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Swine Erysipelas

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Fig. 1.—Chronic swine erysipelas accompanied by bony enlargements on legs, lameness, and stiffness. All illustrations through courtesy of the Illinois Agricultural Experiment Station.

Swine erysipelas is a relatively new and costly disease, which constitutes such a serious threat to the pork producing enterprise that every Missouri farmer needs to understand the nature of the disease and the measures that may be taken to prevent its further spread in the state. Though first found in Missouri less than a dozen years ago, this disease has spread through several counties.

Control of swine erysipelas is made extremely difficult by the fact that the infecting organism (*Erysipelothrix rhusiopathiae*) can live and multiply in the soil, maintaining itself there for years as a constant threat to swine production on that particular farm.

How Erysipelas is Spread

The disease may be introduced into healthy herds or onto uninfected farms in many different ways. The most common is through the purchase of sick or exposed animals, or by the purchase of apparently healthy hogs that have recovered from an attack of the disease and are carriers of the organism.

The disease is also spread through the feeding of infected pork trimmings in garbage or kitchen slop. It may also be spread through bacon rinds and cured ham trimmings as it has been shown that the organism will survive in bacon pickle for 170 days and in smoked hams for a period of over three months.

Livestock trucks may at times be mechanical carriers of the infection. Trucks that have been used to transport infected animals may spread the disease through the scattering of contaminated straw and manure from the floor of the truck. Special shipping pens should be provided on every farm to prevent any livestock remaining on the farm from coming in contact with straw or manure dropped from truck beds.

Symptoms

Swine erysipelas is recognized as appearing in two types, the acute and the chronic. Animals surviving the acute form of the disease may later be affected with the chronic type.

Acute type.—In the acute type the symptoms are difficult to distinguish from those seen in an animal affected with acute hog cholera. The disease may affect animals of any age from suckling pigs a few days old to mature hogs. The first symptom usually noticed is the animals going off feed and being inclined to remain in their beds. A marked rise in body temperature to 105° or 110° Fahrenheit may be noted. Animals may die in a few hours or a day after showing symptoms. Breathing may be rapid and shallow. The skin underneath the chest and throat may be bright red in color. The reddening of the skin is most noticeable in white hogs. Sick animals usually are constipated but later may have a diarrhea. The course of the disease in the acute type usually extends over a period of three to four days, with most deaths occurring on the third or fourth day. In some cases the disease may extend over eight or ten days before death occurs.

Animals that show a return of appetite on the third, fourth, or fifth day stand a good chance of recovering. With improvement of the appetite the temperature drops and the animal improves more each day. When hogs are sick with acute hog cholera most

of them die with only an occasional animal recovering. If several of the sick animals in a herd begin to show improvement on the fourth, fifth or sixth day it would indicate that the disease might be swine erysipelas and not hog cholera. Frequently animals with the acute type of the disease that appear to be on the way to recovery will begin to show evidences of the chronic type of the disease.

Chronic type.—In the chronic type of the disease the death losses are not high but the impaired appetite and unthriftiness caused by the infection may cost the hog owner more than the acute type of the disease. In the chronic type of the disease the erysipelas organism localizes in the skin, joints, heart valves, or tonsils. The skin form of the disease is often so mild that the hog raiser is not aware that anything is wrong. Animals affected with this form of the disease usually have light red or pinkish areas appearing on chest, belly, shoulders and flanks. These reddish areas usually are diamond-shaped, resulting in naming the disease "diamond skin disease." The red areas gradually turn dark in color and in time disappear. Sometimes there are complications, in which dark-colored crusts form in the areas. These gradually dry up and fall

