PHOTIC MACULOPATHY AND IRIS DAMAGE IN A PSYCHOTIC PATIENT

MACULOPATÍA SOLAR Y LESIONES DEL IRIS AUTOINDUCIDAS EN PACIENTE PSICÓTICO

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ABSTRACT

Case report: A 37-year-old psychotic patient inflicted injuries to his skin and eyes in the context of an interpretational delirium with aesthetic content. He used magnifying glasses to concentrate sunlight and suffered burns to his arms and face. In the eyes, these resulted in massive iridial atrophy with loss of the sphincteric function, photic maculopathy and peripheral retinal coagulation. The macular lesion resolved spontaneously although he did not recover visual acuity.
Discussion: This is the first reported case of ocular self-injury secondary to sunlight. It is also the first case reporting retinal photo-coagulative lesions secondary to sunlight *(Arch Soc Esp Oftalmol 2006; 81: 165-168).*

Key words: Photic maculopathy, self-injury, photocoagulation, psychotic disorders, oedipism.

RESUMEN

Caso clínico: Paciente varón de 37 años de edad, en tratamiento psiquiátrico por trastorno psicótico. En el transcurso de un delirio de interpretación no sistematizado y buscando un fin estético se autoindujo unas lesiones en la piel y los ojos. Utilizó lupas para concentrar los rayos solares desarrollando en la cara y los brazos quemaduras de segundo y tercer grado, y en los ojos una atrofia masiva del iris con pérdida de la función esfínter, maculopatía solar y fotocoagulación de la retina periférica. La lesión macular se resolvió espontáneamente aunque la agudeza visual no se recuperó.
Discusión: No se ha descrito hasta ahora ningún caso de daño solar autoinducido sin fin destructivo-purificativo, ni que presente lesiones fotocoagulativas de la retina.

Palabras clave: Maculopatía solar, daño autoinducido, fotocoagulación, paciente psicótico, edipismo.

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INTRODUCTION

Self-induced eye lesions are very uncommon. They usually appear in patients with known psychiatric pathology and are comprised within Oedipism. Solar maculopathy has been described in the context of watching solar eclipses, mystical/religious expressions (1), alcohol/ drug intoxications or mental disease. Among the latter, solar maculopathy has been associated to schizophrenia, bipolar disorder and abuse of drugs. However, there are no descriptions of cases with iris and retina lesions for aesthetic purposes. Typically, solar retinopathy develops due to photochemical and not thermomechanical mechanisms as in this case.

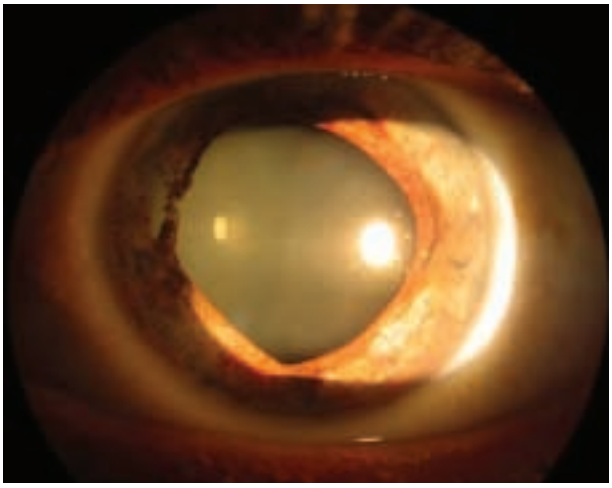

Fig. 1: Left eye biomicroscopy image showing macroscopic severe iris damage.

CLINICAL CASE

A 37-year old male patient in psychiatric treatment due to psychotic disorder, paranoid schizophrenia, brought to the practice due to loss of visual acuity. Anamnesis showed that in the context of a non-systematized interpretation delirium episode, that is, reading a book on iridiology, the patient interpreted that with sunlight he would be able to change the colour of his eyes, even though this was not stated in the book. The patient damaged both eyes concentrating sunrays with a magnifying glasses in several sessions to obtain an aesthetic change. In addition, he self-induced second and third degree burns on the face and arms in order to eliminate presumed cysts.

As a consequence of the patient's actions, the lesions in the eyes were as follows: massive irirs atrophy with destruction of the sphinteric function (figs. 1 and 2), solar maculopathy with abundant sub-retinal liquid in the macular area (figs. 3 and 4) and peripheral chorio retinal atrophy with pigment deposits, which is equivalent to photo-coagulative lesions (fig. 5). In a period of eight weeks the macular lesions resolved spontaneously, although the loss of visual acuity was permanent. The visual acuity was of 0.5 in the right eye and 0.6 in the left

