layer or laid across two layers segmented above has a yellowish color. The total time of ten images for acquisition only is 35 seconds.

4. Conclusions

We demonstrate feasibility of a high-speed phase-variance OCT system for two-dimensional visualization of the capillary network over foveal and perifoveal regions, as well as three-dimensional representation of the vasculature in the human retina. *En face* visualization of the human foveal area with pvOCT produces details of capillary networks comparable to fundus FA imaging without using any contrast agents. In addition, densely scanning a small field of view, 1.5x1.5 mm^2, generates the microcapillary perfusion map and color-coded depth information of the microvasculature. pvOCT with rapid image acquisition at an A-scan speed of 125 kHz reduces acquisition time, hence decreasing eye motion artifacts and producing larger field of view imaging. To demonstrate the feasibility of this technique for clinical applications, we showed the stitched vascular map of the retina acquired from multiple volumes. Our data suggest that pvOCT has potential in the early diagnosis of retinal vascular diseases including diabetic retinopathy and vascular-related macular degeneration. As further improvements, shadow artifacts will be minimized and high-resolution microcapillary networks of larger scanning areas will be visualized.

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