

Human Exposure to Rabies

T. F. SELLERS, M. D.*

Fortunately, man is much less susceptible to rabies than are other warm-blooded animals. Even in areas where the disease is highly prevalent among dogs and other animals, the incidence of human rabies is exceedingly low. But so deeply rooted are the traditional misconceptions of man regarding this disease, that even in this age of advanced medical science we still are faced with a persistent anxiety complex that makes the management of situations of human exposures at times exceedingly troublesome and time consuming.

HUMAN EXPOSURE

Rabies can be transmitted from the rabid animal to man only by the direct inoculation of fresh saliva through the skin deep enough to come into contact with nerve tissue. Such inoculation only occurs naturally from wounds or bites made by the teeth of the rabid animal. This is the **DIRECT** exposure. **ALL OTHER EXPOSURES ARE INDIRECT AND SHOULD BE DISREGARDED.**

RABID ANIMAL DEFINED

As it applies to the management of human exposure to rabies, a rabid animal is defined as one which (1) is proved to be rabid by laboratory methods; (2) is clinically rabid by veterinary diagnosis; (3) disappears after biting and cannot be located subsequently; (4) bites without provocation and is killed before confirmatory brain lesions have had time to develop.

INDICATIONS FOR ANTIRABIC TREATMENT

For all direct exposures, that is, tooth wounds made by rabid animals as above defined, anti-rabic vaccine should be administered in amounts prescribed by the laboratory to suit the degree of exposure.

The vaccine also may be indicated for children in contact with a rabid animal but too young to give reliable testimony.

In cases of severe face wounds or severe and multiple lacerations about the hands, the vaccine

treatment may be supplemented by hyperimmune serum which recently has become available.

As a first-aid precaution, all animal bites should be washed immediately and thoroughly for 15 to 20 minutes with a strong, warm soap solution. This can be done at home by the patient or family before the doctor is called.



Photo by Memphis-Shelby County Health Department
Severe bite wounds of the face constitute the greatest exposure hazard and should be treated accordingly.

CONTRAINDICATIONS FOR ANTIRABIC VACCINE

The protective value of the vaccine for rabid animal bites is unquestioned and should be used without hesitation. But the physician should bear in mind that occasionally the vaccine itself may cause reactions. The most important type of reaction is vaccine paralysis which, while rare, is often serious and sometimes fatal. Therefore the vaccine should not be used for indirect exposures or circumstances such as:

*Director, Georgia Department of Public Health, and Consultant, Communicable Disease Center

1. Contact of saliva with the unbroken skin anywhere on the body, including face or mouth
2. Contact of saliva with preexistent wound already scabbed over
3. For tooth wounds through clothing which is not torn
4. Handling or petting the suspected animal but not bitten
5. Handling objects contaminated with saliva
6. Drinking the milk of rabid cows or goats
7. If the biting animal is still alive and normal one week after biting

8. Merely to satisfy the anxiety of parents or family but otherwise not indicated
9. For persons previously treated, the vaccine retreatment, if used at all, should be limited to not more than six doses

Not all situations of human exposure will fall in the categories as herein outlined, nor will the physician be able to cope successfully with every case of anxiety complex. But he should bear in mind constantly that antirabic vaccine of itself can cause serious complications and therefore that it should not be used unnecessarily.

Rabies in the Americas

BENJAMIN D. BLOOD, Chief, Veterinary Public Health Section,
Pan American Sanitary Bureau *

Rabies is a zoonosis which is widespread in the Americas, and emergency control measures frequently are necessary to cope with outbreaks. The disease recognizes no political boundaries, nor is it subject to terrestrial or climatic influences. Rabies is reported from the frigid regions of the Arctic to the sultry atmosphere of the Tropics; in the congested quarters of Chicago, Rio de Janeiro, Lima, Bogotá, and Mexico City, it exacts its toll. Uncounted hundreds of persons die of rabies each year in the Americas, while thousands of others go through the ordeal of multiple prophylactic injections of vaccine after exposure. It should be added that considerable funds are allocated annually from public health budgets to cover the cost of human antirabies treatment. An indication of the magnitude of this item may be seen by the fact that in Mexico alone from 80 to 100 liters of human rabies vaccine are used monthly.

Rabies is not only a problem of public health, it is also a very important economic problem in many areas of Latin America. Large numbers of cattle and other livestock die each year of paralytic rabies, sometimes diagnosed properly but usually simply called "paralysis." The disease is known to have been prevalent in Mexico for at

least 40 years and has caused tremendous losses of livestock (1). It has persisted in Brazil, and at times, rabies epizootics have claimed 60 percent of the cattle in some districts of the states of Matto Grosso and Santa Catarina. In Paraguay, it has existed for a number of years, with an attack rate (and corresponding death rate) of 50 percent of the cattle in some areas. Livestock populations of Bolivia, Colombia, and Venezuela also are attacked by this disease. A fatal paralytic bovine disease is known to have been widespread in Central America for several years; laboratory diagnosis made in 1950 at the CDC Rabies Laboratory, Montgomery, Ala., on material submitted from the Republic of Honduras, confirmed the disease as rabies.

Paralytic bovine rabies, known also as derriengue or mal de caderas (literally, "sickness of hips"), is transmitted by the bites of blood-lapping bats (genus *Desmodus*). Although bat-transmitted rabies is primarily a disease of livestock, it can involve the human population. Eighty-nine human deaths resulted from an outbreak of rabies, with the bat as proven vector, in the island of Trinidad. Subsequent anti-bat measures employed there have demonstrated the effectiveness of elimination

*Regional Office for the Americas of the World Health Organization