

Hedgehog Zoonoses

To the Editor: The article on hedgehog zoonoses (1) reviews diseases transmitted from African and European hedgehogs to humans but does not compare their infectious potential to that of other animals and people. For example, cats and Yorkshire terriers are well-known vectors of ringworm (2), but this has not been highlighted in *Emerging Infectious Diseases*. Also, the reports of herpesvirus (including human herpes simplex) hepatitis described in the article occurred as fatal hepatitis in hedgehogs, whereas their owners apparently escaped unscathed. These cases appear to be “reverse zoonoses” that are dangerous for the pet but not its human contacts. Perhaps the misleading table in the article should be revised so that busy medical doctors don’t jump to conclusions, and hedgehogs don’t end up on the euthanasia list at shelters.

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References

1. Riley PY, Chomel BB. Hedgehog zoonoses. *Emerg Infect Dis*. 2005;11:1–5.
2. Scott DW, Miller WH, Griffin CE. Muller and Kirk’s small animal dermatology. 6th ed. Philadelphia: W.B. Saunders Company; 2000.

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In response: We thank Dr. Behr for her comment (1). The intent of our manuscript was to report, from a literature review, information on zoonotic infections related to hedgehogs. Of

course, we are mainly concerned with infections or infestations that hedgehogs can transmit to humans, but we also noted that the inverse can be true, and humans can be a source of infection in pet hedgehogs. This manuscript was intended to inform not only physicians but also veterinarians and wildlife rescuers who may not be familiar with zoonotic diseases borne by or transmitted to hedgehogs. We also would like to take advantage of this letter to clarify a few points from our manuscript. First of all, pet hedgehogs are mainly African pygmy hedgehogs, and no reliable data are available regarding the number of European hedgehogs that are kept as pets either in Europe, the United States, or other parts of the world. In many European countries, native hedgehogs are protected by law and cannot be kept as pets (F. Moutou, pers. comm.). Furthermore, our comment on plague and “hedgehogs” in Madagascar was meant to be informative, as these animals are found only on that island. They are not true hedgehogs (belonging to the family *Tenrecidae* and not *Erinaceidae*) and are unlikely to be kept as pets (2; F. Moutou, pers. comm.). In our literature review from PubMed, we found no report of human leptospirosis infection from hedgehogs. However, the European hedgehog is considered the main host of *Leptospira bratislava* in the Netherlands and Denmark and the main host of *L. canicola* in Israel (2). Finally, if hedgehogs can be infected by lungworms of the genus *Capillaria*, no report of a human infection transmitted by hedgehogs has been published to our knowledge.

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References

1. Behr M. Hedgehog zoonoses. *Emerg Infect Dis*. 2005;11: 1146.

2. Smith JMB. Diseases of hedgehogs. *Vet Bull*. 1968;38:425–30.

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Bartonella henselae and Domestic Cats, Jamaica

To the Editor: *Bartonella henselae* has been isolated from domestic cats in most countries where it has been investigated (1), with the exception of some countries at northern latitudes, such as Norway (2). The prevalence of both bacteremia and seropositivity in cats is usually highest in warm and humid tropical countries. The worldwide distribution of cat scratch disease (CSD), a zoonotic disease caused mainly by the scratch of a *B. henselae*-infected cat, follows a similar pattern. Limited information is available about CSD in either humans or the feline reservoir in the Caribbean region.

In 1955, 3 febrile children (siblings) admitted to a hospital in Havana, Cuba, were diagnosed with CSD based on their symptoms and the positive results of intradermal tests using the Foshay antigen (3). The results of the bacteriologic examination, however, were negative. All 3 siblings had previous contact with a female cat and her 4 kittens. In 2003, Alvarez et al. (4) reported the case of a 13-year-old Cuban boy who was treated for symptoms compatible with CSD. However, no other information could be found in the scientific literature regarding the isolation of this bacterium from domestic cats in the

Caribbean or seropositivity for *B. henselae* in humans or animals living in that region.

In the summer of 2003, an employee at a veterinary clinic in Kingston, Jamaica, was scratched and bitten on the hand by a cat. Fever and an enlarged axillary lymph node developed in the employee, and CSD was suspected. To confirm the clinical suspicion, and with the employee's permission, a serum sample was taken 7 weeks after the incident. Whole blood from the 62 remaining cats in the cattery was also collected into EDTA-containing tubes and stored at 4°C before being shipped to California for testing. The cat involved in the incident was not available for testing. The age of 63% of the cats ranged from 1 month to >5 years. Forty percent of the cats were formerly owned and put up for adoption and 16% of the cats were strays. The cat's origin was not recorded for the remaining 44% of the cats.

