Solar retinopathy in Benin City, Nigeria

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Summary

The case reports of three patients who were seen at the University of Benin Teaching Hospital Benin City with a diagnosis of solar maculopathy are presented. There was good visual recovery in two of the patients. This report shows the effect on the retina of direct sun gazing. The need to use protective filters is emphasized.

Keywords: ***Solar retinopathy, Sun gazing, Maculopathy, Benin City.***

Résumé

Il s'agit d'un rapport des cas de trois patients qui étaient à l'université de la cité de benin, avec un diagnostic d'une maculopathie solaire. Il y avait une bonne guérison visuelle chez deux de ces patients. Ce rapport démontre l'effet d'un regard direct du soleil sur la rétine. Nous tenons conseiller le grand public nigerian d'entreprendre un enseignement sanitaire basé sur le danger du regard direct du soleil sur les yeux. Nous tennons à attirer l'attention sur le besoin de utiliser les lunettes protectrices.

Introduction

Solar retinopathy, eclipse burns or foveo-macular retinitis refers to a condition that can result from focusing the eyes on the sun and usually occurs in some patients following viewing an eclipse, direct sun gazing by sunbathers malingerers, look-outs or schizophrenics, naval personnel and soldiers in the Army[1-3]. It may occur as part of a religious practise[4] and in LSD (lysergenic diethylamide) users[5,6]. It has been known since ancient times[1,7] and it has been suggested that the temporary blindness of the biblical Saul of Tarsus was as a result of solar retinopathy. Symptoms include central scotomas, blurred vision, headache, metamorphopsia and chromatopsia[1,4,5]. Visual acuity decreases to between 6/12 to 6/60 or less, but may be as low as counting finger[1,5]. The natural course of solar retinopathy is to show resolution and visual improvement within a period of three to six months[3,4] but patients often complain of permanent minute scotoma[8] and permanent visual loss has been reported in some patients[1,4].

Three patients seen at the University of Benin Teaching Hospital, Benin City with a diagnosis of solar retinopathy are described in this report. There has been no previous report of this condition in Benin City, Nigeria and the aim of this report is to create an awareness of the existence of this problem among Nigerians and to educate the public on the dangers of sun gazing and the need to wear protective devices.

Case reports

Case 1

R. O., a twenty eight-year-old female presented in the eye clinic in June 1998 with a five-day history of headache, blurred vision in both eyes, inability to see faces clearly and seeing haloes around objects. These symptoms started after a praying session (religious worship) during which she gazed at the sun, to see the different phenomena associated with such a praying session such as spinning, jumping and tilting of the sun etc. On examination, the visual acuity was 6/18 in the right eye and 6/24 in the left eye. The near vision was N10. The anterior segment was normal and fundoscopy revealed a red lesion in the fovea and bilateral macular oedema. A diagnosis of bilateral solar retinopathy was made and patient was treated with prednisolone tablets 30mg daily for five days, which was then gradually reduced over a two-week period. The visual acuity improved to 6/6 over a period of two months with no residual damage to the macula.

Case 2

S. A., a forty-five-year-old male was first seen in the eye clinic in June 2000 with a two-month history of blurred vision and inability to read small prints. He gave a history of being a psychotic (? depression) and that he enjoys looking at the sun (sun gazing). The acute loss of vision started after a visit to Northern Nigeria during which he did a lot of sun gazing. On examination, the visual acuity was 6/12 in the right eye and 6/18 in the left eye. The near vision was N18. the anterior segment was normal, but fundoscopy revealed bilateral macula oedema with loss of foveal reflex. He was treated with non steroidal anti-inflammatory drugs (indomethacin) and vitamins B complex, A and C. He had complete visual recovery six weeks later with a visual acuity of 6/5 in either eye. His near vision was N5 with presbyopic correction. The macula was no longer oedematous, but there was still no foveal reflex.

