

IDENTIFICATION OF A RABID DOG IN FRANCE ILLEGALLY INTRODUCED FROM MOROCCO

French multidisciplinary investigation team

Introduction

On 26 February 2008, the National Reference Centre for Rabies at the Institut Pasteur in Paris, France, confirmed the diagnosis of rabies in a domestic dog living in Grandpuits, Seine-et-Marne district, a suburb of Paris. The dog was a nine-month-old mixed-breed female, named Cracotte (pictures available at <http://www.invs.sante.fr/display/?doc=surveillance/rage/actu.htm>). It developed its first symptoms on 15 February, had bitten its owner and one neighbour and had been euthanized on 19 February. The viral strain was identified by the National Reference Centre for Rabies as a strain belonging to Lyssavirus genotype 1, Africa 1 lineage, originating from Morocco. According to its owner, Cracotte had never been outside France. France has been declared officially rabies-free since 2001. An investigation was undertaken to identify the source of infection and modes of transmission for Cracotte in order to identify potentially exposed individuals and animals and to carry out an assessment of the risk of rabies virus transmission in France.

Investigation

Origin of infection and chain of transmission

The owners of Cracotte had a second dog, a female black mixed-breed Labrador named Youpee. Youpee was euthanized on 5 January after an illness of short duration. Retrospectively, its symptoms were compatible with rabies. Youpee had been in contact with a dog named Gamin during a stay in the Gers district of southern France in November 2007. Gamin was euthanized on 12 November 2007 because of an illness that, retrospectively, would be compatible with rabies. Both Youpee and Gamin had been incinerated and had not been tested for rabies. Gamin had been illegally introduced into France from Morocco, and is the likely index dog that infected Youpee, that subsequently infected Cracotte.

Areas and periods at risk

The probable index case Gamin and its two owners left Morocco by ferry on 20 October 2007 and reached France by car via Portugal and Spain. The owners reported having spent three days in Portugal on a beach (precise location unknown), then drove through Spain without stopping. They arrived in the Hautes-Pyrénées district on 28 October 2007 and stayed there with a friend in an industrial area that had no other inhabitants until 1 November 2007. According to the owners and their host, Gamin was kept inside the car and had no contact with persons except for their host, and no contact with other animals, during these three days. The owners then drove to the Gers district, where they stayed and where Gamin was euthanized the 12 November 2007. Gamin and Youpee stayed together in the Gers district, where Youpee was probably contaminated by Gamin. Youpee and its owner left the Gers district for Seine-et-Marne by

train on 29 November 2007. It stayed in Seine et Marne until it was euthanized on 5 January 2008. Youpee and its owner traveled by train outside the district for three days (15-17 December) to Lisieux (Calvados district, Normandy).

The at-risk period for transmission of rabies to humans or animals is considered to begin from the first day of estimated viral excretion of the dogs and to be ongoing (due to possible secondary animal cases). We assumed that viral excretion started 15 days before the onset of symptoms of illness. As of 13 March 2008, the geographical areas and periods at risk are as follows:

- Montestruc-sur-Gers (Gers district) and surroundings, from 1 November 2007;
- Grandpuits (Seine-et-Marne district) and surroundings, from 15 December 2007;
- Lisieux (Calvados district) and surroundings, from 15 December 2007.

Control measures

An active tracing of people and animals in contact with the three dogs has been carried out by health and veterinary authorities in the three districts. To date, 177 people with close contacts with one of the three dogs have been identified and referred to the rabies vaccination centres; 152 of them have been vaccinated and several also received immunoglobulins. A national rabies hotline has been implemented for the public at the Ministry of Health (00.33/800.13.00.00). Local and national press releases have been issued to relay the message that any individual who could have had a potentially contaminating contact with one of the three dogs or with any other dog in the at-risk area during the at-risk period should contact the hotline. Pictures of the dog have been shown on television, in newspapers and on the internet. Owners of dogs that might have been exposed to the infected dogs have been advised to contact their district veterinary services. As of 10 March, no additional exposed individuals have been identified among the 1,071 people who have called the hotline. No human nor animal contact with the rabid dog Youpee has yet been identified among the passengers during the trip by train of its owner (between Paris and Lisieux cities on 15 and 17 December).

Dogs and cats having been in contact with one of the three dogs have been euthanized or placed under observation. To date, seven dogs and a cat were euthanized and all tested negative for rabies. Owners of dogs and cats in the three districts have been recommended to keep their cats indoors, put their dogs on leashes and have their pets legally identified. The veterinary services are maintaining a high level of vigilance.

The French hospital emergency medical services and general practitioners were informed, via email, of the event and of the need for anti-rabies prophylaxis for patients with any potentially contaminating contact with one of the three dogs or any other unknown dog or cat, especially in the three districts involved. All rabies clinics were informed by the National Reference Centre for Rabies. Moreover, pediatricians, intensive care physicians, neurologists and infectious disease experts have all been informed by email in order to strengthen awareness and increase the likelihood of early diagnosis in the event of a human case. To date, no suspect human cases have been reported.

The last case of indigenous human rabies transmitted by a carnivore in France occurred in 1924. Human cases of imported rabies are rare, with only 20 cases identified in France between 1970 and 2008 (90% of them from Africa). Since 2000, nine imported cases have been reported in Western Europe [1]. Two of them contracted their infection in Morocco [2,3]. In France, rabies was endemic in foxes, especially along the German border in eastern France, until the 1990s [4]. In 2001, after 30 years of extensive control measures, including oral vaccination of foxes, and in the absence of cases of rabies identified in terrestrial carnivores since 1998, the World Organisation for Animal Health declared France free of rabies in terrestrial animals. Surveillance of rabies in carnivores has been maintained in order to detect any re-introduction of the virus.

This event is not the first illegal introduction of a carnivore from a rabies-endemic country into France [5,6]. In 2004, three cases of canine rabies were diagnosed. All three dogs were illegally imported from Morocco and reached France after having been transported through Spain by car. No secondary transmission to humans or carnivores occurred during those events. The sanitary regulations regarding rabies vaccination status of all carnivores entering the European Union are essential for rabies control, and must be strictly applied in European areas that have been declared rabies-free. This applies to France in particular, as the illegal pet importation route from Morocco through Spain to France has previously been reported.

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