan...



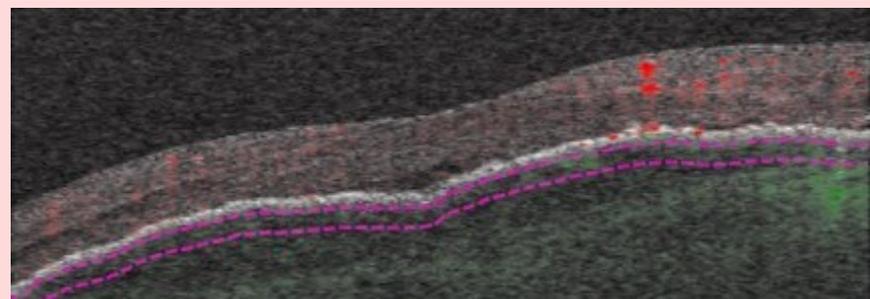
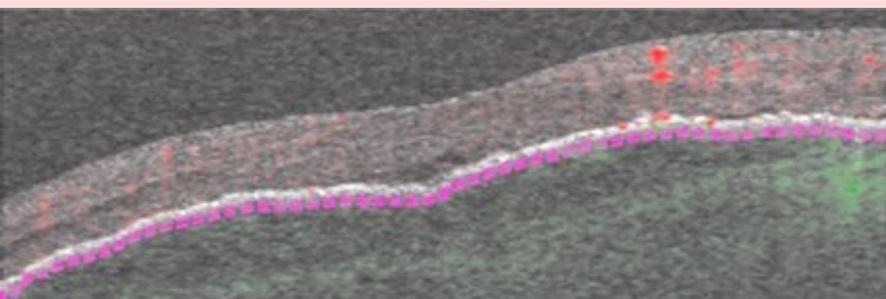
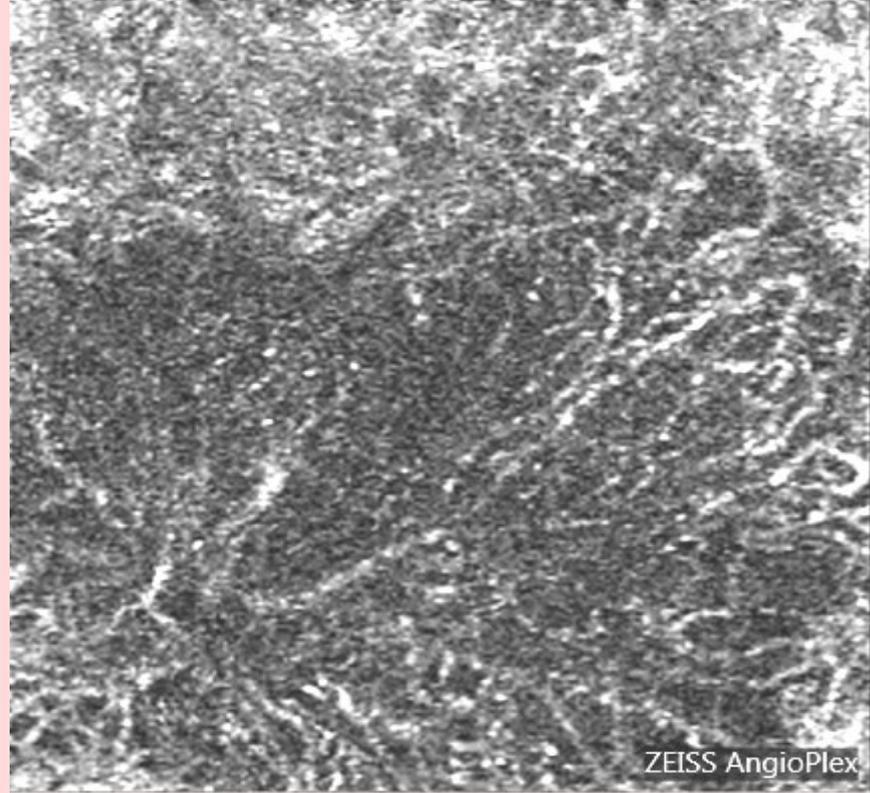
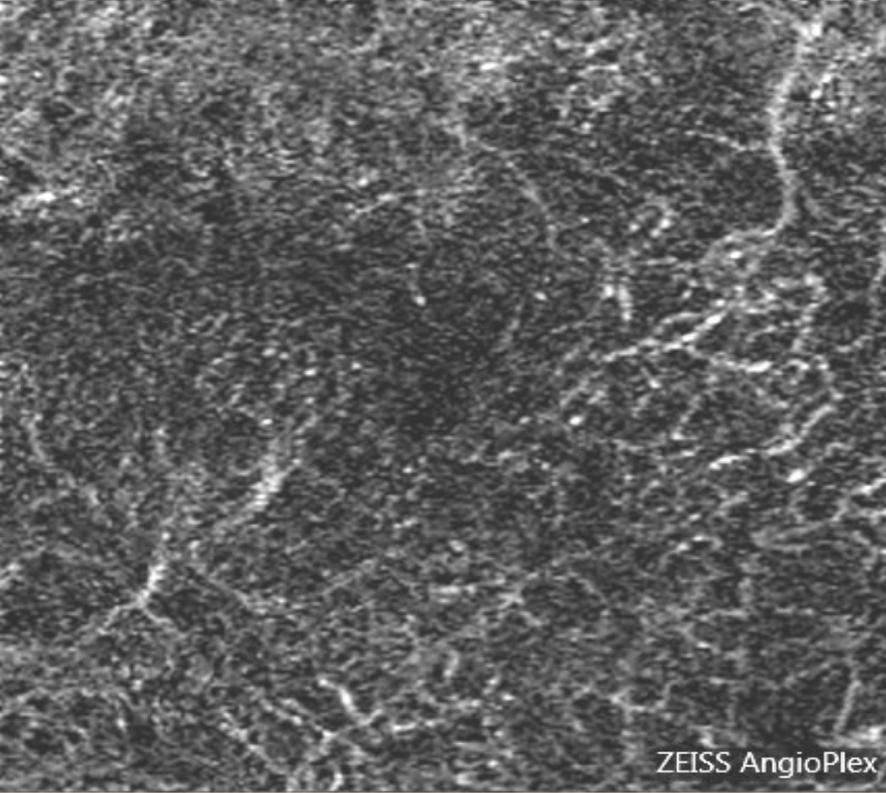
Consecutive cases of vascularized PED : SD-OCT

DEP < 250 microns: 89% de détection des néovaisseaux

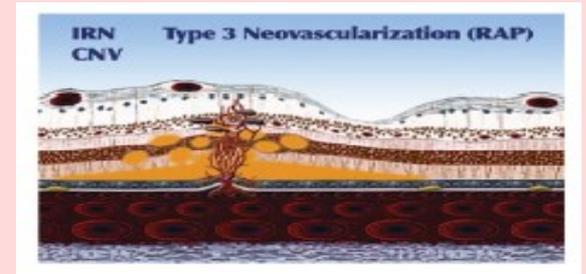
DEP > 250 microns: 40% de détection ($p < 0.0001$).

Mrejen S, Giocanti A, Tabary S, Cohen SY Retina, 2019

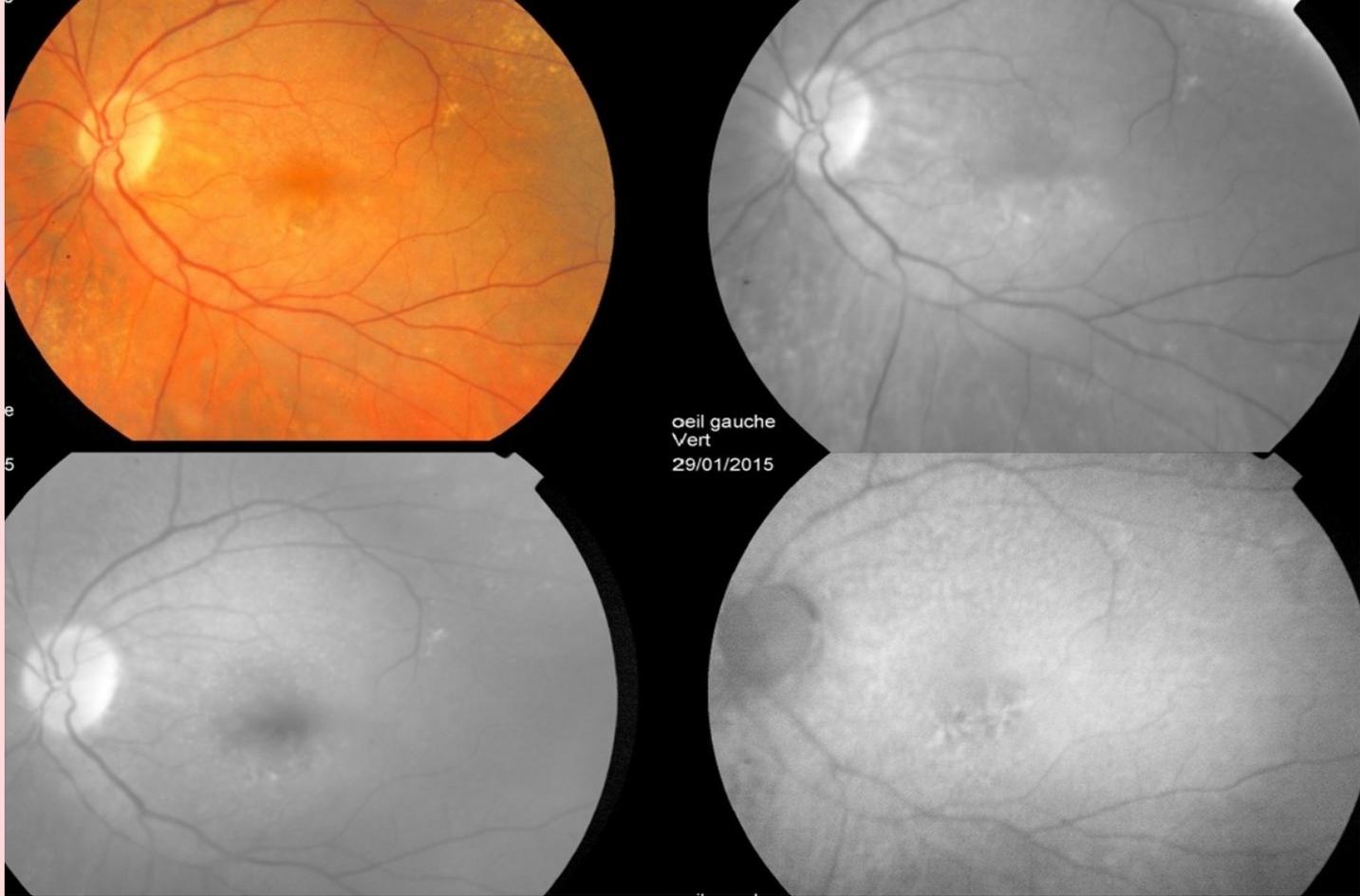
Les DEP saillants sont la principale cause de faux-négatifs



NVC type 3



- **Anastomose chorio-rétinienne :**
communication anormale entre la circulation rétinienne et choroidienne
- **Hot spot** en ICG
- OCT-ANGIO: flux détecté au niveau du **plexus capillaire profond** et de la rétine externe :aspect de **mèche** (tuft) hyperréfléctive associée à une lésion en forme de **pelote** au niveau de la choriocapillaire
- OCTA : aide au diagnostic précoce des anastomoses débutantes(faible détection en AF , peu d'exsudation en OCT) par la mise en évidence du flux vasculaire anormal



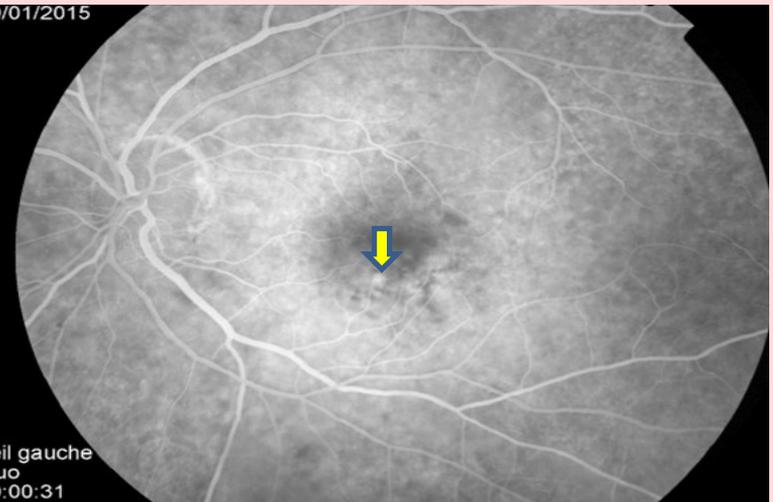
Type 3 ou anastomose rétino-choroïdienne

2015

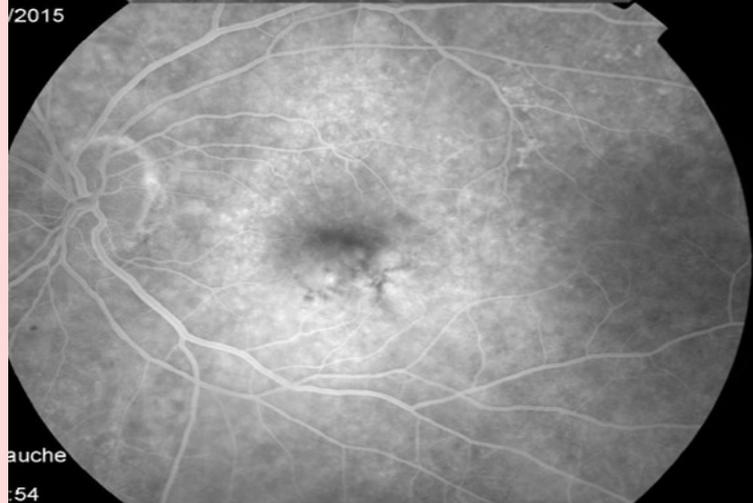


œil gauche
:19
/2015

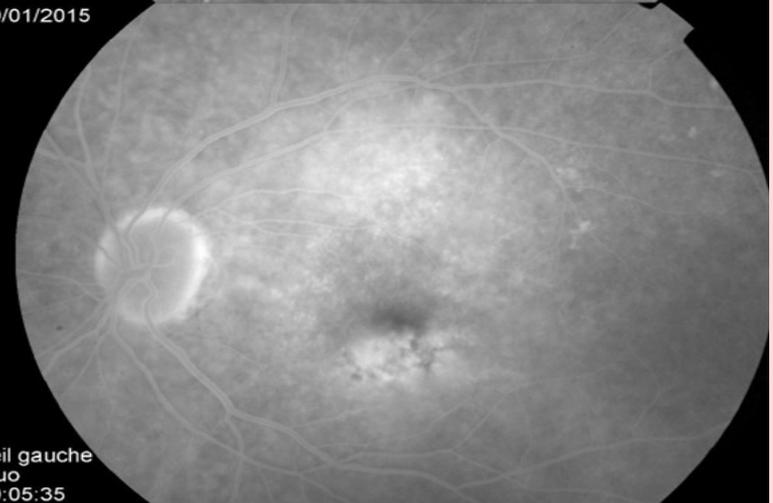
29/01/2015



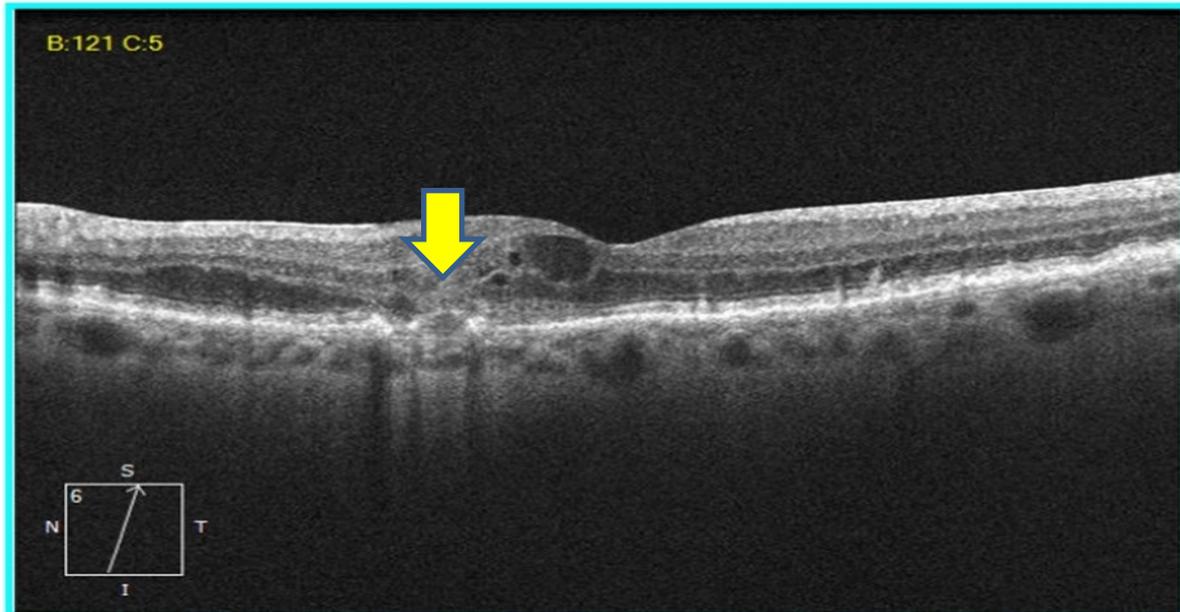
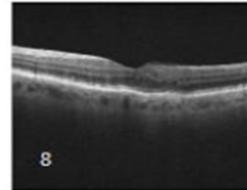
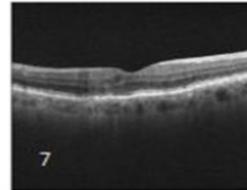
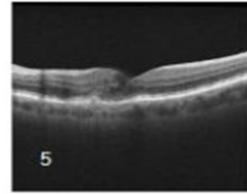
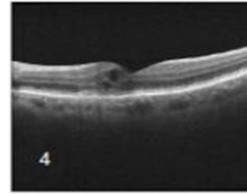
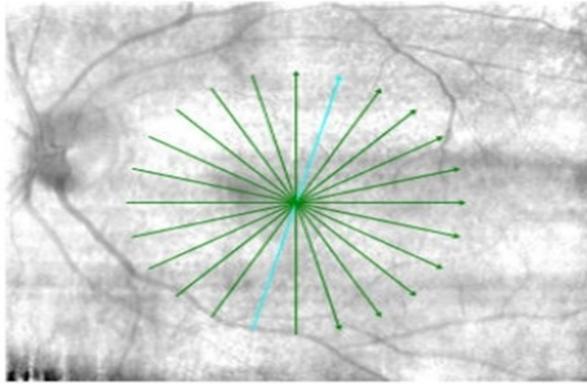
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Fluo
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29/01/2015



