

RECENT RABIES IN PEOPLE

Between 1980 and September 2002, 46 people in the United States died of laboratory confirmed rabies. ¹ The majority of cases were diagnosed at postmortem. The presence of hydrophobia or aerophobia was significantly associated with antemortem diagnosis. None of the people received complete postexposure prophylaxis prior to the onset of clinical disease. This is unfortunate as treatment with modern tissue culture vaccines, coupled with the appropriate use of immune globulin, is regarded as essentially 100% effective. ² Of the 46 human cases, 63 percent were associated with rabies virus variants found in insectivorous bats. Nevertheless, clear evidence of a bite was found in only two of the bat-associated cases.

More people died of rabies in California (10) than any other state and most cases were diagnosed after death (table 1). In California, during 1995, two men died of bat-associated rabies virus. Rabies postexposure prophylaxis was administered to 88 people exposed to the two men. ³ In 1995, four cases of human rabies were documented in the United States. All were associated with insectivorous bats; however, a definite history of bite exposure was not identified. It is likely that human rabies is under reported in the United States. There is little to distinguish rabies from other viral encephalitides. Any patient who presents with encephalopathy of unknown etiology should be considered a rabies suspect, even in the absence of known exposure to the virus through an animal bite. The most helpful clue to the diagnosis of rabies is a history of animal exposure. An early clinical sign suggestive of rabies is the complaint of paresthesia and/or fasciculations at or around the site of virus inoculation.

Animal Rabies

Traditionally, rabies exists in two forms in a community. The urban form, propagated chiefly by unimmunized cats and dogs, and sylvatic, propagated in North America by bats, coyotes, foxes, raccoons and skunks. Infection in domestic animals represents a "spillover" from sylvatic reservoirs of infection. In California, between January 1 and December 31 of 2001, there were 321 laboratory confirmed cases of rabies in animals. Wildlife accounted for close to 99% of the rabid animals. Bats accounted for 52 percent of the rabid animals in California during 2001.

Rabies in Los Angeles County

By 1960, mandatory vaccination of dogs in Los Angeles County largely controlled canine and human rabies. This immune barrier has been established nationwide at a cost of over \$300 million annually. Cats are also vaccinated for rabies but it is not mandatory nationwide and feline rabies is now more common than canine rabies in the United States. With the widespread vaccination of cats and dogs in

the United States, most endemic human rabies is a result of contact with rabid wildlife, particularly bats. Bat rabies is diagnosed yearly in Los Angeles County.

Animal Bites

Bites by wildlife such as: coyotes, foxes, raccoons and skunks are usually obvious and often prompt suspicion of the possibility of rabies. Bats weigh only a few ounces and they have very sharp claws and teeth. Their scratches and bites are difficult to detect. In one instance, a 37-year-old woman was in her bathroom and felt something brush against her bottom. When she turned on the lights there was a bat hanging on the ceiling which flew out the open bathroom window. She looked at her skin and found nothing unusual. Later that day, when her physician scrutinized the area with 6X magnification, he found two pinpoint punctures about one-half centimeter apart.⁴

During the past 20 years, the only rabid wildlife detected in Los Angeles County has been bats. The last domestic animal with laboratory confirmed rabies was a cat in 1987 (table 2). Any bite of a wild carnivore should be considered a possible source of rabies until proven otherwise. In April of 1998, an opossum was found under the hood of a Orange County employee's car. When the employee went to remove the opossum, he was bitten numerous times. The opossum tested positive for rabies. Rabies in opossums had not been diagnosed in Orange County for over thirty years.

Prevention

Rabies precautions should be taken with all animal bites, particularly wildlife. Pre-exposure vaccination of high risk people is recommended (animal handlers, cave explorers, laboratory workers and veterinarians). A healthy domestic cat or dog that bites a person should be confined and observed for 10 days and evaluated by a public health veterinarian at the first sign of illness during confinement or before release. Signs of rabies in wildlife cannot be interpreted reliably. If wildlife bites or scratches a person, the animal should be immediately tested for rabies.

Bat rabies is enzootic in the United States. Since 1980, indigenously human rabies in the United States has been caused primarily by insectivorous bats. Contact with a bat should be taken seriously. Bats should not be captured, handled, or kept as pets. Human and domestic animal contact with bats should be minimized. The physical exclusion of bats from human dwellings should be standard practice.

In the past, the Centers for Disease Control (CDC) recommended rabies post-exposure vaccinations be given to anyone with an obvious bite mark or scratch from a potentially rabid animal. CDC has revised its guidelines to include a recommendation that vaccination be given to anyone who has slept in a room where a bat was known to be present, even if a bite is not visible.⁵

References

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Table 1. **Between 1980 and 2002 seven people in California died of laboratory confirmed rabies***

CALIFORNIA CASES				
1980-2002				
Year	Exposure History	Variant	Type	Diagnosis
1984	Dog - Guatemala	dog	exotic	postmortem
1987	unknown	dog	exotic	postmortem
1992	Dog - India	dog	exotic	antemortem
1993	Dog - Mexico	dog	exotic	antemortem
1994	unknown	dog	exotic	postmortem
1995	unknown	bat	indigenous	antemortem
1995	unknown	bat	indigenous	postmortem
2000	unknown	bat	indigenous	antemortem
2001	unknown	dog	exotic	postmortem
2002	unknown	bat	indigenous	antemortem

*Noah DL, Drenzek CL, Smith JS, et al: Epidemiology of Human Rabies in the United States, 1980 to 1996. *Annals of Internal Medicine*. 128(11):922-930. 1998

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