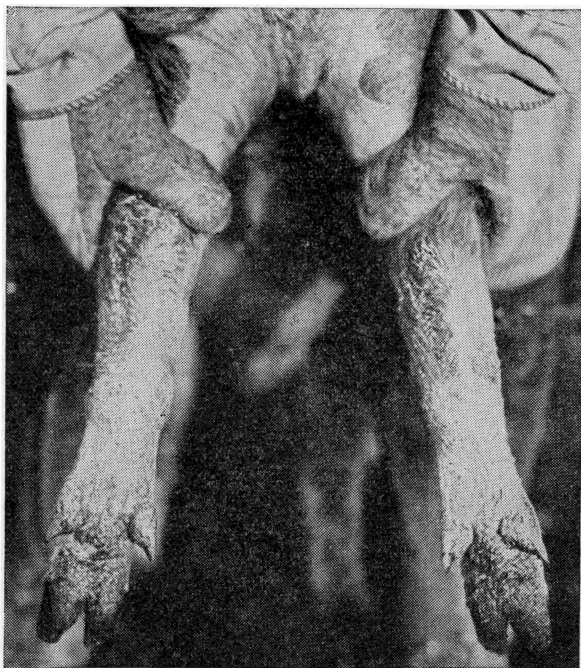


Fig. 2.—Bony enlargements on legs below hock on pig shown in Fig. 1.

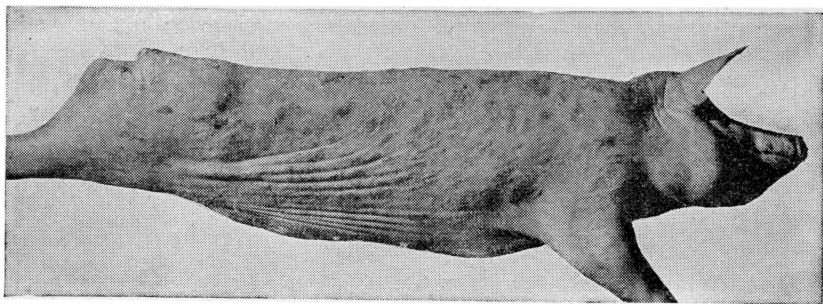


Fig. 3.—Lesions of diamond-skin disease.

off. In old hogs this form sometimes results in large areas of the skin on the back becoming necrotic or dead, forming large leathery shields that curl at the edges. (See Figure 4.)

In joint or arthritic form of the disease, the infection is localized in the joints and frequently causes growths on the bones near the joints. In the early stages of this form of the disease the animal is

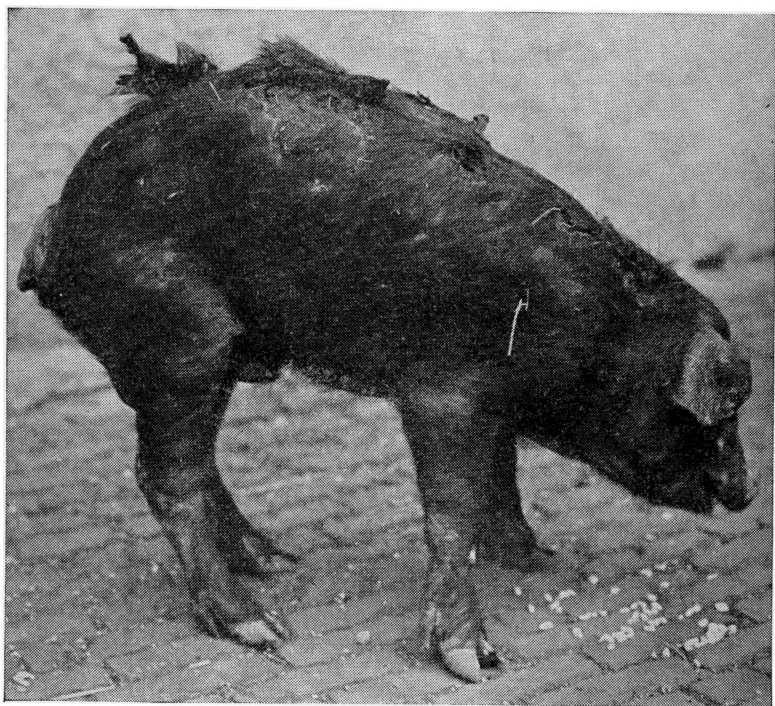


Fig. 4.—Sloughing of the skin following an acute attack of swine erysipelas.

tender on its feet and walks on its toes with a stilted gait. The joints at this stage may be hot and tender and the animal is likely to squeal and struggle when pressure is put on the joints. Later the joint appears enlarged and growths commonly called knots appear on the joints of the legs. The hock joints are frequently affected (as in Figures 1 and 2). The joints in the backbone may also be affected, in which case paralysis of the hind quarters may develop. The joint form of the disease is not always accompanied with swellings or enlargements in the joints. The only symptom noticed in many cases is stiffness and pain. Such animals stand and walk on the tips of the toes.