œil gauche
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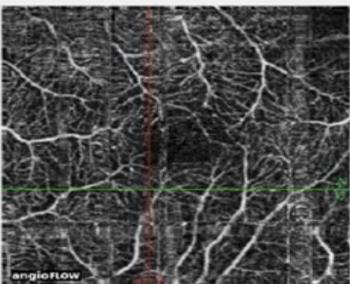
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Fluo
00:05:35



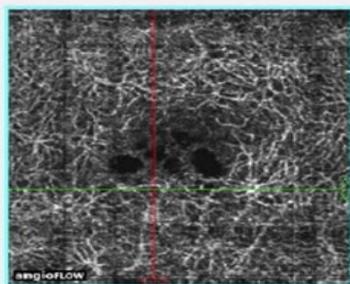
Retina OverVue

3.00 x 3.00 Scan Size (mm)

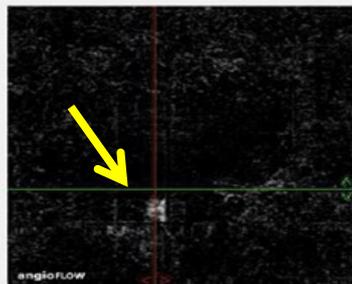
Left / OS



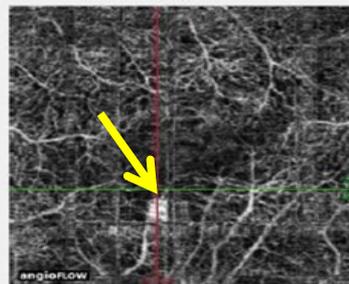
Angio - Superficial



Angio - Deep



Angio - Outer Retina



Angio - Choroid Capillary

Exit

Print

Save Angio

Reset View

Invert

Color

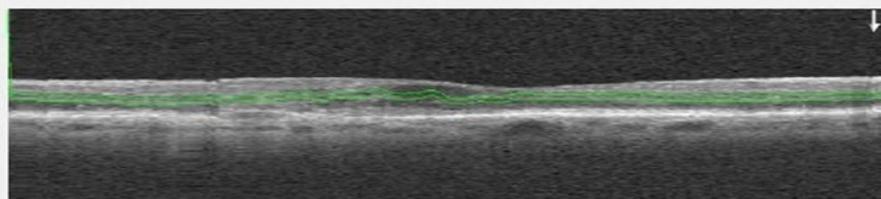
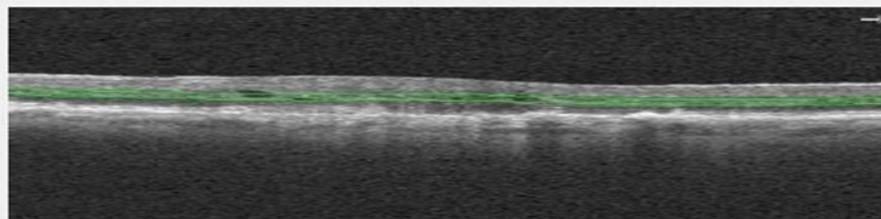
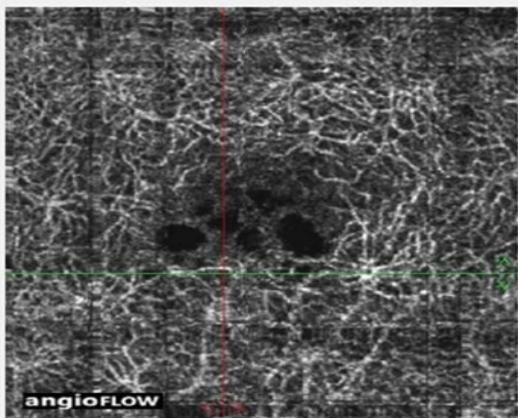
Show Lines

Show Bnd

Angio

OCT

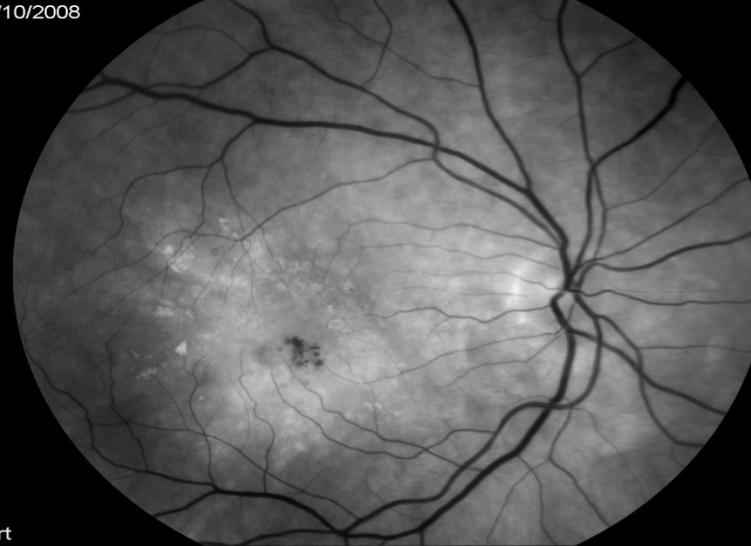
Angio / OCT



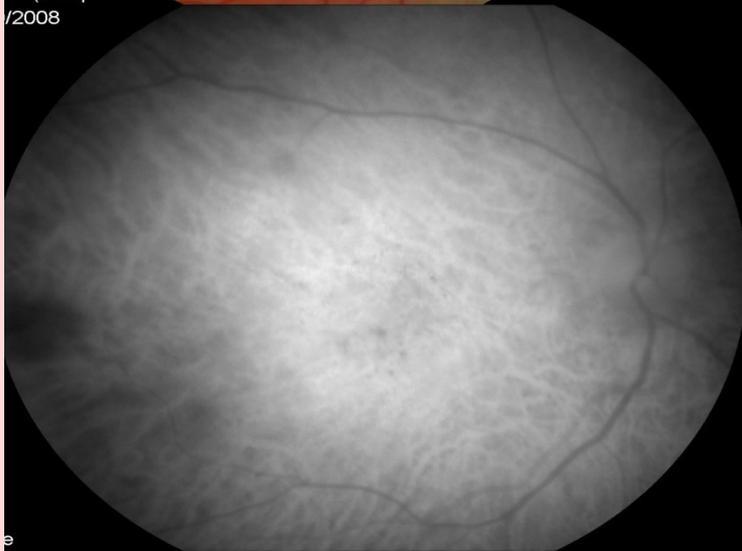
/2008



13/10/2008



ur (comp.
/2008



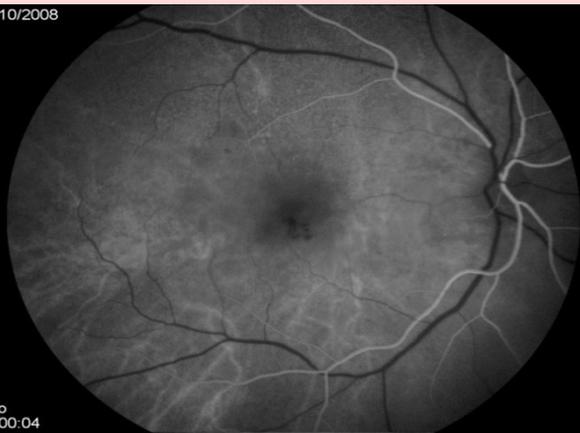
Vert
13/10/2008



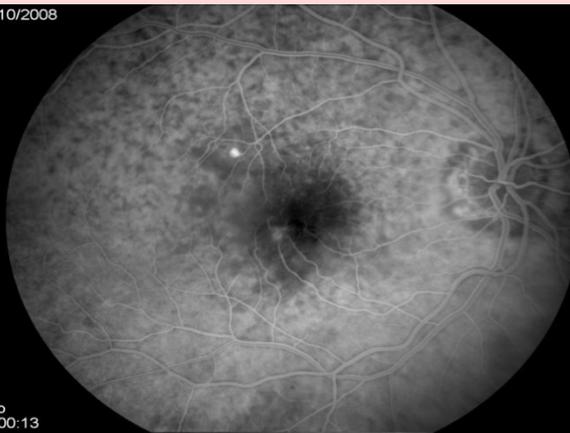
e

Bleu

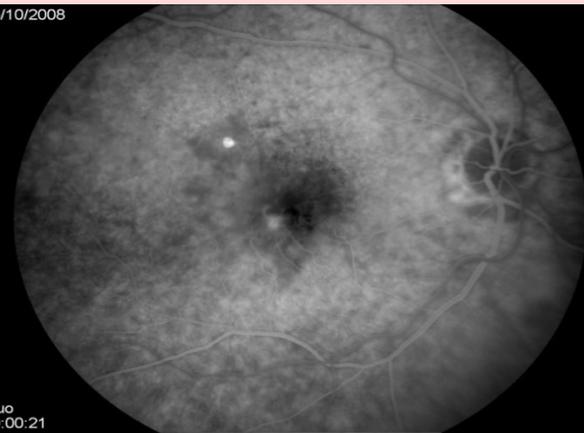
13/10/2008



13/10/2008



13/10/2008

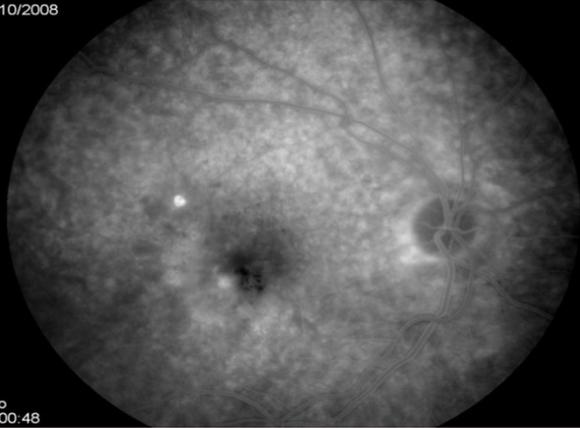


Fluo
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13/10/2008

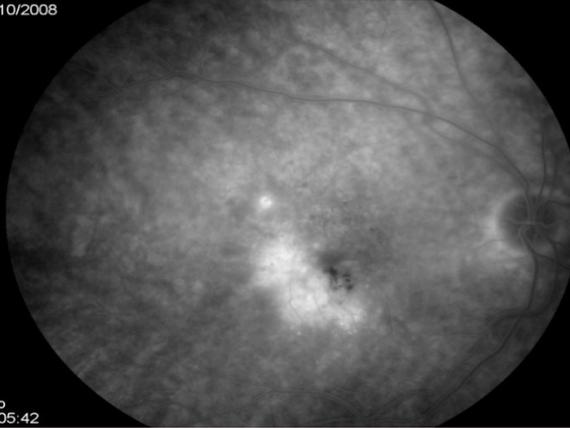
Fluo
00:00:13
13/10/2008

Fluo
00:00:21
13/10/2008

Fluo
00:00:48

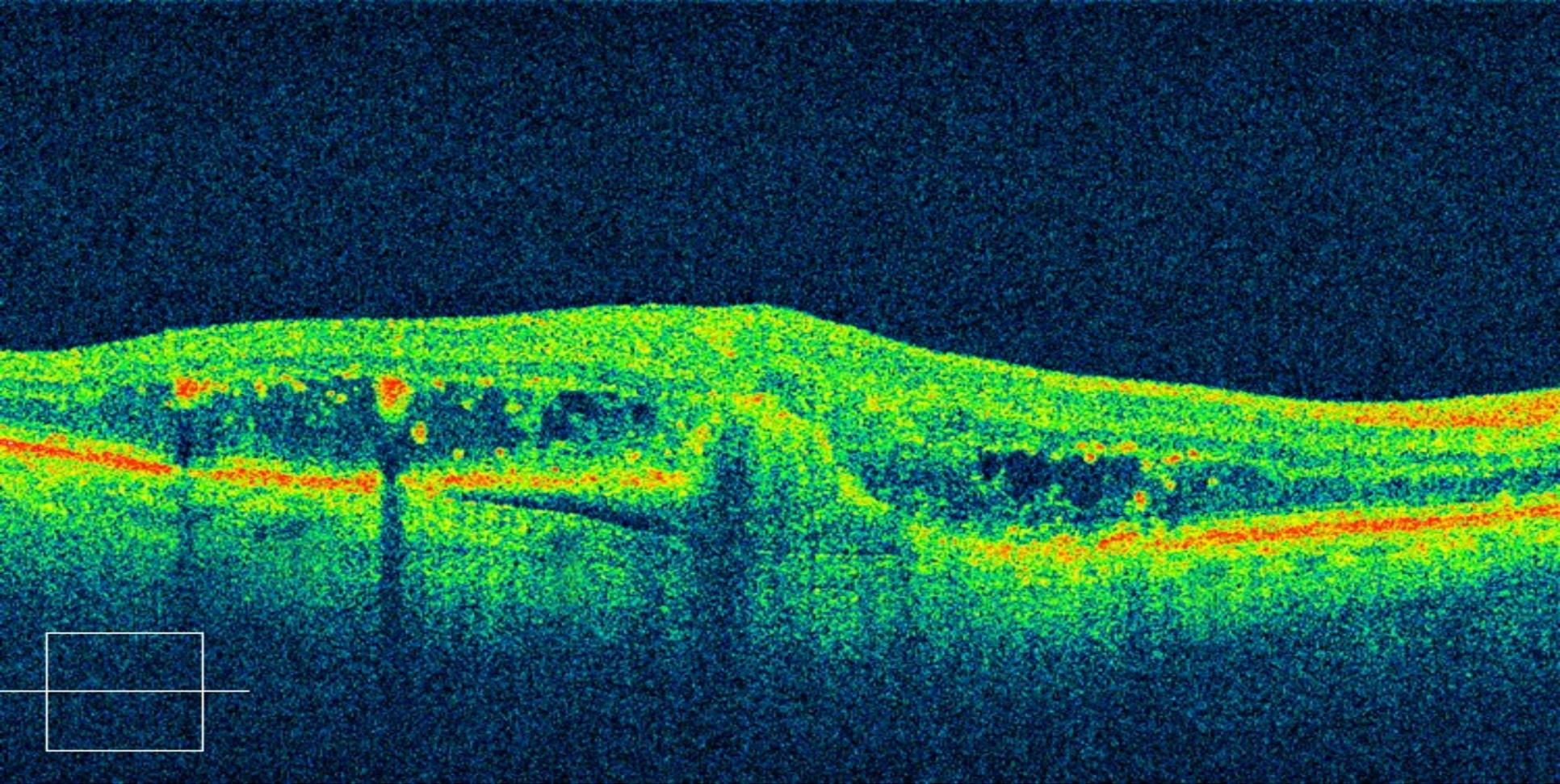


Fluo
00:05:42

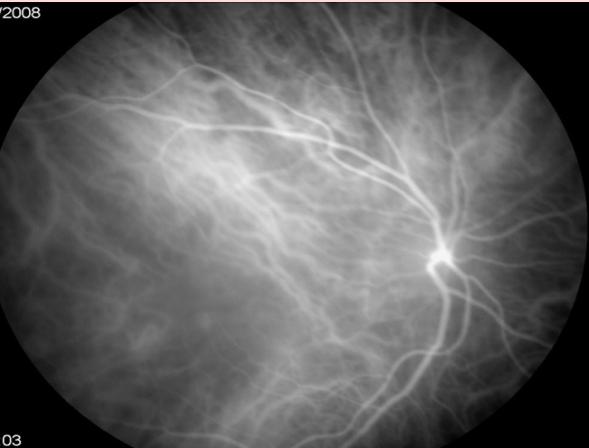


Fluo
00:51:44

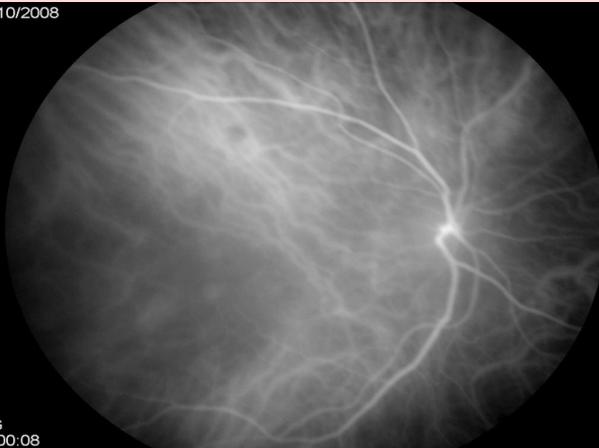




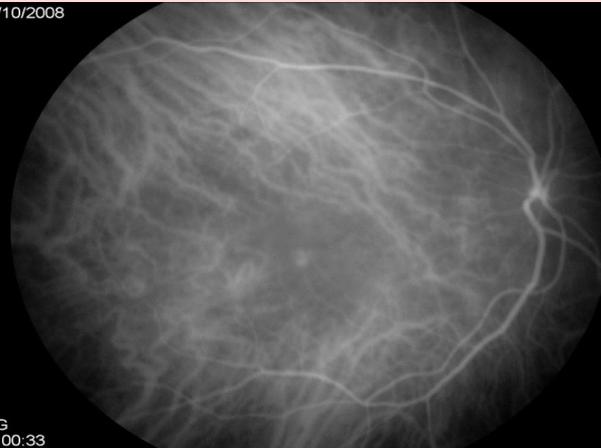
2008



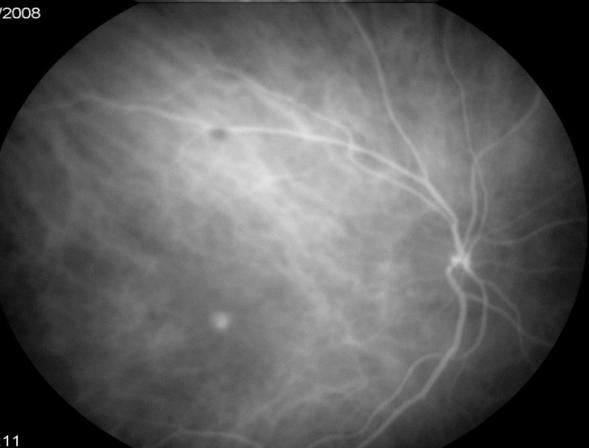
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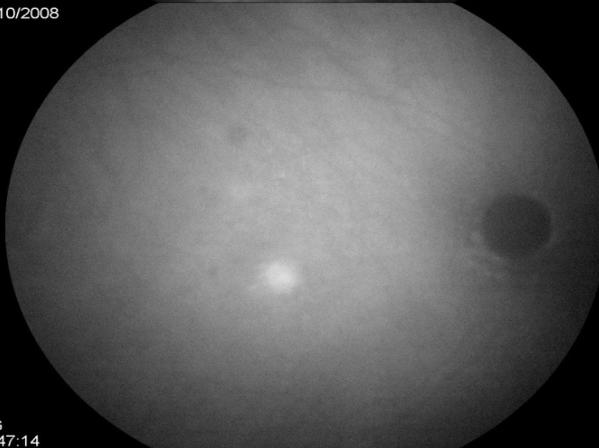
13/10/2008