Case 3

A twenty six year old female A. O. presented in the eye clinic in June 2000 with a two month history of blurred vision, haloes around objects and flashes of light. These symptoms started suddenly after the patient gazed at the sun when watching a flying object. She saw a sudden flash and the vision became blurred. On examination, the visual acuity was hand movement close to face in the right eye and 6/9 in the left eye. The near vision was N6 in the left eye. The right eye was amblyopic due to congenital cataract. Fundoscopy of the left eye revealed a normal disc and a pigmented lesion in the macula with a white refractile centre. The vision in the left eye was good before she gazed at the sun and there was no sign of posterior uveitis or the typical chorioretinal scar with satellite lesions of toxoplasmosis. The patient was treated with vitamin C and indomethacin but there was no significant improvement in vision four months later and the pigmentary lesion is still present in the macula.

Discussion

Different cases of eclipse burns (solar retinopathy) have been reported over the years following different eclipses[1]. Most cases are bilateral[1] as seen in the cases reported here, unilateral cases occur only in the right eye, which is the dominant eye during observation[1]. The lesion is frequently found in young people due to the high transmissibility of the lens[1], and as in

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this report, two of the patients were young. Solar retinopathy has been associated with the use of hallucinogenic drugs especially LSD users[5,6] and schizophrenics[9]. It is thus not surprising that one of the patients (case 2) in this report has a history of psychiatric illness although he did not use LSD.

The typical solar retinopathy is characterised by a small reddish sharply circumscribed depression in the foveal area associated with macula oedema and pigmentation[3,10]. This may be followed by permanent pigmentation[3]. The histological changes affect mainly the outer part of the retina as a result of the heating of the pigment epithelium following the absorption by it of infra red rays. Structural examination of the photoreceptor cells particularly the retinal pigment epithelial cells in the fovea and parafovea showed degenerative changes[10]. The good visual prognosis in solar retinopathy was attributed to the resistance of the foveal cone cells to photochemical damage[1]. In the majority of cases the vision improves within the first one or two months and recovery of visual acuity to 6/6 in about 50% of cases, independent of treatment with steroids or protective spectacles, have been reported[11]. The visual defect in the others may be up to 6/60 and there may be a central area of scotoma[11]. Eighty percent of the patients with solar retinopathy in the report from Nepal had a visual acuity of 6/12 or better[12].

Severe damage to the macula region may be caused by deliberately observing the sun[1]. The duration of exposure is often difficult to determine but in general more severe damage results from determined constant fixation than from intermittent observation[1]. The solar retinopathy which one of our patients (case 1) developed during a religious worship is similar to that reported in persons on a religious pilgrimage to Yugoslavia[4]. The complete recovery of vision in two of our patients is not surprising, as this is the expected outcome in solar retinopathy irrespective of treatment. The persistent scotoma and poor vision in the third patient is sad and is as a result of the severity of the damage to the macula. This is further complicated by the fact that the patient's other eye is amblyopic. She was investigated for other causes of maculopathy, but there was no evidence of any other cause such as toxoplasmosis.

We cannot provide fundus photographs of these cases because we do not have a fundus camera in Benin City. There is no doubt that fundus photographs would have been very useful in these cases, but we (the authors) decided to report the cases to increase the awareness of ophthalmologists in Nigeria about the existence of such cases.

The ophthalmologist in Nigeria should have a high index of suspicion about solar maculopathy being the cause of unexplained bilateral maculopathy in young people and careful history taking will usually elicit this fact. The use of welders' goggles should be recommended, as sunglasses do not protect against solar retinopathy. Commercially available solar filters have been found to have good absorption for visible light, ultraviolet light and infrared light and thus are safe for eclipse observation[13].

We (the authors) feel there is a need to report these cases to emphasize the potential for permanent visual loss after sun gazing (case 3) even in Nigerians and to increase the awareness of the ophthalmologist about the possibility of this diagnosis in patients with unexplained maculopathy. The natural course of solar retinopathy is to show resolution and visual improvement, but the use of anti-inflammatory drugs may hasten the recovery.

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