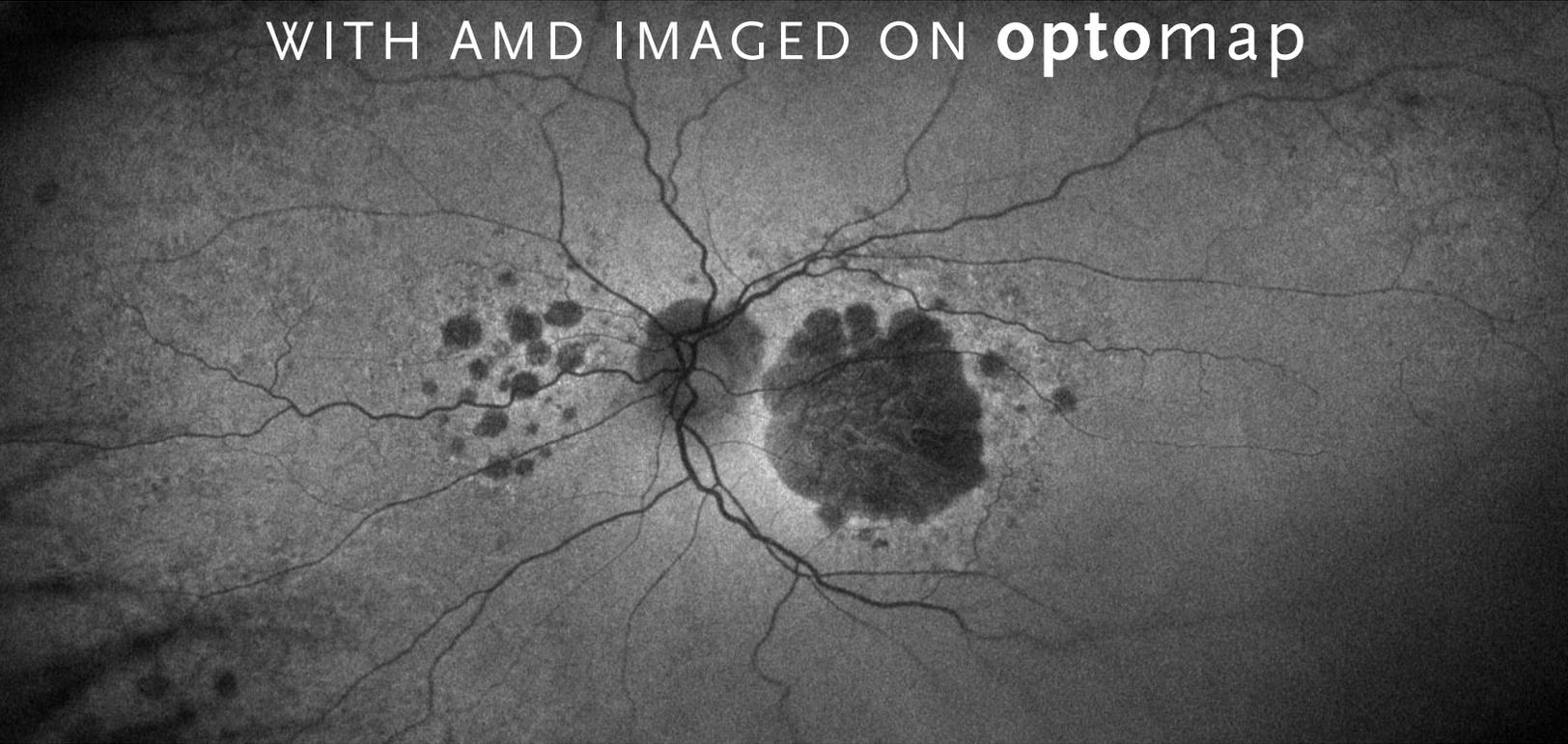


PERIPHERAL CHANGES FOUND IN 97% OF PATIENTS WITH AMD IMAGED ON **optomap**



A study published in *Ophthalmology* found that **optomap**[®] confirmed the presence of wide-ranging AMD-like pathologic changes even in those without central sight-threatening macular disease¹. 97% of patients with age-related macular degeneration (AMD) had peripheral retinal changes associated with AMD².

Results from recently published clinical studies suggest that ultra-widefield (UWF[™]) **optomap** color, autofluorescence (*af*), fluorescein angiography (*fa*) and indocyanine green angiography (*icg*) imaging have confirmed the presence of pan-retinal AMD-like pathologic changes in subjects with AMD even in those without central sight-threatening macular disease. The overwhelming majority of subjects investigated were determined to have hard, crystalline, and soft drusen; retinal pigment epithelial changes; choroidal neovascularization (CNV) and atrophy evidenced by hypoautofluorescence and hyperautofluorescence in the peripheral retina.

