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RESEARCH ARTICLE

CASE REPORT: SOLAR RETINOPATHY FOLLOWING SUNGAZING

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ABSTRACT

Here we report a case of young male whopresented with a 2-day history of dimunition of vision and metamorphopsia in left eye following an episode of direct sun-gazing lasting 1–2 min. On examination, visual acuity was reduced to 6/24 in left eye. Opthalmic examination revealed findings consistent with solar retinopathy .The patient was managed conservatively.

INTRODUCTION

Solar retinopathy is a rare ocular lesion that can result from unprotected solar eclipse viewing and also from minimal gazing at the sun. The consequent photochemical/thermal retinal damage often has a subtle presentation, which can be misleading for its diagnosis[1]. 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.[2]Retinal damage severity depends upon the transparency of the ocular media.Young individuals are mostly affected since their ocular media are relatively transparent to radiation [3,4].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.[6]

CASE REPORT

A 26-year-old male presented with history of dimunition of vision in left eye following sun gazing during solar eclipse.

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He reported looking at the sun for few minutes one day prior to the presentation, without sunglasses and without wearing a hat. His visual acuity was 6/6 (OD) in right eye and 6/24 (OS) in left eye. Anterior segment examination was normal. Intraocular pressure was normal. On dilated fundus examination, there was discrete yellow lesion consistent with solar burn. (Figures 1(a)). SD-OCT showedhyporeflective space in the outer retina at the fovealcentre and interruption of the external limiting membrane and of the IS/OS junction (Figures 1(b)).The patient was managed conservatively. Three weeks later, his visual acuity was markedly improved to 6/12.

DISCUSSION

Solar retinopathy is a maculopathy that arises following direct exposure to solar radiation. There is an extensive spectrum of solar-induced lesions and wide individual variability in the responsiveness and the acquisition of these injuries.[1] Common presenting symptoms include decreased visual acuity, metamorphopsia, central or paracentralscotoma, 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.[7] Fundus examinations in acute phases can show a small yellow spot at the fovea, encircled by faint gray granular pigmentation. The yellowish discoloration will usually become faint with time, leaving a pathognonomic reddish spot.[8] Solar retinopathy is usually seen as bilateral, even if unilateral and asymmetric manifestations have been described.[9,10]

