

Sir,
En face optical coherence tomography of macular holes in high myopia

Macular holes with or without posterior retinal detachment are highly common in highly myopic eyes and are likely owing to staphyloma¹ and vitreous traction.² Conventional optical coherence tomography (OCT) has greatly improved detection and classification of macular holes in last decade, providing longitudinal cross-sectional scans. Recently introduced en face OCT allows not only cross-sectional scans of the vitreous and retina but also their coronal visualization at a given depth. Interpretation of coronal scans has been explained for both the retina and the vitreoretinal interface.^{3,4} OCT coronal images can be overlaid on confocal pixel-to-pixel corresponding images of the fundus, in order to represent the exact topography of lesions.

Case reports

Case 1 was a 71-year-old man who was referred to our service for routine follow-up of bilateral lamellar macular hole in high myopia. In the left eye he referred metamorphopsia. The right eye was pseudophakic with clear media, presented a spherical equivalent refractive error of -2.5 dioptres (D) and a best-corrected visual acuity of 20/25. The left eye presented a spherical equivalent refractive error of -11.5 D and a best-corrected visual acuity of 20/50. Mild corticonuclear cataract was detectable at slit-lamp biomicroscopy. At fundus examination the right eye presented peripapillary staphyloma, myopic conus, and focal areas of chorioretinal atrophy, whereas the left eye presented posterior pole staphyloma, peripapillary crescent, and chorioretinal tessellation. En face OCT (OCT/SLO, Ophthalmic Technologies Inc, Toronto, Canada) of the

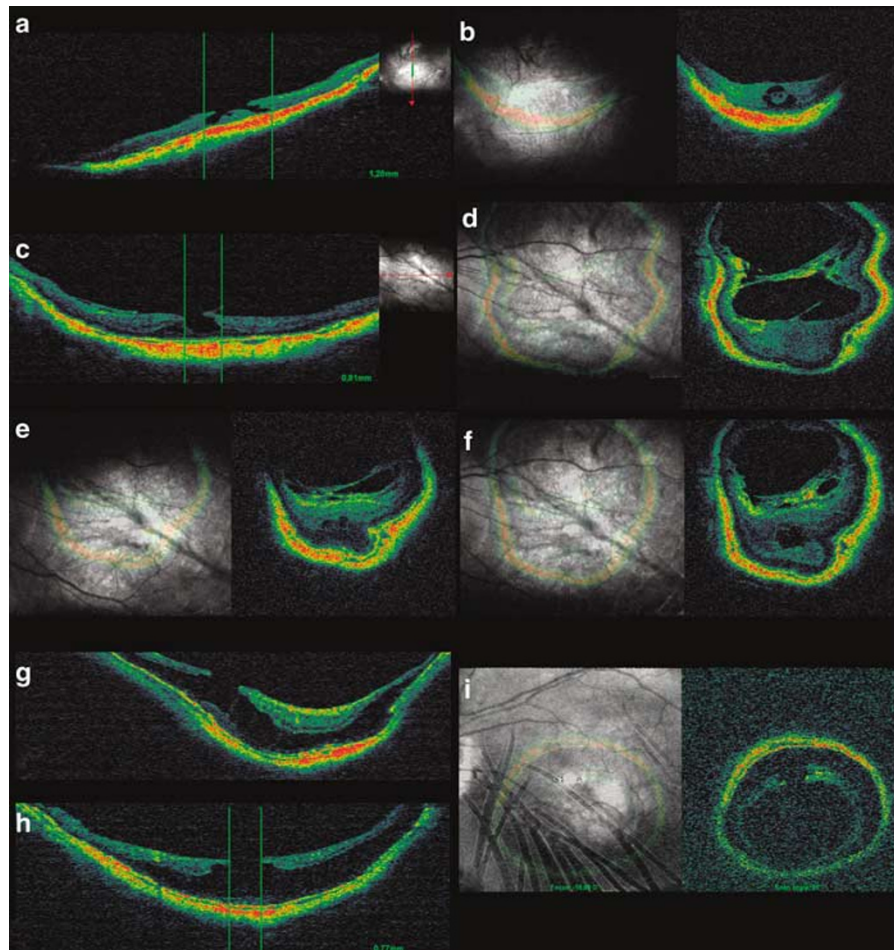


Figure 1 Case 1, right eye. (a) Cross-sectional B-scan and (b) coronal C-scan showing the lamellar hole. Case 1, left eye. (c) Cross-sectional B-scan and (d–f) progressive antero-posterior coronal C-scans (right) and overlaid C-scan on red-free confocal fundus image (left). The lamellar hole, the preretinal membrane and the hyaloidal posterior adhesences are detectable. Case 2, left eye. (g, h) Longitudinal B-scans and (i) coronal C-scan showing the lamellar hole and the posterior retinal detachment with vertical bridging elements.

