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Disseminated strongyloidiasis complicated by alveolar hemorrhage, meningitis, and septic shock treated with albendazole and subcutaneous ivermectin



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ABSTRACT

The case of a patient with disseminated strongyloidiasis following chemotherapy for lymphoplasmacytic lymphoma is presented.

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A 59-year-old man with lymphoplasmacytic lymphoma on chemotherapy, presented with a 1-day history of fever, somnolence, and dyspnea. He was hypotensive, tachycardic, and tachypneic. Physical examination revealed an obtunded man with nuchal rigidity, bibasilar crackles, and a peri-umbilical serpiginous and erythematous rash. His condition worsened, with the development of respiratory failure and septic shock. Bronchoscopy revealed extensive alveolar hemorrhage and *Strongyloides stercoralis* larvae (Figure 1). Cerebrospinal fluid (CSF) examination showed a single larva of *S. stercoralis* (Figure 2).

Blood cultures grew *Acinetobacter baumannii* and extended-spectrum beta-lactamase *Klebsiella pneumoniae*. Bronchoalveolar fluid and CSF culture (done on antibiotics) showed no growth. Along with antibiotic treatment for meningitis and polymicrobial bacteremia (meropenem 2 g intravenously every 8 h), the patient was initially treated with oral ivermectin (200 µg/kg/day via nasogastric tube). However, due to persistence of the larvae in the CSF and endotracheal secretions, treatment was transitioned 6

days later to veterinary subcutaneous ivermectin (200 µg/kg/day given in two divided doses, one in each arm, every 48 h) and albendazole (400 mg twice daily via nasogastric tube), resulting in parasitological cure and resolution of the septic shock, respiratory failure, and meningitis. Subcutaneous ivermectin was continued for 2 weeks, at which time cessation of larval shedding was documented.

Disseminated strongyloidiasis is frequently a sequel of previously unrecognized subclinical infection (Krolewiecki and Nutman, 2019), often fatal (Marcos et al., 2008), and commonly complicated by enteric origin bacteremia (Geri et al., 2015). Alveolar hemorrhage accompanied by respiratory failure is one of the prototype complications of severe *Strongyloides* infection, whereas direct invasion of the central nervous system by *Strongyloides* is a rare occurrence (Geri et al., 2015). Use of the veterinary subcutaneous formulation of ivermectin may be considered as an alternative in patients with disseminated strongyloidiasis (Barrett et al., 2015).



Figure 1. Bronchoalveolar lavage washings with a *Strongyloides stercoralis* larva on a background of hemorrhagic aspirate (numerous red blood cells): (a) photograph, (b) Supplementary Video S1.



Figure 2. Concentrated cerebrospinal fluid with a single larva of *Strongyloides stercoralis*: (a) photograph, (b) Supplementary Video S2.

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Marcos L, Terashima A, DuPont H, Gotuzzo E. Strongyloides hyperinfection syndrome: an emerging global infectious disease. *Trans R Soc Trop Med Hyg* 2008;102(4):314–8.

Ethical approval

Approval was not required.

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Conflict of interest

No conflict of interest to declare.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.ijid.2019.06.026>.

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