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PHOTO ESSAY

Polypoidal choroidal vasculopathy: naked polyp

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Abstract We present an unusual case of polypoidal choroidal vasculopathy (PCV) lying above the retinal pigment epithelium (RPE) in a 60-year-old Caucasian female. PCV lesions are typically located beneath the RPE layer. However, they may rarely lie above the level of the RPE due to a discontinuity in the RPE and Bruch's membrane.

Keywords Choroidal neovascularisation · Polypoidal choroidal vasculopathy · Fluorescein angiography · Indocyanine green angiography · Optical coherence tomography

Case

A 60-year-old Caucasian female presented with decreased vision in her right eye. Best-corrected visual acuity was 6/48 in the right and 6/9 in the left eye. Fundoscopy of the right eye revealed an area of macular elevation with abnormal vessels. Fundus fluorescein angiography (FFA) of the same eye showed a nodular lesion inferior to the fovea with terminal aneurysmal dilations that was hyper fluorescent in the early phases and had mild leakage in the late phases (Fig. 1). On indocyanine green angiography (ICGA), the same lesion was outlined, identical in size and configuration (Fig. 2). Optical coherence tomography (OCT) scans showed a dome-like elevation of the neurosensory retina with moderate focal reflections just beneath the elevation and discontinuity of underlying retinal pigment epithelium (RPE) and Bruch's membrane. The architecture of the layers of the neurosensory retina is preserved (Fig. 3).

Comment

Histologically, polypoidal choroidal vasculopathy (PCV) lesions are typically located beneath the RPE layer, which limits the power of FFA in diagnosing these lesions [1, 2]. ICGA is the diagnostic method of choice as the longer wavelength used penetrates the RPE layer and allows imaging of the choroidal vasculature [2]. The use of spectral-domain optical coherence tomography allows more precise characterisation of this identity and has identified the location of these abnormal vascular lesions to lie between the displaced RPE and outer part of Bruch's membrane, indicating that these lesions are located at least partially within Bruch's membrane [3]. Rarely, however, PCV lesions may lie above the level of the RPE due to a discontinuity in the RPE and Bruch's membrane [4, 5]. In these cases, the appearance on

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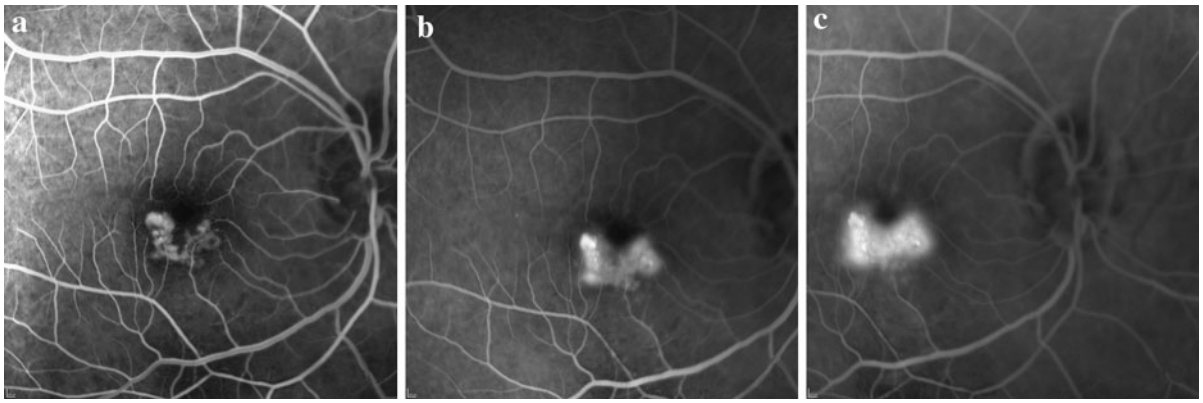

Fig. 1 Fundus fluorescein angiography (FFA): arterio-venous phase (**a**), venous phase (**b**), recirculation phase (**c**), revealing a juxta foveal branching vascular network with terminal aneurysmal dilations that shows hyper fluorescence in the arterio-venous phase with progressive extension

