Journal Article Review

# Clinical features and long-term progression of reticular pseudodrusen in age-related macular degeneration: findings from a multicenter cohort

Gil JQ, Marques JP, Hogg R, Rosina C, Cachulo ML, Santos A, Staurenghi, G, Chakravarthy U, Silva R. Eye, 2016 [epub ahead of print].

## Background and Purpose

Reticular pseudodrusen (RPD) are a common clinical feature of age-related macular degeneration (AMD). Unlike classic soft drusen, RPDs are located above the retinal pigment epithelium (RPE), and they are difficult to identify with clinical funduscopic imaging. With the introduction of new imaging modalities like infrared reflectance (IR), fundus autofluorescence (FAF), red-free (RF), and spectral-domain OCT (SD-OCT), RPD detection has improved dramatically. This study assessed the prevalence of RPD and determined the long-term risk of disease progression in the fellow eyes of patients with unilateral neovascular AMD.

## Methods

This study included 88 patients from two clinical AMD studies. At baseline, all patients had a diagnosis of neovascular AMD in one eye and showed no signs of late-AMD in the fellow eye (no neovascularization, no geographic atrophy). This study utilized a multimodal imaging approach consisting of color fundus photography (CFP), IR, FAF, RF, and SD-OCT. All patients also underwent indocyanine green and fluorescein angiography to monitor for neovascularization. All modalities other than CFP were performed with either a Heidelberg Retina Angiograph II (HRA II) or a SPECTRALIS® HRA+OCT.

## Discussion

Of the 88 patients included in the study, all underwent CFP, RF, and FAF, while 47 of those 88 also underwent IR and OCT imaging. The investigators found that the use of multiple imaging modalities improved the detection of RPD, and when all five modalities were performed, RPD was detected in two or more modalities in 25 of 28 cases. The study results indicated that IR, FAF, and OCT imaging detected RPDs in 93%, 92%, and 74% of cases, respectively. However RF imaging and CFP detected RPDs in only 33% and 29%, respectively. Within the 5-year follow up period, 48 eyes progressed to late-stage AMD by developing neovascularization or geographic atrophy. Of the eyes that progressed to late-stage AMD, 33 of the 48 progressing eyes had RPD at baseline, making up a statistically significant portion.

## Conclusions

These findings strongly underscore the need for multiple imaging modalities in detecting RPD. The authors found confirmatory findings (RPD in more than one modality) much more frequently when utilizing the two most sensitive modalities: FAF and IR imaging. Color fundus photography was highly ineffective in detecting RPD, probably due to the location and nature of the RPD structures. This study highlights the versatility of the SPECTRALIS diagnostic imaging platform, as the multiple modalities can aid in the detection and confirmation of RPD, a potential early biomarker of AMD progression.



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