Full-thickness choroidal thinning as a feature of Fuchs Uveitis Syndrome

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Background: to perform a quantitative analysis of the choroidal thickness in patients with Fuchs Uveitis syndrome (FUS) using Enhanced Depth Imaging Optical Coherence Tomography (EDI-OCT).

Patients & Methods: all patients underwent comprehensive ophthalmic examination and macular 30° linear EDI- B-scan SD-OCT section in both eyes. Analysis of choroidal thickness was performed at 3 different locations: subfoveally, 750 µm nasally and 750 µm temporally to the fovea. Patients having received any surgery or intravitreal injections in the last 12 months and with axial length variance ≥ 1 mm between both eyes were excluded.

Results: Sixteen eyes of 8 consecutive patients with unilateral FUS were included. Segmented analysis of the choroid, separately considering Haller's layer and Sattler's-Choriocapillaris layers, showed statistically significant lower values ($p<0.05$) in affected eyes (FEs) compared to fellow eyes (NFEs). In NFEs, total choroidal thickness mean values ranged from 305.62±92.96 µm to 347.50±91.55 µm; in FEs those values were significantly lower ($p<0.05$), ranging from 232.62±89.33 µm to 255.62±89.33 µm.

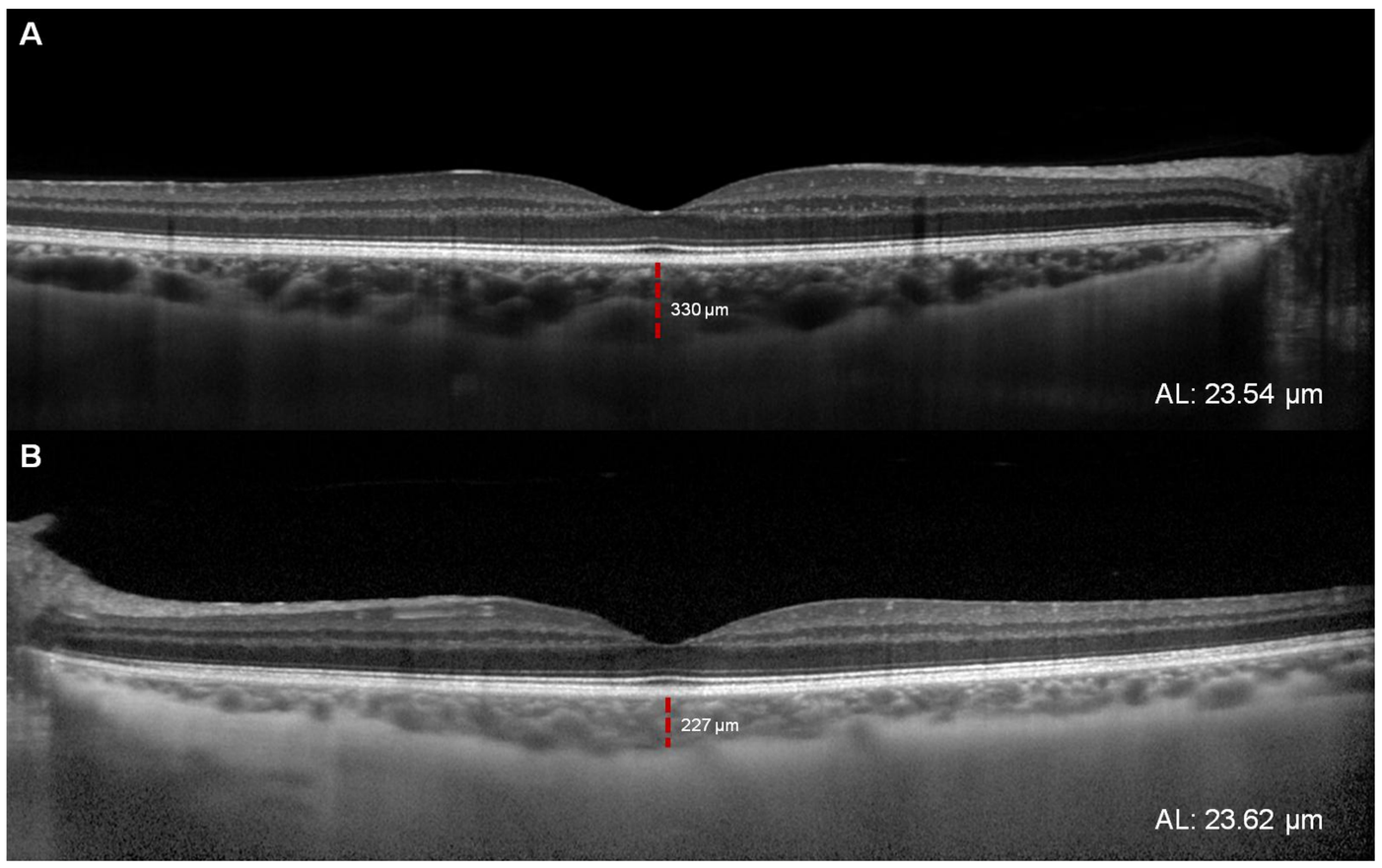

Figure 1: 30° linear EDI SD-OCT B-scan section of both eyes (A, B) in a patient of our series affected by FUS (patient 2). A diffuse choroidal thinning in the affected eye (B) can be observed in comparison to the fellow eye (A).

