Commentary: Comparison of optical coherence tomography angiography and fundus fluorescein angiography features of retinal capillary hemangioblastoma

Retinal hemangioblastoma or retinal capillary hemangioma (RCH) is benign vascular tumors of the retina clinically characterized by an orange-red nodular mass associated with a dilated feeding arteriole and a draining venule, either juxtapapillary or peripheral in location. RCH can be either sporadic (usually unifocal) or associated with von Hippel–Lindau disease (bilateral and multifocal).[1] RCH can cause diminution of vision with involvement of the macula, intraretinal, or subretinal exudation.

Diagnosis of RCH is primarily clinical based on fundus examination by slit lamp biomicroscopy and indirect ophthalmoscopy. However, clinical examination can commonly miss early smaller lesion, when they are most responsive to treatment. Wide-field fundus fluorescein angiography (FFA) has been the investigation of choice over the last decade to identify these subclinical RCHs. Optical coherence tomography angiography (OCTA), based on motion contrast imaging, is a promising new imaging modality to understand the intrinsic retinal and choroidal vasculature.[2] OCTA has been shown as potential tool to understand the pathogenesis, diagnosis, and response to treatment in cases of RCH.

The advantages of OCTA over FFA are many. One, OCTA although been noninvasive dye-free technique, it enables us to identify the feeder vessel and visualized the intrinsic vasculature of RCH comparable to that of FFA. Two, depth-resolved imaging with OCTA, suggest its origin from superficial capillary layer of the retina.[3] Three, simultaneous acquisition of OCT provides invaluable information, both qualitatively and quantitatively of associated vitreous, retinal, and choroidal changes. Four, unlike FFA OCTA allows identification of individual tiny RCH grouped in clusters with high degree of precision. Five, being a noninvasive imaging tool, OCTA can be repeated periodically in the follow-up, particularly to evaluate the response to focal treatment. Chou *et al*. using OCTA showed decrease in blood flow signals, lesion size, and vessel caliber following laser therapy in a case of solitary RCH.[4]

However, OCTA is not without limitations. At this present time owing to the evolving technological limitation, only posterior RCH can be imaged with a sensitivity equivalent to FFA.[5] Technological advancement in OCTA in future would enable us to image the fundus periphery. The presence of leakage in an active RCH is a characteristic finding on FFA. Similar information in OCTA is presently lacking. Since OCTA is based on motion-contrast imaging, withrequiring longer scan acquisition time, and good patient cooperation is necessary. IT results in eEye motion artifacts and projection artifact of superficial layer over deeper layers, limitisng its usefulness in clinical setting.

The potential benefits and our expectations mixed with limited experience at present with OCTA suggest its application in a wide variety of retinal and choroidal diseases. The refinement of both hardware and software technologies of OCTA is expected to increase its utility in future.

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