03
2008



ICG
00:00:08
13/10/2008



ICG
00:00:33
13/10/2008



11

ICG
00:47:14

ICG
00:47:30

Diagnostic

Signes angiographiques en fluo

- lésion hyperfluorescente
- à la terminaison d'un ou 2 vaisseaux
- diffusions rapides et importantes

Signes angiographiques indocyanine

- hot-spot

Diagnostic actuel

OCT couplé à OCT-A

Diagnostic des néovaisseaux de type 3

Signes d'exsudation:

Soulèvement localisé de l'EP en épingle à cheveux

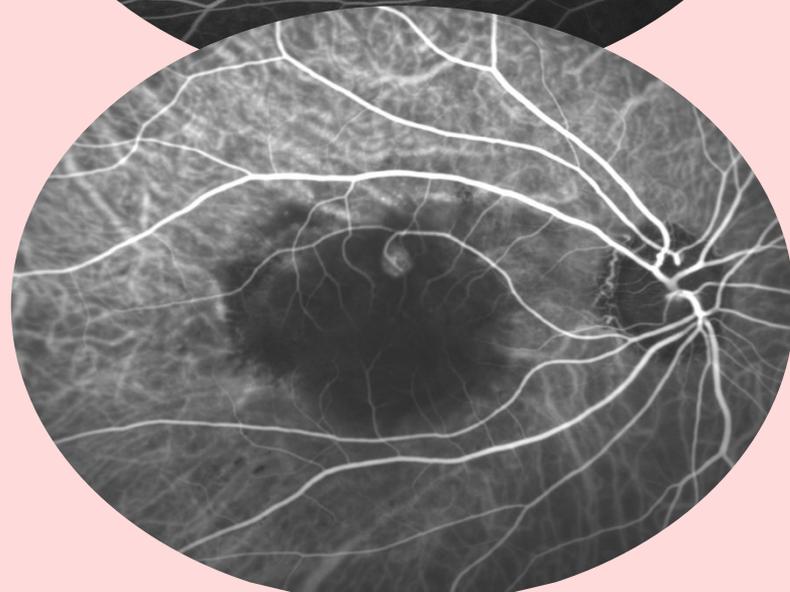
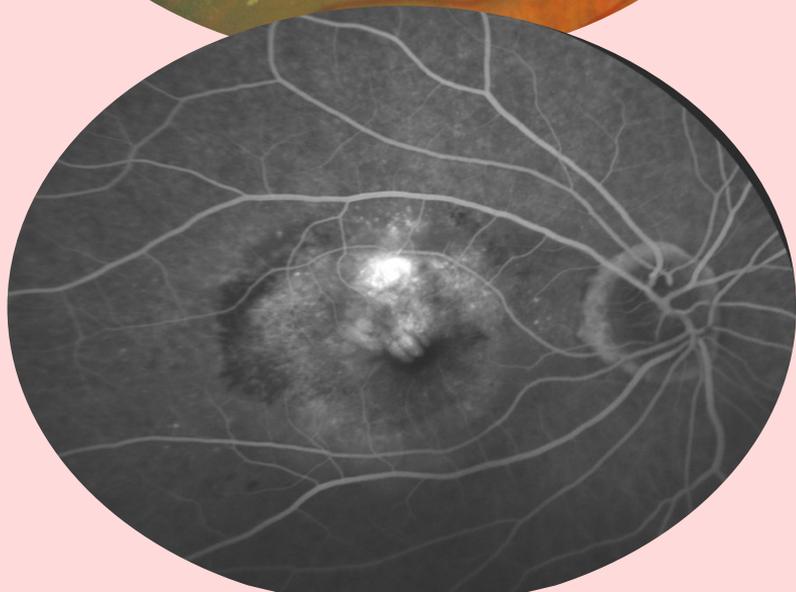
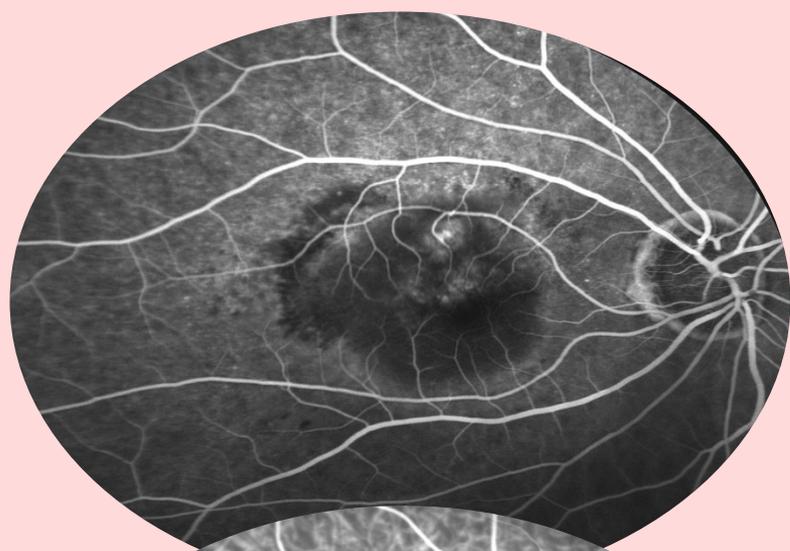
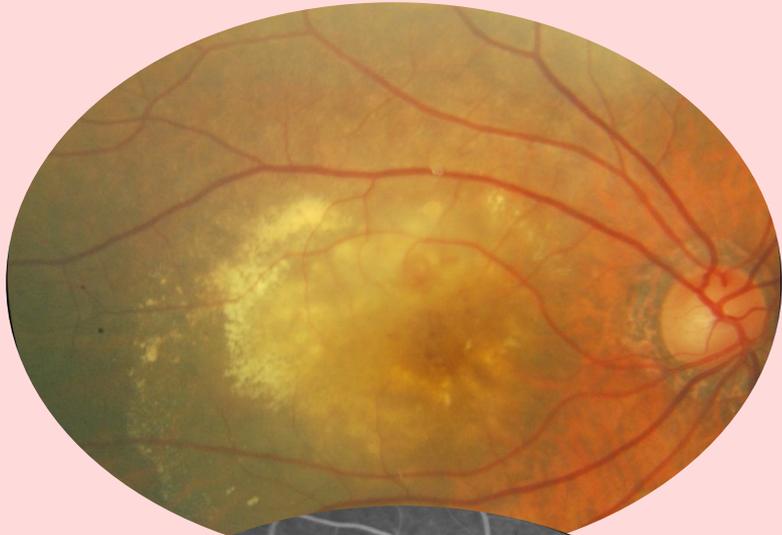
Décollement séreux rétinien

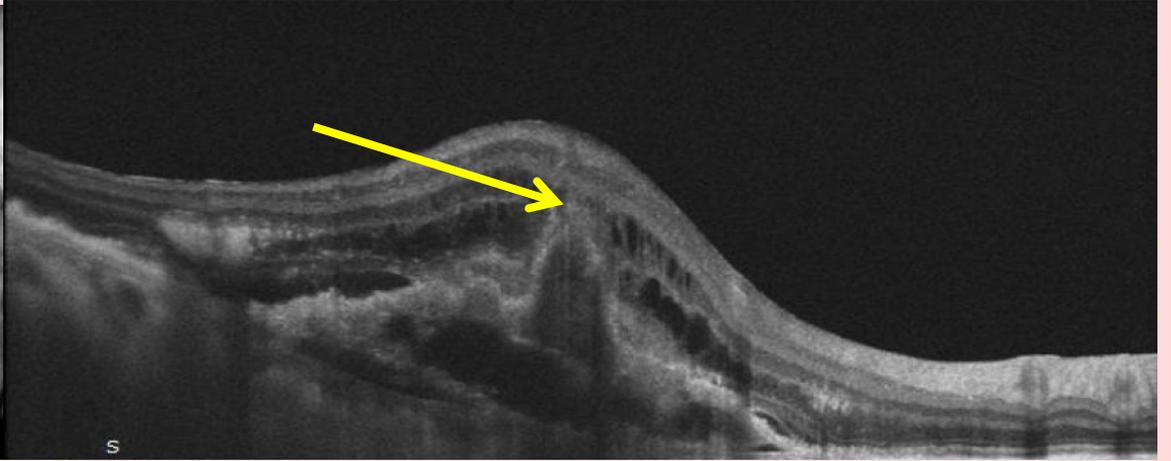
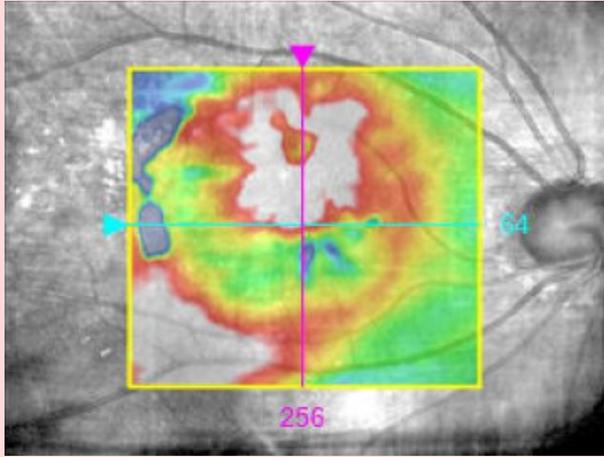
Œdème

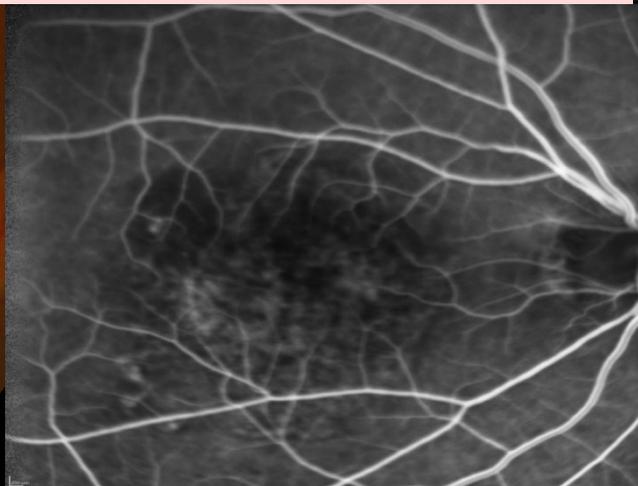
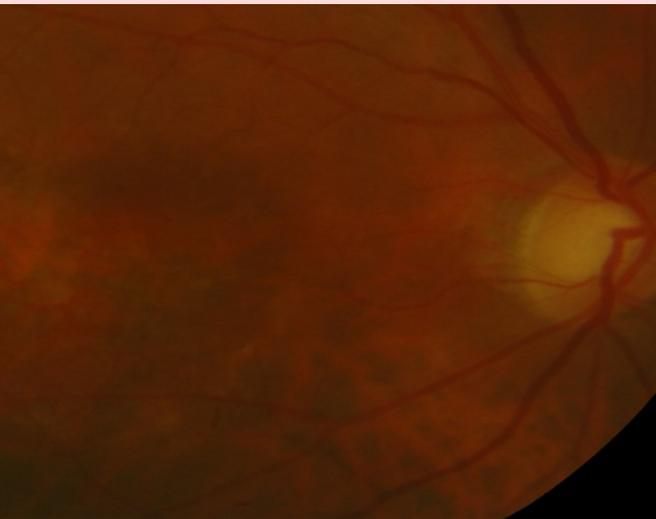
Adhérence focale de l'EP à la rétine sensorielle

Image du néovaisseau

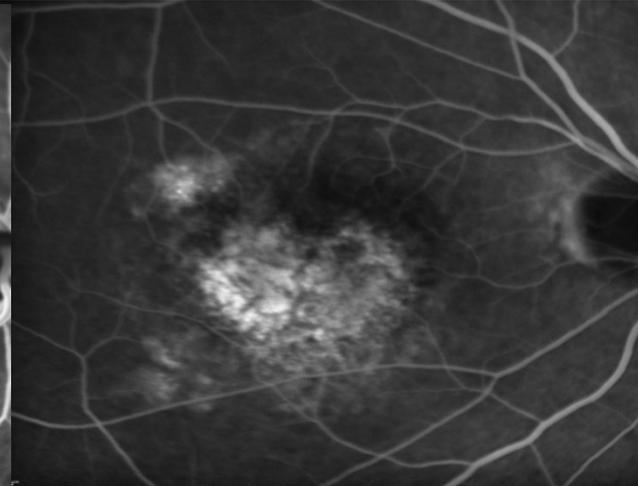
Aspect de **mèche** (tuft) hyperréfléctive associée à une lésion en forme de **pelote** au niveau de la choriocapillaire



