Journal Article Review

Retinal angiomatous proliferation diagnosis: a multiimaging approach

Purpose

Retinal angiomatous proliferation (RAP) lesions are a distinct form of neovascularization associated with age-related macular degeneration (AMD). Classification and terminology of choroidal neovascularization (CNV) by fluorescein angiography (FA) can indicate the type 1 (sub-RPE) and type 2 (above the RPE) forms of CNV based on leakage patterns. Type 3 RAP lesions are unique in that they appear to originate within the retinal layers, away from the RPE. RAP lesions have a poor prognosis when not recognized and aggressively treated, so early diagnosis is critical for patient care. This study used multiple imaging modalities to describe RAP lesion characteristics and to distinguish them from CNV types 1/2.

Methods

This retrospective study included 30 patients with neovascular AMD that had undergone FA, indocyanine green angiography (ICGA), spectral-domain optical coherence tomography (SD-OCT), and infrared confocal scanning laser ophthalmoscopy (IR cSLO) imaging. All imaging was performed on the SPECTRALIS® diagnostic imaging platform. Patients with AMD that had active neovascular lesions including type 1, 2, and type 3 RAP lesions were included in the study. Dynamic FA and ICGA videos, SD-OCT, and IR images were evaluated by independent observers for five identifying characteristics used to categorize the CNV lesions.

Discussion

Of the 30 eyes included, nine had a type 1 CNV, five had a type 2 CNV, and 16 had type 3 (RAP) lesions. Four different imaging modalities, performed with a single device, permitted detailed evaluation of five different characteristics: blood shunting (FA/ICGA), ICGA leakage, cystoid edema (SD-OCT), interrupted RPE (SD-OCT), and pseudodrusen (IR cSLO imaging). Each of these five features was evaluated for their presence of RAP lesions versus type 1 and 2 lesions: blood shunting was present in 56% of RAP lesions (0% of type 1 and 2 lesions); ICGA leakage: 100% RAP (7% type 1 and 2), cystoid edema 100% RAP (14% type 1 and 2); interrupted RPE: 93% RAP (15% type 1 and 2); pseudodrusen 87% RAP (21% type 1 and 2).

Conclusions

The utilization of multiple imaging modalities allowed investigators to identify unique markers for these potentially blinding RAP lesions. Early diagnosis and aggressive treatment are crucial for preventing extensive scarring and blindness with these types of lesions. The ability to visualize such diagnostic imaging markers with multiple imaging modalities is essential for accurate RAP lesion identification. The SPECTRALIS diagnostic imaging platform offers all of these modalities on a single device. Multiple confirmatory findings can lend a new level of confidence in your diagnosis and treatment plan without needing to move a patient between machines and exam rooms.

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