Sir,

A subtle case of hydroxychloroquine retinopathy: spectral domain optical coherence tomography findings

This article has been corrected since Advance Online Publication and a corrigendum is also printed in this issue

Retinopathy associated with hydroxychloroquine treatment in patients with rheumatologic diseases has been well-documented, but findings can be subtle. Spectral domain optical coherence tomography (SD-OCT) can be helpful to demonstrate early toxicity and predict future progression; SD-OCT typically demonstrates perifoveal disruption of the photoreceptor inner/outer segment (IS/OS) junction line and thinning of the outer nuclear layer.[1,2] Preservation of the external limiting membrane was recently shown be associated with the preservation and possible regeneration of the IS/OS junction.[3] We report a case of early hydroxychloroquine retinopathy detected with SD-OCT, where subtle thinning of the IS/OS junction and the outer segment photoreceptor/RPE interdigitation layer are the only anatomic indicators of hydroxychloroquine toxicity.

Case report

A 58-year-old female with psoriatic arthritis and a 10-year history of hydroxychloroquine use was referred for evaluation of possible toxic maculopathy (daily dose of 400 mg for 6 years, weight 58.1 kg (6.9 mg/kg/day; 8.3 mg/ideal body weight (IBW) (48 kg)/day) and

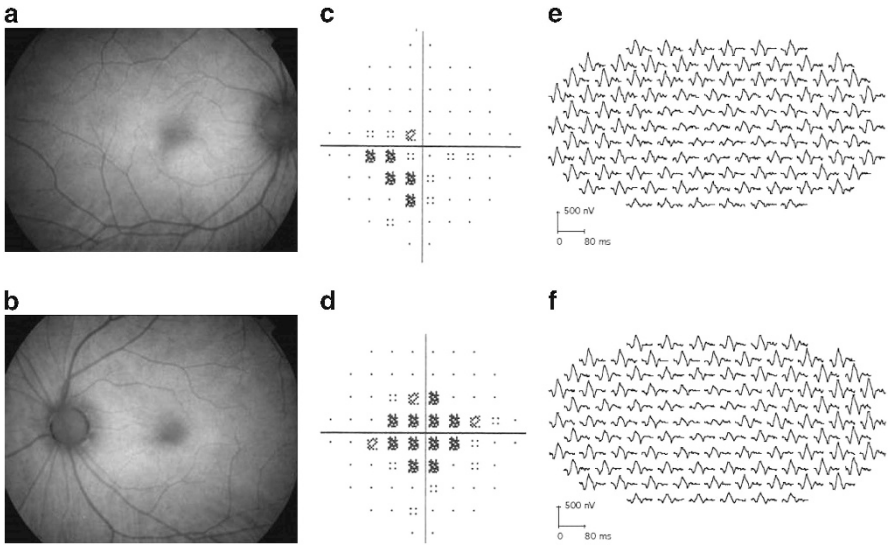

Figure 1 (a–f): Fundus autofluorescence (a, b) with mild hyperautofluorescence in both eyes. Automated visual fields (c, d) showed central scotomas bilaterally. Multifocal electroretinogram trace array (e, f) showed bilateral parafoveal depression more pronounced in the left eye.

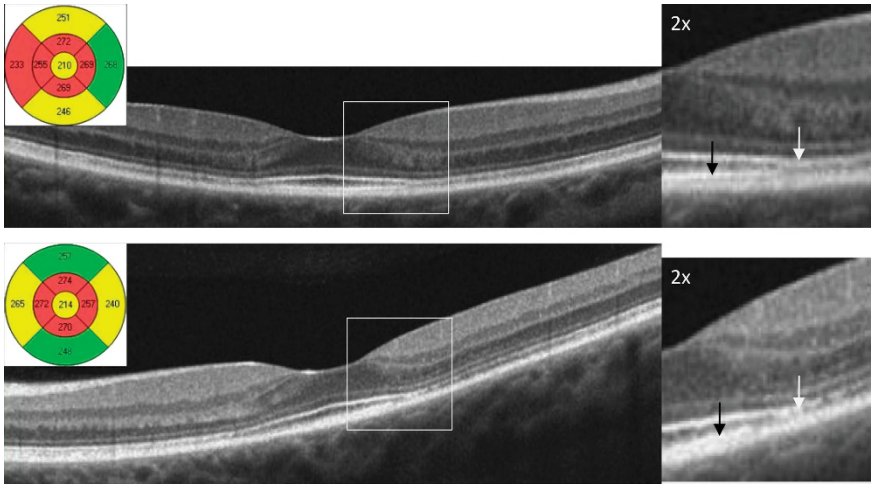

Figure 2 High-resolution spectral domain optical coherence tomography images showing parafoveal and mild perifoveal thinning on thickness map. There is an outer layer thinning between the IS/OS junction (white arrows) and the outer segment/RPE interdigitation layer (black arrows). Top: right eye; Bottom: left eye.