The death rate in this form of the disease is low, but the affected animals are not thrifty and in most cases are unprofitable in the feedlot.

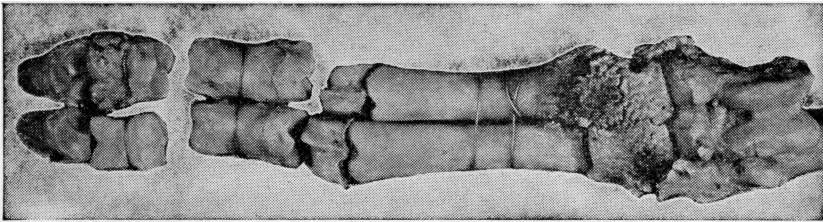


Fig. 5.—Excess bone formation (Osteitis) in region of hock and pastern joints resulting from chronic swine erysipelas.

Another form of the disease that occurs but is not generally recognized unless a careful post mortem examination is made is where the heart valves are involved. Cauliflower-like growths develop on the heart valves and on the walls of the heart above or below the valves.

Symptoms in these animals are obscure and are generally overlooked. Animals may die suddenly without any apparent cause. Such deaths sometimes occur in moving the herd from one pasture to another or may occur in fat hogs while loading to ship to market. The strain caused by sudden and rapid movement is more than the weak heart can stand.

Diagnosis

A diagnosis of swine erysipelas based on history of the herd, symptoms, and autopsy findings is always difficult and in most instances impossible. If swine erysipelas were the only disease

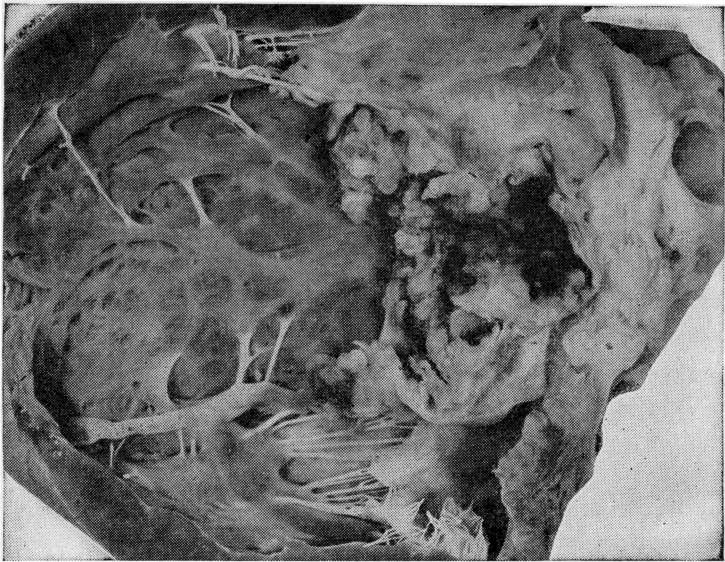


Fig. 6.—Cauliflower-like lesions on the heart valves of hog infected with swine erysipelas.

with a like chain of symptoms and characteristic changes found at autopsy, diagnosis would not be a serious problem. There are, however, other swine diseases in which the symptoms and history of the herd present a similar picture. Acute hog cholera and acute swine erysipelas are manifested by a like chain of symptoms and tissue changes. Then, too, it frequently happens that a sick animal may be affected with both diseases at the same time.

