rapidly migrate across the human capsule within 1 week.[11] Potentially, LECs migrate onto exposed capsule or along the anterior hyaloid face, closing the capsulotomy opening. We recommend that, if a posterior capsulotomy is required in the early postoperative period, consideration be given to perform a larger initial capsulotomy.

References

1 Davison JA. Capsular distension syndrome after endophacoemulsification and posterior chamber intraocular lens implantation. *J Cataract Refract Surg* 1990; **16**: 99–108.
2 Miyake K, Oki I, Chihashi S *et al*. New classification of capsular blockage syndrome. *J Cataract Refract Surg* 1998; **24**: 1230–1234.
3 Masket S. Postoperative complications of capsulorhexis. *J Cataract Refract Surg* 1993; **19**: 721–724.
4 Kato K, Kurosaka D, Bissen-Miyajima H *et al*. Elschnig pearl formation along the posterior capsulotomy margin after neodymium:YAG capsulotomy. *J Cataract Refract Surg* 1997; **23**: 1556–1560.
5 Kurosaka D, Kato K, Kurosaka H *et al*. Elschnig pearl formation along the neodymium: YAG laser posterior capsulotomy margin. Long-term follow-up. *J Cataract Refract Surg* 2002; **28**: 1809–1813.
6 McPherson RJ, Govan JA. Posterior capsule reopacification after neodymium:YAG laser capsulotomy. *J Cataract Refract Surg* 1995; **21**: 351–352.
7 De Groot V, Vrensen G, Willekens B *et al*. *In vitro* study on the closure of posterior capsulorrhexis in the human eye. *Invest Ophthalmol Vis Sci* 2003; **44**: 2076–2083.
8 Chatterjee S, Garg P. 'String of pearls' following Nd:YAG laser posterior capsulotomy. *Indian J Ophthalmol* 2002; **50**: 140–142.
9 Oshika T, Santou S, Kato S *et al*. Secondary closure of neodymium:YAG laser posterior capsulotomy. *J Cataract Refract Surg* 2001; **27**: 1695–1697.
10 Tassignon M-J, De Groot V, Vervecken F *et al*. Secondary closure of posterior continuous curvilinear capsulorhexis in normal eyes and eyes at risk for postoperative inflammation. *J Cataract Refract Surg* 1998; **24**: 1333–1338.
11 Crowston JG, Maloof A, Healey PR *et al*. Water modulation of lens epithelial cells during cataract surgery. *J Cataract Refract Surg* 2003; **29**: 2464–2465.

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Sir,

Red dots visual field test with blue on yellow & blue on red macula test grid

I read with interest the paper by FH Zaidi and colleagues titled 'The Amsler chart is of doubtful value in retinal screening for early laser therapy of subretinal membranes' (*Eye* 2004; **18**: 503–508).

Their work deserves commendation for bringing confirmation to our clinical observations and experience that 87% of threshold scotomas were not detected by black and white Amsler grid when the field defect is less than 6° (6 squares) on the grid. Authors report that a mere 29% of eyes with subretinal neovascular lesions were detected by high-contrast black-and-white Amsler grid testing. Unfortunately, it is not known what real visual deficits, both in terms of a scotoma as well as visual distortion, that is metamorphopsia, their 100 patients actually had at the time of presentation. In other words, the Amsler grid would detect vision deficit only if there is one, and there may not be anything to detect in some of their patients who passed the Amsler test for they were not checked with threshold perimetry or ideally with Fundus Scanning Laser Projection Perimetry. We also do not know the extent and severity of the organic lesions that was detected by the Amsler grid against the ones that passed the test. I believe it is important for this reason not to conclude that subjective vision tests with alternative macular test grids and colour-contrast tests would continue to be of limited usefulness in the future.