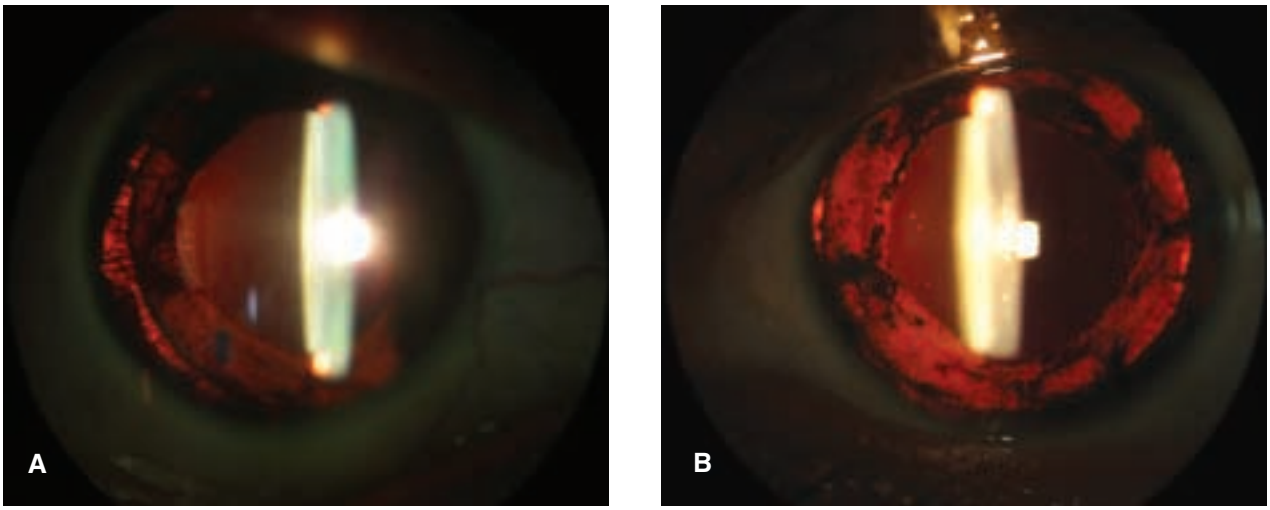

Fig. 2: Backlit biomicroscopy image. The marked atrophy of the iris clearly shows the anatomic limits of the lens and even the zonule filaments. a) Right eye detail, b) left eye detail.

Fig. 3: Right eye retinopathy. Solar maculopathy (foveal yellowish lesion) and abundant sub retinal liquid in the lower papillomacular region.

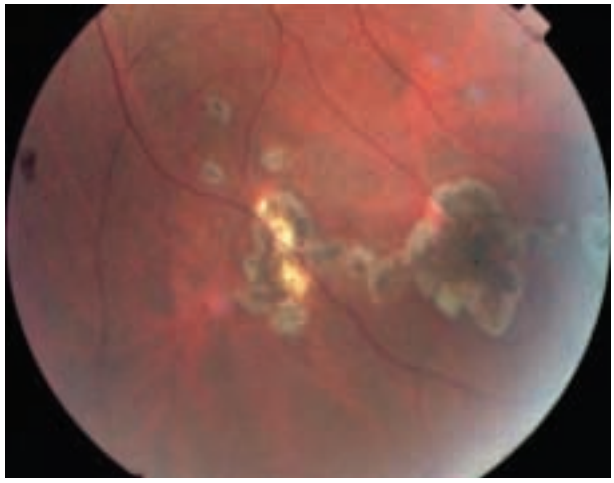

Fig. 5: Detail of the photocoagulation lesions localised in the lower peripheral retina of the left eye.

eye. The iris and peripheral retina lesions remained stable.

DISCUSSION

Ophthalmological self-induced lesions in psychotic patients has always been described in the context of a destructive or purifying action but never in pursuit of aesthetic changes such as modifying the pigmentation of the iris.

Fig. 4: Left eye retinopathy. Classic solar maculopathy and accumulation of smaller amounts of parafoveal subretinal liquid than in the opposite eye.

The retina's defence mechanisms against toxicity include the circadian rythm of photoreceptor pigments, xantophile of plexiform layers and melanine and antioxidants of the retina pigmentary epithelium (RPE). The natural protection elements are the motor reflex, eyebrows and eyelids which moderate the intensity of the light, and the cornea and the lens which moderate the light range.

Retinal damage caused by light can occur through three different mechanisms: 1) ablation damage, in which the tissue is fragmented or perforated; 2) thermomechanical, where the tissue is coagulated or distorted, and 3) photochemical, which intervenes in the photodynamic therapy or in solar retinopathy. In all three cases, the damage is cumulative. In the photochemical mechanism, when the lesion takes place due to a low level of light, the damage is regulated only by the photo pigments of the cones, whereas if it occurs due to a high level of light, both the PRE and the neuroretina are damaged. This is what happens in exposures to eclipses or welding-induced retinopathy. Vulnerability to damage is inversely proportional to the light wavelength. The damage is cumulative and it increases with the increase of partial oxygen pressure (because local retina damage is enhanced by free radicals) and also with the rise of body temperature.

In this case, the retina lesion is not only a typical solar maculopathy; when the iris sphincter deterioration occured (2) entailing the loss of the natural defence mechanism, the pupil remained in midria-

sis and therefore, at the same time, the intensity of irradiation was much greater. The intensity of the irradiation is also enhanced by the convergence power of magnifying glasses. Due to both mechanisms, the lesions are not only due to photochemical mechanism but also to a thermomechanical one, and this explains the photocoagulation lesions.

The macular lesion is not a classic solar maculopathy, the accumulation of subretinal liquid in the macular area probably also corresponds to a low intensity or brief exposure photocoagulation mechanism. Usually, the symptoms disappear gradually and spontaneously (3,4). The positive prognosis of visual acuity in this pathology is attributed to the resistance of the foveal cones against photochemical damage (5).

To determine the damage which has taken place, the duration and intensity of the light are important, as well as the spectrum and area of exposure, localization and anatomical predisposition of each individual. Solar retinopathy typically occurs due to photochemical damage, although in this case it also comprised a thermal or photocoagulation component. Photochemical lesions may be reverted, whereas thermal lesions produce photocoagulation which may develop retinal holes which are always permanent.

Assistance to improve the habits of patients suffering psychiatric diseases and a comprehensive treatment may improve the prognosis, thus avoiding the development of irreversible lesions.

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