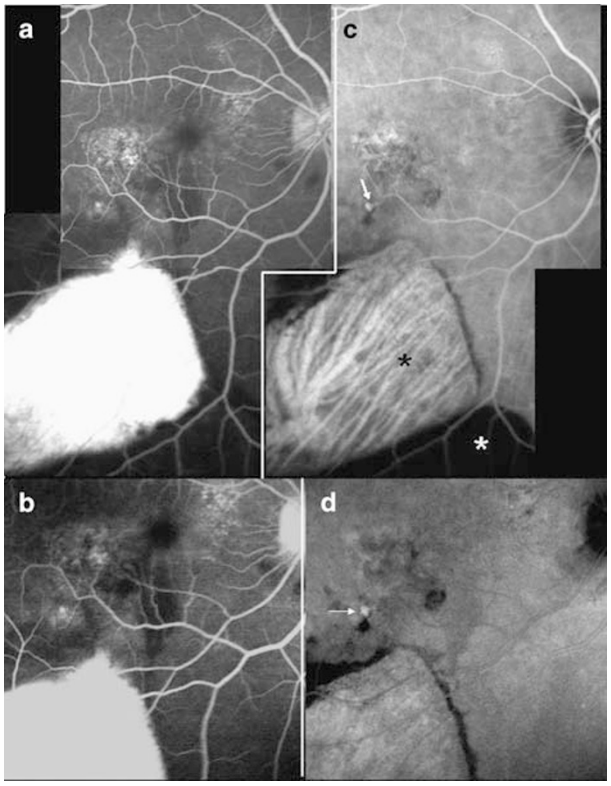

Figure 2 Fluorescein and indocyanine green angiograms of the eye with polypoidal choroidal vasculopathy. (a and b) Early and late phases of fundus fluorescein angiogram reveal an occult choroidal neovascularization and a giant retinal pigment epithelial (RPE) rip. Pooling of dye is seen in the area of RPE rip. (c and d) Fundus indocyanine green angiogram shows a hyperflourescent polypoidal lesion (arrowhead) inferotemporal to fovea, a hyperfluorescent area (black asterisk) over the giant RPE rip, and a hypofluorescent area (white asterisk) of subretinal haemorrhage.

RPE cells, atrophy of choriocapillaris, or deposition of fibrous tissue;[3] however, it is not presented in this case. Although massive subretinal haemorrhage with a giant RPE tear could cause a poor visual outcome in patients with PCV, the patient preserved a good final visual outcome.

Conflict of interest
The authors declare no conflict of interest.

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Sir,

Spectral-domain optical coherence tomography visualisation of retinal oxalosis in primary hyperoxaluria

Type 1 primary hyperoxaluria[1] is an autosomal recessive disorder caused by a deficiency of a liver enzyme (alanine-glyoxylate aminotransferase).[2] Eye involvement in primary hyperoxaluria consists of calcium oxalate deposits at the level of the retinal pigment epithelium (RPE) with surrounding areas of hypertrophic and hyperplastic RPE.[1,3] Some authors reported on unusual intraretinal distribution of oxalate deposits, apparently sparing the RPE (studies carried out on ocular tissues obtained at autopsy).[4,5]

Here, we describe the *in vivo* spectral-domain optical coherence tomography (Spectralis SD-OCT, Heidelberg Engineering, Heidelberg, Germany) findings in a patient with retinal oxalate deposits (retinal oxalosis) due to primary hyperoxaluria.

Case report
A 19-year-old man diagnosed with type 1 primary hyperoxaluria was referred to our Department. He underwent combined cadaveric liver and kidney transplantation 15 years before. The patient signed a comprehensive consent form according to good clinical practice guidelines, before proceeding with any examinations. His best-corrected visual acuity was 6/24 in the right eye and 20/38 in the left eye. On fundus biomicroscopy, both the eyes showed a fibro-atrophic lesion within the macular area, as well as retinal crystalline deposits, most of which appeared centred by patches of pigment (Figure 1); these deposits were widely distributed in the fundus, and appeared interposed between the RPE and the neurosensory retina. Fundus autofluorescence (AF) showed hyper-autofluorescent dots and ring-shaped areas of hyper-autofluorescence with central hypo-autofluorescence associated with crystal deposition (Figure 1). Interestingly, both fluorescein angiography (FA) (Figure 1) and indocyanine green angiography (Figure 1) revealed almost the same fluorescence features associated with crystal deposition, as the one seen on AF frames (hyper-fluorescent dots and ring-shaped areas of hyper-fluorescence with central hypo-fluorescence). Spectralis SD-OCT clearly showed the oxalate deposits as tiny hyper-reflective lesions localised within areas of dome-shaped elevated RPE (Figure 2).

