



Erysipelas

(RED SKIN)

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Erysipelas, often referred to as diamond skin disease, is a bacterial disease primarily affecting swine and turkeys caused by the *Erysipelothrix insidiosus* organism. There are at least six strains of this organism, all having at least one common antigen which provides some cross-protection following recovery from infection or through vaccination.

The organism is resistant to pickling, smoking, drying and salting, so pork trimmings or processed meat may still contain the organism. The erysipelas organism will live for up to 12 days in direct sunlight, 30 years under refrigeration, and survive for at least nine months in a buried carcass. Alkaline soil or stagnant alkaline water are ideal for prolonged survival of the organism. One of the methods of control is good sanitation and disinfection. The disinfectants of choice are sodium hydroxide (0.05%), cresols, 5% phenol and quaternary ammonium compounds.

Swine are the primary hosts

Though the erysipelas organism has been associated with nearly every domestic animal and bird as well as many wild birds, animals and fish, the most frequent hosts are swine and turkeys. The organism may gain entrance into the body through the mouth, possibly by breaks or injury in the epithelial lining, or it may pass through the stomach acid and infect the lower digestive tract. The source of infection for the digestive tract is often fecal-contaminated feed, water or pork trimmings found in raw garbage. Wound infections, particularly on the skin, are possibly the most frequent source of infection in swine. Other wound infections include those created by cutting needle teeth, umbilical infection, vaccination, or insect bites such as flies, ticks, or lice. Other sites of body entrance include the eyes and nose.

Contaminated yards or pens containing manure or decaying debris may serve as a source of infection for extended periods following contamination. Animals and birds that recover from erysipelas may be symptomless carriers of the organism. Pigeons are highly susceptible to the erysipelas organism. Feces of rodents and birds may serve as a source of food and water contamination for swine. Other sources of the erysipelas organism are improperly disposed of carcasses and improperly processed fish products.

Infected swine may be acutely sick or exhibit no signs of illness

The disease in swine may occur in acute, mild or chronic forms. The acute illness includes sudden deaths, signs of chilling, withdrawals from the rest of the herd, depression and a temperature of 105° to 109° F. The leg joints are hot and painful. The involved animals sit or lay and resent being disturbed as expressed by squealing and a stiff gait. When standing the weight is shifted constantly and the feet are placed well under the body. The involved animal may exhibit skin lesions about two days following the first signs. Initially the lesions appear as reddened areas with many insect bite-like lesions. These are particularly evident in white-skinned animals. The skin lesions may progress to the degree of sloughing, particularly over the ears, tail and legs. Often these lesions have a diamond-like shape, hence the term diamond skin disease.

The mild form of erysipelas will appear similar to the acute forms, but all observed signs will be less severe.

The chronic form of erysipelas may occur following an unobserved infection or following recovery from the acute or mild form. The skin lesions described for acute erysipelas is one form of chronic erysipelas. Other forms include heart valve infection, with the development of a cauliflower-like lesion of the heart valves resulting in heart insufficiency that becomes particularly evident upon exertion.

Possibly the most frequent and damaging form of chronic erysipelas is arthritis. The leg joints are initially hot and painful followed by varying degrees of enlargement and stiffness. The erysipelas organism can be isolated from 30 to 75 per cent of the involved joints and is characterized as a local infection. The problem predominates in pigs of litters from arthritic sows. Other disease problems that appear similar include infections by staphylococci, streptococci, mycoplasma, brucella corynebacterium organisms, or nutritional deficiencies such as pyridoxine, copper, riboflavin, pantothenic acid, calcium, phosphorus and vitamin D, injuries and allergies.

Most frequently observed in male turkeys

Erysipelas infection may occur in turkeys at any age but is most often observed in males, possibly because of their fighting habits which provide skin openings for infection. Artificial insemination of turkeys has increased the incidence in females, possibly through injury during insemination.

