Circular No. 284 (Revised) Lexington, February, 1937

University of Kentucky
College of Agriculture, Extension Division

Published in connection with the agricultural extension work carried on by cooperation of the College of Agriculture, University of Kentucky, with the U. S. Department of Agriculture, and distributed in furtherance of the work provided for in the Act of Congress of May 8, 1914.

RABIES

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Certain diseases of animals may be transmitted to the human. One of these, rabies or hydrophobia, affects warm-blooded animals generally. Tho of infrequent occurrence it is dreaded because no cure is known. The frequency of the disease seems to be increasing, inasmuch as a larger number of cases is reported each succeeding year. In 1936, six persons died from the disease, and reports from county agents in 105 counties show that the loss of livestock, from rabies, was $65,000, in the state.

HISTORY

Rabies is one of the oldest diseases known. It was described by Aristotle in his writings, in the fourth century, B. C. In 1881-89, Pasteur and his collaborators solved the problem of vaccination against the disease. In 1903, Adelchi Negri, an Italian physician, showed that certain microscopic objects, called Negri bodies, are present in the brain of a rabid animal.

This dog suddenly became highly nervous and vicious and bit its child owner severely in the arm a few hours before this picture was taken. To the eye he showed no evidence of disease, but examination of the brain next day proved that he had rabies.

PREVENTION BUT NO CURE

Pasteur's discovery supplied the means of preventing the disease in persons who have been exposed to infection, and that of Negri supplied a way to ascertain whether or not a suspected animal really

This sheep developed rabies after a mad dog had attacked the flock. Excitability, unrest, and stamping the feet were characteristic symptoms. The head is swollen and scarred from butting against a wall, trees and other objects.

had rabies. No cure is known; after rabies has developed, no treatment is known by which the disease can be arrested or changed in its course.

HOW RABIES IS SPREAD

The saliva of a rabid animal carries the infection. If the saliva gets into a wound or an abrasion of the skin, in any way, it is likely to introduce the infection. An animal with rabies spreads the disease by biting other animals or persons, thus introducing saliva into the wound. The dog is the chief offender in spreading rabies. The saliva of a dog with rabies is infectious even before decided symptoms appear. However, a dog in the early stages of the disease usually is not inclined to bite.

BITE DOES NOT ALWAYS INFECT

Not all animals bitten by a rabid animal develop rabies, tho a majority do. A bite thru clothing is less dangerous than one thru bare skin because the fabric may prevent saliva from being carried into the wound.

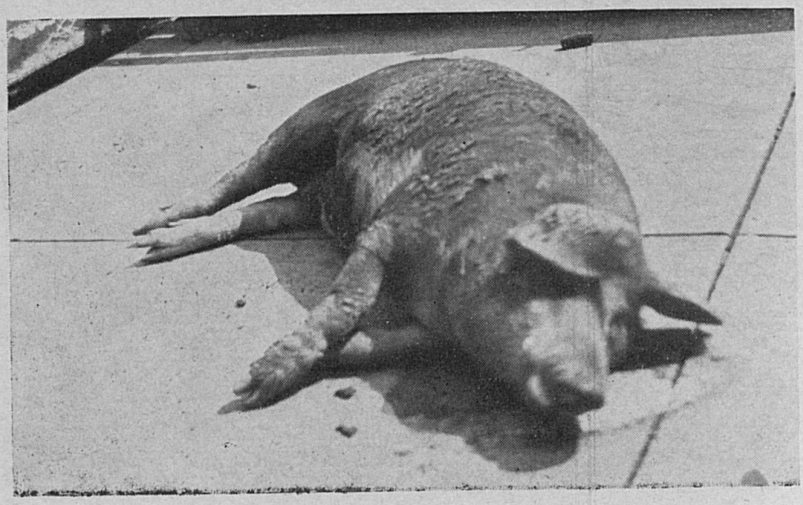
INCUBATION PERIOD

The incubation period of a disease is the time that elapses between infection and the appearance of symptoms. In most infectious diseases this period is rather definite. In rabies, however, the period is not at all uniform and seems to vary according to conditions. A person or animal bitten on or near the head develops symptoms sooner than one bitten on a hand or foot. Most animals show evidence of the disease in 15 to 30 days, tho appearance of symptoms may be delayed longer. Dogs, cats, swine, sheep and goats, on the whole, show symptoms earlier than do horses and cattle. Inasmuch as many cases are on record in which the disease did not develop for several months, one cannot be reasonably sure, until at least 6 months after exposure to infection, that rabies will not develop.