The red-on-black chart, the classical colour-contrast test version, of the Amsler grid is too difficult to be seen (very low contrast) by most patients and creates an unacceptably high false-alarm rate. Furthermore, none of the Amsler grid variations made available to date fully utilized the testing potential of their background at the same time as the foreground grid lines as the stimuli. Most retinal and macular lesions, such as macular degeneration or medication toxicity, cause quantifiable contrast sensitivity loss[1,2] and a blue–yellow defect, whereas optic nerve, chiasmal, and postchiasmal disorders (with the exception of dominantly inherited optic atrophy associated traditionally with a blue–yellow defect) cause a red–green defect.[3–7] Colour field test cards

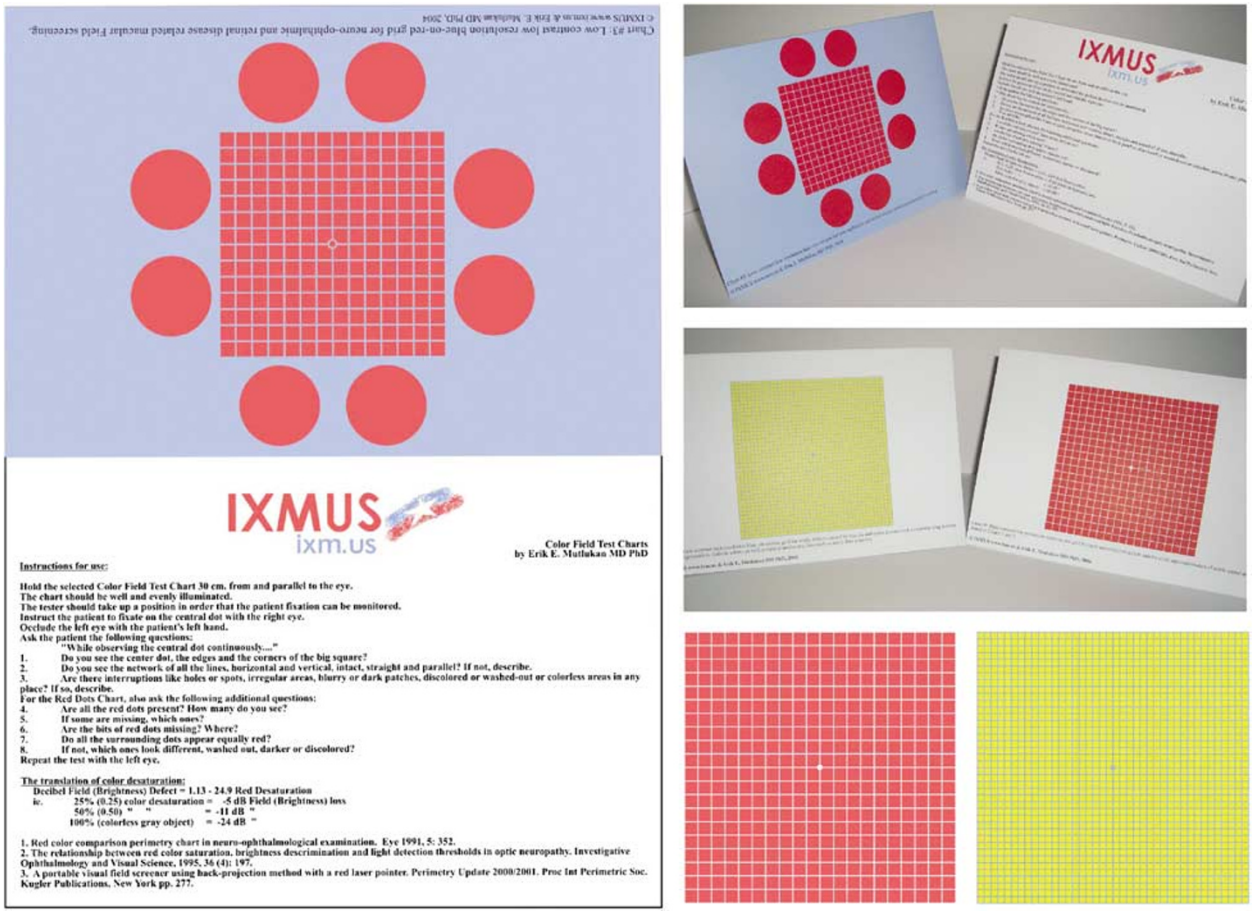

Figure 1 (a–d) Colour Amsler grids for clinical or home self-test.

based on the colour desaturation test technique utilizing the background at the same time as the grid lines with low and intermediate calibrated contrasts of blue-on-yellow, blue-on-red, and white-on-red combinations are available (www.ixm.us; Figure 1a–d). These versions of the Amsler charts may detect early visual field defects of 5 decibels depth that may be coassociated with approximately 25% washed-out or darkened colour appearance easily noticeable by an average observer, also providing over 90% detection sensitivity and 90% specificity in neuro-ophthalmic practice.[6] The authors correctly point out the need for an alternative to the conventional high-contrast achromatic Amsler to improve its limited detection sensitivity for screening and the above-described new versions may just be the answer for this need.

