

Correspondence

Retinal burns from MIG-welding arcs

SIR, I read the article by G P H Brittain¹ on retinal burns caused by exposure to MIG-welding arcs with great interest. I had not seen any cases in Australia and so I was very interested to study the illustrations. Two cases were described. The first case was illustrated in Fig. 2 but I could not see the 'small dark lesion above each fovea' said to be present. The second case is illustrated in Figs. 3 and 4, and I felt the appearances were more consistent with a retinal pigment epithelial detachment than a photocoagulation burn.

Mr Brittain also claims that the lesions in the right and left eye are symmetrical and illustrate the principle of physiological diplopia. On looking at Fig. 4, however, there were two very obvious lesions in the right eye with a larger one below the horizontal meridian and lateral to the fovea. In the left eye only a large lesion is clearly visible, and it is above the horizontal meridian. On this evidence the lesions in the right and left eyes are not symmetrical. I think we should always be alert to the possibility of retinal damage in people who use arc welders and are not properly protected. I am not convinced, however, that Mr Brittain's article has given us illustrations of retinal burns that have been caused by exposure to MIG-welding arcs.

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Reference

- 1 Brittain GPH. Retinal burns caused by exposure to MIG-welding arcs: report of two cases. *Br J Ophthalmol* 1988; 72: 570-5.

SIR, I would like to answer the criticisms against my report of two cases of retinal burns caused by exposure to MIG-welding arcs made by Mr Beaumont, who has not seen any such cases in Australia and remains unconvinced by my article.

I must agree with his first criticism that the black-and-white illustrations in Fig. 2 do not make the small parafoveal lesions obvious. I had included them for the sake of completeness, but I accept that while the lesions are poorly visible in the original colour transparencies they have virtually been lost in the black-and-white illustrations made from them. The lesions were seen and noted by several of the ophthalmic staff at the Leicester Royal Infirmary. Because of the poor contrast difference between the lesions and the background retina they were very difficult to photograph with standard high intensity flash photography.

Mr Beaumont feels that the appearance of the lesions in the second case is more consistent with retinal pigment epithelial detachments than with photocoagulation burns. I agree that the lesions are at this retinal level where pigmentation and therefore thermal effects of light absorption are maximal. The lesions, however, were not elevated as RPE detachments would be. There was no focal point of

fluorescein leakage nor 'smokestack' sign, and the lesions showed no sign of enlargement with time, though they did take up dye as would any traumatised tissue. In both cases the lesions tended to resolve in the few days subsequent to exposure to the arc, implying that they were not spontaneous events but caused by the arc.

I would ask him to refer to the original description of the gross and microscopic changes induced by the laser beam in human eyes by Zweng *et al.*¹ in particular to examine their illustration (Fig. 4) which shows a photograph of experimental laser photocoagulation burns at 28 hours (a similar period elapsed between exposure and photography in my second case). In their words 'the lesions consisted of a central depigmented area surrounded by a rim of increased pigmentation which in turn was surrounded by a halo of depigmentation.' This is also an accurate description of the lesions in my second case.

He does not feel that the lesions in the second case are symmetrical, though both major lesions lie centred 1.2 disc diameters from the fovea and are very similar in shape and size. The major lesion in each eye lies one above and one below the horizontal meridian because the head was tilted to the right as the patient lay on the ground to reach under the car. Although oblique, the position of these lesions is symmetric about the fovea and certainly could be explained by the principle of physiological diplopia as I have suggested. The smaller lesion in the right eye could have occurred at another exposure while the left eye was closed or protected by the visor and in no way detracts from the symmetry of the other lesions.

I am convinced that in both cases I reported the lesions resulted from exposure to MIG-welding arcs. I do not wish to imply that such injuries are common. The circumstances in which these retinal injuries occurred may have been exceptional in that the first was caused by prolonged exposure, and the second by brief but very intense exposure due to the close proximity of the arc to the patient's dilated pupils. In neither case did there appear to be any persistent visual symptoms, and it is possible that such injuries go unobserved, overshadowed by the more immediate problem of an acutely painful ultraviolet keratitis. There may be long term problems resulting from exposure to such high intensity light, and I feel that MIG-welding arcs should be treated with a great deal more respect than they are presently afforded.

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Reference

- 1 Zweng HC, Flocks M, Peabody R. Histology of human ocular laser coagulation. *Arch Ophthalmol* 1966; 76: 11-5.

Precision versus confusion

SIR, I read with interest 'Why should surgery for early-onset strabismus be postponed?' by M Deller.¹ Dr Deller is to be congratulated on his careful studies of this condition, which