EVALUATING THE SUPERFICIAL AND DEEP FOVEAL AVASCULAR ZONE SIZE AND CHARACTERISTICS WITH OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY

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Purpose: To evaluate the size and characteristics of the foveal avascular zone (FAZ) in the superficial and deep capillary plexus in healthy adults using optical coherence tomography angiography (OCTA). Methods: In a prospective cohort study of 85 healthy volunteers, 3mmx3mm OCTA scans were performed on both eyes using the AngioVue OCTA system. Superficial and deep FAZ boundaries were manually traced by trained graders and the FAZ area and characteristics were calculated. Circularity represents the degree of resemblance of the area to a perfect circle.

Results: The mean areas of the superficial and deep FAZ were 0.25mm² (range 0.04-0.48 mm²) and 0.38 mm² (range 0.12-0.66 mm²) respectively. Comparing the 2 vascular layers, the deep FAZ size correlated significantly with the superficial FAZ (correlation coefficient 0.707, p<0.001) and was significantly larger compared to the superficial FAZ (mean difference 0.13 mm², p<0.001). The mean circularity index was 0.81 (range 0.54-0.95) for the superficial FAZ, and 0.89 (range 0.76-0.97) for the deep FAZ. The mean maximum diameter was 0.65 mm for the superficial FAZ and 0.78 mm for the deep FAZ (p<0.001), with corresponding Feret’s angle of 92.3° and 78.4° respectively. The mean central choroidal thickness was 315.3 μm (range, 119-537μm). Neither superficial nor deep FAZ correlated with central choroidal thickness.

Conclusions: The FAZ area of the superficial and deep capillary plexus varies significantly among healthy adults. There is strong correlation between the areas of the superficial and deep FAZ. Deep FAZ area and Feret’s diameter are significantly larger than the superficial FAZ.