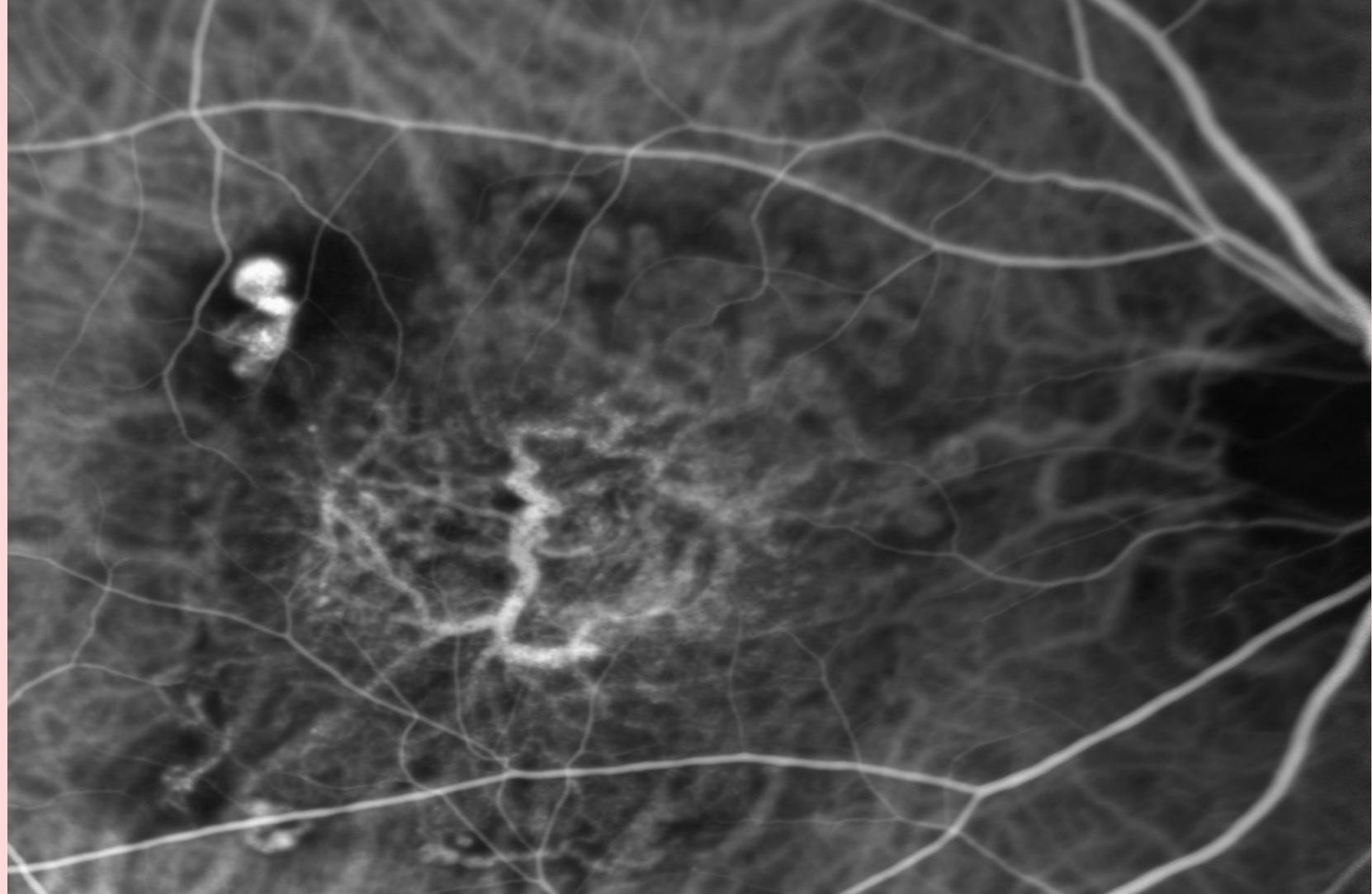


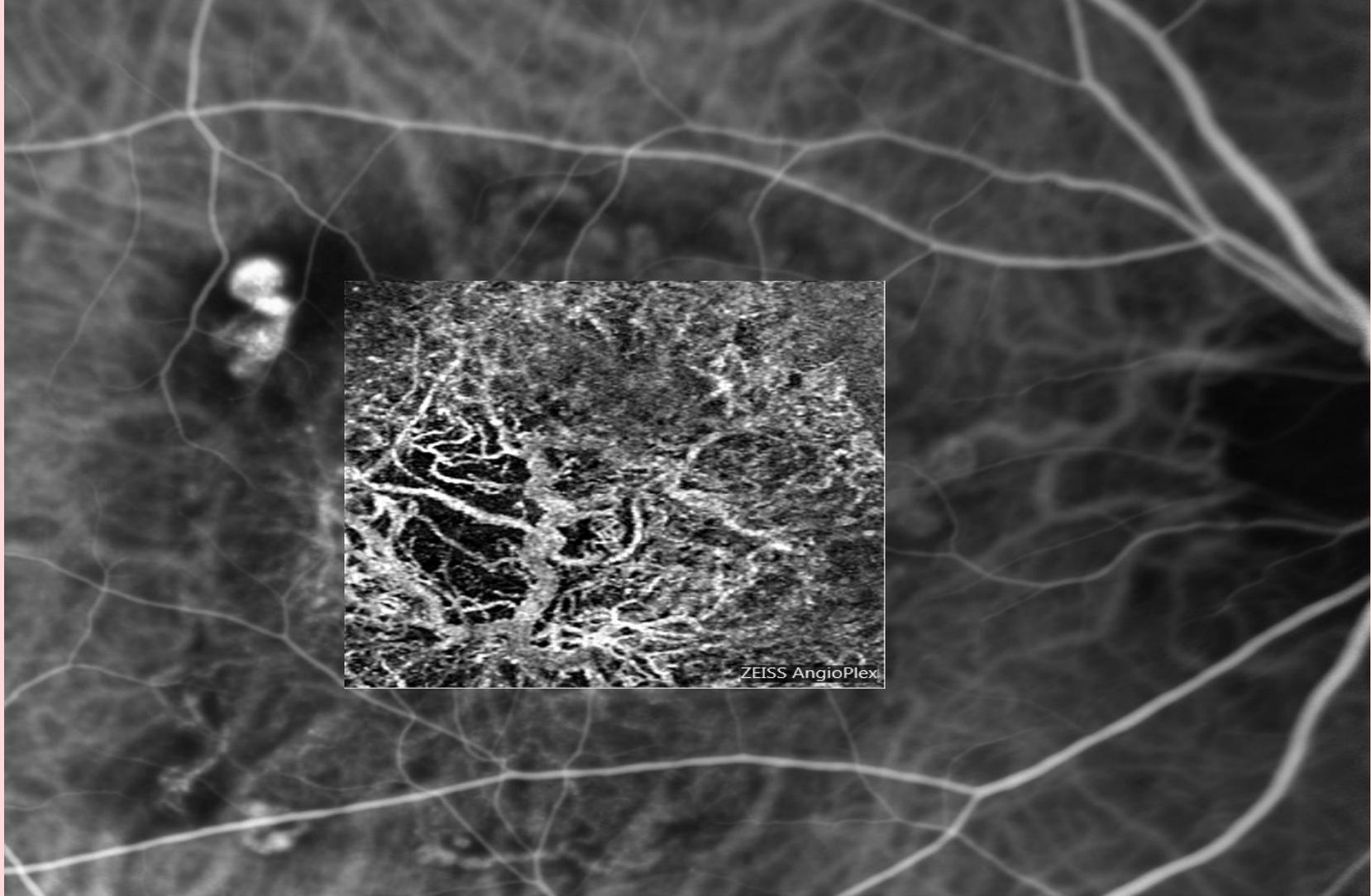


26/04/2017, 00
FA 8.43:50 30° ART(04) [88]

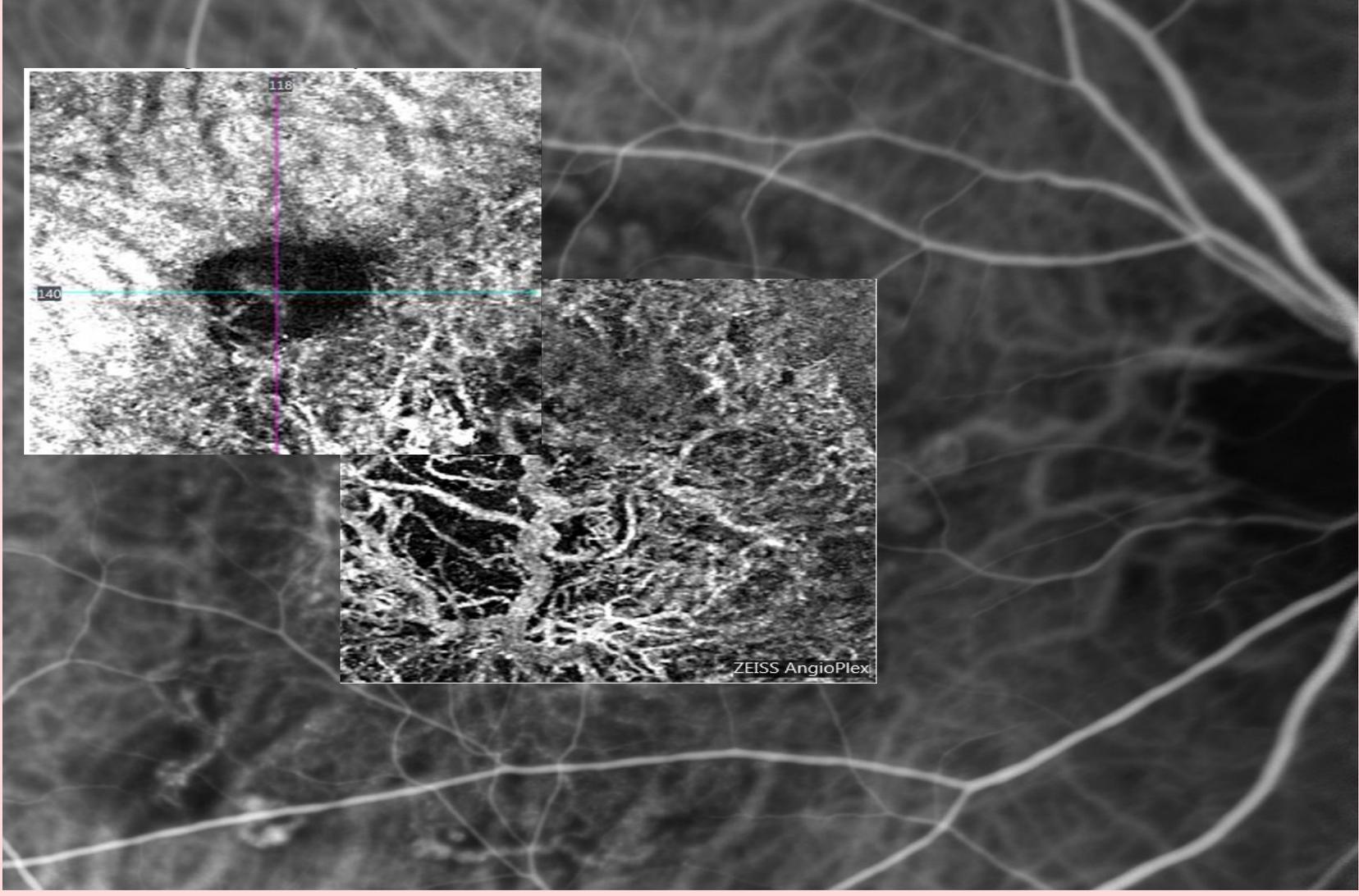
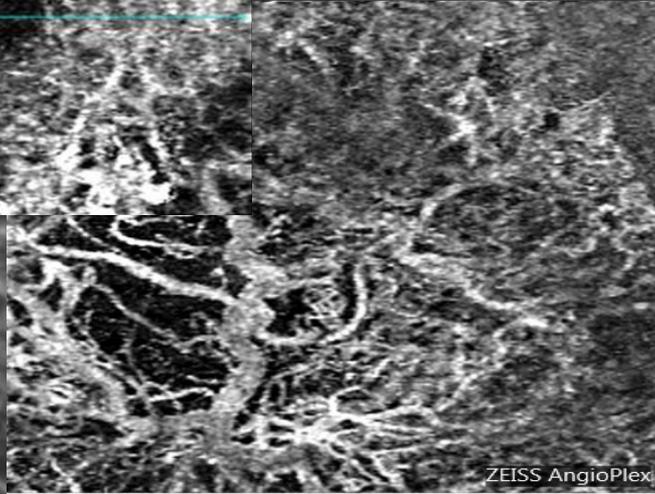
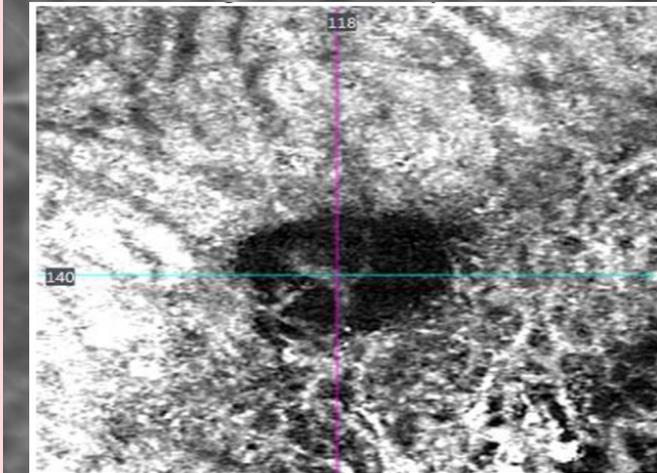


14/03/17, 00
FA 8.43:50 30° ART(16) [88]





ZEISS AngioPlex



Publications	Type OCTA	Nombre d'yeux	Taux de detection polypes OCTA/ICG	Taux de detection BVN OCTA/ICG
Kim et al <small>Gratés Arch Clin Exp Ophthalmol, 2016 Aug.;</small>	SSADA	7 yeux (0 naif)	50%	100%
Inoue et al Retina 2015	SSADA	7 yeux (1 naif) 4 type 1 / 3 type 2	42,9%	100%
Srouf et al BJO 2016	SSADA	12 yeux (2 naifs) prospectif	25%	100%
Cheung et al Retina 2016	SSOCTA	54 yeux (31,5% naifs)	40,5%	77,8%
Tanaka et al BJO 2016	SSADA	32 yeux 10 type 1/ 22 type2	Type 1 17% Type 2 46%	100%
Wang et al IOV S 2016	SSADA	13 yeux (11 naifs)	92,3%	100%
Tomyasu et al IOVS 2016	SSADA	20 yeux naifs Type 2	85%	100%

OCT-Angiographie : Changements dans le diagnostic de la DMLA exsudative

OCT-A est plus rapide, plus spécifique, non invasif par rapport à l'angiographie à la fluorescéine pour visualiser la vascularisation du pôle postérieur.

Possibilité de voir la néovascularisation choroïdienne (NVC) sans injecter de colorant

Editorial:Retina, 2017 Sep;37(9):1625-1629

Imaging of Exudative Age-Related Macular Degeneration: Toward a Shift in the Diagnostic Paradigm?

Salomon Y. Cohen, MD, PhD, Sarah Mrejen, MD

Bilan de départ devant une suspicion de forme exsudative



AV (ETDRS) + OCT (B-scan et OCT-A) + Rétinographies



Certitude diagnostique

Pas de certitude diagnostique



Décision thérapeutique



Angio Fluo



Pas de certitude diagnostique



ICG

Consensus Nomenclature for Reporting Neovascular Age-Related Macular Degeneration Data
Consensus on Neovascular Age-Related Macular Degeneration Nomenclature Study Group

Richard F. Spaide, MD,¹ Glenn J. Jaffe, MD,² David Sarraf, MD,³ K. Bailey Freund, MD,¹ Srinivas R. Sadda, MD,³ Giovanni Staurenghi, MD,⁴ Nadia K. Waheed, MD, MPH,⁵ Usha Chakravarthy, FRCOphth, PhD,⁶ Philip J. Rosenfeld, MD, PhD,⁷ Frank G. Holz, MD,⁸ Eric H. Souied, MD,⁹ Salomon Y. Cohen, MD,¹⁰ Giuseppe Querques, MD,¹¹ Kyoko Ohno-Matsui, MD, PhD,¹² David Boyer, MD,¹³ Alain Gaudric, MD,¹⁴ Barbara Blodi, MD,¹⁵ Caroline R. Baumal, MD,⁵ Xiaoxin Li, MD,¹⁶ Gabriel J. Coscas, MD,¹⁷ Alexander Brucker, MD,¹⁸ Lawrence Singerman, MD,¹⁹ Phil Luthert, MD,²⁰ Steffen Schmitz-Valckenberg, MD,⁸ Ursula Schmidt-Erfurth, MD,²¹ Hans E. Grossniklaus, MD, MBA,²² David J. Wilson, MD,²³ Robyn Guymer, MD, PhD,²⁴ Lawrence A. Yannuzzi, MD,¹ Emily Y. Chew, MD,²⁵ Karl Csaky, MD,²⁶ Jordi M. Monés, MD,²⁷ Daniel Pauleikhoff, MD,²⁸ Ramin Tadayoni, MD,¹⁴ James Fujimoto, PhD²⁹

Type 1 MNV	Type 1 MNV represents areas of neovascular complexes arising from the choroid and imaged with OCT as an elevation of the RPE by material with heterogeneous reflectivity; vascular elements may be seen. OCT angiography shows vessels below the level of the RPE.
Polypoidal choroidal vasculopathy	OCT findings similar to type 1 MNV; however, in some patients, dilated vascular elements at the outer border of the lesion are apparent. Stippled hyperfluorescence over an area of elevated RPE, which expands to coalesce in the later phases of the angiography. The pattern of the RPE elevation may suggest nodules. Indocyanine green angiography shows a branching vascular network with aneurysmal dilations.
Type 2 MNV	Neovascular complex located in the subretinal space, above the level of the RPE. May be associated with subretinal hyperreflective material and separation of the neurosensory retina from the RPE. OCT angiography demonstrates vascular elements above the level of the RPE.
Mixed type 1 and type 2 MNV	OCT findings of both type 1 and type 2 MNV together. OCT angiography demonstrates neovascularization in the sub-retinal pigment epithelial and subretinal compartments.
Type 3 MNV	Extension of hyperreflectivity from the middle retina toward to level of the RPE associated with intraretinal edema, hemorrhage, and telangiectasis. OCT angiography shows the downgrowth of new vessels toward or even penetrating the level of the RPE.
Retinal-choroidal anastomosis	Aberrant connection from the retinal to the choroidal circulation. Course of vessel can be seen occasionally with OCT or OCT angiography. Although visible on fluorescein angiography, indocyanine green angiography often is better at demonstrating the anastomosis.
Leakage	Breakdown of the blood-retinal barrier, typically demonstrated by fluorescein angiography.
Intraretinal fluid	Cystoid spaces in the retina typically associated with increased retinal thickening. Readily detected using OCT.
Subretinal fluid	Separation of the neurosensory retina from the RPE by fluid. Readily detected using OCT.
Lipid (hard exudates)	Yellow-white globular material in or under the retina. OCT shows hyperreflective foci in the retina, some of which are not visible by ophthalmoscopy.
Subretinal hyperreflective material	Exudation in the subretinal space of material that is hyperreflective as compared with fluid.

