

Optical Coherence Tomography Angiography findings in patients with occlusive retinal vasculitis



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Background:

- Fluorescein angiography (FA) : gold standard for the evaluation and monitoring of retinal vasculitis, limitations (invasive, time-consuming, two dimensional, etc..)
- Data on optical coherence tomography angiography (OCTA) in posterior uveitis and retinal vasculitis are scarce
- Purpose : To describe Swept Source OCTA findings in eyes with occlusive retinal vasculitis

Patients & Methods:

- Prospective study included 15 patients (25 eyes) diagnosed with occlusive retinal vasculitis involving the posterior pole or the periphery.
- All patients were evaluated using FA, spectral domain optical coherence tomography, and SS-OCTA.

Results:

- The causes of occlusive retinal vasculitis included Behcet disease in 12 patients (21 eyes) (Figure 1), ocular tuberculosis in 1 patient (2 eyes), West Nile virus infection in 1 patient (1 eye) (Figure 2), and rickettsiosis in one patient (1 eye).
- OCTA was superior to FA in evaluating perifoveal microvascular changes.
- It showed in twenty eyes (80%) areas of retinal capillary non perfusion/hypoperfusion with or without associated rarefied, dilated, or shunting vessels.
- The deep retinal capillary plexus was more severely affected than the superficial capillary plexus.

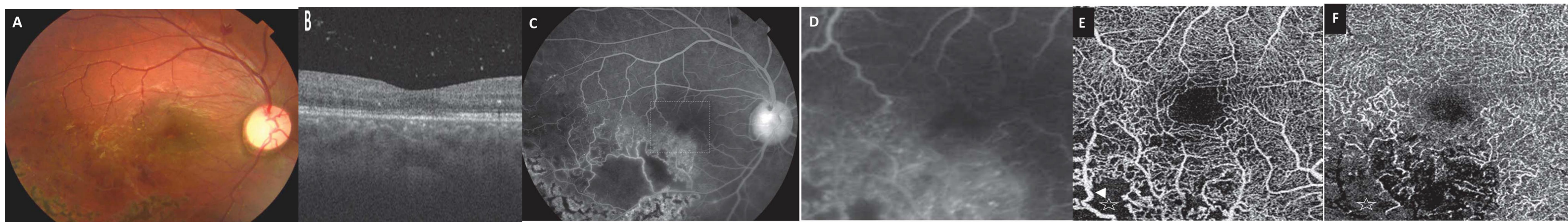


Figure 1: Chronic occlusive retinal vasculitis in the right eye of a 17-year-old male patient with Behçet uveitis. **A.** Color fundus photograph shows residual retinal hemorrhages and chorioretinal laser scars inferotemporally. **B.** Spectral-domain OCT shows a normal central retinal thickness. **C.** Mid-phase fluorescein angiogram shows large hypofluorescent nonperfused areas, hyperfluorescent laser scars, retinal vascular leakage, and collateral vessels in the macular area inferotemporally. **D.** Magnified view of a 3x3 mm white dashed square of fluorescein angiography. Hyperfluorescence from leaking vessels masks the perifoveal nonperfused areas. **E.** OCT angiogram of the superficial capillary plexus clearly visualizes well delineated hypointense grayish areas of retinal capillary nonperfusion/hypoperfusion (white asterisk) and capillary telangiectasias (white triangle). **F.** OCT angiogram shows in the deep capillary plexus, larger grayish areas of capillary nonperfusion/hypoperfusion (white asterisk) and capillary network disorganization.

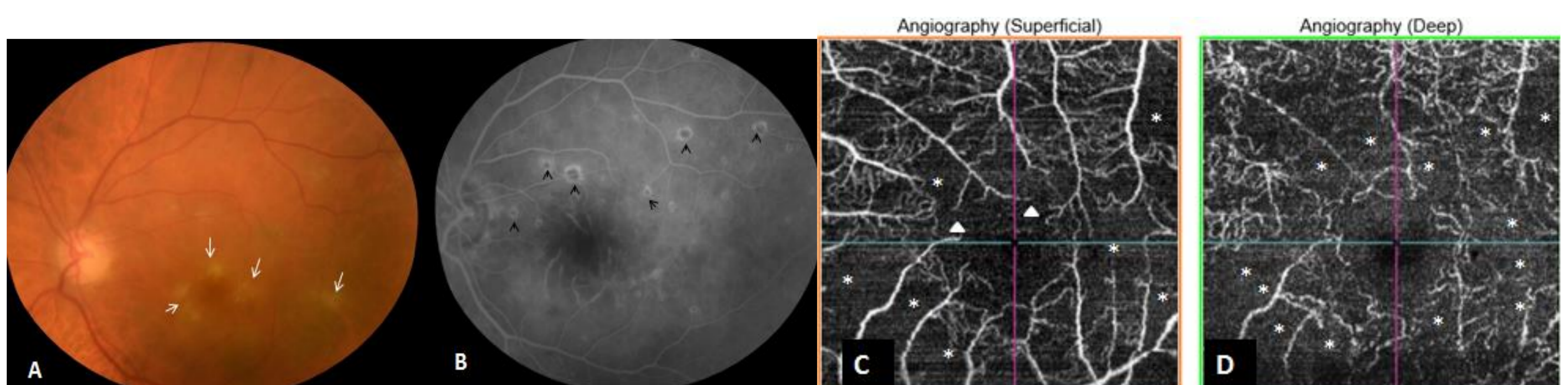


Figure 2 : West Nile virus chorioretinitis and occlusive retinal vasculitis in a 65-year-old diabetic man . **A.** Fundus photograph of the left eye shows patchy areas of ischemic retinal whitening with arteriolar narrowing and sheathing (arrows) . **B.** Mid-phase fluorescein angiogram of the left eye shows inactive multifocal chorioretinitis with a target-like appearance (arrowheads) and marked disruption of the perifoveal capillary arcade with enlarged and irregular foveal avascular zone and diffuse staining and leakage of perifoveal arterioles and venules . **C and D.** OCT angiograms of the left eye show extensive well-delineated hypointense greyish areas of retinal capillary hypoperfusion (asterisks) and perifoveal capillary arcade disruption (white triangles) in the superficial capillary plexus (**C**) and larger greyish areas of capillary hypoperfusion (asterisks), capillary rarefaction, and diffuse capillary network attenuation and disorganization in the deep capillary plexus, with a significant degree of projection artifact from the superficial vascular plexus (**D**).

Conclusions:

- OCTA is better than FA in detecting perifoveal ischemia and other microvascular changes in eyes with retinal vasculitis
- The deep capillary plexus appears to be more severely involved than the superficial capillary plexus
- New technologies and further studies are needed to definitely establish the role of OCTA in the diagnosis and management of occlusive retinal vasculitis and in assessing predictive factors for visual outcome.

References

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