A child owning pet rats developed an eruptive fever with blisters, polyarthritis, and spectacular desquamation of the hands. *Streptobacillus moniliformis* was identified after culture of the child’s blister fluid and was detected in rat samples by molecular methods. Such detection in the pet of a human victim of rat bite fever has not been reported previously.

Figure 1 Desquamation of the fingers in a patient with rat bite fever, resembling that seen in the subacute phase of Kawasaki disease.
reported that *S. moniliformis* is present in the nasopharyngeal flora of 50–100% of healthy wild living and laboratory rats, but few recent data are available. Asymptomatic carriage appears to be frequent. RBF is classically transmitted by rat bites, but human cases caused by scratches or mouth to mouth contact have also been described; the mortality rate in untreated cases is about 10–13%. Ingestion of rat stools has not been reported previously.

**Figure 2** Agarose gel electrophoresis of undigested polymerase chain reaction fragment (P) or after digestion with Bsal (R). DNA extracts of the pure culture from the patient (lane 1), from the mixed culture of rat pharyngeal samples (lane 2), and from the rat tracheal biopsy (lane 3). M, molecular size marker.

"*Streptobacillus moniliformis* is difficult to isolate and to identify with classic bacteriological techniques"

Our patient’s syndrome matched the classic description of RBF. In contrast, intense desquamation of the extremities has rarely been reported. This presentation in a young child may lead to an erroneous diagnosis of Kawasaki disease and delay effective antibiotic treatment. The desquamation is difficult to isolate and to identify with classic bacteriological techniques, because this fastidious bacterium requires enriched media and is inhibited by sodium polyanetholsulfonate, an additive present in most commercial blood culture bottles. Recently, molecular methods have been used to identify *S. moniliformis* directly in human samples, in addition to cultures and organ biopsies of experimentally infected mice and rats. Although *S. moniliformis* could not be isolated here in well individualised colonies by culture from pet specimens, its presence was strongly suggested both by the Gram colouration of cultures and molecular biology data (PCR restriction fragment length polymorphism) on DNA extracts from the cultures and rat biopsy. To our knowledge, the detection of *S. moniliformis* by molecular methods in the pet of a human suffering from RBF has not been reported previously.

The difficulty of isolating *S. moniliformis*, together with the polymorphic clinical manifestations of RBF, and the fact that RBF is not a notifiable disease may explain the lack of data on the incidence of this zoonosis. More cases of RBF have been reported in the past decade, but it is difficult to know whether this is because of the increasing number of unusual pets or improved microbiological methods and vigilance in reporting. Molecular studies of *S. moniliformis* carriage among pet rodents would be of interest.

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**Take home messages**

- We report the case of a child who owned pet rats and who developed an eruptive fever with blisters, poly-arthritis, and spectacular desquamation of the hands.
- *Streptobacillus moniliformis* was identified after culture of the child’s blister fluid and was detected in rat samples by molecular methods.
- This is the first report of such a detection by molecular methods in the pet of a human victim of rat bite fever.

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