

SSOCTA for diagnosis and disease monitoring in PCV and CNV

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Purpose

To describe SSOCTA features in eyes with PCV and CNV at baseline and after treatment

Methods

We evaluated OCTA, fluorescein (FA) and indocyanine green angiography (ICGA) and structural OCT in prospectively recruited patients with typical AMD or PCV. The diagnosis in the presenting eye was determined based on FA and ICGA. Patients underwent treatment with combination (photodynamic therapy [PDT] with anti-VEGF) or anti-VEGF monotherapy. Longitudinal changes on OCTA using segmentation of outer retina, choriocapillaris and deep choroid were evaluated.

Results

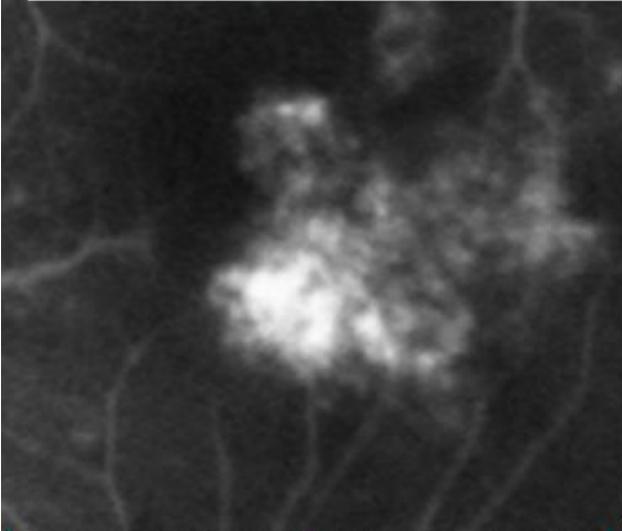
Based on OCTA, flow signal was detected within vascular network in most eyes (81.2% with CNV, 77.8% PCV), but only 40.4% of polyps appeared bright on OCT-A) (Fig 1). Non-exudative neovascularization was detected in 21% of fellow eyes using combination of ICGA and OCTA. At month 3 after treatment, mean BCVA improved by 6.5 letters in the combination group and 7 letters in the monotherapy group. This was accompanied by improvement in retinal architecture on structural OCT (84.6% in combination group; 77.8% monotherapy group). Flow signal within the vascular network decreased in the majority of eyes, but was more marked after combination therapy (76.9%) compared to monotherapy (44.4%). Residual flow signal was present in majority of eyes (84.6 after combination therapy, 100% after 3 monthly anti-VEGF injections), although over half of these eyes did not have fluid on structural OCT. At 3 months after combination therapy, flow reduction in the choriocapillaris slab was detected in 30.8% and reduction in caliber of Haller's layer vessel was detected in 53.8%, but these changes were not seen after anti-VEGF monotherapy (Fig 2).

Conclusions

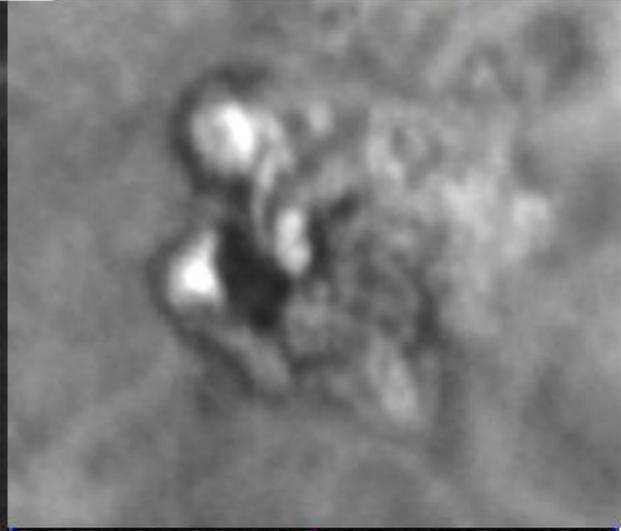
OCTA is effective at detecting vascular network, but is inferior to ICGA for detecting polyps. Although combination therapy and anti-VEGF monotherapy both produced favorable clinical response, differences in structural changes can be detected using OCTA. Compared to anti-VEGF monotherapy, PDT has longer occlusive effect on neovascular network and may be more effective in modulating pachyvessels, but may also have higher risk of damaging choriocapillaris.

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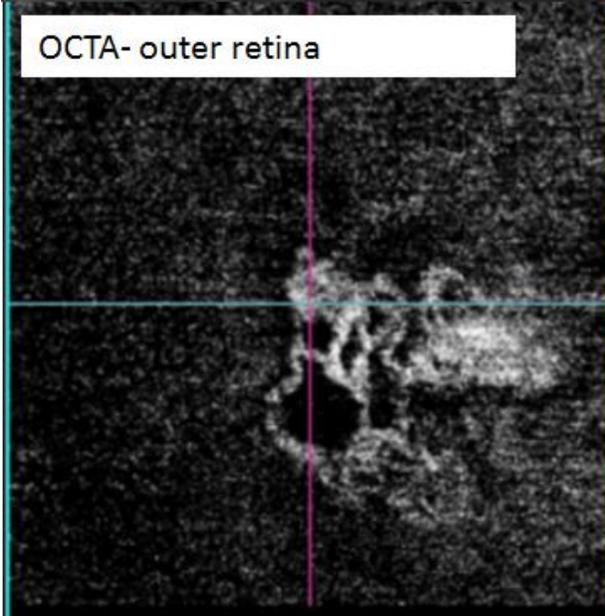
Fluorescein angiography



Indocyanine green angiography



OCTA- outer retina



OCTA - choriocapillaris

