Sir,

Exercise-related visual loss in patients with glaucoma

We read with interest the clinical study by Shah *et al*¹ reporting cases of exercise-related visual loss in patients with glaucoma. The visual functions, including visual acuity, foveal sensitivity and visual fields, of two patients were studied before and after exercise, and the results showed deterioration in the visual functions with exercise. A hypothesis of 'vascular steal' was suggested in these patients with advice to limit their activities. We feel that a vascular steal may not be the cause of visual symptoms in the above patients since physiological changes during exercise cause shunting of blood from the skin and abdominal organs to the heart and other muscles in demand, but the cerebral and ocular circulations, which are autoregulated, remain unaffected. Furthermore, ocular perfusion pressure (OPP) equates to mean blood pressure (MBP)–intraocular pressure (IOP), where MBP=diastolic pressure + 1/3 (systolic BP–diastolic BP).² Therefore, in the above patients, the OPP should have either remained at pre-exercise levels or increased, since the MBP was unchanged and the IOP was either stable or lowered with exercise.

Although we cannot offer an explanation for the transient visual loss, we have recently seen a patient in whom an explanation was ascertained. The 74-year-old patient presented to clinic with intermittent episodes of blurred vision following sexual intercourse. There was no significant past medical history and ocular examination was unremarkable. We wondered whether this was due to hypoperfusion; however, his MBP and IOP remained stable pre- and post-exercise. Carotid Doppler scans showed no stenosis.

He presented 2 weeks later with persistent blurring, which had not settled by the morning. He was found to have a unilateral cloudy cornea, raised intraocular pressure and a semi-dilated pupil. A diagnosis of sub-acute angle closure glaucoma was made. He remains asymptomatic following YAG iridotomies. We believe his attacks may be triggered by pupillary dilatation associated with increased sympathetic flow during intercourse and initially relieved by miosis associated with sleep. The visual loss may be explained by the reduction in OPP as a result of increased IOP, rather than a 'vascular steal'.

We feel that episodes of sub-acute closure should be ruled out in patients presenting with exercise-related visual loss and that limiting their activities may not be justified without further studies.

References

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Sir,

Reply

We thank Dr Patel and Mr McKibbin for their comments regarding our recent paper, which reported cases of exercise-induced visual loss in young patients with advanced glaucomatous optic neuropathy. They raised the point that angle closure should be ruled out in all patients presenting with exercise-induced visual loss and we would certainly agree with this clinical comment. As part of the assessment of our patients, we did indeed exclude angle closure occurring during exercise (all patients had wide open drainage angles) and also excluded reverse pupillary block and also pigment dispersion induced by exercise.^{1,2} In the absence of these features, we feel that the most probable aetiology of the exercise-induced visual loss we observed was a vascular steal effect and would again recommend that this phenomenon is considered in all patients presenting with the symptom of exercise-induced visual loss.

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Sir,

Nd:YAG vitreolysis as a treatment for vitreous floaters

The option of Nd:YAG vitreolysis as a strategy to attenuate troublesome floaters, as proposed by Larry Benjamin and colleagues,¹ is an attractive proposition. Posterior vitreous detachment in particular is an exceedingly common presentation, and notably for some patients the symptoms are of considerable inconvenience.

It is interesting that in their study the conventional fears of cataract, retinal detachment, and cystoid macular oedema associated with Nd:YAG were not realised over a relatively protracted follow-up. Although the technique is described as being selectively successful, it may serve as an accessible management option in the small group of patients who are inordinately obsessive about their vision, or those who simply have a high visual demand.

As with all iatrogenic procedures, following an assessment of the severity of the symptoms and the ocular anatomy, it would be possible to discuss the risks and benefits of the intervention before obtaining consent and arranging treatment via dexterous hands. With regard to actual efficacy, perhaps the closest analogy is that of cataract extraction in the context of concurrent age-related macular degeneration, where the surgeon cannot invariably guarantee visual improvement. Since Nd:YAG equipment is ubiquitous in eye units and significant vitreous floaters (eg Weiss ring on fundoscopy) common, the above approach could potentially and selectively be a useful addition to the application of laser in outpatient ophthalmological practice.

References

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Sir,

Reply

In response to the comments made by Jagdeep Gandhi regarding the paper you published on YAG laser vitreolysis, I would like to make one or two comments. I am grateful for Mr Gandhi's comments on this paper, and would add that the probable reason why we did not witness any cataract formation in our patients was the low energy used and the avoidance of lasering any floaters that were close to the crystalline lens.

The cited complications of retinal detachment and cystoid macular oedema perhaps relate more to YAG laser capsulotomy rather than vitreolysis. However, most, if not all, of our patients had already sustained a posterior vitreous detachment and this perhaps, more than anything, overcame the risks of these complications. In a paper recently submitted for consideration of publication in *Eye*, we looked at the 10-year follow-up of retinal detachment in YAG laser capsulotomy keeping the energy levels very low for each laser shot. The outcome of this study also showed a nought per cent retinal detachment rate in these patients.

I would agree that some patients with vitreous floaters may be somewhat obsessive about their vision, but the majority of our patients had waited a long time before presentation and were finding that their floaters actually interfered with their daily activities. As the complication rate is low, the YAG laser vitreolysis technique is worth trying as a first option in patients with troublesome floaters.

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