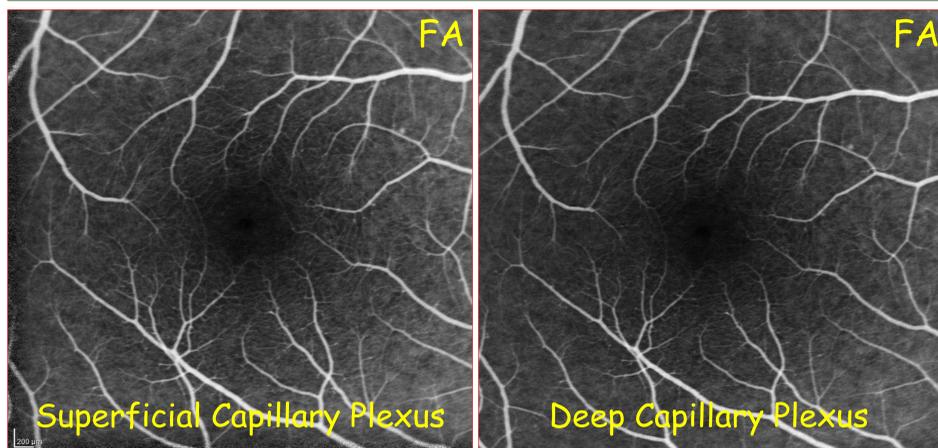


INTRODUCTION

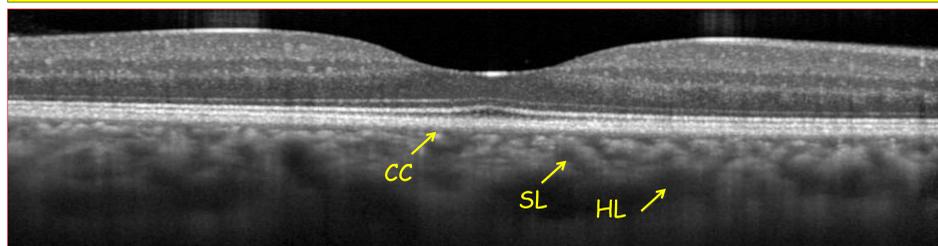
To describe and compare:

- The Spectralis* OCT-Angio images of all the retinal and choroidal vascular layers
- To the conventional multimodal imaging findings
- In healthy subjects without dye injection

Conventional Multimodal Imaging



- Fluorescein Angiography (FA) Early A-V phase (Top Left): Superficial Capillary Plexus with perifoveal arcades slightly visible.
- Fluorescein Angiography (FA) Early A-V phase (Top Right): Deep Capillary Plexus not clearly appreciable neither with a deeper defocused angiogram.

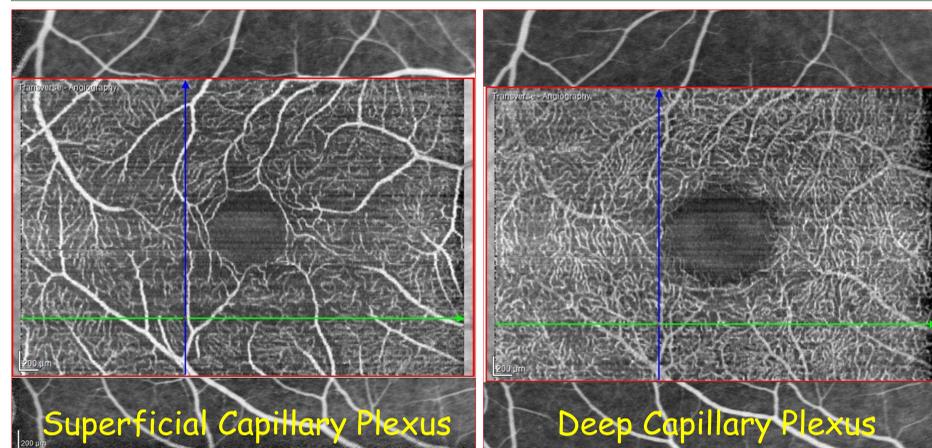


- EDI-OCT Macular B-Scan (Middle)
 - Retinal Capillary Plexa are slightly visible.
 - Clear distinction between different choroidal layers: Choriocapillaris (CC), Sattler's Layer (SL), Haller's Layer (HL).