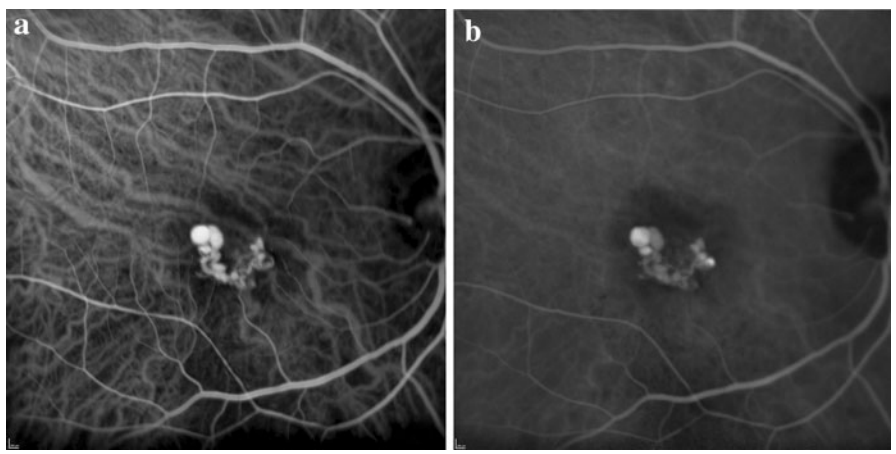

Fig. 2 Indocyanine green angiography (ICGA): mid-phase (**a**), late-phase (**b**), showing the same juxtafoveal branching vascular network terminating in polypoidal lesions with identical location and size to that seen in FFA. The perivascular deposits overlying the choroid cause some blockage of the fluorescence (**a, b**). Interestingly, there is virtually no leakage from the pathological vascular structures and absence of staining of the deposits

FFA can mimic classic choroidal neovascularisation (CNV) [5].

It has been reported that 9–25 % of eyes with PCV appear as classic CNV on FFA [5]. This may be due to either co-occurrence of type 2 CNV or pure fibrinous exudate which has broken through the underlying RPE and Bruch's membrane [5]. Nakashizuka et al. [4] reported on the histopathology of five eyes with PCV, two of which had pathological vessels lying above the RPE. They speculated that the erosion of polypoid choroidal vessels through RPE and Bruch's membrane breaks might be attributable to rising intra-tissue pressure caused by massive exudation from hyalinised vessels [4].

It is crucial to discriminate type 2 CNV from pure fibrinous deposits in PCV with classic CNV appearance on FFA because the treatment and visual prognosis are different; however, this can be difficult. Tamura et al. [5] suggested that when subretinal material is seen in the subfoveal region or is separate from the polypoidal lesions, the eye may actually have type 2 CNV rather than pure fibrinous exudate. The subretinal material in our case involved the fovea but was directly adjacent to and surrounding the polypoidal lesions, both of which were above the RPE layer. We believe our case is one of pure fibrinous exudate that has broken through the RPE and Bruch's membrane, resulting in exposed polypoidal choroidal vessels. This

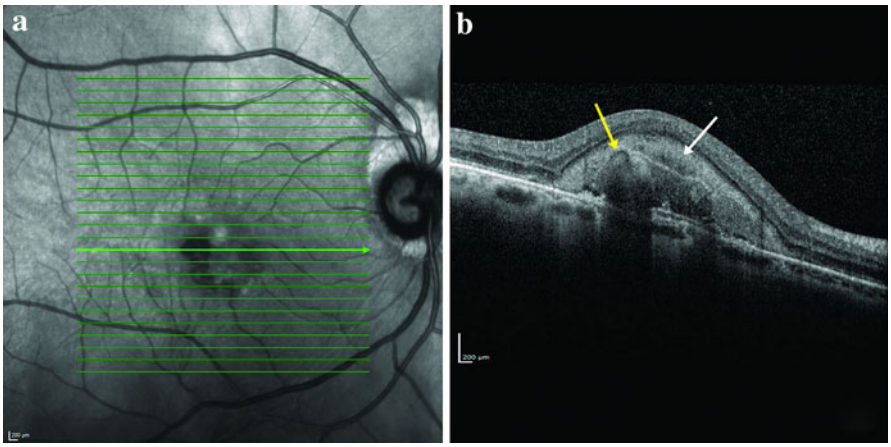

Fig. 3 A sectional image with optical coherence tomography (**b**) along the *green arrow* in (**a**) shows elevation of the neurosensory retina caused by a moderately reflective substance, markedly denser than subretinal fluid (**b** *white arrow*). Ectatic blood vessels (*yellow arrow*), which cause an optical shadow and make imaging of deeper structures impossible, are embedded in the dome-like space. Presumably there is discontinuity of the RPE and Bruch's membrane. Polypoidal vessels (*yellow arrow*). Subretinal material (*white arrow*)

case highlights an unusual presentation of PCV lying above the RPE in a 60-year-old Caucasian female.

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Conflict of interest The authors have no interests to declare.

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