right eye showed a lamellar macular hole with a longest basal diameter of 1280 μm , without presence of vitreoretinal abnormalities (Figure 1a and b). In the left eye a lamellar macular hole was detectable with a longest basal diameter of 810 μm . A preretinal membrane extending through the posterior pole and a hyaloidal adherence at one edge of the foveal pit were associated to the hole. Coronal C-scans showed the lateral extent of the hole and the preretinal membrane. The latter was recognizable as a hyper-reflective wrinkling of the retinal surface (Figure 1c–f).

Case 2 was a 69-year-old man with a history of bilateral high myopia and neovascularization in the right eye. He presented a spherical equivalent refractive error of -7 DOD and -19 DOS, a best-corrected visual acuity of 20/200 OD, 20/50 OS. Fundus examination of the right eye disclosed a macular disciform scar, whereas in the left eye a macular hole was present. En face OCT examination of the left eye showed a lamellar macular hole with a diameter of 770 μm , associated with posterior retinal detachment (Figure 1g–i).

Comment

Macular holes in highly myopic eyes may be associated with a rhegmatogenous retinal detachment surrounding the hole.⁵ Although ocular elongation and retinal thinning may contribute to macular hole formation, retinal detachment may be promoted by the weak attachment between the neurosensory retina and the retinal pigment epithelium in the posterior staphyloma. Because in highly myopic eyes the retina, pigment epithelial cells, or both are atrophic, it is usually difficult to detect macular holes with biomicroscopy. In both evaluated cases en face OCT has provided good quality visualization of both the cross-sectional and lateral extension of the hole and the associated posterior retinal detachment and preretinal membrane. The en face OCT software has allowed the fine measurement of the hole basal width.

Overlay of coronal scans on red-free fundus images associated with the possibility to measure the diameter of the hole allow a prompt evaluation of the extent of these abnormalities, representing a noninvasive alternative for the follow-up of their changes.

References

- 1 Akiba J, Konno S, Yoshida A. Retinal detachment associated with a macular hole in severely myopic eyes. *Am J Ophthalmol* 1999; **128**: 654–655.
- 2 Stirpe M, Michels RG. Retinal detachment in highly myopic eyes due to macular holes and epiretinal traction. *Retina* 1990; **10**: 113–114.
- 3 van Velthoven ME, Verbraak FD, Yannuzzi LA, Rosen RB, Podoleanu AG, de Smet MD. Imaging the retina by en face optical coherence tomography. *Retina* 2006; **26**(2): 129–136.
- 4 Forte R, Pascotto F, de Crecchio G. Visualization of vitreomacular tractions with en face optical coherence tomography. *Eye*, 2 June 2006 [E-pub ahead of print].
- 5 Morita H, Ideta H, Ito K, Yonemoto J, Sasaki K, Tanaka S. Causative factors of retinal detachment in macular holes. *Retina* 1991; **11**(3): 281–284.

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Eye (2007) **21**, 436–437. doi:10.1038/sj.eye.6702598;
published online 22 September 2006

Sir,
Bilateral serous retinal detachment as the first manifestation of paroxysmal nocturnal haemoglobinuria

Paroxysmal nocturnal haemoglobinuria (PNH) is an acquired clonal stem cell disorder resulting from a somatic mutation in the haematopoietic stem cell. It is characterized by intravascular haemolysis, cytopenia, frequent infections, bone marrow hypoplasia, and high incidence of life-threatening venous thrombosis.^{1,2} There is a report on ocular manifestations of PNH where bilateral papilloedema was described.³

Case report

A 43-year-old man who had experienced blurred vision for 1 week visited our clinic. He had no known systemic disease but his general looking appearance was pale. Best-corrected visual acuity (BCVA) was 20/400 in the right eye, 20/200 in the left eye, and both anterior segments were normal on biomicroscopy. Funduscopy and optical coherence tomography (OCT) revealed