

# Letters

## OBSERVATION

### ***Strongyloides stercoralis* Choroiditis**

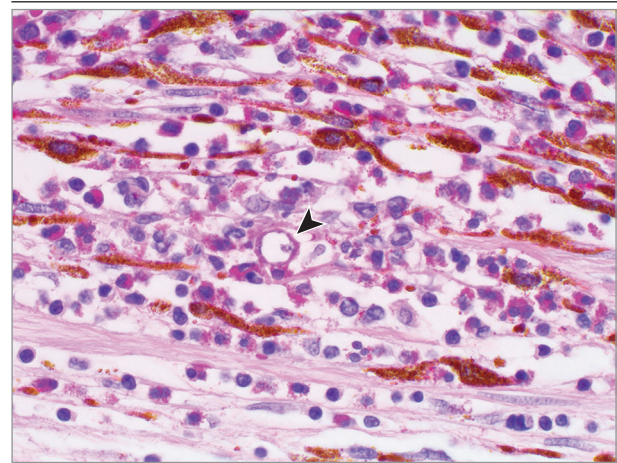
*Strongyloides stercoralis* is a soil-transmitted nematode parasite globally indigenous to subtropical and tropical regions, including the southern and southeastern US.<sup>1</sup> Infection may occur in developed countries, especially in those living in endemic areas or following travel to endemic areas.<sup>2</sup>

The *S stercoralis* life cycle includes both free-living and parasitic stages.<sup>1</sup> Human infection occurs when filariform larvae penetrate the intact skin of a host and migrate through the vasculature to the lungs, where they penetrate the alveolar spaces, migrate up the bronchial tree, and are swallowed. Then, larvae penetrate the small intestinal mucosa, mature, and lay eggs.<sup>1,2</sup> Some rhabditiform larvae that hatch are shed in the stool, while others mature into filariform larvae in the host's colon and may cause autoinfection by penetrating the intestinal mucosa or perianal skin.<sup>1</sup> *S stercoralis* autoinfection may cause chronic, low-intensity, asymptomatic infection,<sup>1,2</sup> but about one-third of infected immunocompetent individuals develop "varying degrees of hunger pains, cramping, intermittent diarrhea and constipation, and may have mild anemia, weight loss, and leukocytosis with hypereosinophilia."<sup>3</sup> Immunosuppression, most often from corticosteroid administration, may result in hyperinfection, sometimes with the dissemination of parasites outside the skin, gastrointestinal tract, and lungs.<sup>1,2</sup> There is a singular case of ocular *Strongyloides* species (*spp*) infection in a corn snake<sup>4</sup> but no records of ocular involvement by *Strongyloides spp* in a human.<sup>3</sup> Here, we present a case of *S stercoralis* choroiditis in an adult human.

**Report of a Case** | An individual around 60 years old living in a rural area in the southeastern US was hospitalized because of altered mental status, fever, flaccid paralysis of all extremities, and respiratory failure with lower lobe nodules and a left lower lobe infiltrate. They had a history of porphyria with polyneuropathy, alcohol use disorder, and a recent diagnosis of hyper-IgE syndrome, for which they received oral prednisone before admission to the hospital. Bronchoalveolar lavage revealed *S stercoralis*, *Aspergillus fumigatus*, *Candida spp*, and *Pseudomonas aeruginosa*. They were treated with broad-spectrum antimicrobials but remained neurologically vegetative until their death. An autopsy revealed disseminated aspergillosis and candidiasis without ocular involvement and disseminated strongyloidiasis involving the lungs, liver, pancreas, colon, appendix, and kidneys, with numerous parasites accompanied by lymphocytes, plasma cells, macrophages, and numerous eosinophils. The posterior choroid of the right eye had a focal eosinophil-rich inflammatory infiltrate with a cross-section of a possible degenerating larva<sup>5</sup> (Figure 1) and a coiled, incompletely sectioned *S stercoralis* filariform larva in a medium-caliber choroidal artery (Figure 2). The posteronasal left choroid had a focal eosinophil-rich inflammatory infiltrate, but no larvae were identified.

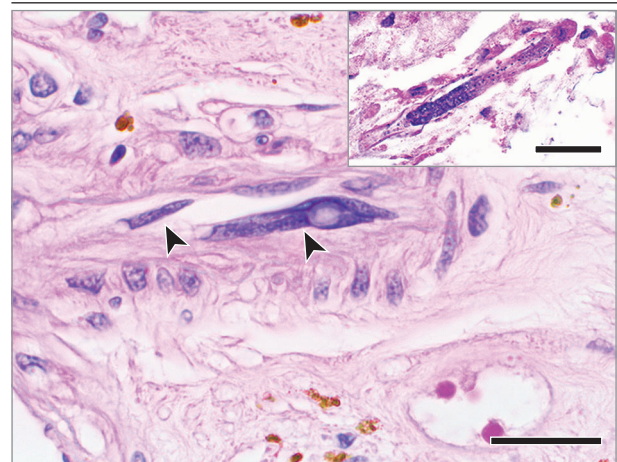
**Discussion** | A review of the literature using PubMed and Google Scholar using the search words "strongyloides" or "nematode" and "eye," "choroid," "uvea," "choroiditis," "uveitis," or "endophthalmitis" did not disclose any examples of human ocular manifestations of *S stercoralis* infection. Wilder<sup>5</sup> reported the histopathological findings of 24 eyes from children with unilateral nematode endophthalmitis, most of whom resided in the southeastern US. Nematodes or hyaline capsules (putative degenerating larvae) were found in the neurosensory retina surrounded by eosinophilic abscesses, but

Figure 1. Posterotemporal Choroid of the Right Eye



A focal eosinophil-rich inflammatory infiltrate with a cross-section of a possible degenerating larva (arrowhead) was in the posterotemporal choroid of the right eye (bar = 10  $\mu$ m).

Figure 2. Posteronasal Choroid of the Right Eye



A coiled, incompletely sectioned *Strongyloides stercoralis* filariform larva (arrowheads) was within a medium-caliber artery in the posteronasal choroid of the right eye (bar = 10  $\mu$ m). The inset shows a complete filariform larva in the lung (bar = 25  $\mu$ m).

Wilder postulated that the larvae reached the retina through invasion from choroidal blood vessels. A total of 9 eyes had well-preserved larvae deemed third-stage hookworm larvae, now attributed to *Toxocara spp*,<sup>6</sup> and Wilder speculated that other nematodes, such as *Strongyloides spp*, may cause endophthalmitis.<sup>5</sup> McGavic, in discussing Wilder's article, remarked that during World War II, he usually found intestinal parasites in nonallergic soldiers with eosinophilia of over 6% and further said that "Although some of these soldiers also had choroiditis, the possible causal relationship did not occur to us."<sup>5</sup> McGavic's comments suggest that clinical examination of patients with *S stercoralis* hyperinfection will likely uncover additional examples of uveitis caused by this nematode.

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**Conflict of Interest Disclosures:** None reported.

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