Letter to the Editor: Outer Retinal Tubulations and Age-Related Macular Degeneration

Dear Editor,

We read with great interest the outstanding article by Gildener-Leapman et al regarding the prevalence of outer retinal tubulations (ORT) in patients with age-related macular degeneration (AMD). In our experience, ORTs are very common, and we see this subtle entity every day, especially in our dedicated “injection clinic” where patients receive intravitreal anti-vascular endothelial growth factor (VEGF) therapy for various vitreoretinal diseases. We find ORTs in really any ocular disease that causes significant subretinal fibrosis or atrophy. This includes diagnoses not limited to those previously reported, such as vitelliform dystrophy, multifocal choroiditis, and choroidal neovascularization secondary to high myopia and ocular histoplasmosis.

The study by Gildener-Leapman et al inspired us to look at our patient population more closely. We randomly selected a cohort of 109 patients (121 eyes) seen in our retina clinic at the University of Iowa who have AMD and ORTs on optical coherence tomography imaging. Similar to the data presented and to prior reports, we found a wide variety in visual acuity (VA) at the time of ORT recognition (Figure 1). In contrast, however, we had a subset of patients (10.7%) with VA worse than 20/320 that corresponded to those patients with larger areas of geographic atrophy or disciform scars in end-stage AMD. In our population, 77.1% had subretinal hyperreflective material correlating to fibrosis and disciform scars on clinical examination (Figure 2A), and 35.8% had geographic atrophy (Figure 2B). It may be helpful to distinguish these two groups, as the

Figure 1. Visual acuity in patients with age-related macular degeneration and outer retinal tubulations.

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patients with geographic atrophy are presumably getting fewer anti-VEGF injections (if any). Alternatively, perhaps VA cannot reliably correlate with this imaging finding, because VA varies significantly by the location and surface area of atrophy or fibrosis present. A focal area of atrophy or fibrosis, for example, may spare the fovea center such as in peripapillary disease. Lastly, we believe there is a separate category between the two extremes of atrophy and fibrosis in which ORTs may be present above relatively intact retinal pigment epithelium (Figure 2C). This subset included only 10 patients (9.2%), and we hypothesize that ORTs may be a surrogate marker to diseased retinal pigment epithelium that may progress to more advanced disease. Longitudinal studies describing the time-lapse progression of ORTs would be helpful to better understand this interesting imaging finding as a potential prognostic marker of disease.

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REFERENCES


Figure 2. Macula optical coherence tomography imaging of patients with age-related macular degeneration exhibiting outer retinal tubulations over fibrosis (A), geographic atrophy (B), and relatively intact retina pigment epithelium (C).