

Solar maculopathy and dissociative symptoms: a case report on a patient on buprenorphine opioid replacement therapy

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ABSTRACT

Solar maculopathy refers to thermal and photochemical macular damage caused by excessive exposure to light.¹ Risk factors include behaviour (eg welding, sunbathing), refraction, pupillary size and clarity of ocular media.² Drugs, both prescribed and recreational, can contribute to solar maculopathy through analgesic, photosensitization and psychiatric effects.² We report a case of solar retinopathy associated with a brief dissociative episode. Written informed consent was obtained from the participant.

A 38-year-old male was referred for ophthalmology assessment with reduced visual acuity and bilateral central scotoma. One week prior, he reported gazing toward the sun while listening to music. He reported “zoning out”, and looked toward the sun for around five minutes before regaining awareness. He then noticed immediate distortion of his central vision. Previous ocular history was unremarkable. Past medical history involved bipolar affective disorder (BPAD), currently well managed with aripiprazole, and previous opioid use disorder treated with buprenorphine. The participant reported a history of heroin use, but denied use of heroin, marijuana or other drugs for >6 months. A urinary drug screen was not performed. The participant denied intrusive daydreaming as being a prior issue, and was observed to maintain attention for an extended time during ophthalmological examination.

On examination, visual acuity was 6/18 (right) and 6/12 (left). Intraocular pressure was normal at 12mmHg (right) and 14mmHg (left). Pupil size/reactivity and extra-ocular muscle function was normal. Fundoscopy revealed an orange/red foveal spot surrounded by a ring of pigment, consistent with solar maculopathy (Figure 1A). Optical Coherence Tomography imaging revealed focal hyperreflective changes at the fovea and subfoveal retinal pigment epithelium (Figure 1B).

Treatment involved education regarding eye protection and counselling regarding the natural course of solar retinopathy. Spontaneous improvement is expected but residual visual deficit likely.

Discussion

Solar maculopathy is a well-established pathological process. This case is significant due to the dissociative episode contributing to the injury. Dissociative symptoms are defined in the DSM-V as the “disruption of and/or discontinuity in the normal integration of consciousness, memory, identity, emotion, perception, body representation, motor control, and behaviour”.³ These experiences exist on a continuum of severity; pathological dissociation can involve symptoms such as feelings of depersonalisation or out-of-body experiences, while non-pathological dissociation includes experiences such as daydreaming or becoming absorbed in a task.⁴ Dissociative symptoms have been associated with trauma, schizophrenia, substance use disorder and BPAD.⁴ Dissociation can also be induced chemically; dissociative anaesthetics such as ketamine induce dissociation via action on the NMDA receptor, while opioids can mimic psychogenic dissociation.^{5,6}

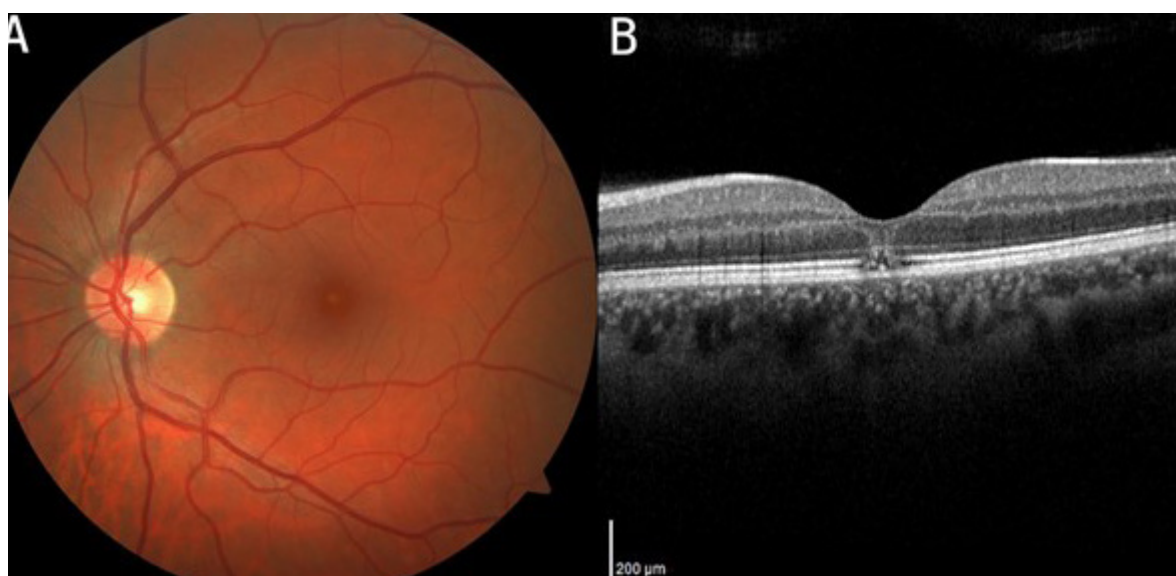
This case involves buprenorphine, a long-acting partial opioid agonist that can be used for analgesia and in opioid replacement. In opioid replacement therapy, buprenorphine acts on mu receptors to reduce cravings and prevent withdrawal symptoms.⁷ A recent study demonstrated increased frequency of dissociative symptoms in patients with substance use disorder treated with buprenorphine, compared with those treated with either methadone or naltrexone.⁴ Buprenorphine may also increase risk of solar maculopathy

through analgesic effects, by masking discomfort usually induced by looking toward the sun.²

Substance use and psychiatric disorders have previously been associated with solar maculopathy, independent of dissociative symptoms. In the case of psychiatric disorders, this association has traditionally been related to deliberate self-harm or disease driven sungazing.⁸ Solar maculopathy has been associated with hallucinogens, such as Lysergic acid diethylamide (LSD) and methylenedioxymethamphetamine (MDMA).^{9,10} In contrast

to these previous reports, our case lacks an intentional component, consistent more with a dissociative episode than a delusion or self-harm driven act. To our knowledge, an association between dissociative episodes and solar maculopathy has not been previously explored in the literature. It is possible that patients with risk factors for dissociative symptoms are at increased risk of solar maculopathy, and should be counselled regarding adequate eye protection.

Figure 1: Fundus photograph and Optical Coherence Tomography (OCT) scan demonstrating solar maculopathy.



A: Left fundus photograph demonstrating orange/red spot at fovea with surrounding pigmentation.

B: Coherence Left macula OCT scan demonstrating hyperreflective changes at the fovea and subfoveal retinal pigmented epithelium.

COMPETING INTERESTS

Nil.

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