Rickettsia felis in the United Kingdom

To the Editor: Rickettsia felis is a bacterium transmitted by the cat flea (Ctenocephalides felis), which also acts as a reservoir by means of transovarial transmission (1–3). The distribution of R. felis is potentially as wide as that of its insect host, and to date, its presence has been confirmed in cat flea populations in North and South America and southern Europe (4,5). R. felis was first identified as a human pathogen in 1994 (6), and cases of “flea-borne spotted fever,” which have signs and symptoms of febrile exanthema, have now been reported in the United States, Mexico, Brazil, France, and Germany (7,8). To our knowledge, reports on the presence of R. felis, or indeed any other spotted fever group rickettsia, in the United Kingdom have not been published.

To determine whether R. felis is present in the United Kingdom, we surveyed cat fleas collected from dogs and cats seen at veterinary practices in southern England and Northern Ireland. A total of 31 dogs and 79 cats from veterinary practices in Bristol, Dorset, London, Devon, Gloucestershire, Hampshire, and Antrim were included in our study. Fleas were collected by combing these animals for 10 minutes. All fleas from each animal were pooled in 70% ethanol. A minimum of one flea was included in our study. Fleas were collected from 4 dogs and 14 cats from the United Kingdom, representing 6% of the fleas collected from these animals. PCR-positive fleas were collected from 4 dogs and 14 cats from Bristol, Hampshire, Dorset, and Northern Ireland. Taking into account the number of fleas in each pool, we estimate that 6% to 12% of the fleas collected were infected with R. felis.

This study represents the first description of a spotted fever group rickettsia endemic to the United Kingdom. The species detected, R. felis, has clear public health implications. The bacterium appears to be widely distributed within the country, infecting a geographically dispersed population of Ct. felis. Up to 12% of Ct. felis may be infected with R. felis, a flea that is by far the most common species of ectoparasite encountered on cats and dogs in the U.K. main-

Emerging Infectious Diseases • Vol. 9, No. 8, August 2003 1023
land. Furthermore, Ct. felis often feeds on humans.

Clinicians encountering patients with fever or rash (or both) and a history of cat contact or flea bites should consider a diagnosis of R. felis. Laboratory confirmation of infection is not easy, but in vitro culture of R. felis, and hence material for a serologic assay for the diagnosis of human R. felis infections, has recently been described, and serology appears to be an accurate indicator of exposure (9). As with other spotted fever group rickettsial infections, molecular diagnostics may provide a useful alternative approach to detecting and identifying R. felis in infected tissues. In culture, R. felis has been shown to be resistant to erythromycin (unlike other rickettsia), gentamicin, amoxicillin, and trimethoprim-sulfamethoxazole. Thus, infection with this bacterium should be considered in cases of antibiotic-insensitive fever with a rash, especially in young, old, and immunosuppressed persons. The organism is sensitive to doxycycline, rifampicin, thiamphepinicol, and fluoroquinolones (10).

Acknowledgments

We thank Alex Davies and Anne Seabright for assistance with collecting and processing the fleas and D. Raoult for providing Rickettsia felis.

Novartis UK provided financial assistance with this project.

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References

1. Azad AF, Sacci JB Jr, Nelson WM, Dasch GA, Schmidtman ET, Carl M. Genetic characterization and transovarial transmission of a novel typhus-like rickettsia found in cat fleas. Proc Natl Acad Sci U S A 1992;89:43–62.
2. Higgins JA, Radulovic S, Schriefer ME, Azad AF. Rickettsia felis: a new species of pathogenic rickettsia isolated from cat fleas. J Clin Microbiol 1996;34:671–4.
3. Bouyer DH, Stenos J, Croquet-Valdes P, Moron CG, Popov VL, Zavala-Velazquez JE, et al. Rickettsia felis: molecular characterization of a new member of the spotted fever group. Int J Syst Evol Microbiol 2001;51:339–47.
4. Oliveira RP, Galvao MA, Mafra CL, Chamone CB, Calic SB, Silva SU, et al. Rickettsia felis in Ctenocephalides spp. fleas, Brazil. Emerg Infect Dis 2002;8:317–9.
5. Marquez FJ, Munain MA, Perez JM, Panchon J. Presence of Rickettsia felis in the cat flea from southwestern Europe. Emerg Infect Dis 2002;8:89–91.
6. Schriefer ME, Sacci JB Jr, Dumlen JS, Bullen MG, Azad AF. Identification of a novel rickettsial infection in a patient diagnosed with murine typhus. J Clin Microbiol 1994;32:949–54.
7. Richter J, Fournier PE, Petridou J, Haussinger D, Raoult D. Rickettsia felis infection acquired in Europe and documented by polymerase chain reaction. Emerg Infect Dis 2002;8:207–8.
8. Zavala-Velazquez JE, Ruiz-Sosa JA, Sanchez-Elias RA, Becerra-Carmona G, Walker DH. Rickettsia felis rickettsiosis in Yucatan. Lancet 2000;356:1079–80.
9. La Scola B, Meconi S, Fenollar F, Rolain JM, Roux V, Raoult D. Emended description of Rickettsia felis (Bouyer et al. 2001), a temperature-dependent cultured bacterium. Int J Syst Evol Microbiol 2002;52:2035–41.
10. Rolain JM, Stuhl L, Maurin M, Raoult D. Evaluation of antibiotic susceptibilities of three rickettsial species including Rickettsia felis by a quantitative PCR DNA assay. Antimicrob Agents Chemother 2002;46:2747–51.

Community Transmission of Extended-Spectrum β-Lactamase

To the Editor: The spread of multiresistant gram-negative bacteria in the general population is a problem of paramount importance, but the responsible mechanisms are poorly understood. Several studies have focused on β-lactam resistance in Enterobacteriaceae isolated from stools in healthy people, but they did not specifically investigate the extended-spectrum β-lactamases (ESBL). Furthermore, none of these studies detected ESBL in the evaluated population (1,2). We performed three survey studies to determine the incidence of Enterobacteriaceae strains producing ESBLs in the stools of outpatients attending our hospital. The first study was performed during a 4-month period (February–May 2001), the second during a 3-month period (April–June 2002), and the third during 1 month (October 2002).

Stool samples were spread onto plates of MacConkey agar containing 2 mg/L of cefotaxime. A colony of each distinct morphology was analyzed further. Species were identified according to conventional methods (3). The susceptibility to β-lactam antibiotics was determined by the disk-diffusion test, following recommendations of the National Committee for Clinical Laboratory Standards (4,5). The interpretative reading of the antibiogram was performed according to standard guidelines (4–6). The MICs of cefotaxime and ceftriaxone, with and without clavulanic acid, were later determined by Etest (AB Biodisk, Solna, Sweden). Strains producing ESBL were defined as strains showing synergy between amoxicillin-clavulanic acid and cefotaxime, ceftazidime, cefepime, or aztreonam (4,5).

All strains suspected of carrying a resistance pattern compatible with