CASE REPORT

Solar retinopathy secondary to sungazing

Sarah Moran,¹ Eamonn O'Donoghue²¹Mater Private Hospital, Dublin, Ireland²Department of Ophthalmology, Galway University Hospital, Galway, IrelandCorrespondence to
Dr Sarah Moran,
sarmoran@gmail.com

SUMMARY

A young woman presented with a 2-day history of bilateral central scotoma and metamorphopsia following an episode of direct sun-gazing lasting 1–2 min. On examination, visual acuity was reduced to 6/9 bilaterally. Fundal examination revealed discrete yellow lesions at both maculae consistent with solar burns. Optical coherence tomography revealed retinal pigment epithelial defects at both fovea, which improved over time. The patient was managed conservatively. There was full resolution of symptoms in the left eye; however, a central scotoma persisted in the right eye at follow-up 1 year later

BACKGROUND

This is a rare case of a solar retinopathy, and the pathological retinal changes are well illustrated in the images. This is a preventable condition, and an awareness of the dangers of sungazing is highlighted.

CASE PRESENTATION

A young woman presented with a 2-day history of bilateral central scotoma and metamorphopsia following 1–2 min of direct sun-gazing.

On examination, visual acuity was reduced to 6/9 in both eyes. Slit-lamp biomicroscopy showed

discrete yellow lesions at both fovea. Optical coherence tomography (OCT) scanning revealed corresponding retinal pigment epithelial (RPE) defects (figure 1 A,B). The patient was managed conservatively with regular follow-up and OCT scanning.

OUTCOME AND FOLLOW-UP

The patient's symptoms progressively improved over the following months without treatment. Almost a year later, her symptoms had fully resolved in the left eye, but a central scotoma persisted in the right eye. Visual acuity returned to 6/6 in the left eye but remained at 6/8.6 in the right eye. OCT changes in both eyes improved over time; however, minor RPE defects persisted in the right eye almost a year after the initial injury (figures 2–4). She did not attend further follow-up after this point.

DISCUSSION

Solar retinopathy is an unusual form of macular damage that occurs after exposure to intense solar radiation. It is mostly associated with solar eclipse viewing and religious sun-gazing, but is also described in sunbathing, telescopic solar viewing, psychiatric disorders and psychotropic drugs.¹

Figure 1 (A) Right eye at initial presentation showing a retinal pigment epithelial defect at the fovea. (B) Left eye at initial presentation showing a retinal pigment epithelial defect at the fovea.

Figure 2 (A) Right eye at 1 month: persistent a retinal pigment epithelial (RPE) changes at the fovea. (B) Left eye at 1 month: persistent RPE changes at the fovea.

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Figure 3 (A) Right eye at 6 months: improvement in foveal changes and (B) left eye at 6 months: improvement in foveal changes.

Common presenting symptoms include decreased visual acuity, metamorphopsia, central or paracentral scotoma, after-image and dyschromatopsia. Onset of symptoms is typically within 4–6 h of exposure. Visual acuity has been reported to range from 6/9 to 6/60, although most cases return to 6/6 or 6/9 over the weeks to months following exposure.

Clinical findings include the initial appearance of a small yellow spot within an oedematous retina. The spot changes in colour after the injury and often fades from view after 10–14 days. The lesion is often replaced by a small reddish circumscribed inner lamellar retinal hole in the fovea. With prolonged exposure, a more diffuse lesion with mottling and clumping of the retinal pigment epithelium may occur.

Typically, fluorescein angiography is normal or may show a window defect. OCT demonstrates a characteristic defect at the level of the inner and outer segment junction of the photoreceptors.² Histology of the acute foveal lesion shows injury to the retinal pigment epithelium with necrosis, detachment, irregular pigmentation and minimal change to the photoreceptors.³ Solar retinopathy is due to a combination of photochemical and thermal injury. It is thought that the main damage is caused by the short wavelengths in the visible spectrum at 400–500 nm, with some mild thermal enhancement from the longer wavelengths in the infrared spectrum.⁴ The good visual prognosis of solar retinopathy has been attributed to the resistance of foveal cone cells to photochemical damage.⁵

The visual prognosis of solar retinopathy is generally favourable, and in most cases the visual loss is reversible. No specific therapy exists for solar retinopathy. The mainstay of treatment, however, is education and prevention. Treatment with corticosteroids has been given in cases with severe visual loss; however, there is no reliable evidence to say whether this is beneficial or

Figure 4 (A) Right eye at 1 year; almost full resolution of retinal pigment epithelial (RPE) changes. (B) Left eye at 1 year; almost full resolution of RPE changes.

not. Appropriate protective measures when viewing an eclipse and education about the hazards of direct sun-gazing are of utmost importance in the prevention of this condition.

Learning points

- Gazing directly at the sun without adequate sun protection can result in solar damage to the macula.
- Generally, solar retinopathy has a favourable prognosis.
- Treatment is mainly conservative.
- Public awareness and education are essential to prevent this condition.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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