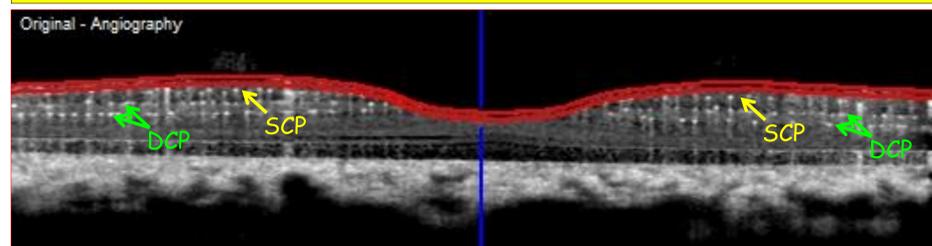
METHODS

- Prospective case series of 10 eyes of 10 healthy subjects (7 females, mean age 34 ± 15).
- New multimodal approach based on the Spectralis* OCT-Angio visualization of the macular area
- Vascular structural analysis (on a $15 \times 10^\circ$ area).
- $25 \mu\text{m}$ thickness C-scan section shaped either on the ILM or on BM profile.
- "Conventional" multimodal protocol included FA and EDI B-Scan SD-OCT.

OCT-Angio



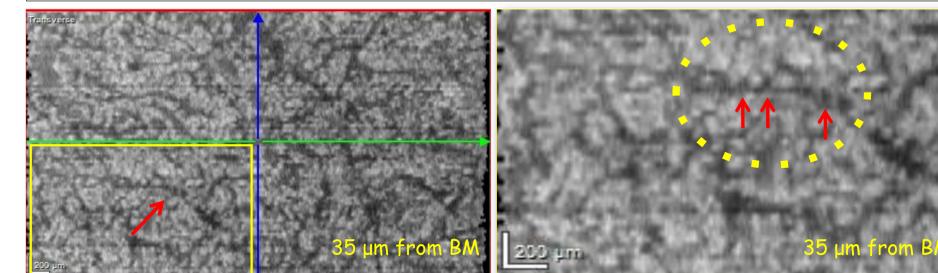
- OCT-Angio (Top Left): Superficial Capillary Plexus with increased visualization of retinal perifoveal capillary arcades.
- OCT-Angio (Top Right): First time detailed visualization of the deep capillary plexus (morphology and extension)



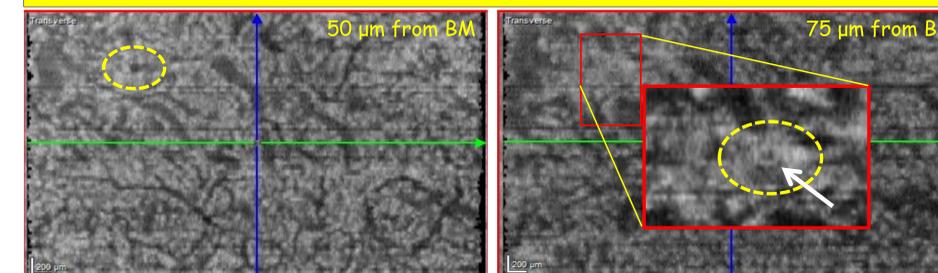
- B-Scan OCT-Angio
 - Superficial Capillary Plexus (SCP - yellow arrow): hyper-intense spots at the level of Ganglion cell layer
 - Deep Capillary Plexus (SCP - green arrows): clearly visible in its two components as hyper-intense spots at the level of Inner Nuclear layer
 - Diffuse hyper-intense signal at the Choriocapillaris' level, progressively reducing from Sattler's to Haller's layer probably due to the different speed of blood flow.

RESULTS

- The superficial retinal vascular layers were appreciable with both protocols.
- The Spectralis* OCT-Angio offered the possibility to study in detail the deep capillary plexus (in its two components).
- The Spectralis* OCT-Angio sometimes provides the visualization of the connections between the two plexa.
- The En-Face visualization of the Spectralis* OCT-Angio allowed to distinguish different choroidal vascular layers, including Choriocapillaris, and to highlight the connections between these layers.



- En-Face OCT-Angio: Evidence of fine connection (arborization) between the Choriocapillaris and the Sattler's layer vessels at $35 \mu\text{m}$ beneath the BM



- En-Face OCT-Angio: Transverse section of choroidal vessel (roundish hypo-reflective structure - yellow ring) at $50 \mu\text{m}$ from Bruch's Membrane (BM) with progressive appearance of vessel's wall at a deeper level ($75 \mu\text{m}$)

CONCLUSION

Our study shows the capability of the Spectralis* OCT-Angio system to analyze in detail the whole retinal and choroidal vascular tissue in order to be a useful reference in case of pathological conditions.

REFERENCES

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3. Spaide R et al. Retinal vascular layers imaged by fluorescein angiography and optical coherence tomography angiography. JAMA Ophthalmol. 2015 Jan;133(1):45-50.