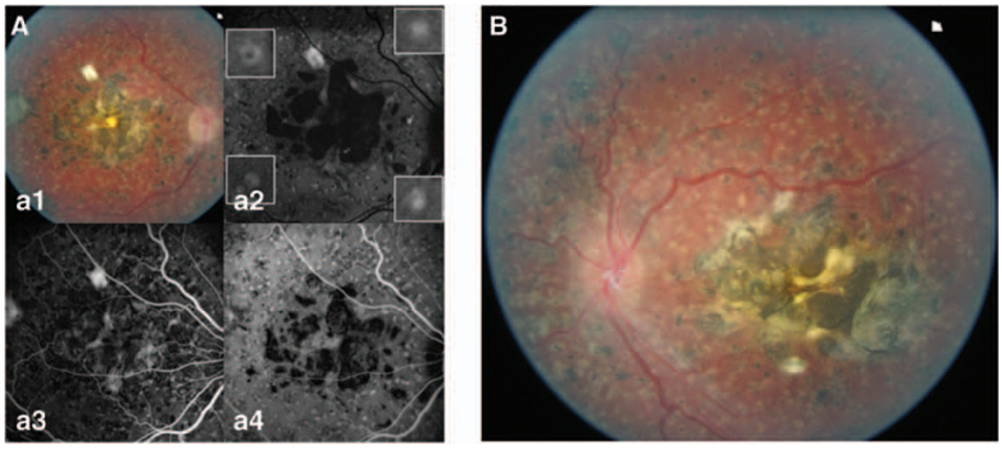

Figure 1 Colour fundus photographs of both right eye (RE) (a1) and left eye (LE) (B) show fibro-atrophic lesions within the macular area, as well as retinal crystalline deposits, most of which appear centred by patches of pigment. Fundus autofluorescence (AF) frame of the RE shows hyper-autofluorescent dots (a2, enlarged view, right side) and ring-shaped areas of hyper-autofluorescence with central hypo-autofluorescence associated with crystal deposition (a2, enlarged view, left side). Both fluorescein angiography (FA) (a3) and indocyanine green angiography (a4) frames reveal almost the same fluorescence features, associated with crystal deposition, as the one seen on AF frames (hyper-fluorescent dots and ring-shaped areas of hyper-fluorescence with central hypo-fluorescence).

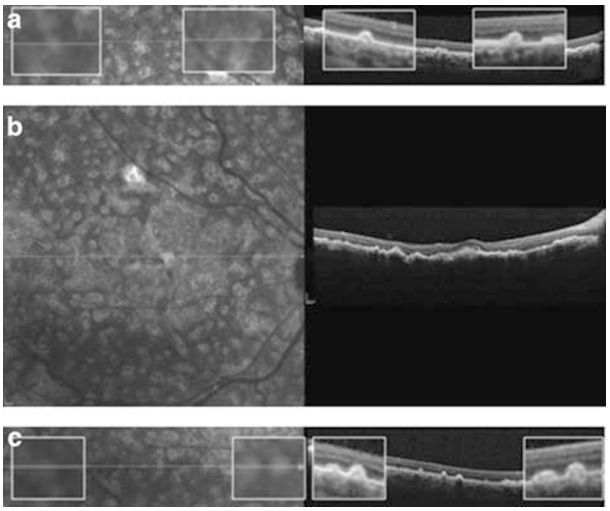

Figure 2 Infrared and spectral-domain optical coherence tomography (Spectralis SD-OCT) frames showing the exact correspondence between the oxalate deposits and the tiny hyper-reflective SD-OCT lesions (a–c), which appear localised within areas of dome-shaped elevated RPE (enlarged views), as well as the presence of a fibro-atrophic lesion within the macular area (b).

Discussion

Spectralis SD-OCT, using confocal scanning laser ophthalmoscopy technology to track the eye and guide OCT to the selected location, gives a real-time reference for locating the SD-OCT scan. Hence, *in vivo* visualisation of intraretinal structures is possible.

In our patient, Spectralis SD-OCT clearly showed tiny hyper-reflective lesions localised within the areas of dome-shaped elevated RPE (probably representing calcium oxalate deposits, seen on tissues obtained at autopsy, surrounded by area of hyperplasia/hypertrophy of the RPE), associated with retinal oxalate deposits. Interestingly, no crystals deposits were detected, *in vivo*, within the neurosensory retina.

The tiny hyper-reflective SD-OCT lesions appeared on FAF either as ring-shaped areas of hyper-fluorescence with central hypo-fluorescence, either as hyper-fluorescent dots, probably depending on the pattern of RPE changes associated with crystalline deposits (centred or not by patches of pigment, respectively).

To the best of our knowledge, this is the first description by SD-OCT (*in vivo*) of the retinal distribution of oxalate deposits in primary hyperoxaluria.

Conflict of interest

The authors declare no conflict of interest.