HOW RABIES AFFECTS DOGS

In the dog the disease may be manifested in one of two forms; furious rabies, and dumb rabies. In furious rabies the dog may first be noticed to seek the company of its master, hunt dark, secluded places and make sudden starts towards objects and from unusual noises. He also has a tendency not to obey orders. These are early symptoms and may last for two or three days. There is excessive saliva but not necessarily foaming at the mouth. The saliva usually becomes thick and stringy. The dog becomes more restless, wanders about, and often leaves home and travels a long distance. During this wandering he is likely to be irritable and vicious, to bite other dogs and to attack any kind of domestic animal, and also man. As a rule the dog returns home and appears to be completely tired out. He refuses to eat or drink, is irritable and has a tendency to chew and swallow foreign objects. Usually there is some paralysis of the throat causing the voice to be changed. Not infrequently the dog becomes paralyzed, first in the hind legs and later in other parts of the body. The entire period of sickness may last five to ten days. Sometimes death occurs rather suddenly in two or three days after the dog has returned.

In dumb rabies there is more often a tendency to hide away in a dark place. Usually there is a distinct evidence of paralysis of the lower jaw with tongue protruding and the drooling of saliva. The animal is unable to eat or drink, because of paralysis of the throat, altho it may attempt to take objects into its mouth. The paralysis



This pig developed rabies eight weeks after being bitten by a rabid dog. Soon after the disease developed he showed paralysis of the legs, nervousness, marked excitability when touched, champing of the jaws, and salivation. Note the pool of saliva near the head.

may extend to other parts of the body, following which death occurs in a few days. The paralysis of the jaw may make the dog look as if he had a bone stuck in his mouth.

SYMPTOMS IN DIFFERENT ANIMALS

The symptoms of rabies in other domestic animals are not unlike those in the dog. Pigs have a marked tendency to chew and gnaw foreign objects. Often they bite the feed trough, the fence or other solid objects, even tearing out their front teeth. Like the dog they refuse to eat or drink and have the same tendency to swallow foreign matter such as bones, pieces of wood straw, or any object which can be gotten into the mouth. Horses with rabies are often vicious and have been known to injure people seriously by biting. They are irritable, excitable and difficult to control. In cattle and sheep there is not this tendency to attempt to bite but they charge at a person or at fence posts or any object, the tendency in cattle being to hook and in sheep to butt, both very viciously. In all animals there is the drooling of saliva, there may be paralysis of the lower jaw, a change in the tone of the voice and frequently, before death, paralysis of the

hind quarters. Cases of rabies have been observed in which all the symptoms mentioned were present. On the other hand it can be said that animals have been sick and died of rabies without showing at any time during the course of the disease symptoms that suggested rabies.

OFTEN MISTAKEN FOR SOME OTHER DISEASE

Cases of rabies in cattle have been treated for indigestion, paralysis, and other forms of sickness, those administering the treatment never suspecting rabies. However, following the death of the animal (usually the second or third one) examination of the brain showed that the disease was rabies. It is thus evident that in every doubtful case which possibly may be rabies, the brain should be examined. This is particularly important with dogs that have bitten other dogs or persons, and with other animals if they have been handled or given medicine by the mouth, thus exposing persons to possible infection.

WHEN A PERSON IS BITTEN

If a person has been bitten by an animal that shows unmistakable symptoms of rabies, the Pasteur treatment should be taken as soon as possible. A physician or the city or county health officer should be consulted. Vaccination must not be delayed more than five days following exposure. If possible, the animal should be killed and the brain examined, tho if the animal has not shown positive symptoms, it should not be killed immediately but should be confined and watched. An animal killed in the early stages of rabies may not have Negri bodies in the brain; therefore it is best to confine a suspected animal three or four days and observe developments. If a dog remains normal and shows no further symptoms to indicate rabies, probably it will not be necessary to kill him. On the other hand, if he really has rabies, pronounced symptoms should appear in two to five days. Immediately on the appearance of such symptoms, the dog should be killed and the brain examined.

FIRST AID

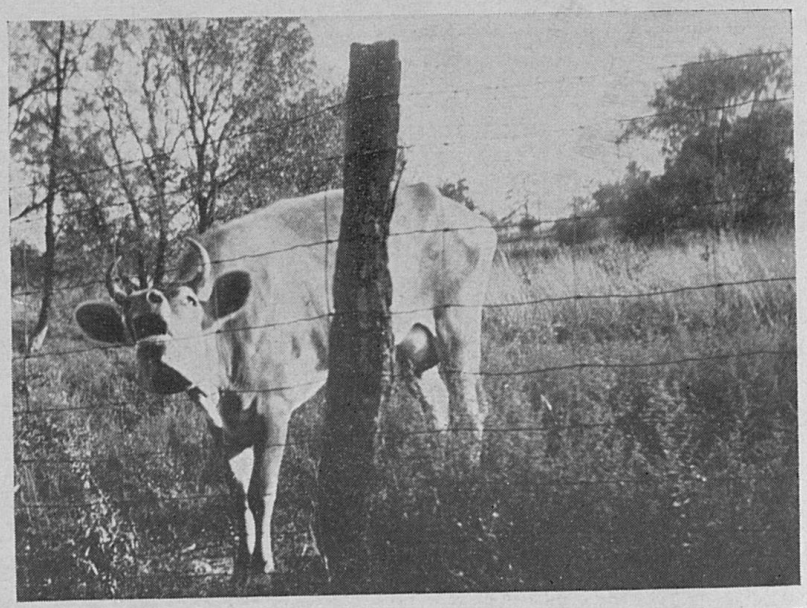
Wash a wound with water and apply tincture of iodine or some other good disinfectant. Do not try to stop bleeding at once, unless it is profuse.

