

SWINE ERYSIPELAS

By

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Swine erysipelas is a disease caused by a specific micro-organism, *Erysipelothrix rhusiopathiae*. This germ may also manifest itself in sheep, turkeys, cattle, horses, chickens, pigeons, and man. Of the laboratory animals white mice and pigeons are very susceptible and are frequently used for test animals. This disease has been established in Europe for many years, but it has only been recognized of economic importance in the United States during the last twenty years.

Erysipelas in swine may manifest itself in several different ways. There may be an acute septicemic disease in which the pigs have a high temperature, they may vomit, and show either a constipation or a diarrhea. Deaths may be sudden with no symptoms observed. In many cases a pig will be found dead without showing symptoms prior to death.

In baby pigs the animals may appear normal at birth but be dead within 48 hours. At other times they show a progressive decline and develop thick crusts on the skin and a frequent sloughing of the tail and ears.

In still another form of the disease there are sores on the feet, the joints swell and the pig refuses to stand up. At times the skin becomes very red which is easily seen in white pigs. This lesion was so characteristic that the disease was named erysipelas after the disease in man, which is caused by an entirely different micro-organism, although the lesions are similar.

One form of swine erysipelas is characterized by darkened areas of the skin and is called "diamond skin" disease. Still another form manifests itself in sore joints and an accentuated curve of the back. The pigs walk on their toes.

In a swine drove the losses from deaths may vary from none to 60% of the group. Failure to grow is a common symptom and in these cases the economic loss may be great.

In sheep the swine erysipelas organism usually produces sore joints which may enlarge considerably and stunting is a common observation.

Horses and cattle do not become infected as often as sheep and swine. In most cases they die without showing any characteristic symptoms.

Turkeys, chickens, and pigeons usually die of a septicemia although they may show enlarged joints or an actual sloughing of the feet.

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In man the usual lesion is confined to the skin which turns a bluish-black and sloughs off. The disease however may become septicemic and may localize in the joints or in the heart valves.

Infections with the swine erysipelas organism are widespread in this area. Cases involving swine, sheep, chickens, turkeys, and man have been observed.

The greater distribution of this disease has raised several important questions particularly those arising from the public health standpoint and those pertaining to the economic loss.

The organism causing swine erysipelas will live for years in the soil. At times it actually appears to multiply in the soil of barnlots.

Buried carcasses and bones from cured hams have been found to contain virulent organisms of swine erysipelas. Once this disease becomes established on a farm it is very difficult to eradicate.

There have been two types of control used against swine erysipelas; one a test and slaughter method. In some swine droves this method has been highly effective. The greatest drawback against a test and slaughter method has been the inability to develop an entirely satisfactory test. The agglutination method used to detect swine erysipelas is not entirely effective. Some swine owners have controlled this disease by means of rigid sanitation and elimination of diseased swine. These producers have for the most part discontinued the use of the colony farrowing house. They have farrowed their sows in individual houses on clean pastures. At weaning time the pigs are penned in temporary pens on clean ground. The gilts and boars saved for replacement animals are carefully selected and only the rapidly growing, smooth jointed swine are retained. To these men the greatest problem is the obtaining of disease-free replacement swine. Any pig whether it appears normal or not may be a carrier of swine erysipelas. Vaccinated animals are frequently carriers. The term carrier is used here to denote an apparently normal animal that at times sheds swine erysipelas organisms that can infect other animals.

A temporary control measure for swine erysipelas is the use of anti-erysipelas serum in acute cases. This method is effective in saving the lives of many pigs, but all too frequently the disease either recurs in the acute form or the animals develop symptoms and lesions of chronic erysipelas. The protection afforded by the use of the antiserum does not extend over six weeks.

Another method of control of swine erysipelas is the use of a live vaccine and the antiserum. This vaccine is capable of producing the acute disease and its use establishes the disease on the farm. The use of live culture erysipelas vaccine is restricted by Government and State regulations to use on farms where erysipelas is present and the use of the vaccine will not increase the distribution of the disease.

There appear to be predisposing factors in the acute outbreaks of swine erysipelas. Recently farrowed pigs often die of swine erysipelas while the sows remain healthy. This appears to be the result of an immunity in the sow that is not transmitted to the piglets. Sometimes, however, either just before or just after farrowing sows will develop either septicemic or arthritic forms of erysipelas. In the septicemic forms the sows may farrow dead piglets. There may be an inadequate supply of milk from sows showing symptoms of erysipelas.

It is not uncommon for outbreaks of swine erysipelas to follow sudden or indiscreet changes in the feeding routine of swine. Recently weaned swine may develop acute erysipelas. It is not uncommon to find acute erysipelas in swine fed carcasses of cattle or horses. In all of these cases it appears that the erysipelas organisms are dormant until some factor lowers the resistance of the animal and the disease becomes active.

An interesting case was recently presented at the North Dakota Agricultural College diagnostic laboratory. The owner castrated his male pigs and notched the ears of the females for identification purposes. One week later he experienced heavy death losses in the drove. The organism of swine erysipelas was isolated from the tissue of the ear of one of the pigs submitted.

It is not uncommon to encounter outbreaks of swine erysipelas following the serum-virus treatment for immunization against hog cholera.

