

Singling out Retinal Pathology: Single Line Macular OCT Ganglion Cell Analysis Scan Identifies Retinal Disease in Glaucoma Patients

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Purpose

Optical coherence tomography (OCT) has revolutionized the diagnosis and management of many ophthalmic conditions. This study investigates whether the single line horizontal B scan included in the OCT ganglion cell analysis (GCA) output provides useful retina screening along with fundus examination in glaucoma clinic.

Methods

Retrospective review of two glaucoma specialists' consecutive new patients referred to a university-based glaucoma referral practice. All patients with OCT retinal nerve fiber layer (RNFL) and GCA were included. Given expected disease correlation between two eyes from the same patient, only left eyes were included in eye level aspects of this analysis. Scans were abnormal if at least one abnormal slice in RNFL and GCA deviation maps was present or if pathology was found on single line horizontal B scan by an expert grader. The main outcome measure was detection of previously unknown (not reported by patient or medical record) retinal disease on the single line horizontal B scan.

Results

103 patients (99 left eyes) were included. Mean (SD) age was 61 ± 15 years, 50% were women, and 81% had established or suspected open angle glaucoma. 22% were diabetics, and 20% had a history of cataract extraction. Single line B scan was abnormal in 12% (12/97) left eyes, 75% (9/12) of which identified new retinal diagnoses. These included 4 cystoid macular edema, 2 macular scarring/atrophy, 1 epiretinal membrane, 1 age-related macular degeneration, and 1 subretinal fluid. 19% (20/103) of visits yielded retina referrals, 11% (11/103) of which were new. As expected in a glaucoma practice, RNFL and GCA were abnormal in 66% (65/99) and 73% (71/98) left eyes, respectively.

Conclusion

Significant retinal pathology can be detected on the first glaucoma visit. Attention should be drawn to abnormal single line horizontal B scans, most of which required specialized retinal care in this report. The utility of performing multiple line macular scans on all glaucoma patients should be assessed prospectively.