

In a California case, a 6-year-old boy was admitted with a 3-day history of fever as high as 103° F and petechial and pustular lesions on his feet; the eventual diagnosis was rat bite fever.



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## Fever, Myalgia, Rash, Pet Rat? It All Adds Up to Rat Bite Fever

BY DOUG BRUNK  
San Diego Bureau

LAS VEGAS — If a child presents to your office with fever, chills, muscle pain, joint swelling/pain, and a skin rash and has a pet rat, consider rat bite fever, Dr. Jay M. Lieberman advised at a meeting that was sponsored by the American Academy of Pediatrics' California

Chapters 1, 2, 3, and 4 and the AAP.

In the summer of 2002, one of his colleagues at Miller Children's Hospital in Long Beach, Calif., consulted on a 6-year-old boy who was admitted with a 3-day history of fever as high as 103 and petechial and pustular lesions on his feet.

He had initially complained of left ankle pain and refusal to walk and then had diffuse pain of the left knee, elbow, and wrist.

The boy's lab tests were normal except for a relatively low blood platelet count (146,000/mcL of blood). Liver function tests also were normal. The family was from Pennsylvania and had been living in southern California for 2 months. The patient had a pet rat that the family had acquired several weeks before the onset of his symptoms.

"This boy liked to kiss his rat," said Dr. Lieberman, chief of pediatric infectious diseases at the hospital.

The history of the pet rat prompted Dr. Lieberman's colleague to review the medical literature on rat bite fever, and it became apparent that the boy had a classic presentation of the disease. Rat bite fever is caused by *Streptobacillus moniliformis*, a bacterium that is found in the normal oral flora of rats and can be excreted in rat urine.

Humans can become infected with *S. moniliformis* after a bite or scratch from the infected rat, from handling it, or by ingesting food or water contaminated with rat excrement.

The incubation period ranges from 2 to 10 days and patients present with a flu-like illness, including an abrupt onset of fever, chills, headache, and myalgia. A rash may develop 2-4 days after the onset of fever.

The rash "is usually maculopapular, predominantly involves the palms and soles, and may evolve into petechia, purpura, and vesicles," said Dr. Lieberman, who also is a professor of pediatrics at the University of California, Irvine.

Penicillin G is the treatment of choice, and the boy improved rapidly once on the regimen. Untreated, the infection may have a relapsing course for 3 weeks or more with a case fatality rate as high as 10%.

Dr. Lieberman said the case underscores the importance of asking about pets in every febrile patient and considering the possibility of rat bite fever in acutely ill patients with rat exposure.

According to the textbooks, "children inhabiting crowded urban dwellings or rural areas infested with wild rats" are at risk. Half or more of wild rats carry the organism in their nasopharynx, Dr. Lieberman explained.

According to the Centers for Disease Control and Prevention, two people died from rat bite fever in 2003 (MMWR 2005;53:1198-202). One of the victims, a previously healthy 19-year-old woman in Washington, was pronounced dead on arrival at a hospital emergency department after being ill for 3 days. She had lived in an apartment with nine pet rats, and *S. moniliformis* was identified from the liver and kidney on autopsy. ■

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