Diagnostic

Facile et, le plus souvent, non invasif

- Classification: type 1, 2 ou 3

Type 1

- les plus fréquents, isolés ou associés à un DEP (déchirure)

Type 2

- Les plus rares, risque de fibrose

Type 3

- Souvent associés aux pseudo-drusen, à risque d'atrophie

Discours

- Discours DMLA
- Discours Néovaisseaux
- Forme sévère: risque hémorragique
- Traitement ≠ Guérison
- Mais beaucoup mieux qu'avant

Traitement

- Anti-VEGF à initier rapidement
- Sauf cas particuliers des néovaisseaux quiescents

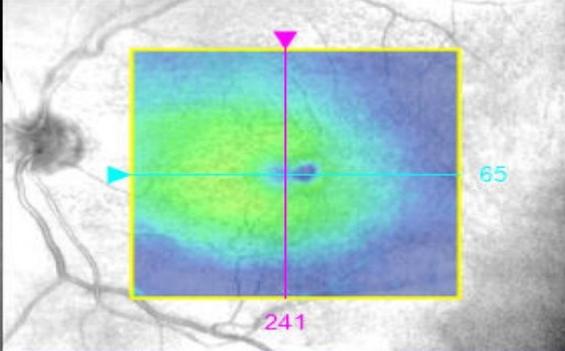
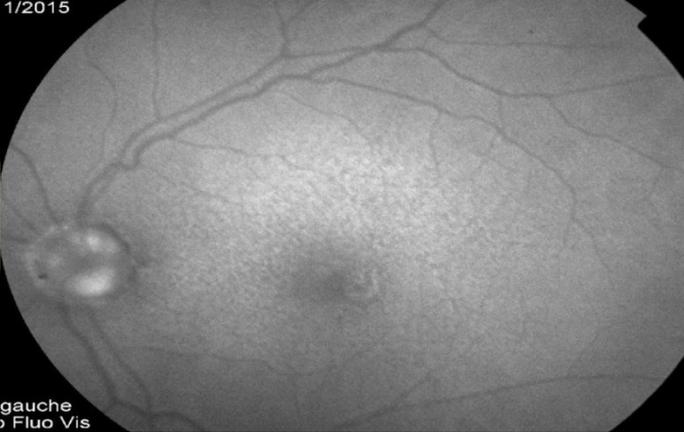
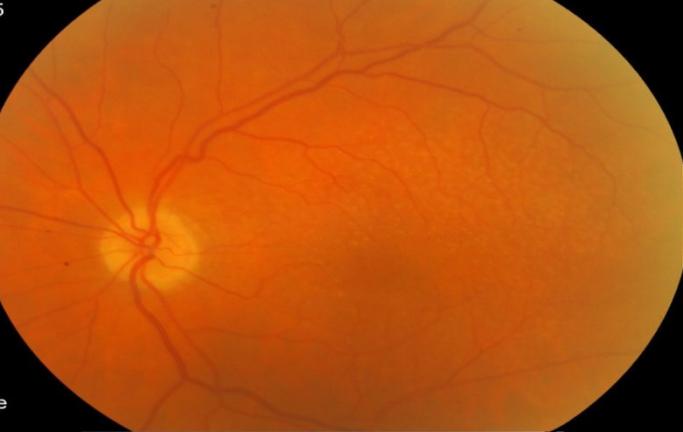
OCTA et DMLA exsudative

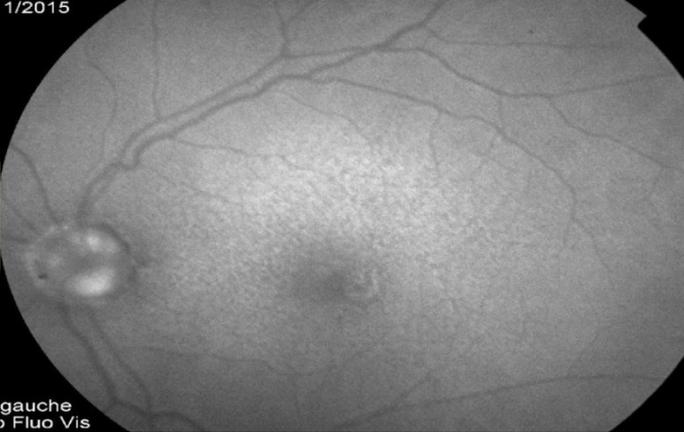
Néovaisseaux « quiescents »

Querques G, Srour M, Massamba N, Georges A, Ben Moussa N, Rafaeli O, Souied EH. Functional characterization and multimodal imaging of treatment-naive "quiescent" choroidal neovascularization. Invest Ophthalmol Vis Sci. 2013 Oct 21;54(10):6886-92

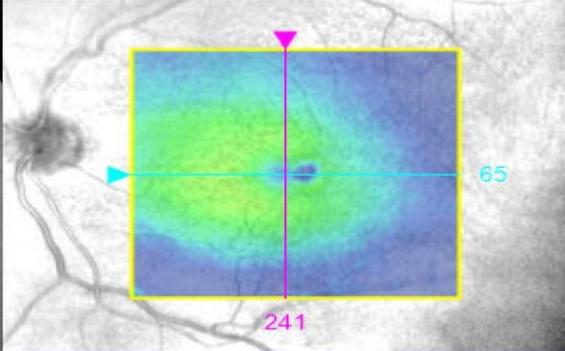
11 cas suivis pendant 23.8 ± 16.0 mois:

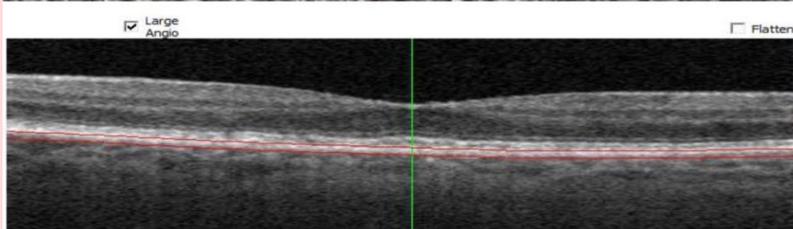
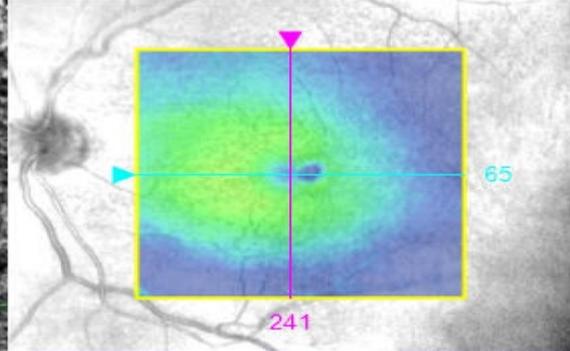
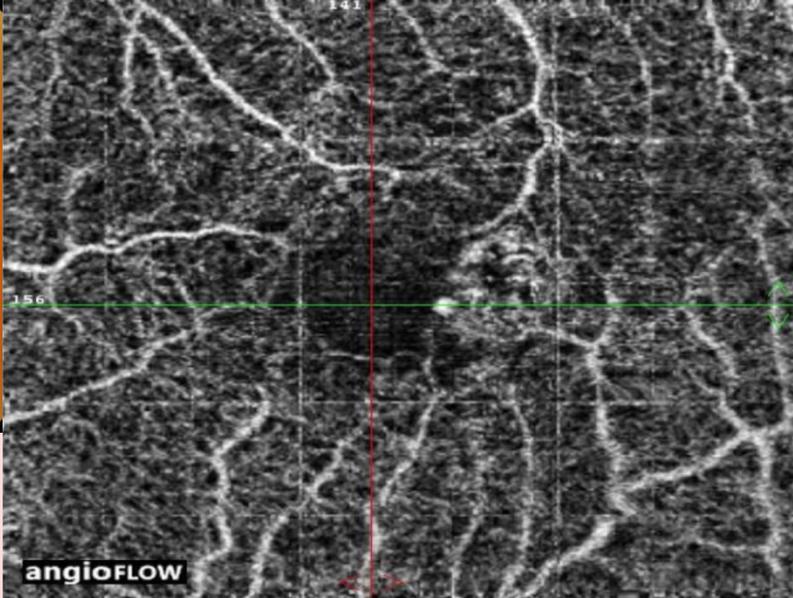
"Quiescent" CNVs are sub-RPE CNVs secondary to AMD, showing absence of intraretinal/subretinal exudation on repeated OCT. "Quiescent" CNVs enlarge over time and may contribute to local reduced retinal sensitivity and metamorphopsia.

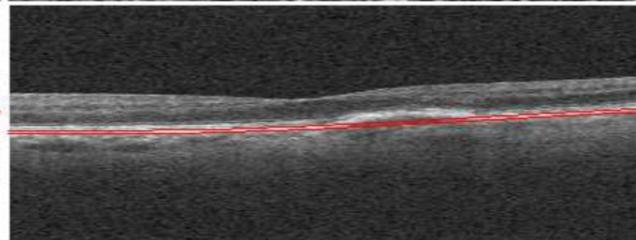
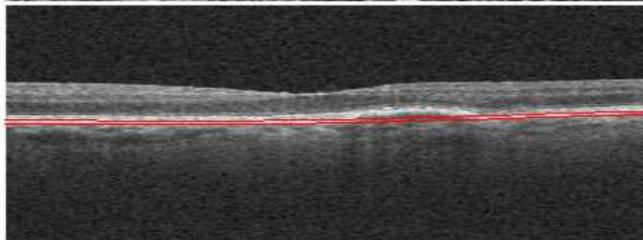
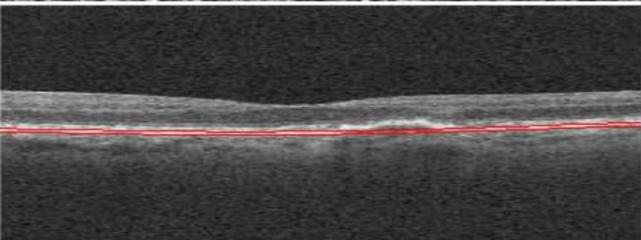
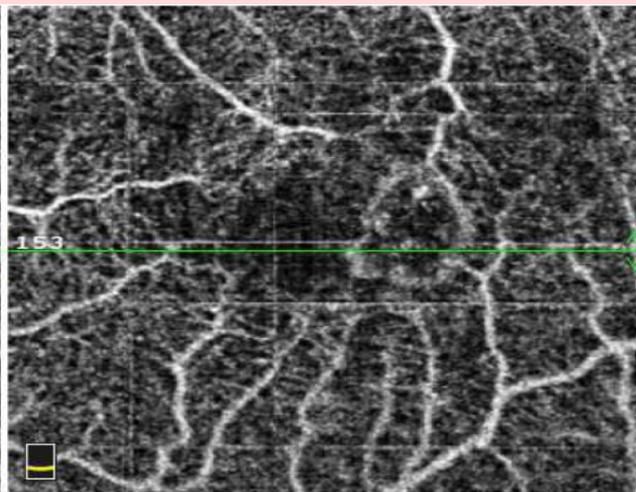
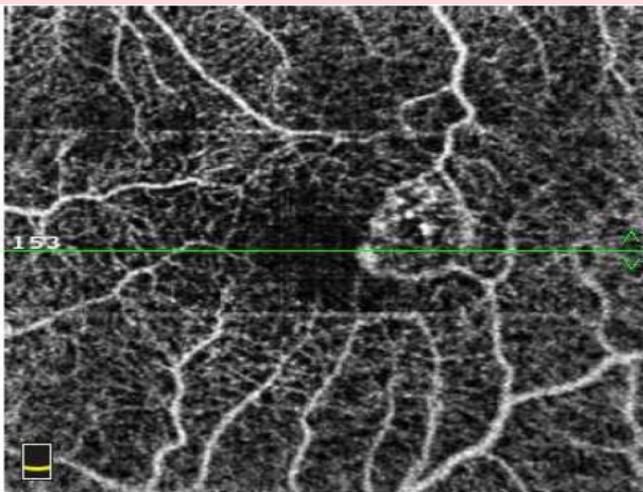
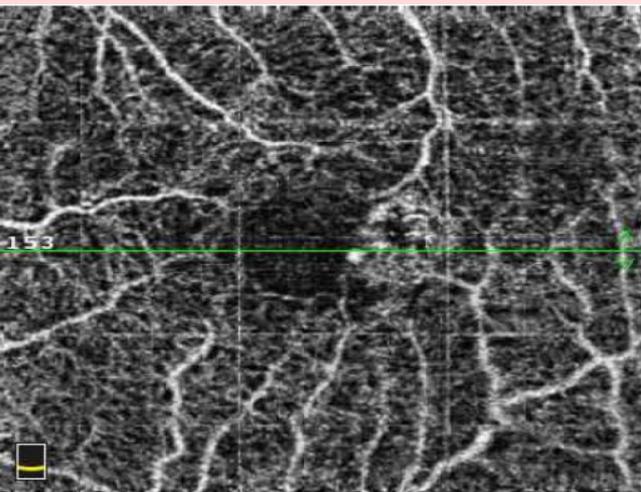


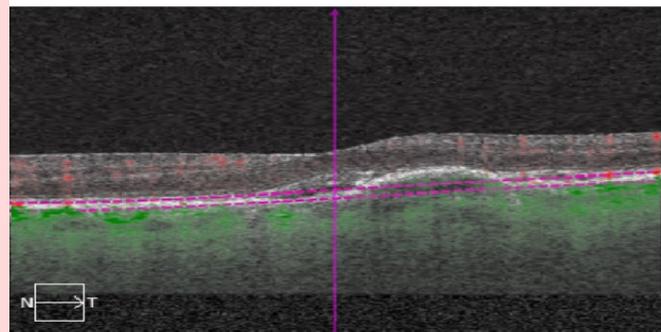
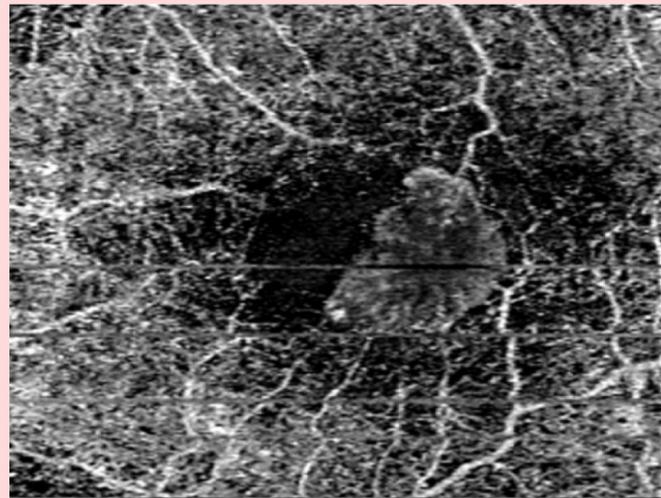
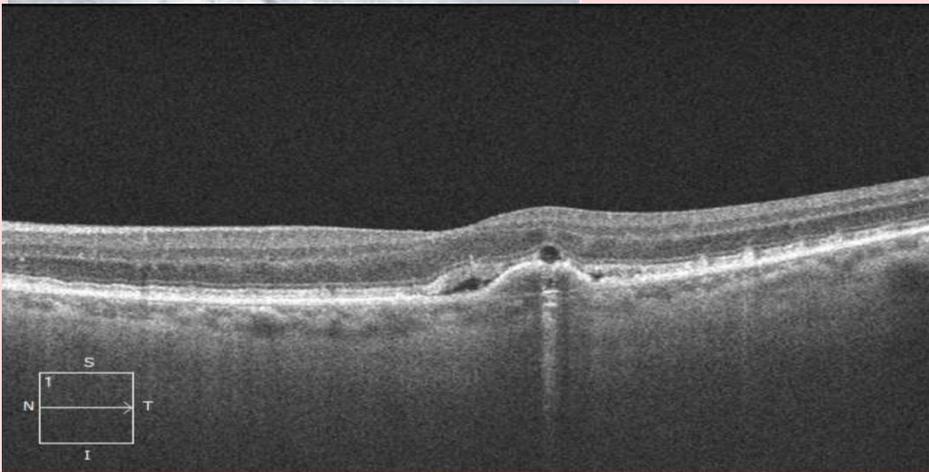
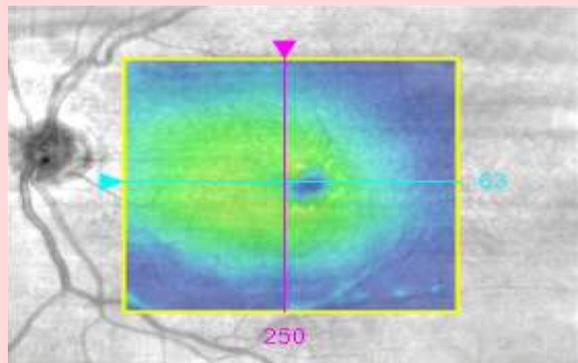


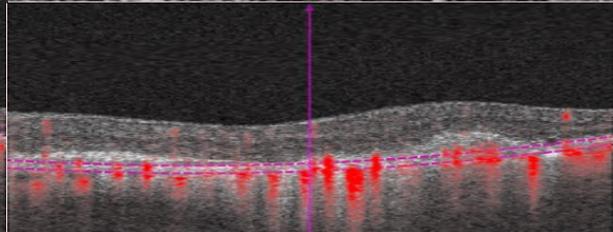
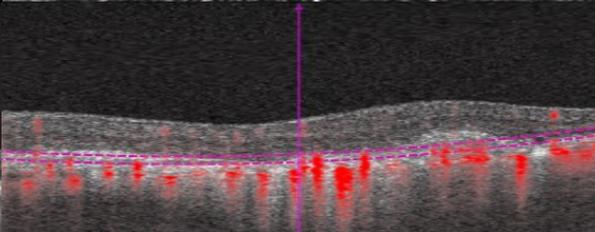
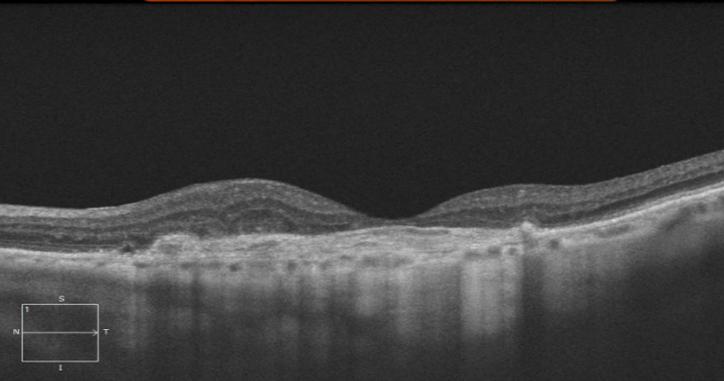
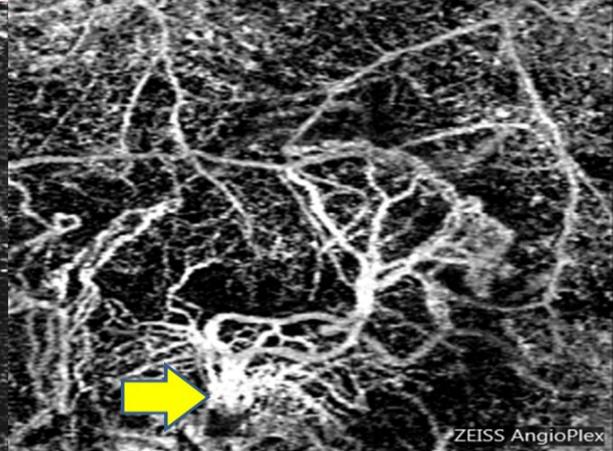
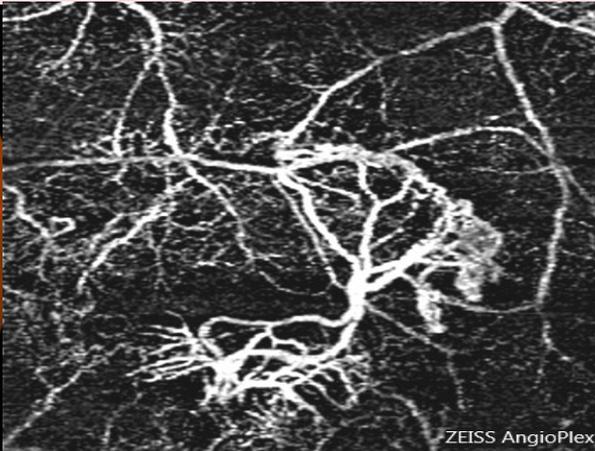
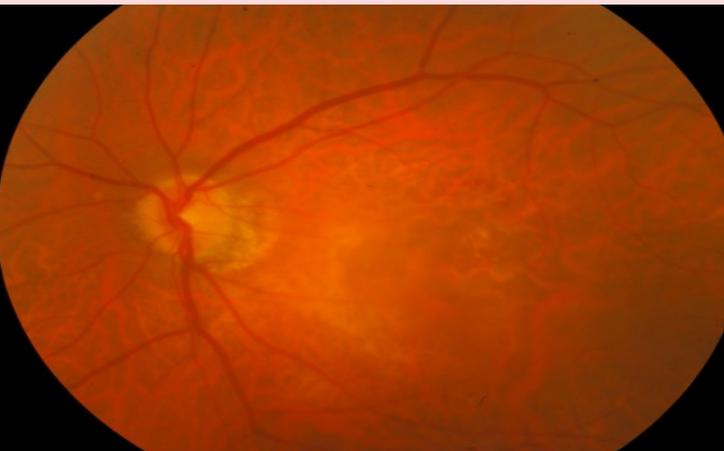
gauche
> Fluo Vis











Lire: Miere et al. Optical coherence tomography angiography features of subretinal fibrosis in age-related macular degeneration. *Retina* 2015;35:2275-2284

OCTA et DMLA exsudative

Néovaisseaux « quiescents »

Querques G, Srour M, Massamba N, Georges A, Ben Moussa N, Rafaeli O, Souied EH. Functional characterization and multimodal imaging of treatment-naive "quiescent" choroidal neovascularization. Invest Ophthalmol Vis Sci. 2013 Oct 21;54(10):6886-92

11 cas suivis pendant 23.8 ± 16.0 mois:

"Quiescent" CNVs are sub-RPE CNVs secondary to AMD, showing absence of intraretinal/subretinal exudation on repeated OCT. "Quiescent" CNVs enlarge over time and may contribute to local reduced retinal sensitivity and metamorphopsia.

