

Peripapillary hyperreflective ovoid mass-like structures in Multiple Sclerosis are associated with disease progression

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Introduction: Peripapillary hyperreflective ovoid mass-like structures (PHOMS) are a new spectral domain optical coherence tomography (OCT) finding and understood to be the consequence of axoplasmic stasis.

Objective: First, to describe the prevalence of PHOMS in patients suffering from multiple sclerosis (MS) and healthy control subjects (HC). Second, to investigate the clinical relevance of PHOMS in MS.

Methods: A prospective, longitudinal study including 212 patients with MS (n=418 eyes) and 59 HC (n=117 eyes). The disability (EDSS) and disease course (relapsing remitting (RRMS), secondary progressive (SPMS) and primary progressive (PPMS) were recorded. Quality controlled (OSCAR-IB) review of OCT ring scans and volume scans for PHOMS. Exclusion of typical optic disc drusen (ODD).

Results: Two of the 271 subjects had typical ODD (one MS, one HC). There were no PHOMS in HC. Therefore compared to HC the prevalence of PHOMS was significantly higher in MS patients (n=34, p=0.001) and MS eyes (n=45, p=0.0002). The highest prevalence of PHOMS was found in PPMS (26%) followed by RRMS (8%) and SPMS (2%). There was no relationship of PHOMS with age or disease duration, but RRMS patients with PHOMS showed more progression on the EDSS over the following 2 years compared to those without PHOMS (p=0.03).

Conclusion: These data suggest that PHOMS are a novel OCT finding in MS, potentially indicating impaired axoplasmic flow at the optic disc, which may be of potential prognostic relevance.

Disclosures

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