



Sneeze and burn: Macular scars secondary to sun- and laser beam-staring to induce photic sneeze reflex

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1. Case report

A 12-year-old boy presented with painless, bilateral vision loss for at least one year. Medical history was significant for conduct disorder and attention deficit with hyperactivity disorder treated with guanfacine, dextroamphetamine-amphetamine, clonidine, and psychotherapy. None of these medications have been reported to increase macular sensitivity to light. He had a strong photic sneeze reflex, and he stated that if he felt a tickle in his nose, he would look at the sun or a laser cat toy to induce sneezing. The laser cat toy was a red laser pointer purchased online. He reported numerous attempts to elicit sneezing over an 8-year period. His visual acuity was 20/30 and 20/40 in the right and left eyes, respectively. Slit lamp biomicroscopy and intraocular pressures were normal in each eye. Fundus examination revealed bilateral, well-circumscribed ovoid atrophic scars, each with central hyperpigmentation and a ring of hypopigmentation, in the foveal region (Fig. 1A and B). Optical coherence tomography of both eyes showed subfoveal focal disruption of the photoreceptor outer segments with absence of the interdigitation and ellipsoid zones. There were bilateral central choroidal hyper-transmission defects associated with this outer retina loss and mild disruption of the retinal pigment epithelium (Fig. 1C and D). Visual field testing was attempted, but unreliable.

2. Discussion

Sun- and laser-staring can lead to significant maculopathy, typically with poor visual recovery. The photic sneeze reflex, a fairly common involuntary sneezing reflex upon exposure to bright light, occurs in approximately 1 in 4 individuals. The cause of photic sneezing is not well understood; it has been hypothesized that hyperexcitability of the visual cortex follows exposure to light, leading to stronger activation of the parts of the brain that control the sneeze reflex. Additionally, a familial disposition has been observed. There is limited literature

describing this phenomenon, but our case seems to be in concordance with previous reports.¹⁻³ It is typically considered a mere nuisance, but it can be potentially hazardous. In our patient with a conduct disorder, attempts at eliciting the photic sneeze reflex resulted in permanent vision loss. Children with psychiatric disorders are at risk for self-inflicted injuries of the eyes, such as penetrating eye injuries, and the behavioral health diagnoses in our patient likely contributed to his injury.

3. Conclusion

This report demonstrates that a child with a photic sneeze reflex may intentionally trigger sneezing with light exposure; such behavior may be more frequent in patients with an underlying psychiatric condition. This case also highlights the importance of eliciting history of sun- and laser-staring in patients with unexplained maculopathy and revealing the root cause of the behavior so that it can be prevented.

Authorship

All authors attest that they meet the current ICMJE criteria for authorship.

Patient consent

Institution review board deemed the case report exempt, and there are no patient identifiers in the manuscript nor in the images published.

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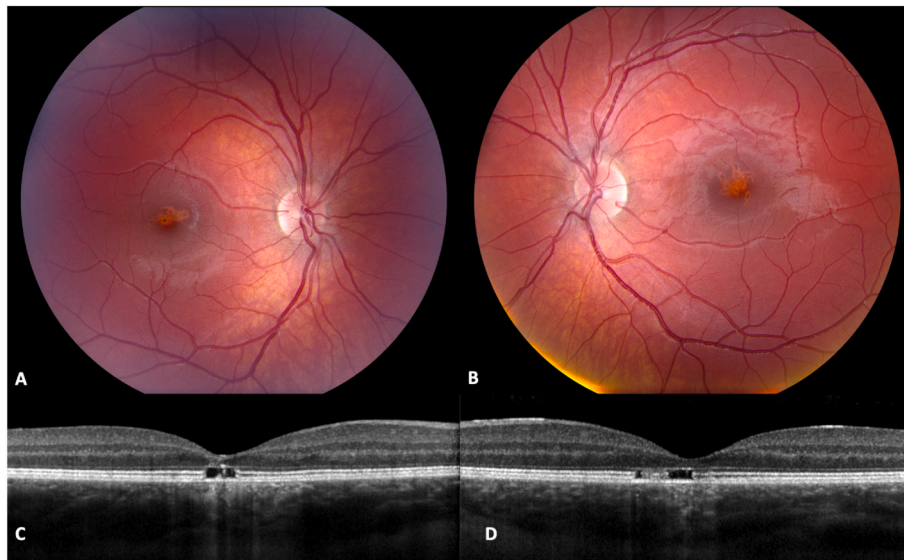


Fig. 1. Bilateral macular scars in a child with sun- and laser beam-staring behaviors. A-B. Color fundus photography of the right (A) and left (B) eyes demonstrate well-circumscribed ovoid atrophic scars with central hyperpigmentation and rings of hypopigmentation in the foveal regions. C-D. Optical coherence tomography of the right (C) and left (D) eyes showing subfoveal focal disruption of the photoreceptor outer segments with absence of interdigitation and ellipsoid zones and bilateral central choroidal hypertransmission defects associated with the outer retina loss and mild disruption of the retinal pigment epithelium. (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

CRedit authorship contribution statement

Reilly A. Coombs: Writing – review & editing, Writing – original draft, Methodology, Investigation, Data curation, Conceptualization. **Brittini A. Scruggs:** Writing – review & editing, Writing – original draft, Visualization, Supervision, Methodology, Investigation, Data curation, Conceptualization. **Sasha A. Mansukhani:** Writing – review & editing, Writing – original draft, Visualization, Supervision, Resources, Methodology, Investigation, Data curation, Conceptualization.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Dr. Scruggs is a consultant for Genentech and Iveric Bio.

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