Anti-VEGF pour DMLA

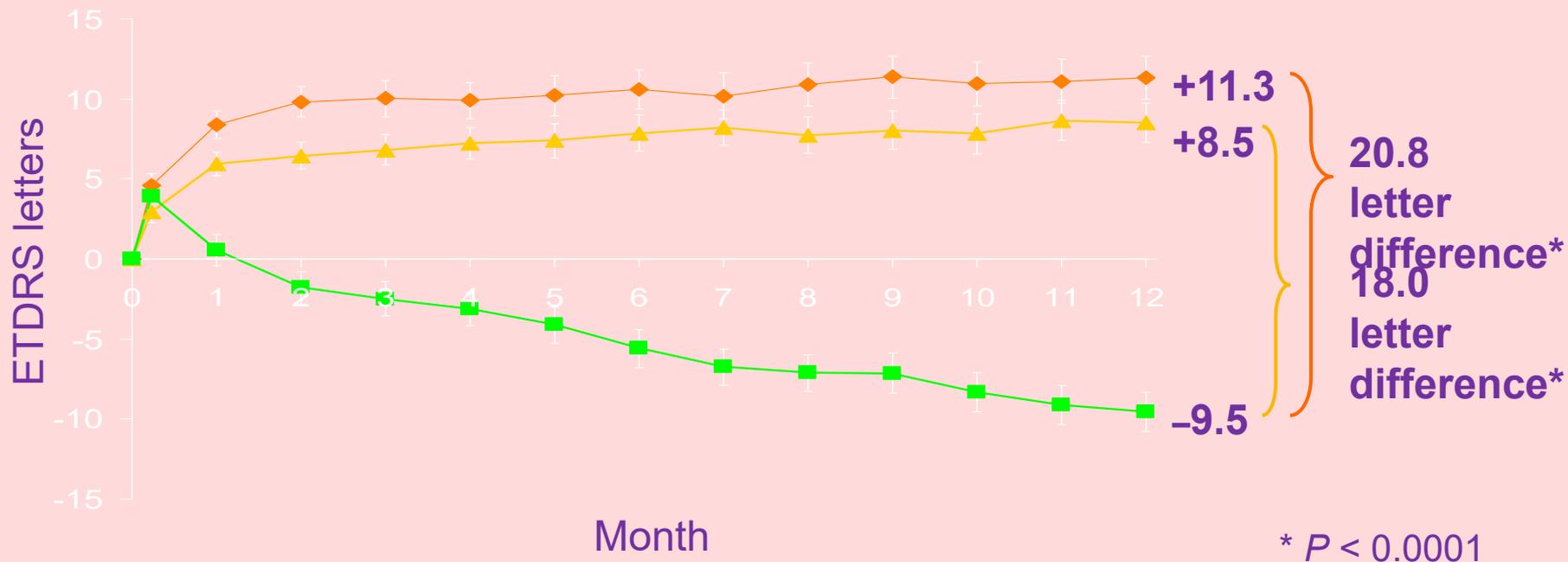
Protocoles des études pivotales ont prouvé l'efficacité du ranibizumab, mais n'ont pas précisé le protocole idéal

15 ans après, nous courons après le meilleur protocole.

Chaque protocole a ses avantages et ses inconvénients

Critère secondaire: évolution de l'AV à un an

■ PDT (n=143) ▲ Ranibizumab 0.3 mg (n=140) ◆ Ranibizumab 0.5 mg (n=139)



Note: Vertical bars are \pm one standard error of the mean.

Phase d'initiation

Consensus global

3 injections mensuelles

Ranibizumab ou Aflibercept

Aflibercept vs. Ranibizumab

Pas de différence prouvée entre les molécules disponibles en France, en global ou sur une forme clinique donnée: types 1, 2, ou 3.

Le protocole choisi et le nombre d'injections réalisées influencent davantage le résultat fonctionnel que le produit choisi

Aflibercept vs. Ranibizumab

Seules différences

1. Assèchement un peu > avec aflibercept, sans traduction sur l'AV ou le nombre d'injections
2. Passage systémique > avec aflibercept, mais pas de conséquence clinique connue
3. Diminution de l'épaisseur choroidienne avec aflibercept, mais pas d'études formelles sur risque atrophique
4. Seringue pré-remplie « meilleure » pour ranibizumab
5. AMM plus souple pour ranibizumab

Aflibercept vs. Ranibizumab

Pour moi,

Aflibercept en 1^{ère} intention dans les choroides épaisses (nvx sur CRSC, polypoïdales, certaines DMLA)

Ranibizumab en 1^{ère} intention dans les choroides fines (type 3, pseudodrusen)

Protocole initiale et stratégies alternes

- 1 + PRN (CATT)
- 3 + PRN (PrONTO)
- Inject and Extend
- Fixe bimestriel (VIEW)
- Autres

Anti-VEGF pour DMLA

Régime fixe mensuel

Principal avantage:

Efficacité forte démontrée (CATT, IVAN)

Inconvénients:

Trop d'injections

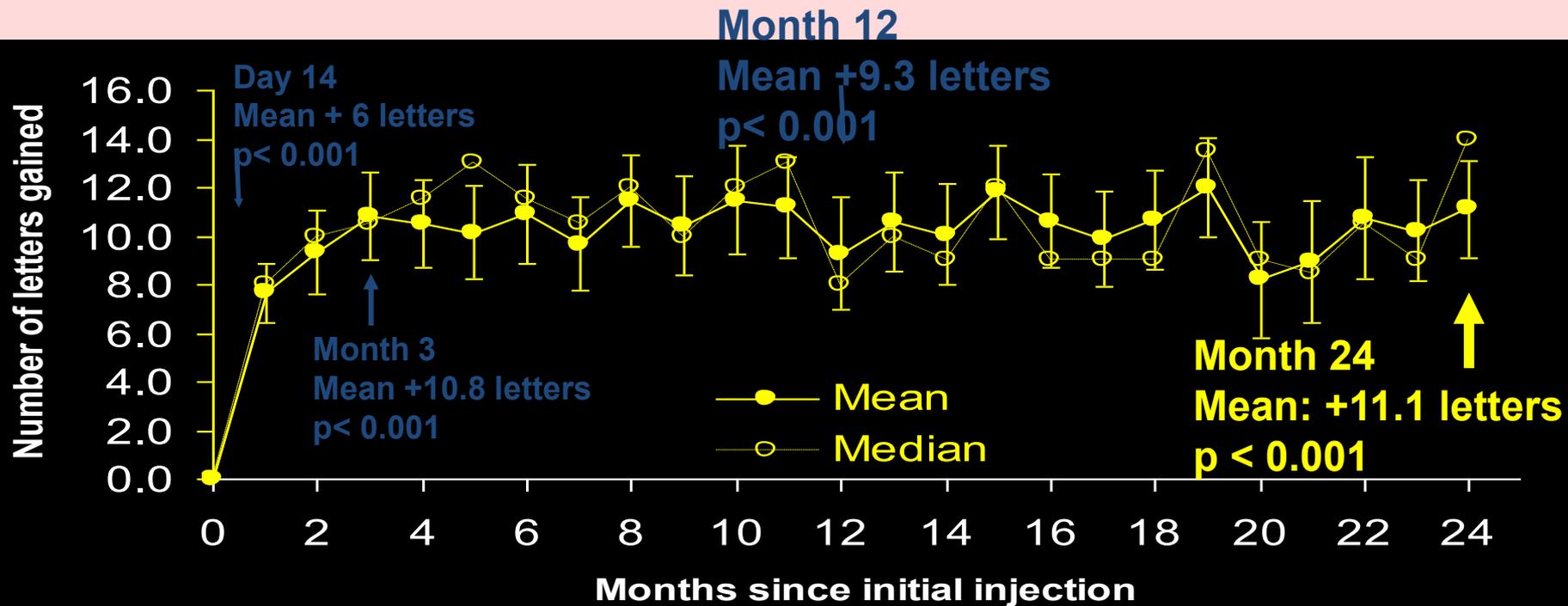
Avec risque d'endophtalmie proportionnel

Augmentation du risque d'atrophie (CATT, IVAN)

Pas d'arrêt possible

PrONTO (N=40)

Résultats : AV sur 24 mois



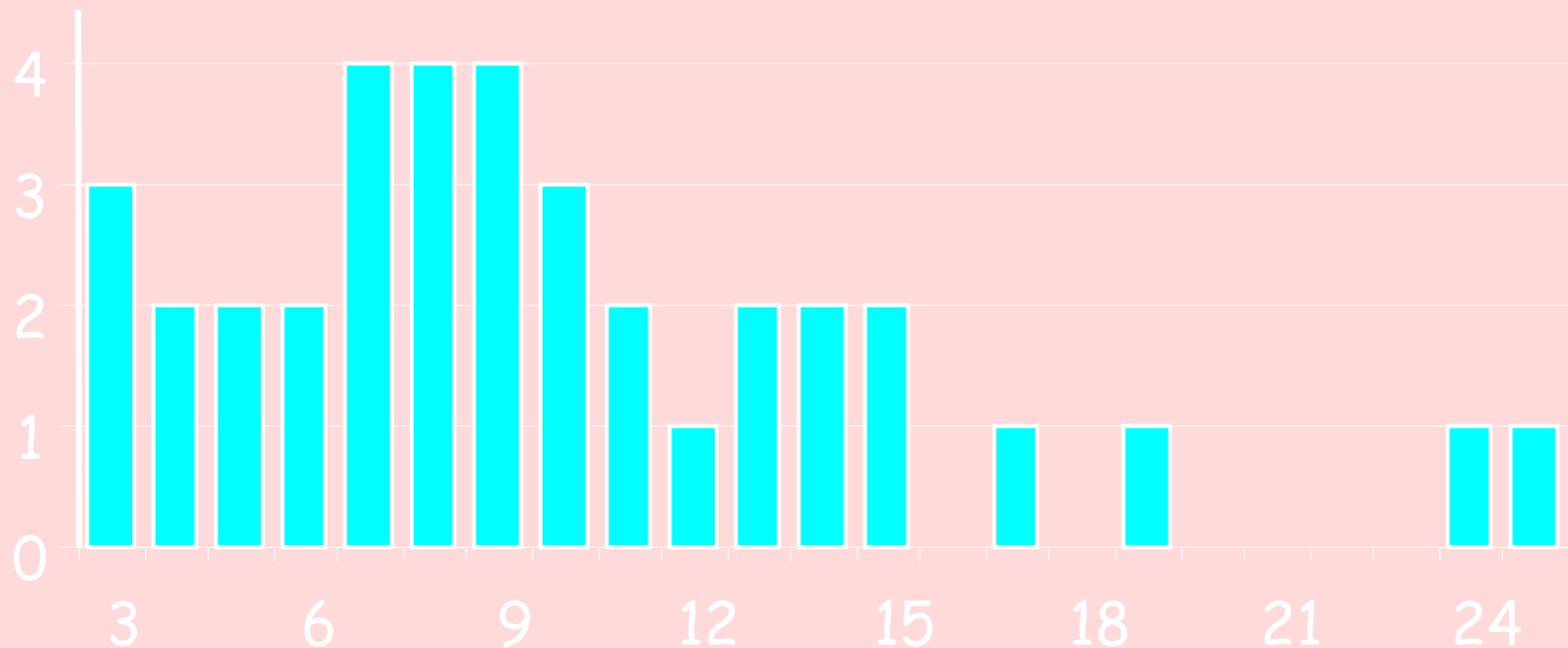
Mean # Injections = **9.9** (5.0/year)

Etude PrONTO

Injections total par Patient à 24 Mois (N=37)

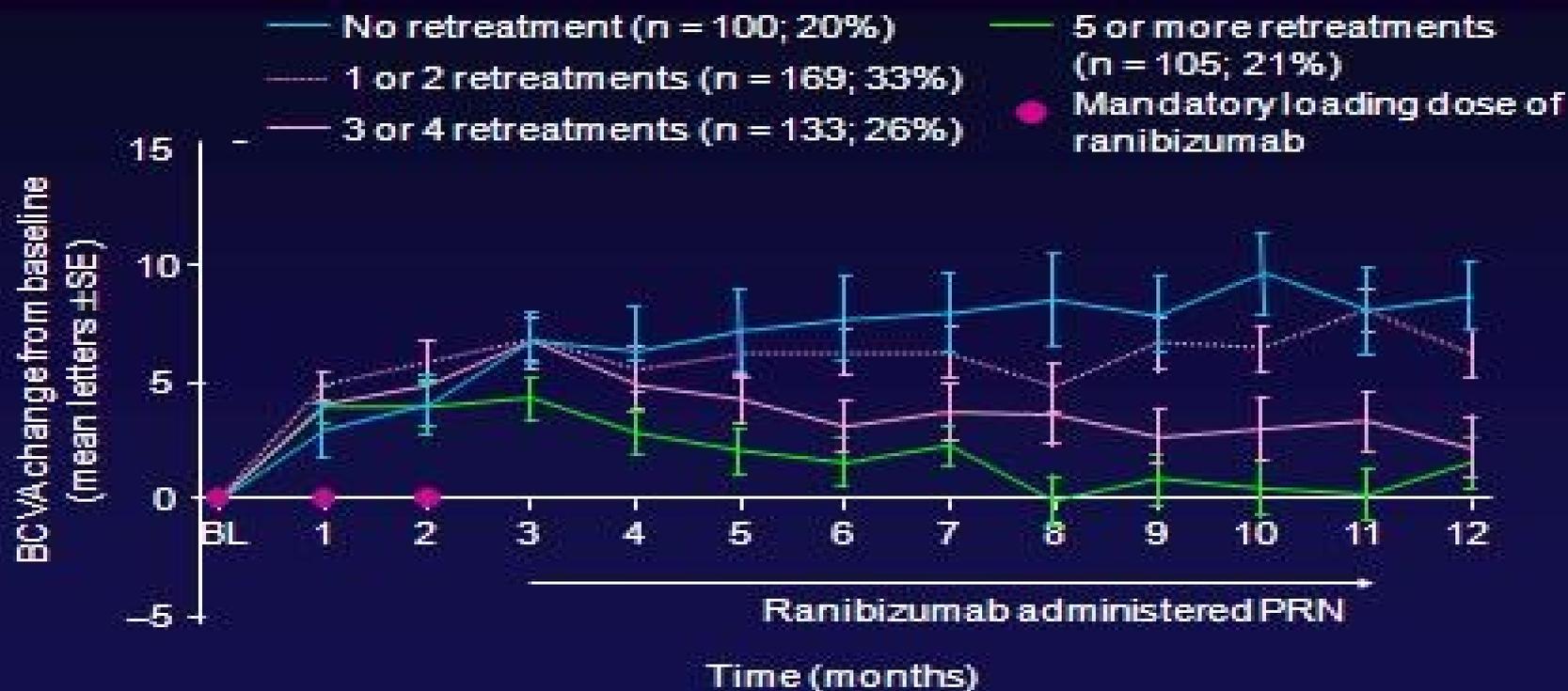
Moyenne # Injections = 9.9 (5.0/year)

Number of Patients



Number of Injections

SUSTAIN: 20 % of patients received no retreatments following the first 3 injections



Strategie PRN

3 + PRN:

Avantages:

