Backyard Raccoon Latrines and Risk for Baylisascaris procyonis Transmission to Humans

To the Editor: Raccoons (Procyon lotor) are abundant in urban environments and carry a variety of diseases that threaten domestic animals (1) and humans (2,3). A ubiquitous parasite of raccoons, Baylisascaris procyonis causes a widely recognized emerging zoonosis, baylisascariasis (3). Although only 14 human cases of severe B. procyonis encephalitis have been reported over 30 years (4), prevention is still a priority for public health and wildlife officials because of the seriousness of the resulting neurologic disease (5).

Raccoons prefer to defecate at latrines they create. Infected animals shed 20,000 eggs/g of feces (3), so latrines serve as the foci of parasite transmission (6). When latrines occur in close proximity to humans, the risk for zoonotic transmission increases (2). Because B. procyonis are transmitted by the fecal–oral route, young children have the greatest risk for zoonotic infection because of their tendency to put objects into their mouths (1,2). Many human cases have occurred in environments where latrines were near children’s play areas. Our objective was to determine which factors encourage raccoons to create latrines in human habitats. This information will allow public health officials and wildlife managers to develop strategies to educate the public and to ultimately prevent zoonotic transmission.

We surveyed 119 backyards for raccoon latrines in the suburbs of Chicago, Illinois, USA, near the Ned Brown Forest Preserve (n = 38; 42°01′55.05″N, 88°00′00.62″W, Cook County) and Lincoln Marsh (n = 81; 41°51′4.54″N, 88°53′09.19″W, DuPage County). Yards were selected on the basis of proximity to forest preserves and willingness of homeowners to participate in the study. We located latrines by systematically searching yards, giving special attention to horizontal substrates, such as piles of wood and the bases of large trees (6). We removed all fecal material to test for B. procyonis and stored it in plastic bags at –20°C until analysis. Composite samples that were at least 2 g underwent fecal flotation in Sheather solution (7) (at least 1 g of every fecal deposit at a latrine) (n =131). We identified B. procyonis eggs by microscopic examination on the basis of their size and morphologic appearance (2). Multiple slides were examined for 10% of the samples (randomly selected) to validate our results. Prevalence was considered the proportion of positive samples from all sampled yards.

Each yard was additionally surveyed for potential latrine substrates (8) and factors believed to attract or deter raccoons. The distance of each yard from the nearest forested habitat was calculated by using ArcGIS 9.0 (Geographic Information Systems, Redlands, CA, USA). We used homogeneity tests to identify differences in the proportion of yards with latrines present and to compare the prevalence of B. procyonis between study areas. Logistic regression and odds ratios were used to evaluate a main effect model composed of 10 yard attributes, including the presence of a pet, birdfeeders, garbage cans, and sandboxes, and to evaluate a simplified model in which attributes were combined to reflect the presence of food and latrine substrates, such as pet food, birdfeed, garbage and piles of wood or logs, respectively.

Latrines occurred in 61/119 yards (51%; 95% confidence interval [CI] 0.42%–0.60%). There was no significant difference in the proportion of backyards with latrines in proximity to Ned Brown (23/38, 82%) and Lin-

References


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density, these attractants should be removed. Homeowners with small children should remove latrines as quickly as they are discovered (2). The risk of children acquiring potentially fatal baylisascariasis can be reduced if parents understand how to reduce the likelihood that children will come into contact with raccoon latrines.

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**Reemergence of Strongyloidiasis, Northern Italy**

To the Editor: Strongyloidiasis is a helminth infection caused by *Strongyloides stercoralis*, a nematode ubiquitous in tropical and subtropical countries and occasionally reported in temperate countries, including Italy (1). Sources of infection are filariform strongyloid larvae present in soil contaminated by infected feces; the larvae penetrate through the skin of a human host. After the first life cycle, a process of autoinfection begins, which persists indefinitely in the host if the infection is not effectively treated. The infection can remain totally asymptomatic for many years or forever or cause cutaneous (itching and rash), abdominal (epigastric pain, pseudoappendicitis, diarrhea), respiratory (cough, recurrent asthma), and systemic (weight loss, cachexia) symptoms that can be enervating. More importantly, when host immunity is impaired because of