

Solar retinopathy: a case report

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ABSTRACT

A young woman presented with a history of poor vision both eyes after staring at the sun for approximately 5 minutes during a religious pilgrimage. Her vision was 6/12 at presentation. Fundoscopy revealed bilateral yellow spots on the macula. Optical Coherence Tomography (OCT) scans revealed bilateral Retinal Pigment Epithelium (RPE) damage. The patient was managed conservatively with full recovery of vision in 8 months.

Key words: Solar keratopathy, Eclipse keratopathy

INTRODUCTION

Solar retinopathy is a rare form of macular damage that occurs after intense exposure to solar radiation. It has been reported in many situations including solar eclipse viewing, religious sun-gazing and sunbathing. It has also been reported in some psychiatric disorders and psychotropic drugs¹. Most cases of solar retinopathy resolve without intervention even though some treatment options like oral steroids have been tried.

CASE REPORT

A 29 year old female patient presented with complaints of poor vision both eyes for 2 weeks. She reported that the blurring of vision started after she stared at the sun for a period of about 5 minutes during religious pilgrimage in the Rift Valley town of Subukia, Kenya. She had no associated eye pain, tearing or headache. She did not have a history of any chronic diseases.

On examination her best corrected visual acuity was 6/12 both eyes. The anterior segment was normal and the pupils were round with a normal reaction to light. On dilated fundoscopy, each eye had a small yellow spot at the fovea. The optic discs and the rest of the retina were normal (Figure 1).

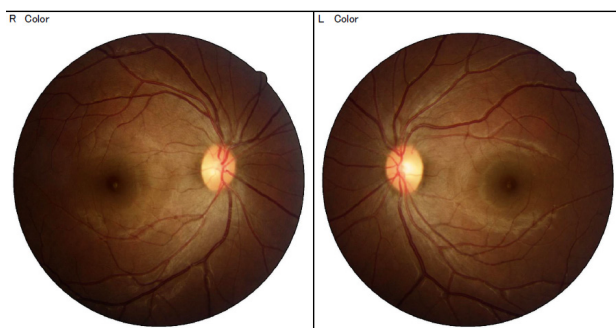


Figure 1: Fundus photos

Optical Coherence Tomography (OCT) scans done of both fovea showed increased reflectivity in the outer retinal layers and RPE defects especially for the right eye (Figures 2 and 3).

