Bilateral Ocular Injury From Lightning Strike

Fig. 1. A. (Right eye) and (B) (Left eye). Wide-angle fundus imaging shows disc pallor, extensive bilateral, central chorioretinal scarring, and massive pigment migration that presented within months of the original injury.

Although lightning strike injury is rare, more than half of victims suffer some form of ophthalmic injury.¹ We present photo documentation of the most severe case of bilateral lightning strike eye injury thus far reported.

A 58-year-old man presented four decades after a lightning strike injury to both eyes at age 18.

The left eye ultimately lost all light perception. The right eye regained 20/25 visual acuity after cataract extraction and limited peripheral vision sufficient for him to be a licensed driver for decades. During the past year, however, the patient reported a gradual decrease in visual acuity in the right eye.

Examination showed bilateral aphakia, marked optic disc pallor in both eyes, and severe bilateral choroidal atrophy of the posterior pole. The right eye had a peripapillary choroidal scar, barely extending subfoveal, with visual acuity of 20/80 and an atrophic central fovea measuring 148 μm in thickness by optical coherence tomography (Figure 1A). In the (NLP)

left eye, the choroidal scar extended diagonally from the inferonasal periphery through the macula into the superotemporal periphery (Figure 1B).

Previous studies show optical coherence tomography and/or fundus images of lightning injury to the posterior segment, but this is the first reported case of ultra-widefield imaging of such extensive choroidal damage.^{2,3} These lesions apparently result from thermal injury when heavy melanin content in the central fundus resists tissue electrical currents set up by lightning strikes.

Images taken within months after the injury showed similar, heavily pigmented lesions. Late deterioration of right eye foveal function is explainable by the phenomena of subfoveal “pigment creep.”⁴ The “flash-over” effect of lightning transmission along the body’s surface is often protective of deeper organs, but a tendency for orbital current penetration and ischemic damage to neural tissue accounts for the high percentage of ocular injury.⁵

Key words: lightning strike, eye injury, ocular trauma, choroidal atrophy.

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