TO PREPARE A HEAD FOR EXAMINATION

A satisfactory examination cannot be made of a brain that has

been damaged by a bullet, crushed by a blow, or that is in a state of decomposition. Therefore the following procedure is suggested:

Kill the animal in a way that does not injure the brain; by a shot thru the heart, for example.



This cow developed rabies six weeks after being bitten by a rabid dog. She was aggressive, excitable, gritted her teeth, was unable to eat or drink and bellowed at frequent intervals.

Remove the head by severing the neck a short distance from the skull, preferably with a saw to avoid spattering blood.

Apply formaldehyde solution, or mercury bichloride solution or borax powder or solution to the cut surface, the mouth, eyes and ears, to retard decomposition.

Enclose the head in a suitable container, such as a metal can with a tight-fitting or soldered cover. In warm weather, pack the container in another vessel, with sufficient ice to last until the package reaches the laboratory.

Send the head to the nearest laboratory, as promptly as possible. Prepay transportation charges.

Heads may be sent to:

The Public Service Laboratories, Experiment Station Building, (Scovell Hall) Lexington, Ky., or to

The State Department of Health, 6th and Main Streets, Louisville, Ky.

Shipment of the entire body is not desirable, tho permissible if the animal is small, such as a cat or small dog.

CLEAN AND DISINFECT THE PREMISES

After a case of rabies, the place where the animal was kept should be thoroly cleaned and disinfected. While cleaning the premises wear rubber gloves to protect the hands against infection. Burn the carcass or bury it as directed by the law governing the disposal of the bodies of animals dead from infectious diseases. Burn bedding and rubbish which the animal may have infected. Scrape the floors and walls and scrub them with strong lye water; then thoroly disinfect by spraying or otherwise applying a disinfectant to all the surfaces. Some readily available desinfectants are:

Compound cresol (or sheep dip)
4 parts in 96 parts of water.

Bichloride of mercury
One 7½ grain tablet in one pint of water.
Any amount of solution may be made in this proportion.

Chloride of lime (dry powder) also called bleaching powder
4 ounces to 3 gallons of water.

Especial care should be taken in the use of bichloride of mercury, as it is very poisonous.

GENERAL SUGGESTIONS

Avoid handling sick animals with the bare hands. Take no chances; wear rubber gloves when there is any possibility of rabies. If an outbreak of rabies occurs in the neighborhood, tie up all dogs. Destroy stray dogs. Call a veterinarian if the animal has symptoms. If a person is bitten call a doctor. Do not resort to a mad stone. So-called mad stones have no value whatever in preventing rabies, notwithstanding the popular belief in their efficacy.

VACCINATION OF DOGS AND OTHER ANIMALS AGAINST RABIES

As a protection of animals against rabies, it is suggested that three injections of antirabic vaccine be used on unexposed animals. Vaccination should be repeated every 12 months as the immunity produced by vaccination does not last much longer than that.

Six or more injections should be given to exposed animals. In the antirabic treatment of animals the most effective results are obtained if the treatment is started at once, after exposure. If five days

have elapsed after definite exposure before it is possible to start using antirabic vaccine, there is little or no chance of its being effective.

HUMAN ANTIRABIC TREATMENT

Consult a physician about the antirabic treatment. This treatment should be started immediately or as soon as a positive diagnosis of the diseased animal can be made and in no case should it be delayed for more than five days following exposure. The antirabic treatment for man requires from fourteen to twenty-one injections.

CONTROL MEASURES

Vaccination of dogs, while not 100 percent effective, seems to be the means of combating the disease most effectively when combined with the following control measures:

Since stray dogs are common spreaders of rabies, the dog law should be rigidly enforced.

Confine all dogs exposed to rabies for observation for sixty days or longer, even if treated.

The heads of all dogs that have bitten humans or animals and which show symptoms of rabies should be sent to the laboratory for examination.

Results of the examination of heads for rabies by the Public Service Laboratories, Experiment Station, Lexington, and The State Board of Health Laboratories, Louisville, Ky., during 1936.

	Positive*	Negative**	Total
Dog	389	225	614
Cat	14	37	51
Cow	17	10	27
Steer	1	1	2
Calf	4	11	15
Sheep	1	7	8
Horse	1	1	2
Mule	0	3	3
Hog	9	7	16
Pig	1	2	3
Rabbit	0	1	1
Rat	0	1	1
Squirrel	0	4	4
Chicken	0	1	1
	437	311	748

*Positive means showing evidence of the disease.

**Negative means showing no evidence of the disease.