

EN FACE-OCT Patterns of Choriocapillaris and different Choroidal Vascular Layers :



Their changes in eyes with Active Polypoidal Choroidal Vasculopathy

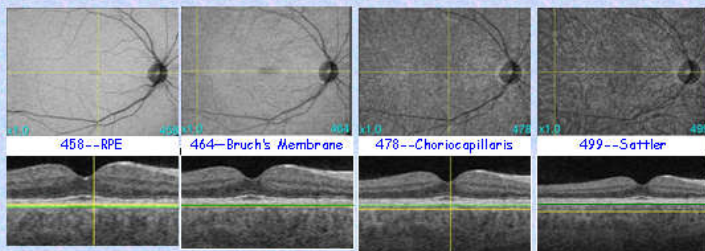
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INTRODUCTION

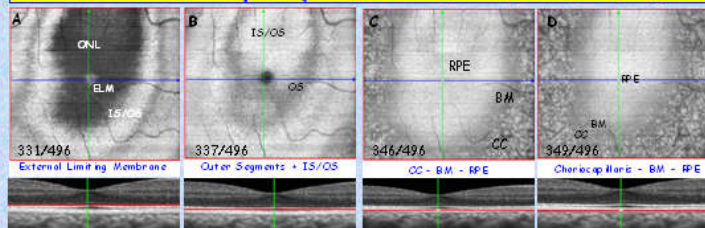
- To assess with "EN FACE" Optical Coherence Tomography
- Characteristic OCT patterns of choriocapillaris and of choroidal vascular layers and their changes in eyes with
- Active Polypoidal Choroidal Vasculopathy (PCV),
- Treated with combined PDT-Ranibizumab (R*)
- Design:** Observational, comparative case series. 2 groups

"En Face" OCT patterns (SWEPT SOURCE-Topcon*) of choriocapillaris and choroidal layers

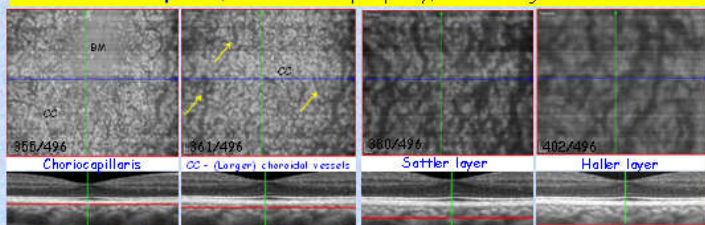


The green horizontal line is set at the level of Bruch's Membrane
The yellow line represents the level of the horizontal section

"En Face" OCT in SPECTRALIS* patterns of the Outer Retinal Layers (ONL: IS/OS; ELM; RPE; BM; CC)



- A. The **Outer Nuclear Layer**, very dark, is progressively replaced by the **ELM** and,
- B. The **Interface IS/OS, or Ellipsoid Zone** extends slowly surrounded by **OS**,
- C. Deeper, the **RPE layer (hyper reflective)** is visible, surrounded by **BM** and
- D. The **Choriocapillaris**, visible at the periphery, surrounding **BM** and **RPE**

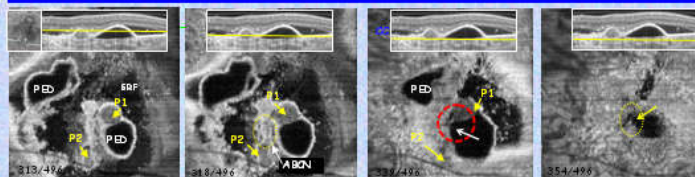


All the Choroidal vessels are now visible : first **Sattler layer** and then, **Haller layer** ; and , finally , the **Sclera** , with the penetrating ciliary vessels

METHODS

- This is a **retrospective study**
- comparing a group of **10 healthy normal subjects**.
- with a group of **61 consecutive patients with PCV**
 - 61 eyes, 32 females and 29 males
 - located in the subfoveal region
 - treated by combined PDT and 3 monthly R*, then as needed.
- **Multimodal imaging was obtained**
 - at initial diagnosis and then, at regular follow-up visits :
 - VA, ICGA, FA and "en face" EDI-OCT
 - The central macular thickness (CMT) and
 - Subfoveal Choroidal thickness (SFCT) were evaluated
- **For evaluation of**
 - Patterns of choriocapillaris and choroidal vascular layers,
 - Presence of **hyper reflective dots** (in retina and in choroid) - The mean follow up was 7.34±9.22 months.

