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Friday 02 July 2010

Rickettsia felis detected in African countries

Flea-borne spotted fever found in rural parts of Kenya and Senegal



Flea and Tick Powder can help control fleas.

Image credit: CDC

Doctors should consider infection with *Rickettsia felis* bacteria as a diagnosis for patients with fever who live or have a history of travel to rural Kenya and Senegal, suggest^{1,2} two research groups in the July edition of *Emerging Infectious Diseases*. Both used molecular methods to detect genetic fragments of the bacterium in the blood of patients who tested negative for malaria.

Cristina Socolovschi and colleagues say that cases of *R. felis* infection have not been reported previously in Senegal, but could be more common than currently thought. "We believe that the incidence of *R. felis* infection is largely underestimated and may be responsible in Africa for many cases of unruptive fevers of unknown origin."

Working in Kenya's North Eastern Province, Allen Richards and colleagues also document cases of flea-borne spotted fever for the first time. Previous reports of rickettsial disease seen in the country were linked to three different rickettsiae: *R. conorii*, *R. africae*, and *R. typhi*. "Flea-borne spotted fever needs to be included in the differential diagnosis of febrile diseases in Kenya," they write.

In their study, Richards and colleagues saw evidence of a rise in the number of patients diagnosed with the infection, from one in 93 patients in 2006–2007 to five in 70 patients in 2007–2008. But they say it **is unclear whether this is a sign of emergence**, or whether the disease is endemic and only now coming to light.

Cases of infection with *R. felis* have been recorded in over 20 countries and five continents. In Africa, sporadic reports of the condition have surfaced in recent years from a small number of countries including Tunisia, Gabon and the Democratic Republic of the Congo.

People can get infected with the bacterium through the bite of fleas which live on cats, dogs and other animal hosts. But doctors often misdiagnose the disease because the main symptoms — fever, headache, and pains — often overlap with those of other diseases.

R. felis infection is also difficult to diagnose in the laboratory because it takes 1–2 weeks for antibodies to be detected in clinical samples. But DNA fragments of the bacterium can be picked up with molecular techniques, and these were used in both studies published this month.

In Senegal, Socolovschi and colleagues focused only on *Rickettsia* bacteria when looking for possible causes of febrile illness in patients without malaria. They found genetic evidence of *R. felis* in the blood of eight of 134 patients living in Dielmo and Ndiop, two villages of southern Senegal's Sine-Saloum region. Over the nine-month period of the study the prevalence rate of positive samples ranged from 2.38% in July to 16.66% in April. The incidence rate was 1.7% in Dielmo and 0.3% in Ndiop, and was highest for young children.

"Our study identified a higher attack rate of flea-borne spotted fever in children <10 years of age with an attack rate of 3.5% in Dielmo," write the authors. "Some reports of rickettsial diseases in sub-Saharan Africa indicate more infection in younger persons in whom the disease might be mild or subclinical."

In Kenya, over a 23-month period from 2006 to 2008 Richards and colleagues analysed the blood of patients with unexplained fever, looking for rickettsiosis and other diseases not routinely tested for at the Garissa Provincial Hospital. Six of 163 patients tested positive for *R. felis*.

"All patients reported contact with livestock animals such as cattle, sheep, goats or camels," write the authors. Nearly all of them owned livestock and also kept dogs for safety and help with herding.

But they say a prevalence rate of nearly 4%, estimated in a small area during a short period, suggests that the 68 cases currently documented worldwide may not reflect how widespread the infection is in reality. In Kenya, a higher prevalence would suggest that additional risk factors are at play, and that populations including travellers and military personnel could also be affected by the disease, according to Richards *et al.*

References and link

1. Socolovschi, C, Mediannikov O, Sokhna C, Tall A, Diatta G, Bassene H, *et al.* *Rickettsia felis*–associated unruptive fever, Senegal. *Emerg Infect Dis* 2010, **16**:1140–42. doi: [10.3201/eid1607.100070](https://doi.org/10.3201/eid1607.100070)
2. Richards AL, Jiang J, Omulu S, Dare R, Abdirahman K, Ali A, *et al.* Human infection with *Rickettsia felis*, Kenya. *Emerg Infect Dis* 2010, **16**:1181–86. doi: [10.3201/eid1607.091885](https://doi.org/10.3201/eid1607.091885)

US Centers for Disease Control and Prevention **Division of Viral and Rickettsial Diseases**

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