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Sun Gazing Associated with the Use of LSD

It is recommended that drug usage and solar retinitis be considered in the diagnosis of teenage or young adult patients presenting with complaints of blurred vision, metamorphopsia, and central scotomas. The finding of a foveal "hole-like" lesion or "honeycombed" macula would support the diagnosis of solar retinitis and should prompt discreet and appropriate questions regarding drug abuse. Counseling directed toward the serious ocular effects of sun gazing would hopefully discourage repeated incidents.

The illegal and indiscriminate use of drugs solely for pleasure is a rapidly increasing problem among today's youth. Introduction to drugs stems from curiosity, "going along with the gang," or search for escape from everyday problems and struggles. Feelings of alienation from society and rejection of the "establishment" have led some young people to various forms of rebellion and antisocial behavior and to the evolution of the "hippie" subculture. A major health problem of this segment of the population involves a pattern of drug abuse.¹

The psychiatric and important medical complications consequent to the use of pleasure-giving drugs have been well

documented.¹⁻⁴ Only rarely do untoward reactions to LSD result in admissions to medical (rather than psychiatric) services, with trauma being the most frequent reason for nonpsychiatric admission.³

The purpose of this report is to direct attention to solar retinitis as a potentially serious indirect complication to the use of LSD.

Findings

In a previous study⁵ of sun gazing in military personnel, 9 patients associated the sun gazing episode either directly or indirectly to the use of LSD. These subjects form the basis of this present report.

All but 1 of the patients admitted to drug usage prior to induction into military service. The patients were all active duty enlisted men, none of whom admitted to the use of drugs during duty hours. Drug usage was limited to weekends, leaves, or, in 3 patients, while AWOL. The patients were examined by the Psychiatric Service and all were diagnosed as having character and behavior disorders.

Seven of the cases were bilateral and the 2 patients with unilateral solar retinitis were

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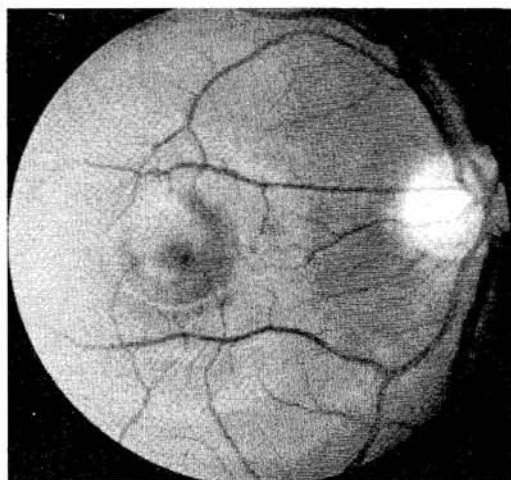


FIG 1. "Hole-like" lesion of the fovea 8 weeks after onset of symptoms in a patient who admitted to sun gazing during an LSD trip.

not aware that they had closed one eye while sun gazing. Patients with bilateral solar retinitis were followed from 3 to 18 months; those with unilateral lesions were lost to followup.

Four patients sun gazed while on an LSD "trip" and stated that: "a funnel led up to the sun"; "a voice told me to look at the sun"; "the sun seemed to give me a message." Two of these patients found that after numerous LSD trips they were "attracted to the sun like a magnet" and, by sun gazing without the use of drugs, they could initiate a "flashback" or simulate the effect of a trip. One patient referred to this practice as "tripping out on the sun." Another sun gazed during both LSD trips and flashbacks while 4 patients admitted to sun gazing only during a flashback. Since LSD produces a distorted sense of time, an estimation of the duration of sun gazing during a trip would not be valid. Patients not under the influence of LSD sun gazed from less than 1 min to intermittent gazing over a 20-min period.