"EN FACE" OCT IN PCV: CONNECTIONS BETWEEN POLYPS AND ABNORMAL BRANCHING CHOROIDAL NETWORK



Section 313 : 2 polyps, clearly visible, surrounded by PED and SRF

Section 318 : A thin vascular network is linking the 2 polyps

• **Section 339** : Deeper, the delicate connection from one polyp towards the vascular network (ABCN) is clearly visible

• **Section 354** : Deeper again, a small vessel appears, "diving" from P1 towards the CC

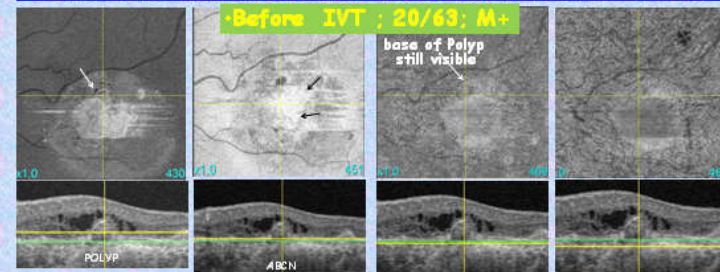
RESULTS

- "EN FACE" OCT PATTERNS of Choriocapillaris and Choroid Layers, and of any ABCN is shown.
- **AFTER TREATMENT,**
 - **73% of eyes gained VA** or remained stable and 28% of eyes lost 1 line or more (EDTRS)
 - **CMT decreased significantly** from $352.62 \pm 117.04 \mu\text{m}$ at presentation to $302.95 \pm 77.77 \mu\text{m}$, at last visit ($p=0.012$).
 - **SFCT decreased significantly** from $280.33 \pm 101.60 \mu\text{m}$ at presentation to $223.65 \pm 100.60 \mu\text{m}$ at last visit ($p=0.001$).
 - No correlation between decrease in CMT and SFCT ($p=0.078$)
 - **Retinal and choroidal hyper reflective dots** on OCT, decreased significantly ($p=0.001$).
 - **The leakage** from polyps decreased significantly ($p=0.05$).
 - **But, the number of polyps and AVN** seen on ICGA did not change significantly after TT ($p=0.99$ and $p=1$ respectively).
 - **The Choroidal layers** (number and dilatation) did not change significantly after TT ($p=0.375$ and $p=0.5$ respectively).

DISCUSSION AND CONCLUSION

- "En face" OCT patterns of choriocapillaris, of choroidal vascular layers, and of any abnormal choroidal vascular network (ABCN) could be specifically recognized and analyzed.
- **Treatment of PCV with combined PDT and R*** resulted in
 - **Stabilization or improvement of VA** in 73% of treated eyes.
 - **Significant decrease** in CMT and SFCT,
 - **Decrease in hyper reflective** retinal and Choroidal dots
 - **The Choroidal layers** (number and dilatation) did not change
- **These anatomical characteristics changes** after treatment could be reliable indices to monitor the effect of treatment in PCV.

"EN FACE" OCT IN PCV: CONNECTIONS BETWEEN POLYPS AND ABNORMAL BRANCHING CHOROIDAL NETWORK

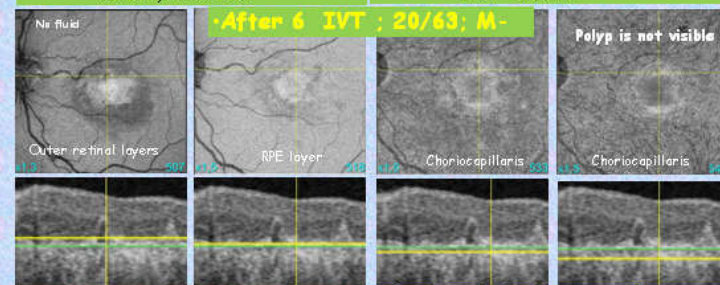


• **Section 430** : Precise delimitation of one Polyp

• **Section 461** : Anterior limit of RPE visibility of ABCN

• **Section 469** : Choriocapillaris : First section

• **Section 482** : Choriocapillaris Last section



• **Section 507** : Outer retinal layers: Polyp still visible

• **Section 518** : RPE layer : Connexions with ABCN

• **Section 533** : Choriocapillaris : No fluid

• **Section 543** : Last section of Choriocapillaris

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Disclosure: None