decreased to 300 mg for 4 years after a 3 kg weight loss (7.3 mg/kg/day to 5.4 mg/kg/day; 6.25 mg/IBW/day); cumulative dose of 1314 grams). The patient had undergone Humphrey 10–2 visual field testing with a white stimulus revealing bilateral central scotomas, which have been noted in hydroxycholoroquine toxicity[3] (Figures 1c and d). Upon further review, the visual fields were of low reliability. Visual acuity was 20/20 in both eyes. The patient was asymptomatic at the time of presentation. There was no history of renal insufficiency. Fundus exam was notable for mild, central mottling of the retinal pigment epithelium (RPE) bilaterally. Fundus autofluorescence (FAF) was significant for mild parafoveal hyperautofluorescence in both eyes, suggestive of early damage to the RPE (Figures 1a and b). SD-OCT showed subtle parafoveal thinning of the IS/OS junction and interdigitation layer, as well as hyperreflective, granular appearance of the RPE (Figure 2). The ELM was preserved in both eyes. A blunted parafoveal response was detected bilaterally on multifocal electroretinogram (mfERG) (Figures 1e and f). These findings were suggestive of hydroxychloroquine retinopathy, and the patient was advised to discontinue hydroxychloroquine. At 6-month follow-up, the patient's visual acuity remained 20/20 bilaterally. Visual fields were repeated and more reliably showed bilateral paracentral scotomas. SD-OCT images and multifocal ERG were unchanged.

Comment

At present, no treatment exists for hydroxychloroquine retinopathy. The American Academy of Ophthalmology recently emphasized the use of objective screening tests, including SD-OCT, FAF, and mfERG, to be evaluated along with 10–2 automated fields in an effort to minimize retinal damage.[4] SD-OCT is a valuable screening and diagnostic modality for the detection of anatomical changes associated with early hydroxychloroquine toxicity, however these changes can be subtle. In this case, the only anatomic changes visible are thinning of the IS/OS junction and disruption of the photoreceptor/RPE interdigitation line with very subtle changes on the FAF. Changes to these outer retinal layers may easily be missed, therefore careful examination of high-resolution SD-OCT images is critical when screening for hydroxychloroquine toxicity.

Conflict of interest

The authors declare no conflict of interest.

References

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Eye (2014) **28,** 1521–1522; doi:10.1038/eye.2014.212; published online 12 September 2014

Sir,
Comment on 'Herpes zoster ophthalmicus reduction: implementation of shingles vaccination in the UK'

The endorsement of topical steroid use in Herpes zoster uveitis in your editorial[1] is inappropriate and not supported by any evidence whatsoever.

It is now more than 30 years since the received wisdom[2] of routine topical steroid use in zoster uveitis was shown to be inferior to that of topical acyclovir (ACV) in randomised controlled trials.[3] High-dose oral ACV is even more effective. Announcing 'the end of the corticosteroid era', Herbort *et al*[4] noted 'Steroid treatment was not necessary in any of the (oral) ACV-treated patients'.

Those clinicians who adopt a policy of using high-dose oral ACV in the treatment of acute herpes zoster and eschew topical steroids soon come to realise that the 'tendency to relapse when steroid treatment is tapered….become chronic or take on a relapsing nature over many years, with tissue damage, scarring and necrosis, and potential visual impairment'[1] is entirely the iatrogenic consequence of topical steroid usage, and note a further benefit in amelioration of post-herpetic neuralgia particularly if high-dose oral ACV is prescribed in combination with Amitryptiline or Gadapentin.[5]

I share the hope that vaccination will eventually reduce the number of patients who experience the scourge that is zoster. In the meantime it is important to disseminate and implement existing knowledge on effective-evidence-based treatment and avoid making the problem worse by using topical steroids in zoster uveitis.

Conflict of interest

The author declares no conflict of interest.

References

1 Potts A, Williams GJ, Olson JA, Pollock KG, Murdoch H, Cameron JC. Herpes zoster ophthalmicus reduction: implementation of shingles vaccination in the UK. *Eye (Lond)* 2014; **28**(3): 247–248.