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Opinion

Four in One: Multimodal Imaging of Four Disparate Retinal Pathologies in One Eye

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Abstract

Diabetic retinopathy, retinal vein occlusion, age related macular degeneration and macular hole are major retinal diseases that can lead to blindness and affect mainly the elderly population. All of them in a nutshell signify a basic underlying ischemic scenario with addition of detrimental effects of ageing. Published English literature does not reveal a case describing coexistence of all these pathologies simultaneously. This is, to our knowledge, is the first report with coexistent presentation of four major retinal abnormalities in a single eye, which are well highlighted on multimodal imaging modalities.

Keywords: Eye; Female; Pathologies

Discussion

A 60 year old female, a known hypertensive and diabetic on oral medications since 3 years, came to our OPD with complain of decreased vision and metamorphopsia in left eye since 4 months. BCVA in right and left eye were 20/20 and 20/200 respectively, and IOP was 14 mm Hg in both eyes. Anterior segment examination was unremarkable. On dilated fundoscopy, right eye showed drusen and microaneuryms over macula; left eye showed drusen on posterior pole (Figure 1a, white arrow) with subfoveal pigment epithelial detachment (PED) (black arrow) with few superficial haemorrhages in the supero-temporal quadrant (STQ) (white star) and few microaneuryms temporal to macula. On red free photograph (Figure 1b), these lesions were highlighted. Multicolour composite image (Figure 1c) in addition to drawing attention to lesions also revealed a macular hole (yellow arrow). The blue autofluorescence image (Figure 1d) depicted a central hypo autofluorescence with a rim of hyper autofluorescence (yellow arrow) and showed hypo autofluorescence along the STQ (white star), aiding to the diagnosis. Spectral domain OCT (Figure 2) line scan through the fovea showed complete posterior vitreous detachment (white arrow), a full thickness macular hole (yellow arrow), a large subfoveal fibrovascular PED with multiple surrounding small fibrovascular PEDs (white arrow head) and dilated choroidal vessel (green arrow) beneath the subfoveal PED. On Fundus Fluorescein Angiography (FFA), early phase (Figure 3b) revealed multiple collateral vessels in the STQ which showed staining in the late phase (Figure 3c, d). Late phase (Figure 3d) also showed a central window defect (yellow arrow) correlating with the macular hole and a leaking microaneurym temporal to macula (white circle).

Figure 1: Colour fundus photograph (1a) shows drusen on posterior pole (white arrow) with subfoveal pigment epithelial detachment (PED) (black arrow) with few superficial haemorrhages in the supero-temporal quadrant (STQ) (white star). On red free photograph (1b), these lesions are highlighted. Multicolour composite image (1c) in addition to drawing attention to lesions also reveals a macular hole (yellow arrow). Blue autofluorescence image (1d) depicts a central hypo autofluorescence with a rim of hyper autofluorescence (yellow arrow) and shows hypo autofluorescence along the STQ (white star).

Figure 2: Spectral domain OCT line scan through the fovea shows complete posterior vitreous detachment (white arrow), a full thickness macular hole (yellow arrow), a large subfoveal fibrovascular PED with multiple surrounding small fibrovascular PEDs (white arrow head) and dilated choroidal vessel (green arrow) beneath the subfoveal PED.

Figure 3: Fundus Fluorescein Angiography (FFA) in early phase (3b) reveals multiple collateral vessels in the STQ which show staining in the mid and late phase (3c, d). Late phase (3d) also shows a central window defect (yellow arrow) and a leaking microaneurym temporal to macula (white circle).

Vascular and age related retinal pathologies when detected simultaneously, signify a major underlying ischemia, in addition to detrimental effects of ageing. Hence, timely detection and treatment are of utmost importance [1-3]. Multimodal imaging modalities aids the clinician to pick up subtle abnormalities which can be easily missed on routine fundus examination, and thus have become inevitable diagnostic tools today [4,5]. Also, this is a rare case where four different retinal pathologies are noted in one eye.

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