Upon reception at the laboratory, all cat blood samples were frozen at -70°C. They were subsequently thawed, and aliquot plated onto 5% rabbit blood-enriched agar and incubated at 37°C in 5% CO₂ for ≤4 weeks. The EDTA tube supernatant was serologically tested for *B. henselae* (mixed type I and type II antigens) by using a standard indirect immunofluorescence assay (5). The 62 blood samples were cultured and 12 (19.3%) cats were bacteremic for *B. henselae*. None of the cultures yielded *B. clarridgeiae* or *B. koehlerae*. Of the 12 bacteremic cats, 5 (42%) had positive cultures for *B. henselae* type Houston I, and 7 (58%) had positive cultures for *B. henselae* type Marseille, based on restriction fragment length polymorphism profile of the 16S rDNA, by using *DdeI* enzyme (6). The median number of CFUs was 385/mL (range 147–25,300). For the 5 cats infected with *B. henselae* type Houston I, the median was 259 (range 147–513) CFU/mL; for the 7 cats infected with *B. henselae* type

Marseille, the median was 534 (range 174–25,300) CFU/mL. Of the 5 cats that were bacteremic for *B. henselae* Houston I, 2 were seronegative. Similarly, 2 of the 7 *B. henselae* type Marseille-bacteremic cats were seronegative. These 4 seronegative cats, 4–10 weeks old, were most likely in the early phase of bacteremia. None of the cats were co-infected with both subtypes. When a titer of ≥1:64 was used, 37 (60%) cats were seropositive for *B. henselae*. Their age ranged from a few weeks to >5 years old (median 11 months), including 7 cats that were <6 months old. The employee's *B. henselae* titer was 1:64.

These results constitute the first report originating from the Caribbean region of *B. henselae* isolation from domestic cats, as well as confirming seropositivity in a human, despite a low titer. Because we were not able to obtain a blood sample from the suspect animal, we cannot prove that this cat was the source of the employee's infection. Nevertheless, this study confirms the existence of both *B. henselae* types I and II in Jamaica, even if no specific conclusions can be drawn with regard to their relative prevalence.

The Caribbean has the highest incidence of HIV/AIDS outside of sub-Saharan Africa, with Jamaica having a HIV prevalence of 1.2% (range 0.6%–2.2%) for persons 15–49 years of age (7). As *B. henselae* is known to cause bacillary angiomatosis and bacillary peliosis in immunocompromised persons, knowledge of its presence in the Jamaican cat population is important for primary prevention. Unfortunately, diagnostic tests for *B. henselae* are not currently available on the island.

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References

1. Chomel BB, Boulouis HJ, Breitschwerdt EB. Cat scratch disease and other zoonotic *Bartonella* infections. *J Am Vet Med Assoc*. 2004;224:1270–9.
2. Bergh K, Bevanger L, Hanssen I, Loseth K. Low prevalence of *Bartonella henselae* infections in Norwegian domestic and feral cats. *APMIS*. 2002;110:309–14.
3. Valledor T, Exposito L, Borbolla L, Guerra Chabua A, Garcia Palacios A. Enfermedad por arañazo de gato. Una epidemia familiar in tres hermanos: Primeras observaciones reportados en Cuba. *Rev Cubana Pediatr*. 1955;27:125–42.
4. Alvarez Lam I, Ponce Bittar J, Silva R. Enfermedad por arañazo de gato: Presentación de un caso. *Rev Cubana Pediatr*. [serial on the Internet]. 2003 Oct-Dic [cited 2005 Jan 4]. Available from http://scieloprueba.sld.cu/scielo.php?script=sci_arttext&pid=S0034-75312003000400010&lng=es&nrm=iso
5. Chomel BB, Abbott RC, Kasten RW, Floyd-Hawkins KA, Kass PH, Glaser CA, et al. *Bartonella henselae* prevalence in domestic cats in California: risk factors and association between bacteremia and antibody titers. *J Clin Microbiol*. 1995;33:2445–50.
6. Dillon B, Iredell J. *DdeI* RFLP for 16S rDNA typing in *Bartonella henselae*. *J Med Microbiol*. 2004;53:1263–5.
7. Joint United Nations Program on HIV/AIDS. UNAIDS 2004 Report on the global AIDS epidemic 2004. Table of country-specific HIV/AIDS estimates and data, end 2003. p. 15 [cited 2005 Jan 25]. Available from http://www.unaids.org/bangkok2004/GAR2004_pdf/GAR2004_table_countryestimates_en.pdf

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