Logique, facile à comprendre

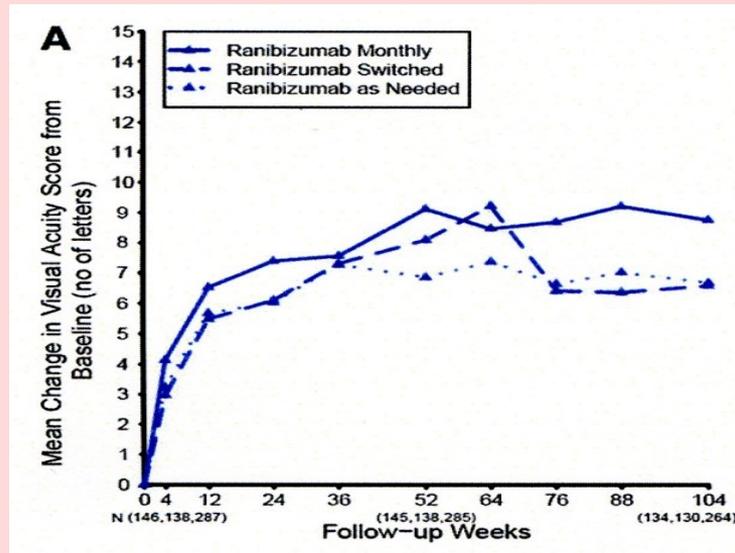
Méthode de référence pendant des années

Inconvénients:

1. Un peu moins efficace que le régime fixe mensuel (- 2 lettres à 2 ans)
2. Examens mensuels pour tous les patients
3. Résultats très dépendants de la qualité du suivi

Stratégie PRN

Efficacité un peu moindre que dans la stratégie de régime fixe



Real-life studies

	Eyes (n)	visual gain (letters)	Injections (n)	Visits (n)
Fung, 2007	40	9.3	5.6	12
Cohen, 2009	124	0.7	3.8	8
Dadgostar, 2009	131	5	5.2	NA
Rothenbuehler, 2009	138	7.3	5.6	12
Querques, 2010	86	9	5.1	12
Bandukwala, 2010	95	2.88	5.1	9.4
Rotsos, 2010	50	4.6	4.7	9.8
Biarnes, 2010	89	1.3	3.5	NA
Bloch, 2011	279	0.4	5.1	NA
Gerding, 2011	104	5	5.8	12
Arias, 2011	88	7	4.4	8

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Biarnes, 2010	89	1.3	3.5	NA
Bloch, 2011	279	0.4	5.1	NA
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Arias, 2011	88	7	4.4	8

Examens mensuels de tous les patients: Un fardeau pour patients et ophthalmos



PRN « Light »

PRN light:

Avantages:

Respirable pour patients et ophtalmos

Inconvénients:

Perte d'efficacité ++++ (observée dans toutes les études de vraie vie françaises)

« INJECT AND EXTEND »

R. Spaide (*AJO* 2007 Apr;143(4):679-80.)

Diminuer le nombre d'injections ET de contrôles
3 injections mensuelles initiales et contrôles à 6 semaines

Exsudation :

Injecter et contrôles à 4 semaines
(suivi - 2 semaines)

Pas d'exsudation:

Injecter et contrôles à 8 semaines
(suivi + 2 semaines)

« INJECT AND EXTEND »

Oubraham H, Cohen SY, Samimi S, et al. Inject and extend dosing versus dosing as needed: a comparative retrospective study of ranibizumab in exudative age-related macular degeneration. *Retina*, 2011, 31:26-30.

PRN: 52 patients (34 femmes, 18 hommes)

Age moyen : 79,8 +/-5,1

Côté : 24 OD et 28 OG

IaE: 38 patients (23 femmes, 15 hommes)

Age moyen: 79,1 +/-5,

Côté: 18 OD, 20 OG

Results	PRN	IaE	Difference
Initial VA	59.4 ±12	61.2 ±14.6	P = 0.33 NS
12 mo VA Gain	+ 2.3 ± 17.4	+ 10.8 ± 8.8	P = 0.03 Significant
Number of injections	5.2 ± 1.9	7.8 ± 1.3	P < 0.001 Significant
Number of visits	8.8 ± 1.5	8.5 ± 1.1	P = 0.20 NS
Loss of VA	34.6 %	2.6 %	P = 0.002 Significant

Inject and Extend

Inject and extend:

Avantages:

Bonne efficacité (LUCAS), Facile à organiser, Pas de verdict (pas de stress), Évaluation de l'intervalle de récurrence

Inconvénients:

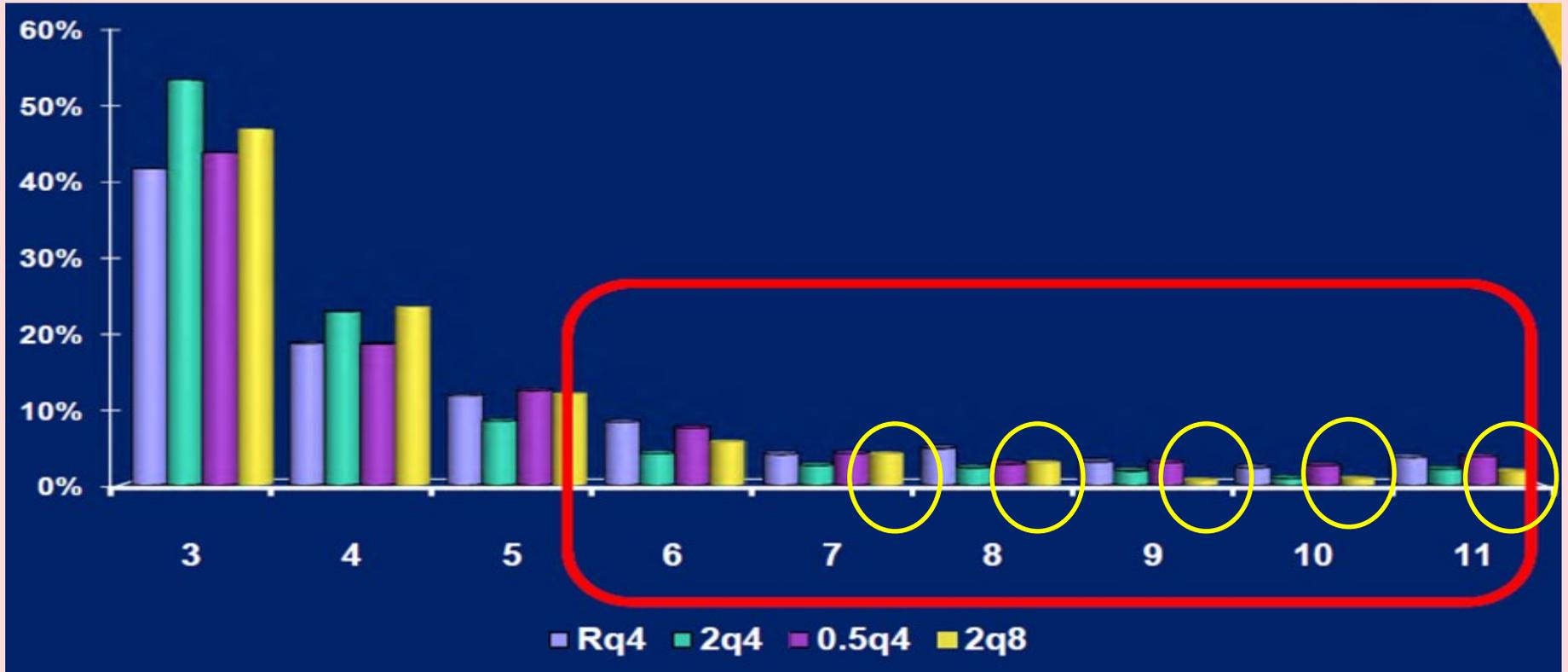
Toutes les injections ne sont pas nécessaires,
Pas de détection des « happy few »,
Risque d'une injection intravitreuse quand tout va bien

Régime fixe bimestriel: 2q8

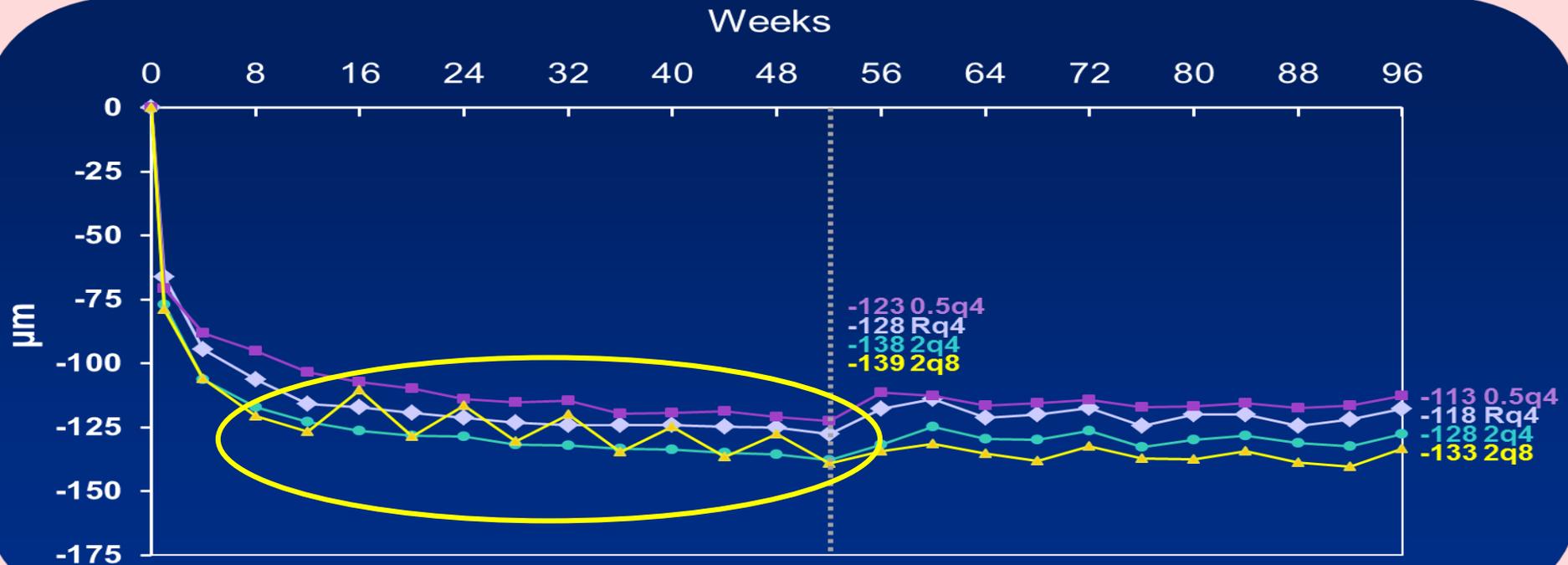
Proposé dans l'étude VIEW pour l'aflibercept

Tout régime fixe expose à des sous- et des sur-traitements

Nombre total d'injections à 96 semaines



Changement moyen de l'épaisseur rétinienne



LOCF; Full analysis set; VIEW 1: OCTs mandatory at baseline, weeks 4, 12, 24, 36, and all visits weeks 52-96;

VIEW 2: OCTs mandatory at all visits

Régime fixe bimestriel



Smart

Trop Large

Trop Etroit

Régime fixe bimestriel

Avantages:

Validé pour aflibercept la 1^{ère} année,

Conforme à l'AMM

Facile à organiser

Inconvénients:

Ne convient pas à tous les rythmes de récurrences: risques de sur- ou de sous-traitement,

Que faire au-delà de la 1^{ère} année ?

DMLA exsudative

Mantel I, et al. Prospective study evaluating the predictability of need for retreatment with intravitreal ranibizumab for age-related macular degeneration. *Graefes Arch Clin Exp Ophthalmol*. 2012 Jun 26

After three loading doses of intravitreal ranibizumab, patients underwent an intensified follow-up for 12 months : OCT every week

The first interval was a good predictor of the following intervals (regression coefficient =0.81).

The results of this study demonstrate a high intra-individual predictability of retreatment need with ranibizumab injections for nAMD

DMLA exsudative: 3 phases

Phase 1: Phase d'Initiation:

3 injections initiales d'anti-VEGF, sans retard

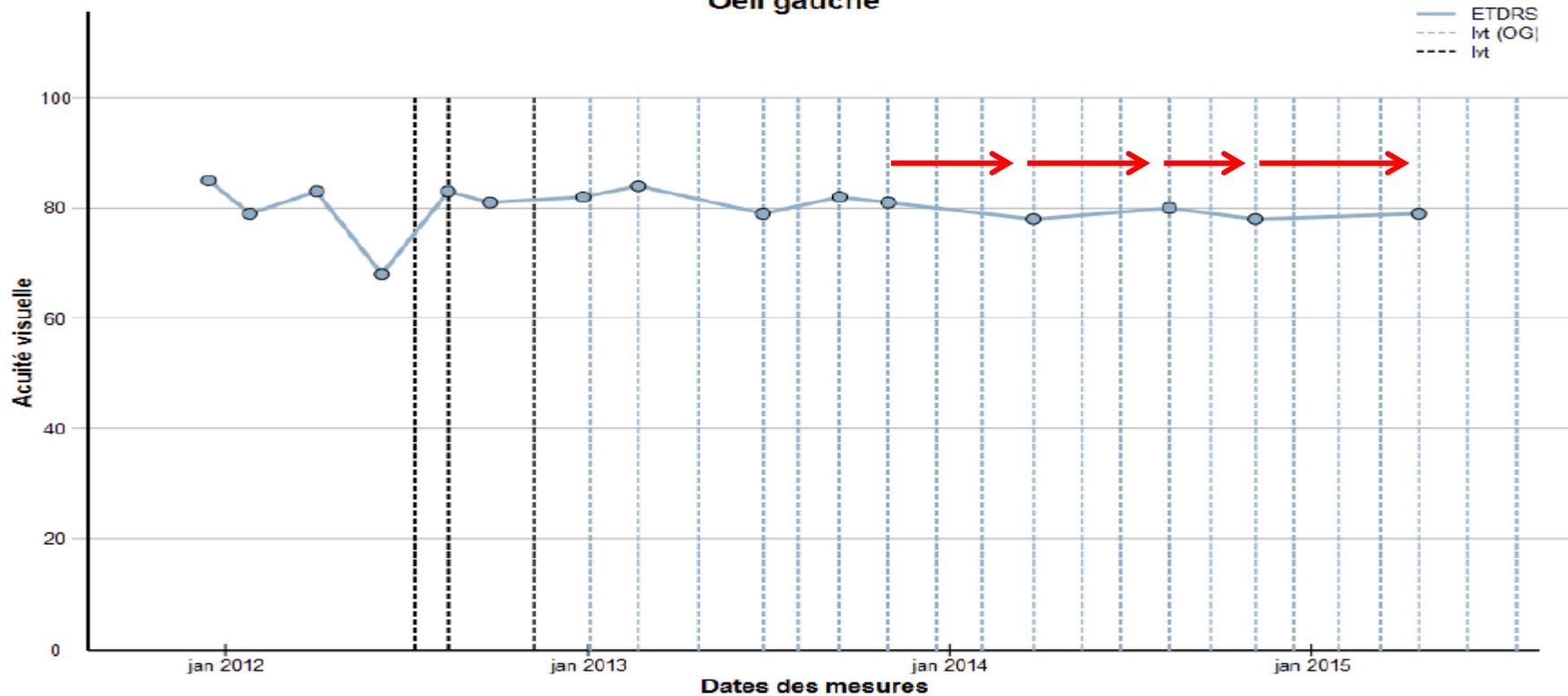
Phase 2: Phase d'Observation:

PRN avec un suivi strict mensuel pour détecter les « happy fews » ou, après la 1^{ère} récurrence, trouver l'intervalle de récurrence (plan and extend, inject and extend).

Phase 3 : Phase d'Individualization:

Traitement d'entretien selon cet intervalle de récurrence: Régime fixe personnalisé.

Oeil gauche



1 contrôle toutes les 3 injections

Injection bilatérale

Le rythme nécessaire peut être différent entre les 2 yeux

S'aligner sur le plus petit dénominateur commun et donc, sur-traiter un œil plutôt que sous-traiter l'autre

Quand se poser la question d'arrêter

Etat général:

Très grand âge avec fatigue générale

Démences

Niveau d'acuité

1/20 ?