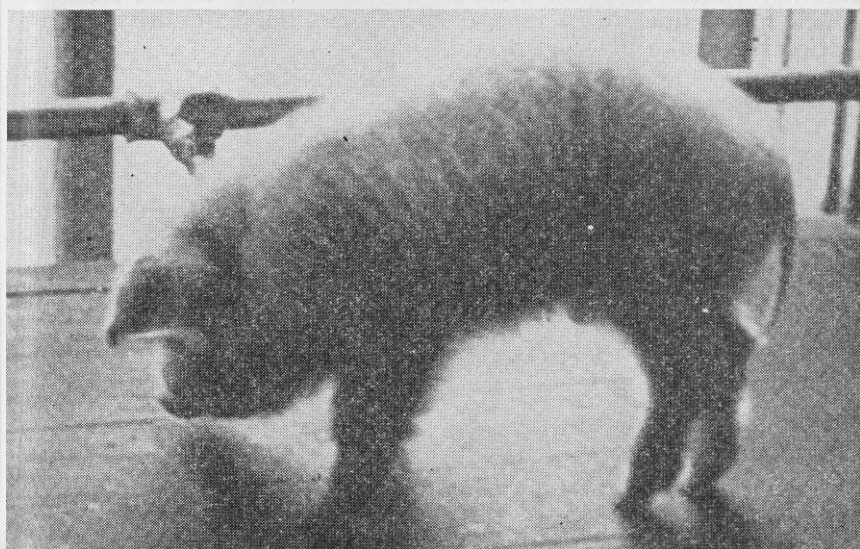


Figure 1.—Acute skin lesions. Clearly marked areas of redness easily seen on a white pig.

Reports from many swine producers indicate that on those farms where erysipelas outbreaks occur year after year the most effective method of control rests in the vaccine-serum treatment. The owners of swine however can often keep their losses down by proper care and management practices.

There is no substitute for good pasture for swine. Sunlight is our most effective disinfectant. The use of a good growing ration is essential for the economical production of pork. Too frequently swine are raised on a ration low in calcium and when kept indoors low in vitamin D. Swine with enlarged joints may have been fed a ration low in calcium and vitamin D. Before suspecting the chronic form of swine erysipelas add limestone and vitamin D to the ration.

At times young pigs and lambs develop arthritis (sore joints) soon after birth. Sometimes we have been able to isolate the erysipelas organism from these joints while at other times we obtained the common wound infection germ, *Staphylococcus*. In either case the infection could have been prevented by the liberal use of dry bedding and the painting of the navel with iodine at the time of birth.

The danger of swine erysipelas infection to other species must not be overlooked. Sheep, chickens, and turkeys frequently contract swine erysipelas from being pastured on soil previously used by swine. People become infected, usually by handling swine or other material soiled with discharges from swine infected with the disease. In examining swine dead from any cause it is a wise precaution to wear rubber gloves. The erysipelas organism apparently causes infection in man through breaks in the skin. An attack of erysipeloid in man does not produce immunity as reinfection may take place at a later date.

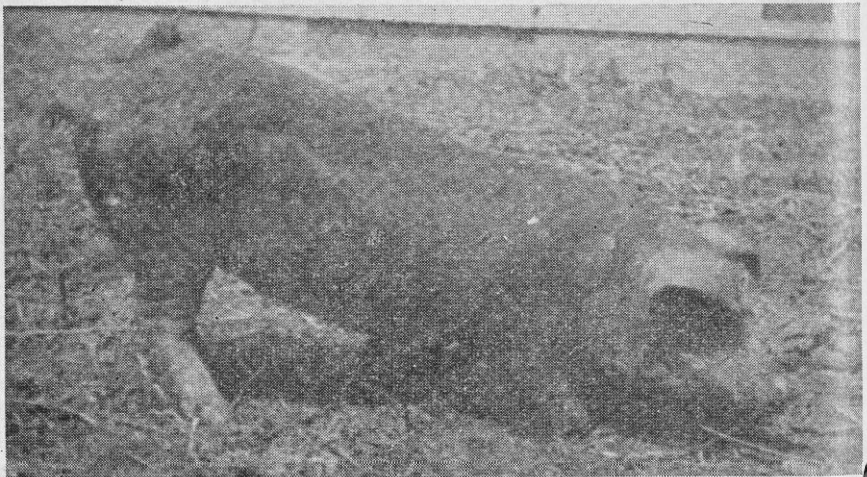


Figure 2.—Acute arthritis. Pig refuses to stand because of pain in forelegs.

Treatment of swine erysipelas has not been very successful. In the acute septicemic type the animals are often found dead. If they are observed sick the use of antiserum is quite effective.

Penicillin has been used by Jungherr and Gifford (1) and Grey (2) in erysipelas infection in turkeys with success. Grey (3) also found streptomycin effective in treatment of erysipelas of turkeys. Little work has been done on the treatment of erysipelas in swine with drugs and antibiotics. In general the use of antiserum has been followed with satisfactory responses.

During the spring of 1947 there has been an apparent increase in the number of cases of swine erysipelas in North Dakota. In all probability the disease will continue to be a problem for some years. The importance of healthy foundation stock, complete rations and a rigid sanitation program continues to increase as more diseases become established on the farms of the state.

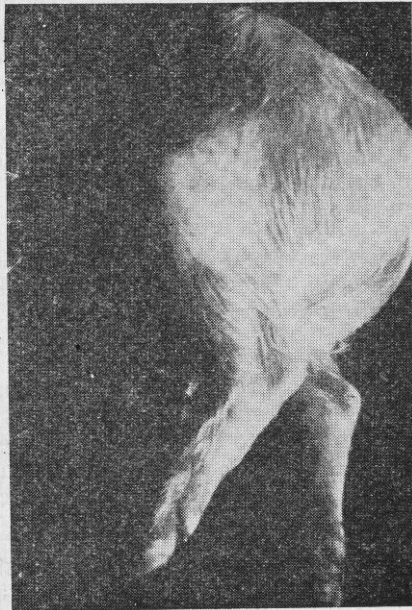


Figure 3.—Chronic erysipelas. Skin wrinkled and thickened.

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