Notes from the Field

Strongyloidiasis at a Long-Term–Care Facility for the Developmentally Disabled — Arizona, 2015

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Strongyloides stercoralis is an intestinal nematode endemic in the tropics and subtropics. Infection is usually acquired through skin contact with contaminated soil, or less commonly, from person to person through fecal contamination of the immediate environment. Infections are often asymptomatic, but can result in a pruritic rash, respiratory symptoms (e.g., cough or wheeze), and gastrointestinal symptoms (e.g., diarrhea and vomiting). Immunosuppressed persons can develop strongyloides hyperinfection syndrome, which can be fatal (*1*). In June 2015, the Pinal County Public Health Services District in Arizona was notified of a suspected strongyloidiasis infection in a resident of a long-term–care facility for developmentally disabled persons. The patient had anemia and chronic eosinophilia. The patient's serum tested positive for *S. stercoralis*-specific immunoglobulin G (IgG) by a commercial enzyme-linked immunosorbent assay (ELISA) and at CDC by a crude antigen ELISA, a quantitative assay for detection of IgG against *S. stercoralis*. An investigation was conducted to determine the infection source and identify additional cases.

During July–November 2015, serum from 160 of 292 (55%) employees and all 91 residents of the facility was tested for the presence of *Strongyloides* antibodies. Employees were screened by a NIE-1 antigen ELISA (*2*) and residents by a commercial ELISA (SeroELISA Strongyloides IgG, IVD Research, Carlsbad, California); serum specimens that tested positive by either of these tests were retested at CDC by crude antigen ELISA. Specimens from all employees tested negative; specimens from two (2%) additional residents tested positive. Among the three infected residents, all were aged 50–70 years and had lived in the facility for >50 years, two were female, and none had known travel history to an endemic area. According to staff member interviews and medical record reviews, none of the infected residents had chronic rash or diarrhea, two had recurrent pneumonia attributed to aspiration, and one reportedly had a chronic cough for >20 years. None was known to be immunosuppressed at any time. All three infected residents had documented peripheral eosinophilia (>450 eosinophils/μL; median maximum eosinophil count 1,100 eosinophils/μL [range = 800–3,200 eosinophils/μL]) during the 10–13 years before diagnosis. Because medical records were available only for the preceding 13 years, it was not possible to ascertain when eosinophilia (and presumably, initial infection) began. Two infected residents shared the same house at the facility for >25 years; eight other residents resided in the house during this time. The third infected resident had no known close contact with these persons. Each of the three infected residents was treated with ivermectin 20 mg/kg daily (range = 1–3 doses). Eosinophil counts normalized in the two residents who were retested after treatment; none suffered complications. The chronic cough in one infected resident improved following ivermectin treatment.

Because of the residents' developmental disabilities, it was not possible to conduct detailed interviews with them regarding history of potential exposures and risks for infection. Interviews with facility management revealed activities associated with their developmental disabilities, including rectal digging, fecal smearing, and pica; these activities might have increased risk for disease transmission through contact with stool-contaminated surfaces containing infectious *Strongyloides* larvae. Ensuring proper hand hygiene among residents was a reported challenge, particularly after toilet use or when eating. Education and training regarding standard precautions among staff and residents were provided.

Although no source was identified, *Strongyloides* might have been introduced by an infected resident or employee from a region where it is endemic. Arid conditions in southern Arizona decrease the risk for *S. stercoralis* survival and transmission through contaminated soil (*1*). Although *Strongyloides* is uncommonly transmitted person to person, the reported high-risk behaviors of the residents likely increased the potential for disease transmission through indoor or outdoor environmental fecal contamination (*3*,*4*). Health care providers should consider *Strongyloides* infection among patients with chronic, unexplained eosinophilia (*5*). Developmentally disabled residents of long-term–care facilities might be at an increased risk for transmission of *Strongyloides* (*3*,*4*,*6*).

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