AV basse avec oeil adelphe parfait

Conditions locales

Fibrose

Atrophie majeure

Absence d'exsudation avec IaExtend à 12s

Quand se poser la question d'arrêter

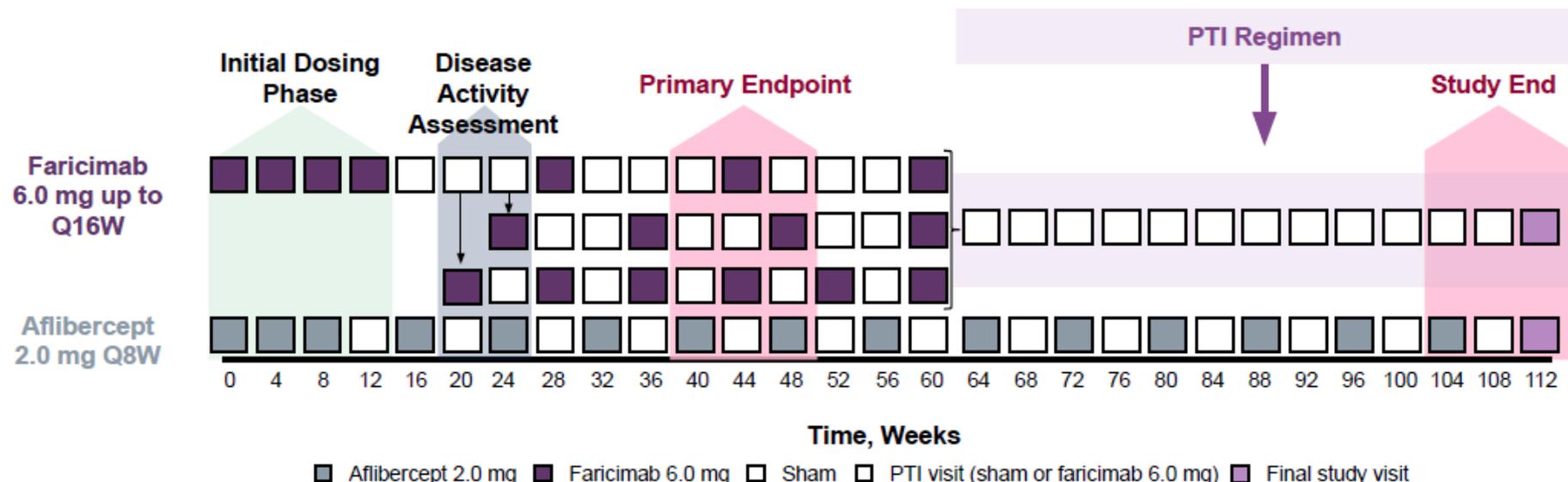
Dans tous les cas

Tenir compte des désirs du patient

Présenter l'arrêt comme une tentative réversible

Surveiller à un rythme plus rapproché

TENAYA and LUCERNE Trial Design



Disease Activity Assessment Criteria (at weeks 20 and 24)

- Based on **CST OR BCVA OR macular haemorrhage^a**

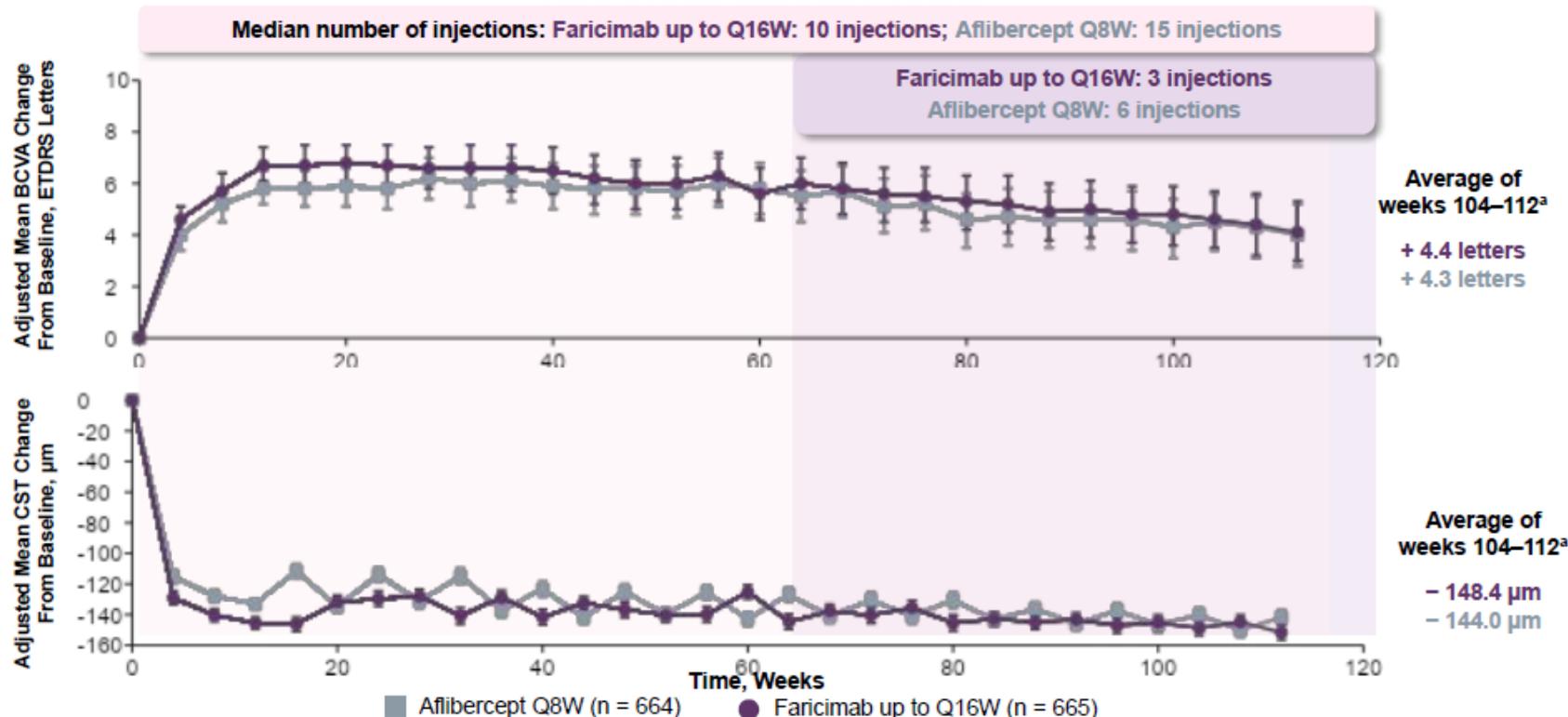
PTI Regimen

- Dosing intervals extended by 4 weeks (up to Q16W), maintained, or reduced by 4 or 8 weeks^b (as low as Q8W)
- Based on **CST OR BCVA OR macular haemorrhage**

Over 2 Years, Patients in the Faricimab Arm Achieved Disease Control With Fewer Injections

ITT Population

TENAYA/LUCERNE Pooled

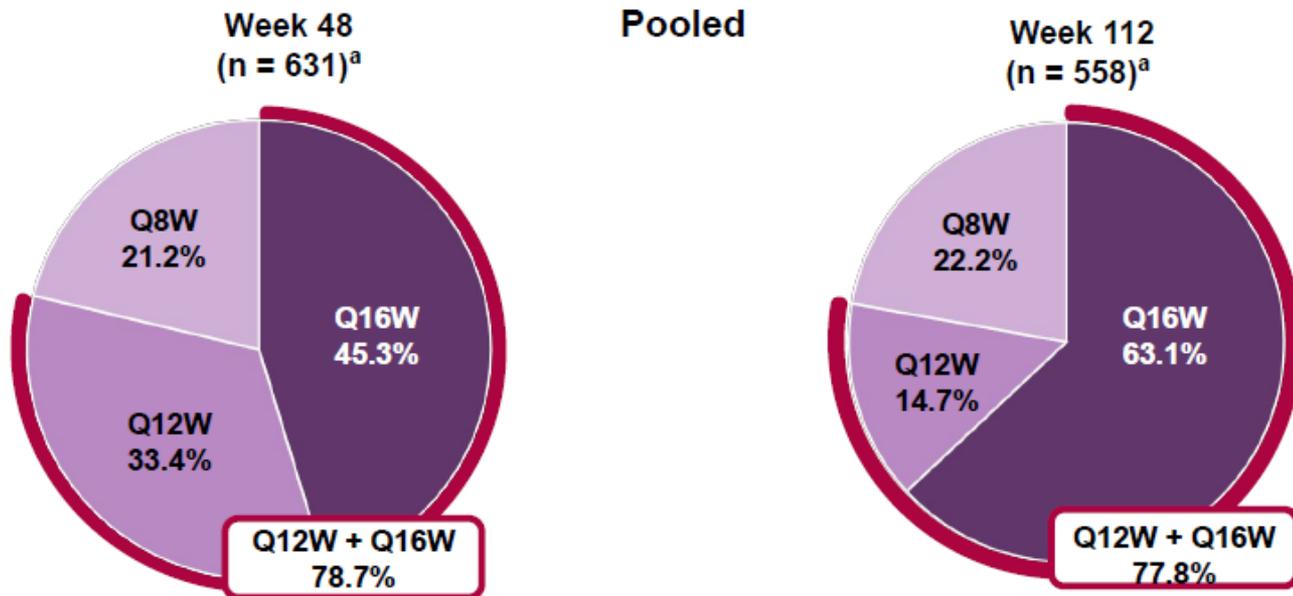


Results are based on a mixed model for repeated measures analysis in the ITT population. Treatment policy strategy and hypothetical strategy were applied to non-COVID-19 related and COVID-19 related intercurrent events, respectively. The median number of injections are based on the safety-evaluable population. 95% CIs are shown. CST is measured as ILM-RPE, as graded by central reading centre. ^a Adjusted mean change from baseline at 2 years, averaged over weeks 104, 108 and 112. PTI dosing regimen was delayed in some patients due to dose holds or missed visits. BCVA, best-corrected visual acuity; CST, central subfield thickness; ETDRS, Early Treatment Diabetic Retinopathy Study; ILM, Internal limiting membrane; ITT, intent-to-treat; PTI, personalised treatment interval; Q8W, every 8 weeks; Q16W, every 16 weeks; RPE, retinal pigment epithelium.

At 2 Years, > 60% of Faricimab-Treated Patients Achieved Q16W Dosing and ~80% Achieved \geq Q12W Dosing

Treat-and-extend dosing in year 2 allowed more patients to achieve Q16W

TENAYA/LUCERNE Pooled



^a Percentages are based on number of patients randomised to the faricimab arm who have not discontinued the study at that visit. Proportions for week 48 are based on the primary analysis. Treatment interval at a given visit is defined as the treatment interval decision followed at that visit. Interval at week 112 is calculated using data recorded at week 108. Q8W, every 8 weeks; Q12W, every 12 weeks; Q16W, every 16 weeks.

Faricimab Was Well Tolerated With an Acceptable Safety Profile Through Year 2

AEs Through Study End, Patients With ≥ 1 AE, n (%) ^a	TENAYA/LUCERNE Pooled	
	Faricimab Up to Q16W n = 664	Aflibercept Q8W n = 662
Ocular AEs ^b	358 (53.9%)	345 (52.1%)
Serious ocular AEs ^b	29 (4.4%)	29 (4.4%)
Ocular AEs of special interest ^c	40 (6.0%)	43 (6.5%)
Intraocular inflammation events^d	20 (3.0%)	15 (2.3%)
Uveitis	4 (0.6%)	3 (0.5%)
Iritis	8 (1.2%)	3 (0.5%)
Iridocyclitis	2 (0.3%)	1 (0.2%)
Vitritis	4 (0.6%)	1 (0.2%)
Post-procedural inflammation	0	5 (0.8%)
Chorioretinitis	1 (0.2%)	0
Keratic precipitates	2 (0.3%)	0
Non-infectious endophthalmitis	0	1 (0.2%)
Anterior chamber flare	0	1 (0.2%)
Endophthalmitis events	3 (0.5%)	2 (0.3%)
Retinal vasculitis events	0	0
Retinal occlusive events		
Retinal vein occlusion	0	0
Retinal artery occlusion	0	0
Retinal artery embolism	1 (0.2%) ^f	0
Serious non-ocular AEs	138 (20.8%)	162 (24.5%)
APTIC events^g	22 (3.3%)	20 (3.0%)

^a Results are presented for the pooled safety-evaluable populations. Percentages are based on n values in the column headings; multiple occurrences of the same AE in an individual are counted only once. ^b Ocular AEs in the study eye only are presented. ^c Ocular AEs of special interest were defined as events associated with severe intraocular inflammation, events requiring surgical or medical intervention to prevent permanent loss of sight or events associated with BCVA loss of ≥ 30 letters for > 1 hour. ^d Excluding endophthalmitis. ^e APTIC events were adjudicated by an external independent committee; all other events were investigator reported. ^f Hollenhorst plaque that was reported at the end of year 1 and was not treatment-related as per the Investigator. AE, adverse event; APTIC, Antiplatelet Trialists' Collaborator; BCVA, best-corrected visual acuity; Q8W, every 8 weeks; Q16W, every 16 weeks.

Futur proche

Biosimilaires: Ranivisio déjà présent, pas mieux

Brolucizumab: Pas encore disponible en France, plus asséchant, mais % de complications sévères

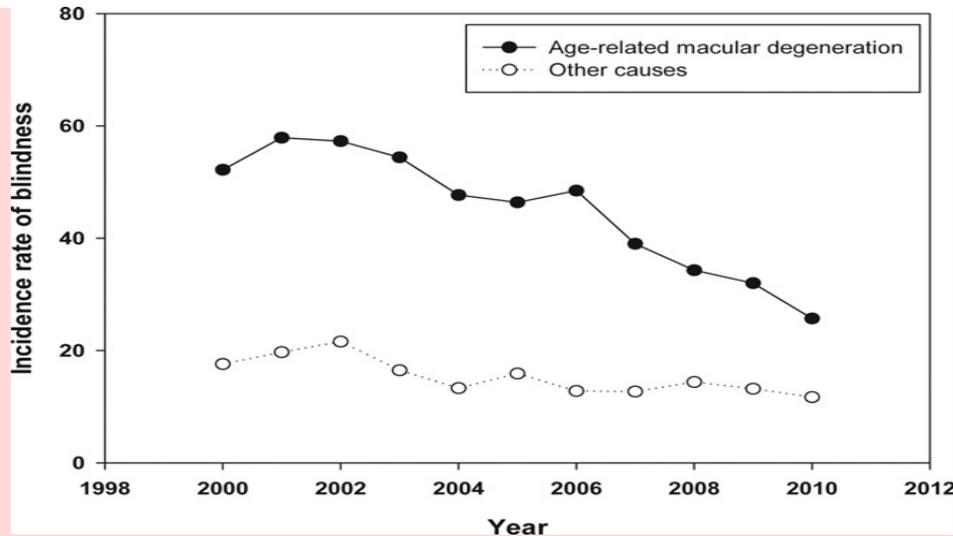
Faricimab: A priori, le plus séduisant pour l'instant mais tous les patients ne dépasseront pas 8 semaines, attention aux faux espoirs

Aflibercept 8 mg: semble aussi plus durable / 2 mg

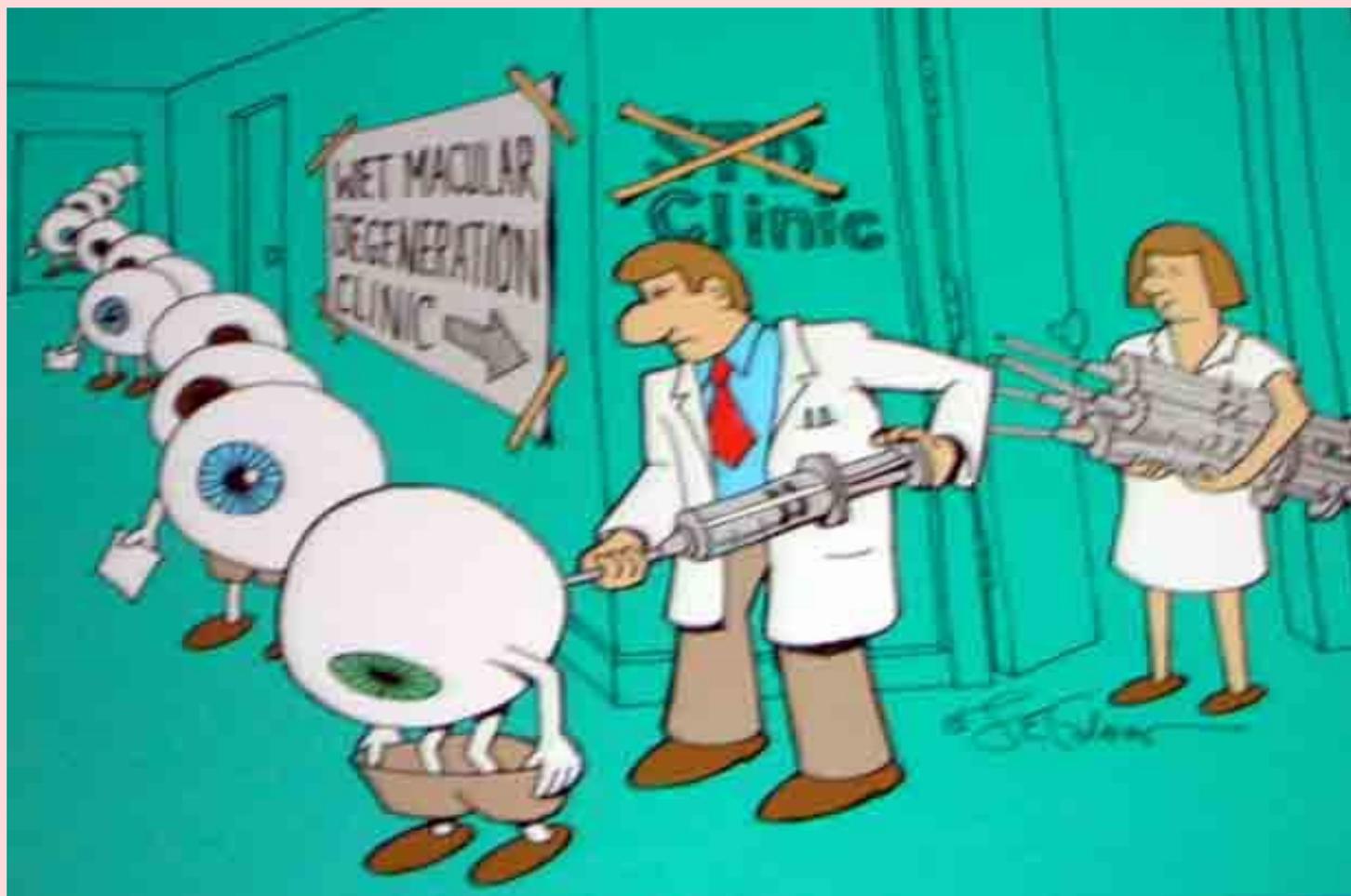
Au total, moins d'IVT par patients au cours des prochains mois

Incidence of Legal Blindness From Age-Related Macular Degeneration in Denmark: Year 2000 to 2010

SARA BRANDI BLOCH, MICHAEL LARSEN, AND INGER CHRISTINE MUNCH



The incidence rate of legal blindness attributable to AMD in citizens aged >50 years decreased from 52.2 cases per year per 100 000 in 2000 to 25.7 cases per year per 100 000 in 2010, corresponding to a reduction of 50% (95% confidence interval [CI95]: 45%-56%, $P < .0001$, adjusted for age), the bulk of the reduction occurring after 2006



Points importants

Diagnostic précoce pour traitement précoce

Actuellement: anti-VEGF en monothérapie

Phase d'induction: 3 injections mensuelles

Phase d'observation

Phase d'entretien souvent nécessaire

Possibilité de changement de produit: switch

Faricimab très attendu