A history of sudden onset of symptoms with death occurring on the first or second day, with some of the sick animals recovering on the fifth or sixth day, should arouse suspicion that swine erysipelas may be the cause. A definite diagnosis of the disease should be withheld, however, until the swine erysipelas organism has been found in the tissues by laboratory methods.

Infections in the joints of hogs with the formation of swelling in the joints and so-called knots are not positive proof that swine erysipelas is the disease. Organisms other than swine erysipelas are known to cause the same condition. It is a strong indication, however, that the swine erysipelas organism may be the cause. Laboratory cultures can prove or disprove whether the condition is due to swine erysipelas.

Treatment and Methods of Control in Diseased Herds

The positive diagnosis of swine erysipelas by laboratory methods is a time-consuming procedure. When a drove of hogs becomes sick it is therefore necessary to rely on the experience and judgment of the attending veterinarian as to treatment. It is not possible to predict with mathematical certainty the results that can be expected from treatment in any disease. This is true because there are so many factors that may intervene and prevent the treatment from being effective.

One of the known factors that complicates and prevents the effective treatment of swine erysipelas, hog cholera and other septicemia diseases of hogs is heavy infestation of the animals with internal and external parasites. Herds affected with filth-borne diseases such as bullnose, necrotic enteritis, and other intestinal disorders, lower the resistance and render proven methods of treatment ineffective.

A good demonstration of how low physical resistance may cost the hog raiser a great deal of money is the result often obtained when hog cholera serum and virus are used on a herd of hogs affected with one or more of the above disease conditions. The use of the double treatment in such herds may result in the herd coming down with hog cholera instead of establishing immunity against the disease.

A good sanitary system of raising hogs will not only save feed and losses from parasites and filth-borne diseases, but when a herd is infected with a highly fatal and infectious disease such as hog cholera or swine erysipelas, the disease can be controlled and losses cut to a minimum when the proper treatment is given.

Herds infected with swine erysipelas should be inspected frequently and all sick animals removed as soon as they are discovered. The swine erysipelas organisms have the ability to live in the soil for long periods of time and, under favorable conditions, to grow and multiply. For this reason, infected herds should be confined to as small an area as possible to prevent infecting more soil on the farm than is necessary.

In the acute type of swine erysipelas the use of anti-swine erysipelas serum has proven of value in stopping the progress of the disease in the herd and curing many of the sick animals. The immunity established following use of the serum is of short duration—not over two weeks—after which the disease may again ap-

pear in the herd. The use of anti-swine erysipelas serum in the chronic type of the disease is of little value.

Experiments conducted by the Nebraska Experiment Station and United States Bureau of Animal Industry have shown that prophylaxis vaccination, using a live culture of the swine erysipelas organism with a simultaneous injection of anti-swine erysipelas serum, will confer immunity in most animals for a period of about six months. An immunity of longer duration can be established by giving a second injection of live swine erysipelas organisms two weeks after the first vaccination with live organisms and serum. The immunity established by the second injection of live organisms is generally accepted as extending over a period of about nine months. Hog raisers on swine erysipelas infected farms in Nebraska have been able to control the disease in most cases by the use of the serum and live culture vaccine method.

The serum and live culture vaccine method of immunizing swine for the disease will soon be available for Missouri hog raisers. However, Missouri hog raisers should be sure that their farms are infected with swine erysipelas organisms before using this method, since if used on farms that are not infected with swine erysipelas it will result in permanently infecting the farms.

Missouri farmers should be careful in purchasing replacement breeding stock or feeder pigs not to introduce the disease on the farm. Do not purchase sick or unthrifty hogs that have swellings around the joints.

Swine Erysipelas in Man

Swine erysipelas infection can be transmitted to man. Most cases of swine erysipelas, or erysipeloid as it is called in humans, is the result of the organisms entering a wound or cut. Veterinarians who accidentally puncture themselves with the hypodermic needle when vaccinating with the live culture vaccine become infected. Infections are known to have resulted from persons performing autopsies or during butchering.

Cases of the human disease in which infection takes place from the consumption of infected meat are exceedingly rare. Infections that occur in wounds are usually localized.

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