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CL9 - TOMOGRAPHIC AND ANGIOGRAPHIC FEATURES OF DIABETIC RETINAL MICROANEURYSMS: A SIMULTANEOUS STUDY REPORT

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Purpose: To correlate the morphological characteristics of diabetic retinal microaneurysms in non-invasive imaging with spectral domain optical coherence tomography (SD-OCT) with their leakage status on fluorescein angiography (FA).

Methods: In this retrospective observational study, 88 retinal microaneurysms in 11 eyes of 6 type 2 diabetic adult patients with diabetic retinopathy (DR) (8 moderate non proliferative DR and 3 proliferative DR) were analyzed with simultaneous FA and SD-OCT imaging. Their morphological characteristics in SD-OCT, including shape, presence of a capsule-like structure, diameter, lumen reflectivity and the presence of nearby cysts were correlated with the leaking pattern (classified as absent, mild or intense).

Results: The majority of the microaneurysms (86.4%) were oval in shape, with no “capsule” (84.1%), a heterogeneous lumen reflectivity (85.2%) and no associated cysts (65.9%). The distance from retinal internal and external limits as well as nearby cysts (p<0.001) were correlated with angiographic leakage. No significant association was found between size, presence of a “capsule” and internal reflectivity on SD-OCT with FA leakage status. Microaneurysms associated with cysts had larger vertical (p=0.001) and horizontal diameters (p<0.001).

Conclusions: A significant correlation was found between the presence of cystoid spaces in SD-OCT and detectable leakage on FA. In addition, cysts were found to be more frequent in the presence of larger microaneurysms, which may add some information regarding the pathophysiology of diabetic retinal edema. The identification of high risk microaneurysms may permit a customized follow-up and treatment of diabetic patients without the need for invasive imaging or OCT-angiography.