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CORRESPONDENCE

Prevalence of polypoidal choroidal vasculopathy in Caucasian patients as estimated from optical coherence tomography signs

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To the Editor:

Polypoidal choroidal vasculopathy (PCV) is increasingly recognised as an important cause of choroidal neovascularisation. PCV is characterised by the presence of large choroidal polyps with an associated branching vascular network. These lesions are distinct from the more diffuse choroidal neovascularisation in neovascular macular degeneration (nAMD). PCV has traditionally been thought to be rare in Caucasian patients, with prevalence estimates of 7.2–10.3% in clinic populations presenting with nAMD [1]. However, there is increasing evidence PCV that may be underrecognized in Caucasian patients, as studies that have specifically looked for PCV in Caucasian patients report much higher prevalence of up to 32% [2]. ICGA is the gold standard for diagnosing PCV but is impractical to perform in all patients due to the cost, risk of adverse reactions, and need for specialised equipment. Recently our group and others have reported spectral domain optical coherence tomography (SD-OCT) can be used to diagnose PCV with high accuracy [3, 4]. A combination of at least three out of four SD-OCT features (peaked retinal pigment epithelium detachment (PED), multiple PEDs, PED notch, hyperreflective material within the PED, Fig. 1) has high sensitivity (95%) and specificity (93-95%) for diagnosing PCV [3, 4]. We conducted a retrospective clinic-based cohort study to determine the prevalence of PCV in Caucasian patients.

A masked grader extracted and reviewed SD-OCT scans, fundus fluorescein angiograms, ICG angiograms, and medical records of consecutive patients who underwent anti-VEGF treatment for nAMD at a tertiary referral retinal practice in Sydney, Australia, from January 2017 to June 2019. Inclusion criteria were treatment-naïve patients, a documented diagnosis of nAMD or PCV by the treating retinal specialist, and SD-OCT of gradable quality prior to starting anti-VEGF therapy. Initial SD-OCT scans were reviewed for the presence of the four OCT features described above. If three or four out of four signs were identified, the eye was classified as having OCT diagnosed PCV. The prevalence was compared with that of eyes having ICGA diagnosed PCV. ICGA was only performed to confirm the diagnosis in eyes that had a high clinical suspicion of having PCV, based on clinical features such as orange polyps on clinical examination, moderate or severe retinal haemorrhage, or a notched haemorrhage. The study was approved by the Human Research Ethics Committee of the University of Sydney, Sydney, Australia.

A total of 90 patients (100 eyes) were identified meeting inclusion criteria. At initial presentation, 8 out of 100 eyes had ICGA diagnosed PCV (8%). Based on SD-OCT criteria, 22 (22%) of eyes were further categorised as having OCT diagnosed PCV, including all eight confirmed on ICGA. These patients were slightly younger than those with nAMD (77.6 ± 8.6 years vs. 81.0 ± 9.3 years) with slight male predominance (47.1 vs. 34.3%) but these differences were not statistically significant ($p > 0.05$).

Our results add to accumulating evidence that PCV may be underdiagnosed in Caucasian populations [2]. Underlying PCV rather than nAMD may be a major reason why some eyes do not respond well to anti-VEGF therapy alone, as suggested by a recent study showing 50% of non-responsive eyes had PCV as diagnosed on ICGA [2]. Such patients may benefit from either switching VEGF agents [5] or combination treatment with photodynamic therapy [6]. Our results suggest that PCV is likely under recognised in Caucasian populations by up to twofold or more, and that careful analysis of SD-OCT changes can help to detect this.

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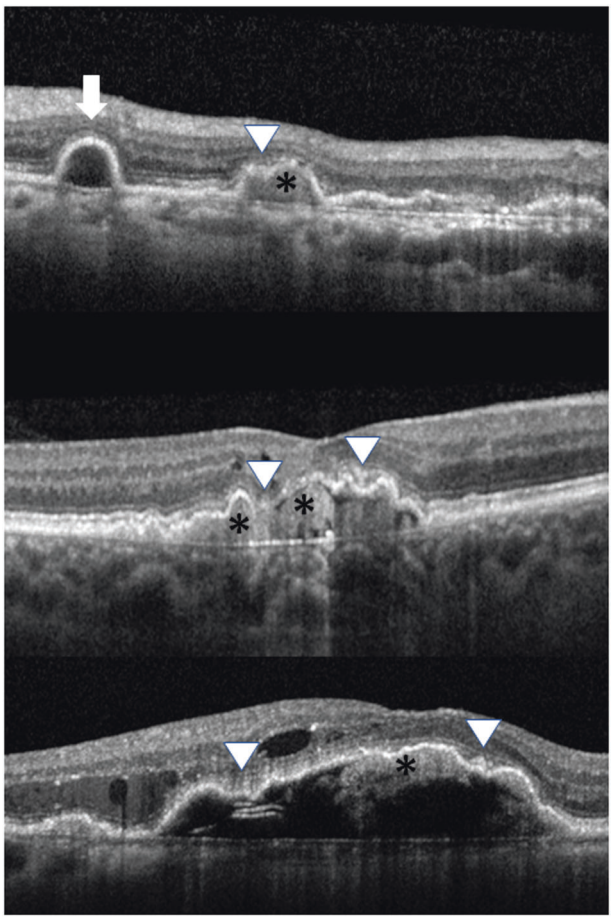

Fig. 1 Examples of OCT signs in patients with PCV. Peaked PED (solid arrow), PED notch (arrowheads), hyperreflective material suspended within the PED (asterisks), multiple PEDs (top image).

Future, prospective studies are needed to further evaluate use of SD-OCT in detecting PCV and whether this impacts on treatment outcomes.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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