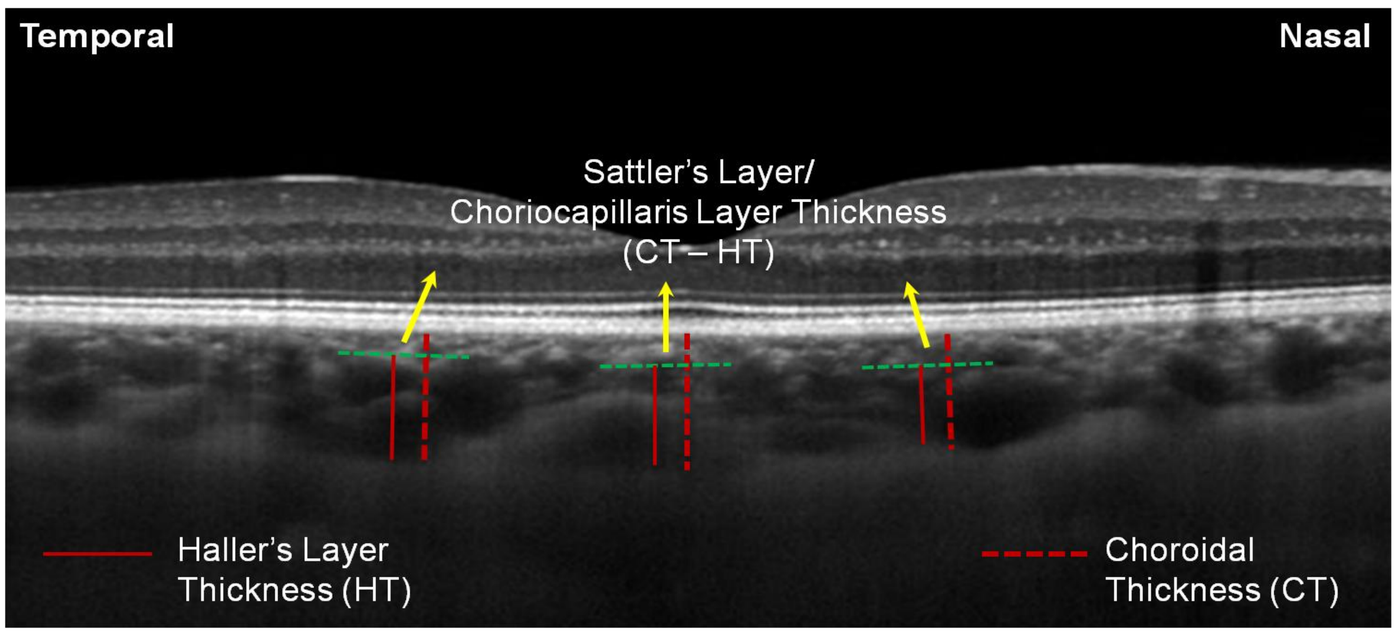

Figure 2: Illustration of the method used to analyze the choroidal vasculature on a EDI-OCT scan of a healthy eye of one of our series' patient. Dashed red lines represent the whole choroidal thickness seen at the 3 locations of vasculature analysis, that is at the center of the fovea, 750 µm temporal to the fovea, and 750 µm nasal to the fovea. Large choroidal vessel layer (Haller's Layer) thickness was measured from the inner border of the choroidal-scleral junction to the innermost point (dashed green lines) of the large choroidal vessels layer at each location (red lines). Medium choroidal vessel layer (Sattler's Layer)/choriocapillaris layer is the distance from the outer edge of the hyperreflective RPE to the dashed green lines. All measurements were performed using the Spectralis linear measurement tool. CT: Choroidal Thickness; HT: Haller's Layer Thickness.

Conclusions: diffuse and full-thickness choroidal thinning in FEs was observed. Considering the absence of significant axial length differences between FEs and NFEs in our patients series, these data seem to suggest that the full-thickness choroidal thinning in FEs may be due to the inflammatory process. In that way FUS might be regarded as an inflammatory condition involving the whole uveal tunic, even the posterior part of it, definitively supplanting the early definition of "heterochromic iridociclytis".