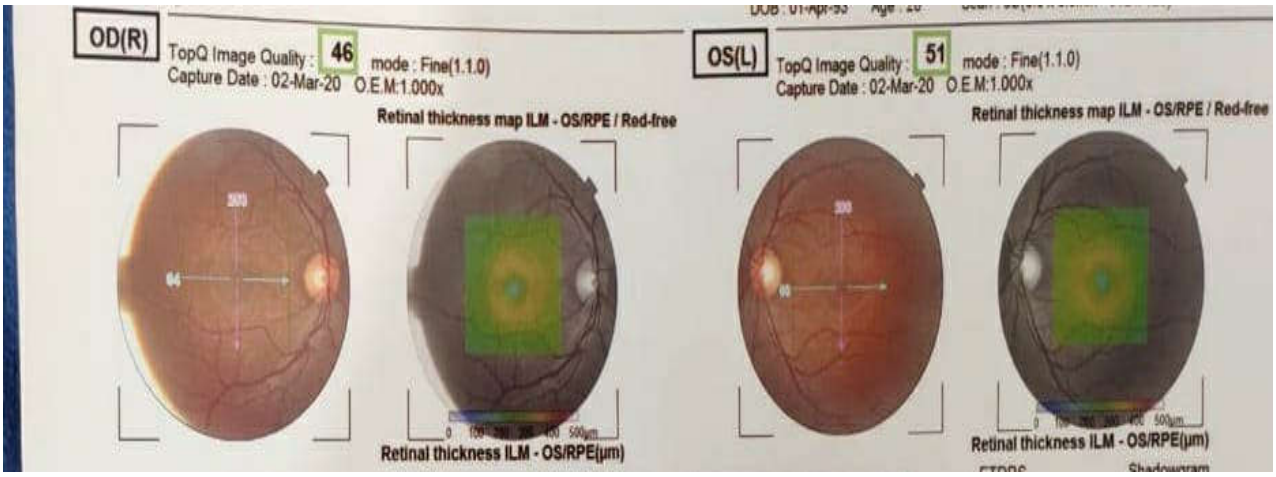

Figure 1(a) Fundus picture showing yellow lesion

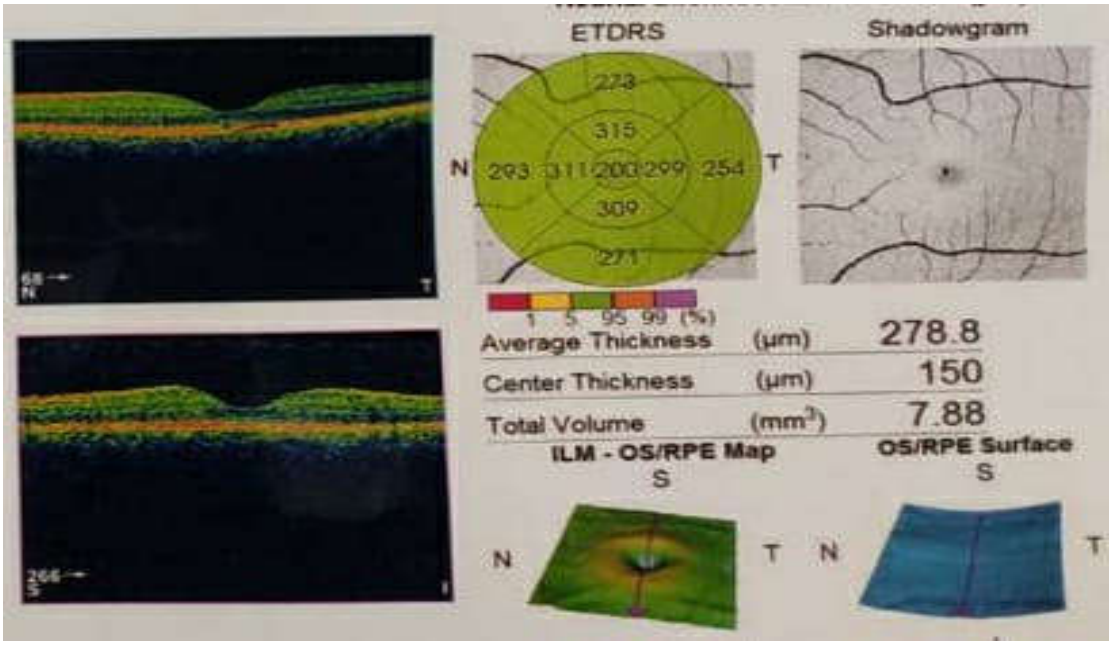

Figure 1(b) Optical coherence tomography of left eye showing hyporeflective space in the outer retina at fovealcentre. There is disruption of inner and outer segment junction

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 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.[6] Raiet al.[11] reported that only 51% of subjects affected by solar retinopathy referred to a sun-gazing history. These patients represent more of a diagnostic challenge. Brue et al[12] reported the increased foveal rod-shaped full-thickness reflectivity in their cases, that was seen the day after the solar radiation exposure, considered this as a very early stage and severe form of solar maculopathy.They also reported multifactorial pathogenesis of solar retinopathy, and synergetic effectiveness of the use of SD-OCT and FAF to establish the diagnosis of solar retinopathy in its relatively subtle manifestations.In 2000, Bechmann et al [13] were the first to report OCT images showing retinal structural changes in solar retinopathy. They revealed a hyporeflective area at the fovea and all overlying retinal layers were affected.

In our case, there was disruption of IS OS junction at fovea and hyporeflective area at the fovea. Therefore, in solar retinopathy, the OCT appearance of retinal defect may vary, depending on the severity of damage, but provides evidence of destruction of the outer retinal layers.[13]

Conclusion

Observing a solar eclipse can cause permanent damage. So it is advisable to wear protective eye glasses. It can be prevented through public awareness and education.

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