Four patients were seen in the acute stage and treated with steroids; the remaining patients showed resolution of the acute lesions at the time of initial ocular examination. During the acute state a yellow foveal exudate was present, appearing deep within the retina. Within 10-14 days the exudate resolved and

11 eyes had a deep red "hole-like" lesion in the fovea, surrounded by a ring of pigment aggregation (Fig 1). A foveal reflex was present and examination with a contact lens revealed no break in the inner retinal layers of the macula. In 5 eyes (3 patients), depigmentation and pigmentary mobilization in the foveal area were noted in the late stage. This lesion gave a mottled or "honeycombed" appearance to the macula with a dispersed light reflex. Patients with a honeycombed macular area admitted to repeated sun gazing.

Discussion

Lysergic acid diethylamide (LSD) is the popular member of the hallucinogenic or psychotomimetic group of drugs that reliably produce a state of altered perception, thought, and feeling. The variable experience of this fluid mental state is commonly known as a trip and includes a heightening of any sensory input with an enhanced sense of clarity but a diminished control over what is being experienced.⁴ Flashbacks, on the other hand, are simply trips without drugs. They may persist for months after the last drug experience and are characterized by repeated intrusions of unpleasant images into awareness.⁶

In addition to the striking subjective somatic, perceptual, and psychic effects, LSD produces both sympathomimetic and parasympathomimetic actions which are centrally mediated.⁴ Physiologic effects of LSD ingestion include mydriasis, piloerection, hyperthermia, hyperreflexia, and occasional incoordination with high doses. Increased blood pressure and tachycardia are variable effects and are probably related to anxiety. The mydriasis persists about 12 hr,⁴ and Payne⁷ has reported a small but definite increase in the angle of convergence/accommodation ratios of healthy young males under the influence of LSD-25, presumably due to partial cycloplegia. The cycloplegia following LSD ingestion would be expected to make the drug user more susceptible to a severe burn of the retina while sun gaz-

ing, the usual protective miosis and ciliary spasm having been inhibited.

Why does sun gazing enhance an LSD trip or by itself produce an imagery experience that simulates a trip? It is known that drug users experiment with various means of promoting imagery experiences.⁶ In this regard, Horowitz⁸ has reexamined the hypothesis that the physical eye itself furnishes the material upon which visual hallucinations are based. From his studies he has suggested that entopic phenomena (vitreous floaters, Purkinje figures, and others), usually ignored, may provide a nidus that could be elaborated into illusions or hallucinations. To support his theory, he has shown that drawings and descriptions of entopic phenomena in normal volunteers were similar to the graphic productions or verbal descriptions of patients reporting visual hallucinations. Of interest is the fact that 1 of the patients in his study had visual hallucinations apparently exacerbated by a drug-induced central scotoma.

It is well known that vitreous opacities intrude upon consciousness due to the shadows they cast on the retina, and they are readily seen when a person looks at a bright surface such as the sky. Indeed, a patient with a lesion of the retina can outline a positive scotoma by looking upon a large bright surface.⁹ In ordinary illumination such shadows are vague and distorted and are usually ignored. Perhaps the variety of visual phenomena experienced by gazing into the sun provides a nidus around which visual hallucinations are elaborated. Drug users are known to be attracted to brightly colored moving lights in an indoor setting. Conceivably, the sun could furnish a similar visual stimulus in an outdoor environment.

As early as 1966 an editorial in *Military Medicine*¹⁰ warned of the potential danger of LSD and pointed out how drugs might undermine and impede the military mission. The cases reported herein would

seem to indicate that there has been an influx into the military service of youths who have already had drug experiences. Based on the comments of several patients it is apparent that sun gazing associated with LSD is by no means confined to the military environment and is probably more common in the drug community than is generally appreciated. It is obvious from the history of 1 patient with bilateral central scotomas that he was unaware that his ocular complaints were related to the sun gazing episode. He feared that he was on a "constant trip" since, whenever he concentrated his gaze on an object, "it seemed to disappear." This patient was extremely relieved to learn there was an organic basis for his problem and commented that many of his friends in the drug community complain of "spots before their eyes" and distorted images. Perhaps the ocular symptoms of blurred vision, distortion of spatial planes, changes in normal coloration, micropsia, and macropsia as reported by Horowitz⁶ in drug users during their periods "off" drugs have their basis in foveomacular lesions.

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