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Sir,

Spectral-domain optical coherence tomography findings in a case of frosted retinal branch angiitis

Frosted retinal branch angiitis is a rare manifestation of retinal perivasculitis.[1] Cases have also been identified in subjects suffering from HIV, early cytomegalovirus (CMV) retinitis, and systemic herpes simplex virus (HSV) infection.[2,3]

Case report

A 37-year-old man with HIV and CMV +, after 9 weeks of treatment with highly active antiretroviral therapy (HAART) for acute retinal necrosis in OS, was referred for a mild visual acuity (VA) loss in OD (from 20/20 to 20/25). At fundus examination, he presented a perivascular creamy sheathing of retinal veins in the whole vascular net (Figure 1a1−a2). Frosted branch angiitis with CMV retinitis was diagnosed, and therapy with gangiclovir and foscarnet was recommended. The patient underwent spectral-domain optical coherence tomography (SD-OCT) using Spectralis HRA + OCT (Heidelberg Engineering, Heidelberg, Germany). The images showed a thickening of vessel walls, swelled by hyperreflective material (Figure 1a3, white arrows), and little hyperreflective spots (Figure 1a3, white arrowhead) more localized at the boundaries of plexiform layers, even if also notable in the nuclear layers and more dense in perivascular areas.

Twelve weeks later, VA in the OS improved to 20/60 (Figure 1b1−b2). An SD-OCT examination showed a normal vessel wall thickness corresponding to the restored vessels, and also where the creamy sheathing was still visible, the walls appeared thinned compared with the previous examination (Figure 1b3, white arrows). The diffuse hyperreflective retinal spots were reduced, but were still present, especially at the boundaries of the outer plexiform layer (Figure 1b3, white arrowheads).

Comment

In this case of frosted branch angiitis, SD-OCT scans showed a hyperreflectivity at the level of the vessel walls, corresponding with the perivascular material, possibly because of immune-complex deposition.[1,4] The presence of diffuse small hyperreflective spots could be explained by the Muller cells' involvement and suffering outside the perivascular area.[5] SD-OCT examination seems to be a valid imaging technique to follow the evolution of frosted branch angiitis, especially monitoring the ultrastructural changes in this rare condition.

Conflict of interest

The authors declare no conflict of interest.

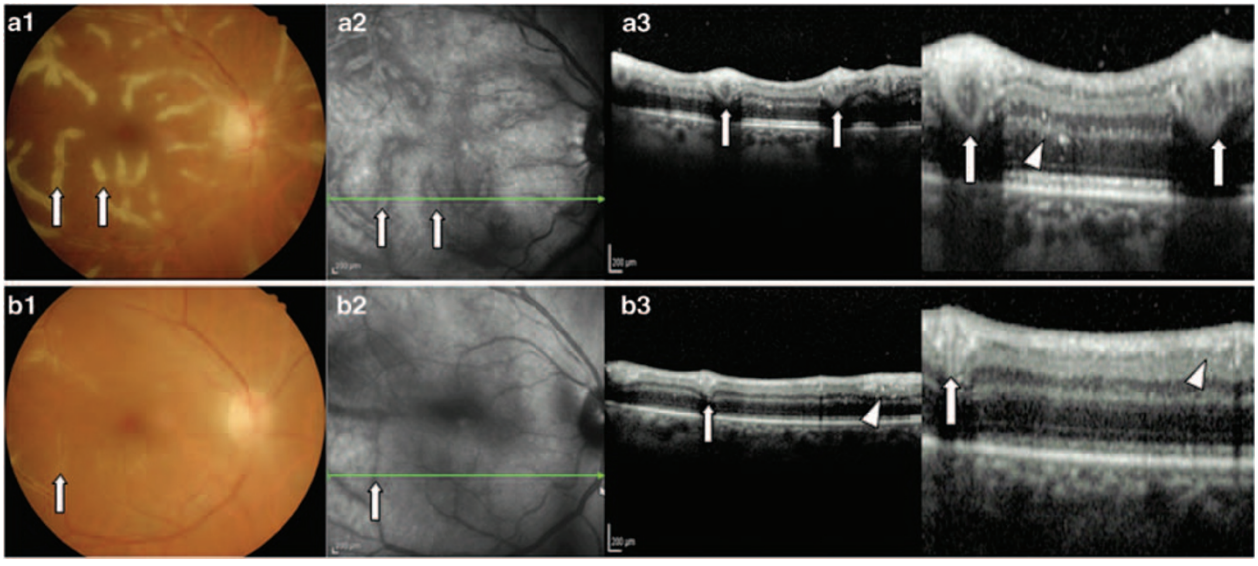

Figure 1 Colour photographies (a1–b1) and infrared (a2–b2) with simultaneous SD-OCT, normal and magnified (a3–b3) imaging. a1−3: first examination, b1−3: 12-weeks examination.