



Flying Down the Railroad Tracks

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Introduction:

A healthy 8-year-old boy was referred with a gradual history of blurred vision in the right eye. The patient's review of systems was unremarkable. He lives in rural Missouri and enjoys hunting squirrels, rabbits, and raccoons with his older brother.

His acuity was 20/200 in the right eye and 20/20 in the left. Intraocular pressure was within normal limits. No afferent pupillary defect was noted. The anterior segments were normal and the vitreous was clear bilaterally. In the right eye, there was a diffuse pigmentary retinopathy with numerous linear chorioretinal scars throughout the mid and far periphery (Figure 1). The posterior segment of the fellow eye was normal.

Discussion:

Given the patient's social history and characteristic findings on exam, the presumptive diagnosis is ophthalmomyiasis. Ophthalmomyiasis is an ocular infection mediated by botfly larvae. These maggots most often invade the ocular surface (ophthalmomyiasis externa) and less

often invade the eye (ophthalmomyiasis interna). There are several types of flies that have been implicated, all belonging to the order Diptera. Most species are obligate parasites with cows, sheep, rabbits, and rodents are natural hosts. Humans can be infected by deposition of eggs onto the conjunctiva with eventual penetration of larvae into the eye. The cephaloskeleton and the proteolytic enzymes secreted by these larva allow for direct intraocular invasion into and through ocular surface. Rarely, the maggot may migrate for months through its human host before gaining intraocular access via a hematogenous route and optic nerve.

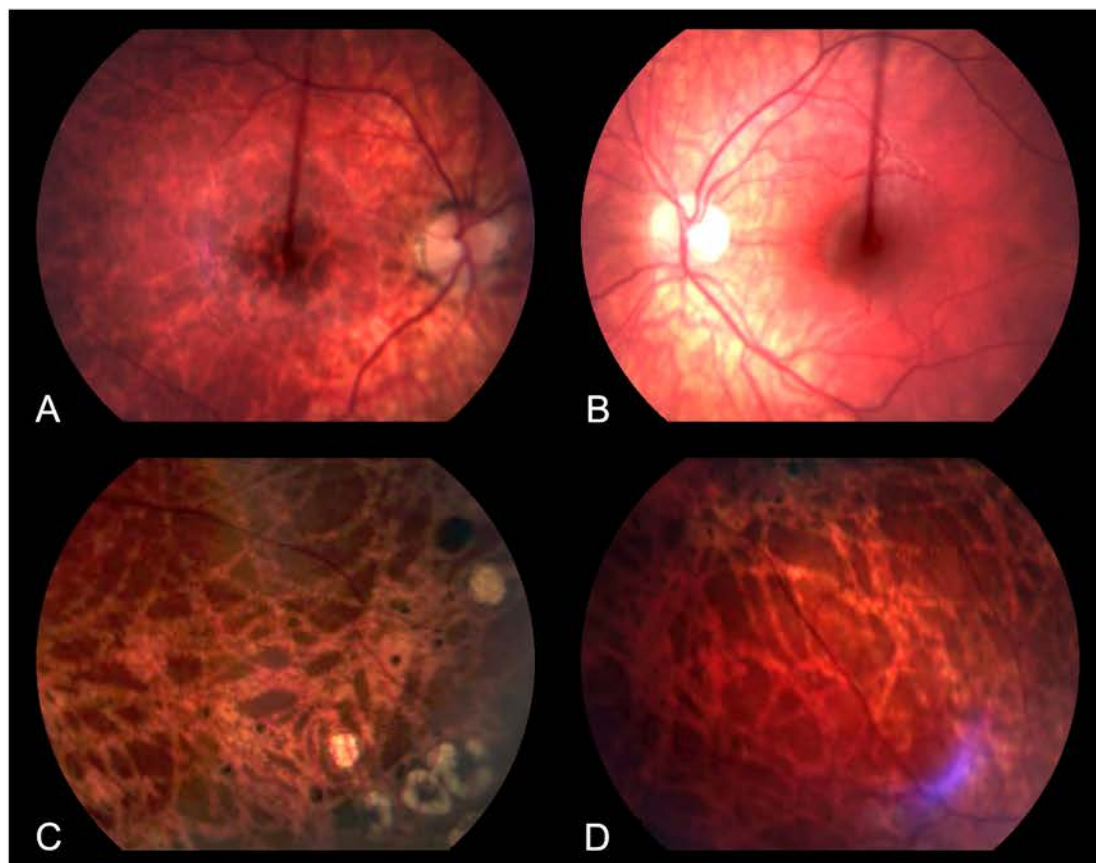


Figure 1. A,C,D – Color fundus photos of the left eye, there was a diffuse pigmentary retinopathy with numerous linear chorioretinal scars throughout the mid and far periphery; 1B – Normal color fundus photo of the right eye.

Presentation on ophthalmomyiasis is usually unilateral, but bilateral presentation is possible. Ophthalmomyiasis externa presents as a follicular conjunctivitis/keratitis. Interna ophthalmomyiasis is often asymptomatic early. If the maggot invades the sensory retina, its migration leaves linear scars – railroad tracks – in the RPE (Figure 1). Visualization of a single, motile, semi-translucent larvae secures the diagnosis. The larvae may migrate between the anterior and posterior chamber and the subretinal space. The organism may exit the eye entirely leaving its signature railroad tracks in its wake. While the larvae migrates, the subretinal mechanical damage to the RPE results in multiple crossing tracks. Optic neuropathy, retinal hemorrhage, and retinal detachment are rare complications.

Removing visible larvae from the ocular surface cures ophthalmomyiasis externa. Optimal treatment of ophthalmomyiasis interna is uncertain. Larvae dead or alive may be well tolerated and observed. Active mobile larvae have been successfully treated with laser. However, some attempts have been complicated by severe uveitis. Most efforts to remove the larvae surgically have been successful, but may be accompanied by predictable complications as retinal detachment, hemorrhage, cataract, and endophthalmitis.



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