



## Oftalmología en imágenes / Ophthalmology in images

OCT-angiography in acute central retinal artery occlusion with patent cilioretinal artery

# Angiografía OCT en un paciente con obstrucción de la arteria central de la retina con presencia de arteria cilioretinal

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### CASE PRESENTATION

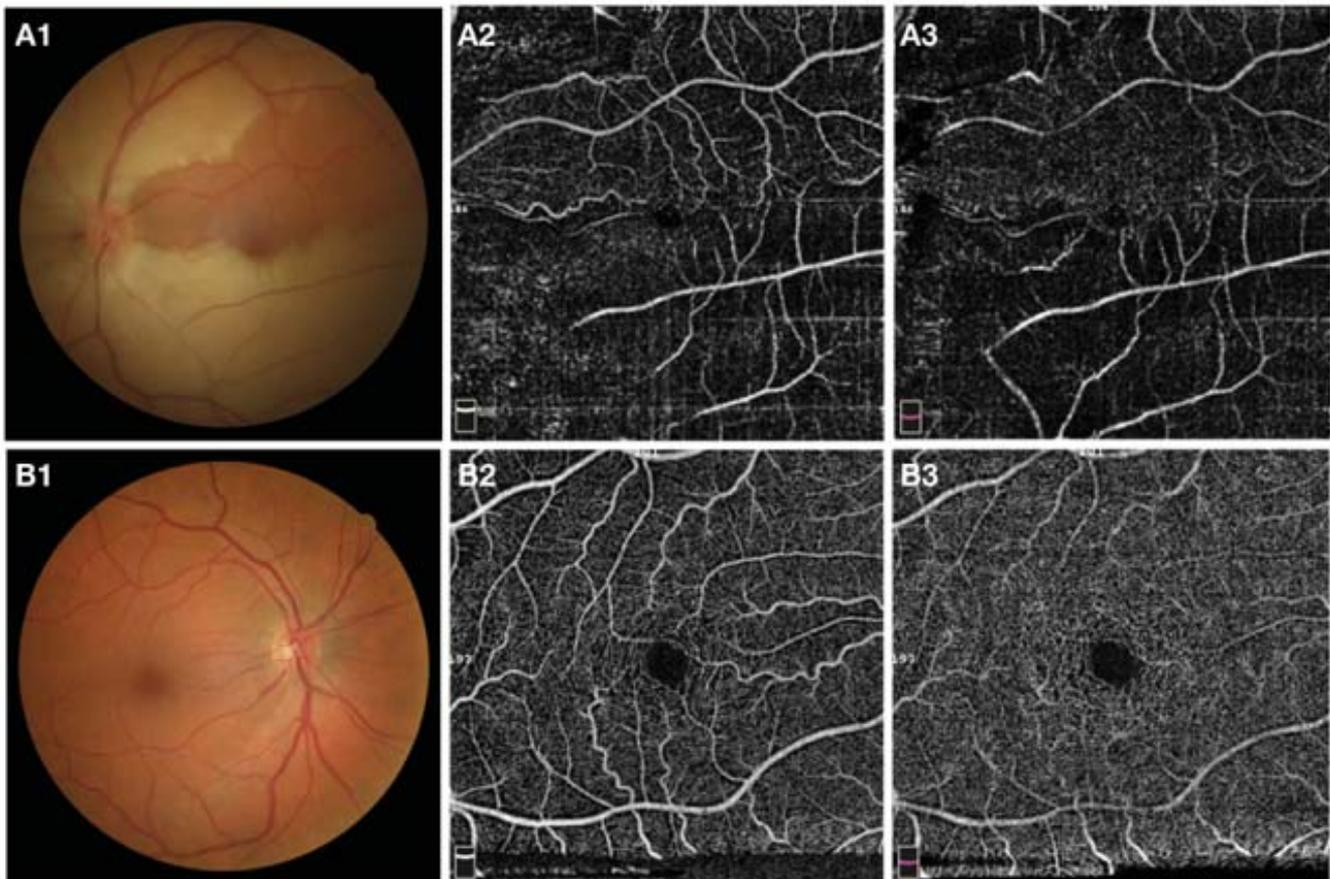
An 80-year-old woman presented with sudden and painless decreased visual acuity in the left eye (20/60). Medical history included systemic hypertension. Fundus examination of the left eye revealed classic signs of acute central retinal artery occlusion (CRAO) with patent cilioretinal artery, including diffuse retinal edema and pallor sparing part of the macular region, and peripapillary microhemorrhages (Figure A1). Enface optical coherence tomography angiography (OCT-A) and quantitative capillary density maps of the macula demonstrated reduced perfusion and vascular density in both superficial (Figure A2) and deep plexuses (Figure A3) in the left eye, even within the area perfused by the cilioretinal artery. The right eye was normal (Figure B1-3).

CRAO is often caused by atherosclerosis-related thrombosis at the lamina cribosa. Previous studies using spectral domain optical coherence tomography and OCT-A have demonstrated that both superficial and deep retinal capillary

plexuses density are reduced in CRAO.<sup>1,2</sup> Overtime, the central retinal artery recanalizes and the clinical signs resolve. On OCT-A, in the chronic phase, although an improvement in the superficial capillary plexus vessel density can be observed, the deep capillary plexus vessel density seems to remain reduced.<sup>3</sup> This fact is noteworthy because, although the fluorescein

angiography is still the gold standard for evaluating the retinal vascular circulation, it cannot distinguish the superficial and deep capillary plexuses and therefore fail to identify the deep capillary ischemia observed in the chronic phase.<sup>4</sup> The OCT-A may be an option as a noninvasive tool to assess vascular perfusion in both acute and chronic phases of CRAO.

**Figure.** OCT-A



(A1) Color fundus photography of the left eye demonstrating diffuse retinal edema and pallor, sparing the region supplied by the cilioretinal artery.

(A2) OCT-A of the retinal superficial capillary plexus of the affected eye showing reduced vascular density and areas of non-perfusion.

(A3) OCT-A of the retinal deep capillary plexus of the affected eye demonstrating reduction in vascular perfusion, more prominent than the superficial plexus.

(B1) Color fundus photography of the right eye without abnormalities. B2 and B3. normal preserved density and perfusion observed on the retinal superficial and deep capillary plexuses of the right eye, respectively.

## REFERENCES

1. Yu S, Pang CE, Gong Y, Freund KB, Yannuzzi LA, Rahimy E, et al. The spectrum of superficial and deep capillary ischemia in retinal artery occlusion. *American journal of ophthalmology*. 2015;159(1):53-63.e1-2.
2. Cicinelli MV, Carnevali A, Rabiolo A, Querques L, Zucchiatti I, Scorcio V, et al. Clinical spectrum of macular-foveal capillaries evaluated with optical coherence tomography angiography. *Retina (Philadelphia, Pa)*. 2017;37(3):436-43.
3. Iafe NA, Onclinx T, Tsui I, Sarraf D. Paracentral acute middle maculopathy and deep retinal capillary plexus infarction secondary to reperfused central retinal artery occlusion. *Retinal cases & brief reports*. 2017;11 Suppl 1:S90-s3.
4. Yu S, Wang F, Pang CE, Yannuzzi LA, Freund KB. Multimodal imaging findings in retinal deep capillary ischemia. *Retina (Philadelphia, Pa)*. 2014;34(4):636-46.