The typical signs include sudden death, droopy head and wings, unsteady gait, swollen purple-red wattles and snoods and pox-like lesions on the face. The involved birds crouch apart from the flock and move about with evident pain. As the disease progresses the survivors become emaciated. There is decreased fertility and decreased egg production. Vaccinated birds have the greatest chance for recovery, but recovered birds are often carriers shedding erysipelas organism in the feces for up to a month.

Lambs and calves may be infected

Erysipelas infection in lambs or calves is exhibited as a polyarthritis (arthritis of more than one leg joint). It is often referred to as joint ill or navel ill. The source of infection is wounds such as castration, docking, and navel infection. Poor sanitation resulting in contaminated bedding is a source of the infection. The involved animal may be one week of age or older and the signs of involvement include lameness, stiff gait and evidence of pain upon attempting to move about. Though a localized infection, it may become chronic and result in retarded development. The source of infection may be infective swine or turkeys. Sheep may have lameness from an infection of leg wounds occurring during dipping and contaminated dipping vats.

Sanitation and management important in control

If your herd or flock is free of erysipelas, every effort should be made to keep it that way. Breeding stock should be purchased from erysipelas-free or SPF sources. All new additions should be isolated and kept under close observation for signs of erysipelas for at least 30 days prior to adding to the established herd or flock. Control of dogs, cats, birds, rodents and humans around the herd or flock area is imperative to the prevention of contamination and infection. Dead carcasses should be removed immediately upon discovery and disposed of properly - preferably by burning. Never feed uncooked garbage to swine. Manure and decaying debris should be constantly removed to avoid contamination or protection of the erysipelas organism. Good drainage will aid in elimination of protection or optimum conditions for the erysipelas organism.

Vaccination can be effective for swine

Antiserums - Antiserums, if correctly administered, will provide immediate protection for approximately three weeks. Erysipelas antiserums are helpful in protecting swine exhibiting no signs when in contact with infected swine in an out-

break and in speeding recovery of infected swine. It is most effective when given with penicillin to sick swine. Antiserum is often administered to three-day-old pigs to provide greater protection until they can be permanently vaccinated with a bacterin or a living attenuated vaccine.

Bacterins - Bacterins are formalin-killed erysipelas organisms that are usually absorbed onto aluminum hydroxide to provide a greater stimulatory effect. At least two weeks must elapse between administration and the production of good immunity. They are most effective when administered twice at two to four-week intervals. When administered to three-month-old swine as directed they will provide a good immunity for at least six months.

Attenuated vaccines - Attenuated (modified) vaccines are living erysipelas organisms that have been modified so that they have minimum disease-producing ability (lost their pathogenicity) but will produce active immunity. Multiplication of a erysipelas organism within the vaccinated animal and a minimum of two weeks following administration are required to provide good immunity. Protection may be present up to one year. There may be a mild post-vaccination reaction and the organisms may be present in the vaccinated pig for several months following vaccination. When sows are vaccinated with attenuated vaccines before breeding or before farrowing the erysipelas organism may infect the new born pig.

Vaccination of turkeys

Bacterins are employed to immunize turkeys. They are administered beneath the skin at the dorsal surface of the neck just behind the head. Birds used for meat production are usually given a single administration and breeding birds usually are given two administrations at two to four-week intervals and at least three weeks previous to the beginning of laying.

Treatment

The antibiotic of choice is penicillin for any species infected with erysipelas. Maximum benefits may be obtained by the combination of penicillin and erysipelas antiserum. The wide spectrum antibiotics are also effective. Sulfonamides are of no value.

Humans can be infected

When working with infected animals extensive care should be exercised to avoid infection. Erysipelas is an occupational disease usually observed in veterinarians, poultry processing plant employees, fish handlers, butchers, laboratory workers, or swine and poultry owners. The usual route of entry is through skin wounds or breaks. The infection usually occurs on the fingers. The usual signs include a reddish-purple boil like swelling that is hot and painful. The infection may progress to a septicemia and cause arthritis or heart lesions. Infections with the erysipelas organisms in man is known as Erysipeloid and should not be confused with erysipelas of humans that is caused by a hemolytic streptococcus organism.