“Age-related macular degeneration may be more than a “macular” condition but one that involves the entire retina².”

— *Ophthalmology* 2017

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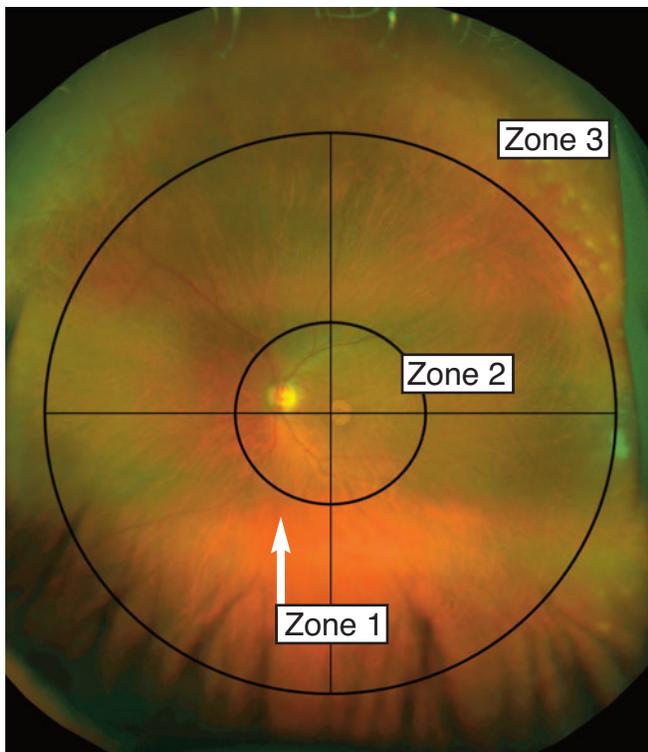


CLINICAL SUMMARY

Peripheral Retinal Changes Associated with Age-Related Macular Degeneration

The 12 year follow-up of the Reykjavik Eye Study evaluated subjects with UWF **optomap color** and autofluorescence (**af**) imaging and found that 67% of subjects in the Reykjavik eye study had peripheral AMD-like changes¹.

A subsequent study from the Writing Committee for the Optos PEripheral RetinA (OPERA) study found that peripheral retinal changes were more prevalent in eyes with AMD than in control eyes². Drusen were seen in the majority of eyes with AMD in both the mid and far periphery, whereas pigment changes and features of advanced AMD were less frequent. Age-related macular degeneration may be more than a “macular” condition but one that involves the entire retina.



- In the OPERA study, 484 subjects underwent UWF **optomap color** and **af** imaging. For those with large drusen in the macular area, almost all of these cases also had drusen detected in the periphery, both zones 2 and 3. Drusen were found in 97% of eyes in Zone 2 and 77% of eyes in Zone 3. Super large drusen were found in 63% in Zone 2 and 39% in Zone 3.
- In the previous publication¹, the Reykjavik Eye Study group found that the comparison of grading of macular abnormalities on UWF images with conventional digital fundus images (45°) showed no substantial differences between grading for AMD in the macula. UWF images were gradable in the macula, even those that fell short of grading standards on conventional fundus images. This is due to the capacity of laser beams to overcome problems with media opacities and because they have higher resolution in terms of sharpness and contrast than conventional color images.
- Another recent study, looked at AMD subjects using UWF **optomap fa** and found that 84.59% had hyperfluorescent characteristics in which the main contributors were drusen, paving stone, and atrophic areas³.
- Other research has found that UWF **optomap icg** captured significant peripheral changes in 80% of AMD patients⁴.
- Age-related macular degeneration is best managed with multi-modal imaging and may be more than a “macular” condition but one that involves the entire retina. Future longitudinal studies of peripheral changes in AMD and their impact on visual function may contribute to understanding AMD pathogenesis.

Reference:

1. Lengyel et al. A Population-Based Ultra-Widefield Digital Image Grading Study for Age-Related Macular Degeneration-Like Lesions at the Peripheral Retina. *Ophthalmology*. 2015.
2. Chew et al. Peripheral Retinal Changes Associated with Age-Related Macular Degeneration in the Age-Related Eye Disease Study 2. *Ophthalmology*. 2017.
3. Vatavuk et al. Morphological and Angiographic Peripheral Retinal Changes in Patients with Age-Related Macular Degeneration. *Ophthalmology Retina*. 2017.
4. Klufas. Feasibility and Clinical Utility of Ultra-Widefield Indocyanine Green Angiography. *Retina*. 2013.



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