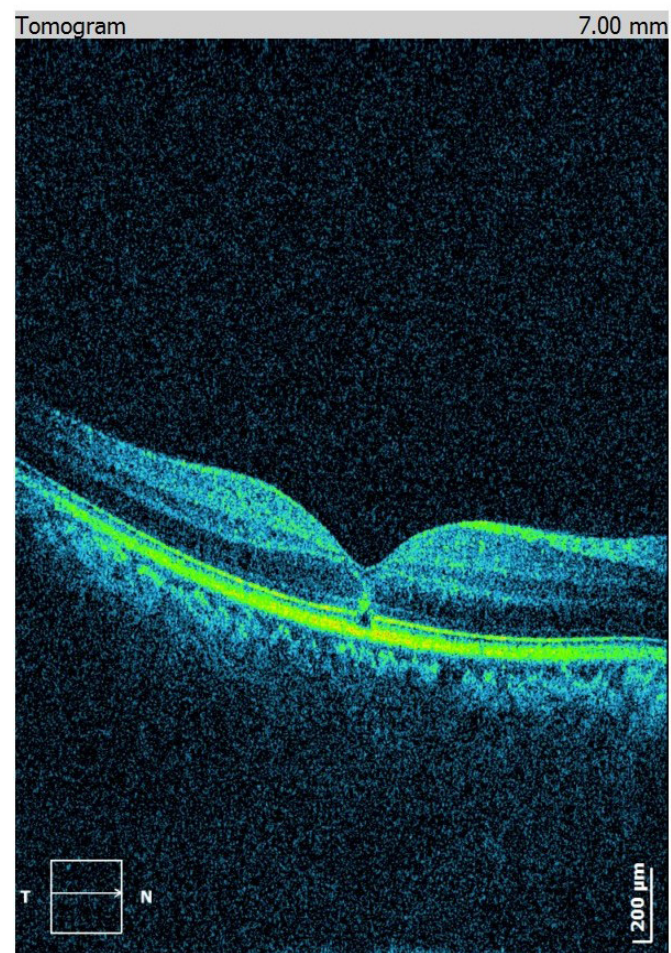
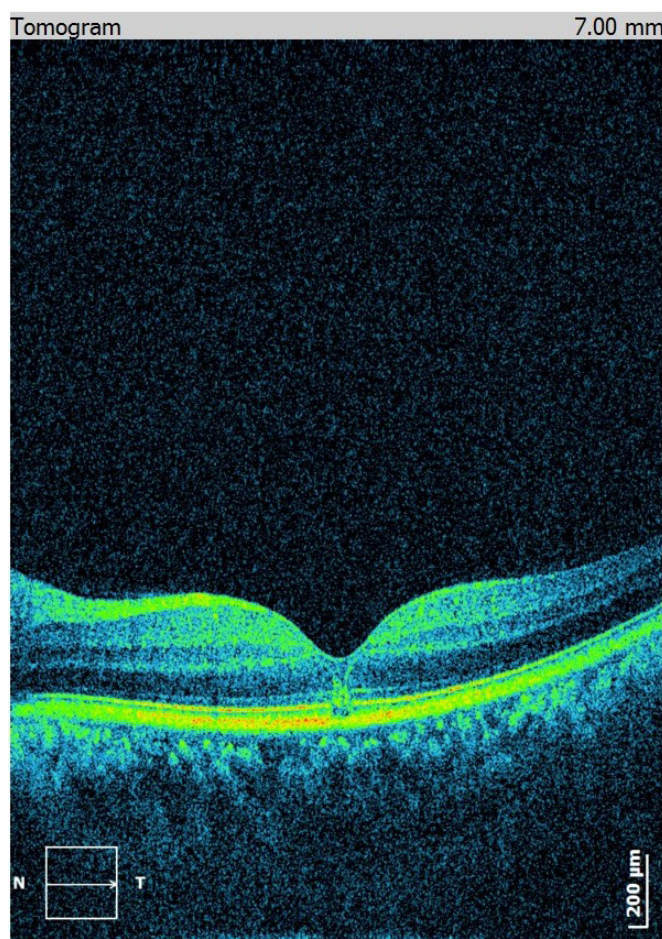


Figure 2: OCT right eye



	Central field thickness	Volume	Average thickness
ILM - IS/OS	183 μm	12.02 mm^3	245 μm

Figure 3: OCT left eye

A diagnosis of solar retinopathy was made. The patient was reassured and treated conservatively. She was followed up routinely and her vision improved gradually. She recovered full vision of 6/6 both eyes 8 months after presentation.

DISCUSSION

Ability of light to enact damage on the neurosensory retina and underlying structures has been well understood for hundreds of years². Photoc retinopathy is a nonspecific term that refers to light induced retinal damage³. Direct solar observation through a 3mm pupil produces a 4 degree temperature rise. 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 spectrum⁴. Sustained solar viewing over 90 seconds through a constricted pupil exceeds the threshold for photochemical retinal damage.

It typically produces a yellow-white spot lesion with surrounding gray zone at the fovea. The spot fades and may be replaced by a reddish spot with a pigment halo several days later. 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 photoreceptors⁵. The visual prognosis of solar retinopathy is generally favorable, and in most cases the visual loss is reversible. Some cases of permanent visual impairment or persisted central scotomas have been reported⁷. 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. This patient managed to regain her vision in 8 months with conservative treatment. The role of education as a preventive measure cannot be overemphasized. Appropriate protective measures when viewing an eclipse and education about the hazards of direct sun-gazing remain the best preventive measures for this condition.

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