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Optical coherence tomography angiography analysis of retinal and choroidal vascular networks during acute, relapsing and quiescent stages of toxoplasmic retinochoroiditis

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Purpose: The purpose is to present a series of patients with clinical findings characteristic of ocular toxoplasmosis and highlight the advantages of OCT angiography (OCT-A) in delineating the morphologic features of the retinal and choroidal vascular networks during acute, relapsing and quiescent stages of toxoplasmic necrotizing retinochoroiditis.

Patients & Methods: All patients diagnosed with ocular toxoplasmosis underwent a complete ophthalmic examination including a best-corrected visual acuity (BCVA) test with Snellen eye charts, intraocular pressure measurement with Goldmann applanation tonometry, anterior segment examination, and dilated fundus biomicroscopy. Standard fundus fluorescein angiography (FFA), indocyanine green angiography (ICGA), and optical coherence tomography (SD: spectral domain or SS: swept source): B, C or angiography (Spectralis HRA Heidelberg Engineering or SS OCT Triton Topcon) were performed in all patients.

Results: Twenty-three patients were enrolled. Five initial cases, 6 scarred cases and 12 cases with toxoplasmosis recurrence were analyzed. For all active retinochoroidal foci, OCT-A showed better than FFA and ICG the vessel rarefaction in the deep retinal capillary plexus (DRCP) more extensive than in the superficial retinal capillary plexus (SRCP); then on treatment, OCT-A showed the partial reappearance of these two capillary layers. On atrophic areas, the residual disorganized ischemic areas were larger in the choroidal segmented layers compared to SRCP and DRCP. EDI-OCT shows an increased choroidal thickness at the level of active foci.

Discussion: At the level of active and scarred toxoplasmosis foci, OCT-A showed better than FFA and ICG the localization and extension of retinal and choroidal capillary involvements. The partial vessel reappearance after treatment may correspond either to a vessel recanalization or to a disappearance of a masking effect induced by the active foci.

Conclusion: SD and SS OCT-A seem interesting for assessing retinal and choroidal capillary involvement in ocular toxoplasmosis. OCT-A shows that the retinal and choroidal capillary damages may be partially regressive in the initial outbreaks of toxoplasmosis treated early, which may help to better understand the pathophysiology of the toxoplasmic damage.

Biography

Martine Mauget-Faÿsse is a Retinal medical ophthalmologist. She did her medical studies and Certification in Ophthalmology at the University of Lyon, France, then post-doctoral training for retinal diseases at the Creteil Hospital in Paris. Since 2012, she is a medical consultant for clinical research for retinal diseases in the Adolphe de Rothschild Foundation investigation clinical Center in Paris, Principal investigator and co-investigator for biomedical protocols. Active member of numerous scientific Societies: SFO, AAO, Macula Society, Fan Club. Reviewer and author of papers on Clinical Research and Retinal diseases.

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