References

1 Mutlukan E, Skarf B. Macular contrast sensitivity function correlates with automated threshold perimetry. *Perimetry Update 1996/97*. Kugler Publications: New York, 1997, pp 243–250.

2 Mutlukan E, Skarf B. Correlation between macular contrast sensitivity function and automated threshold perimetry. *Invest Ophthalmol Visual Sci* 1996; **37**(3): S1081.

3 Mutlukan E, Cullen JF. Visual outcome after craniopharyngioma. *Ophthalmology* 1990; **97**: 539.

4 Mutlukan E, Skarf B. The relationship between red color saturation, brightness discrimination and light detection thresholds in optic neuropathy. *Invest Ophthalmol Visual Sci* 1995; **36**(4): 197.

5 Mutlukan E, Skarf B. North American Neuro-Ophthalmology Society Fellow Award, Red color desaturation, brightness perception asymmetry and light detection threshold elevation in optic neuropathy; how do they inter-relate? (Paper), *North American Neuro-Ophthalmology Society Meeting*, Tucson, AZ, February 1995.

6 Mutlukan E, Cullen JF. Red color comparison perimetry chart in neuro-ophthalmological examination. *Eye* 1991; **5**: 352–361.

7 Cullen JF, Mutlukan E. Visual field testing for neuro-ophthalmological defects. *Optometry Today* 1997; **37**(11): 36–37.

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Sir,

The usefulness of the Amsler chart

Referring to Zaidi *et al*'s paper (*Eye* 2004; **18**: 503–508), Marc Amsler was emphatic that his charts are to be used as a white grid on a black background. My own experience has confirmed that defects are much more easily picked up in this way. A pad of recording charts was included as a convenience but not as an alternative. Which charts were the patients given to use at home?

I was fortunate in 1946 to visit Professor Amsler in Zurich and he spent time explaining the use of these charts. He was emphatic that the chart was used as a white grid on a black background.

He told me how important it is to explain to the patient that the gaze must be fixed on the central spot while being aware of the whole chart. Questions were to be put in a strict sequence. Can you see the central spot? While looking at the spot and not moving your eye can you see the four corners? The four sides? Is any of the pattern missing? Distorted? Blurred?

In his paper delivered to the Oxford Congress, Amsler gave several examples of the usefulness of the test. (Amsler M. Quantitative and qualitative vision. *Trans Ophthalmic Soc UK* 1949; **69**: 397–410, 9 Figs). Duke Elder also describes the method with illustrations (Duke-Elder S. *System of Ophthalmology*, Vol 7. Kimpton: London, 1962, pp 396–397).

In the booklet of Amsler charts, a pad of recording sheets was provided for convenience but not as an alternative. It appears that in recent years, the recording sheets have been given to patients at risk of macular disturbance asking them to use them at intervals to observe any distortion of the lines.

In my own practice, I have found that patients with central scotoma or metamorphopsia find difficulty in appreciating the defect on the recording charts, but do so easily on the proper white on black charts. This amply confirmed Professor Amsler's experience.

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Sir,

More than meets the eye: alternatives to black-on-white visual field testing

The informative comments by Mr Roper-Hall and Dr Mutlukan are valued contributions to understanding the background to much modern psychophysical testing of the central visual field. The original quotes from Professor Amsler are very relevant to current practice in the use of Amsler grids and are sure to educate many contemporary ophthalmologists. Indeed, one cannot help but wonder why the current black grids on white paper were introduced, presumably as they would seem to be easier to print and thus might be more cost-effective in our predominantly state-run healthcare system in the United Kingdom.

We would emphasise, however, that our study was not to determine which type of chart is the best to use, nor the extent of visual field loss it detected, but rather an assessment of methodology that is normal current practice.[1] We found that the British National Health Service most often uses the Chart No. 1 by Keeler: a black grid on a white background. In short, our study found this to be an unsatisfactory test and Professor Amsler's original comments may indeed partly explain this. However, we stress that Amsler charts should continue to be dispensed as they do detect a fair proportion of subretinal membranes (approximately 30% in our study using black on white charts).

The significance of this area is increasing considerably with PDT laser and other treatment modalities for age-related macular degeneration that require early reliable detection of subretinal neovascular membranes.