NECROTIC RHINITIS is referred to as bullnose in many localities. Because swine producers have tended to regard any diseased condition of the nose or snout of pigs as necrotic rhinitis or bullnose, misunderstanding arose when atrophic rhinitis became widely recognized.

Both necrotic rhinitis and atrophic rhinitis are observed oftenest in growing pigs. Both may be present at one time in one animal.

The names by which they are identified merely describe the condition produced by the disease. In atrophic rhinitis it is a gradual atrophy or disappearance of some of the bony and cartilaginous tissues that make up the air passageway in the central part of the snout. In necrotic rhinitis it is an abscess or ulcer of the soft, fleshy tissue that surrounds the harder tissue forming the air passageway; the abscess or ulcer is much the same as those found in many other locations and is caused by bacterial infections.

The abscesses of necrotic rhinitis often develop to considerable size, and their presence can be seen easily. Atrophic rhinitis, though, is limited to changes that occur within the bony air passageway; in most cases no evidence of these changes can be detected from the external appearance of the snout.

Still another difference exists between the two conditions—their cause or causes. We do not know the cause of atrophic rhinitis.

The specific cause of necrotic rhinitis for many years was thought to be the bacterial organism Spherophorus necrophorus. Studies of this bacterium have brought some doubts as to its primary significance as the causative agent of the necrotic processes in which the organism usually can be found. The organism is quite common in nature, especially in localities of high animal populations, and is readily available to contaminate any wounds, abrasions, or other such injuries of the mouth and snout areas of the pig. Poor and inadequate sanitary conditions favor such contamination of wounds.

Other bacterial organisms always are found in the abscesses and ulcers. The most common belong in the Micrococcus, Streptococcus, Corynebacterium, and Pseudomonas groups. They are usually the most abundant organisms in the rhinitis lesions. The original site of the necrotic abscesses and ulcers is in some of the soft tissues, but the development of the lesion sometimes involves the bones of the nose and face, and considerable destruction of bony tissue may occur.

The development of the lesions in either soft or bony tissues can result in interference with the ability of the animal to eat. That and the toxic effect of the necrotic tissues results in a lowering of the general health and resistance to other diseases. The pigs develop into rough, unthrifty individuals.

Some pigs may overcome the infections through natural processes. Surgery or drugs, penicillin and other antibiotics, and several of the sulfa compounds in the early stages may give good results. In many cases the infection is well established before it is noticed, and treatment is unsatisfactory. Prevention is more effective than treatment. Good sanitation and farm safety practices, such as the elimination of as many hazards as possible, will reduce the incidence of these infections.

Pasteurellosis has been known also as hemorrhagic septicemia and swine plague. It is caused by a bacterial organism, Pasteurella multocida.
It occurs in many species besides swine, but apparently it does not always produce a diseased condition. The reason is that there is more than one strain or variety of the organism. Some strains have more ability to cause disease than others. The fact that more than one type is recognized means that any resistance developed in the animal body as the result of infection with one strain will not give protection against infection with strains of the other types.

In regions where many hogs are raised in the United States, *Pasteurella multocida* occurs most commonly in association with abnormalities of the respiratory system. Occasionally it becomes a form of infection that spreads rapidly through the blood stream to all parts of the body, but in most cases other diseases are present, and the pasteurellosis seems to be a secondary complication. There is considerable doubt even in the pneumonic form of pasteurellosis that the organism is of primary significance.

Research in swine disease has shown the presence of formerly unknown causative agents of pneumonic conditions. Both viral and bacterial agents have been added to the list of causes of pneumonia, and the importance of pasteurellosis as a primary cause of pneumonia has decreased.

Two types of products for the prevention and treatment of pasteurellosis have been popular for a long time. Bacterins for vaccination purposes and antiserum for quick treatment and preventive benefits have been used extensively. These products sometimes gave good results and sometimes indifferent results, probably because of the variety of strains of the *Pasteurella* organisms. With the introduction of effective drug treatments, the use of bacterins and antiserum has decreased considerably.

When drugs and antibiotics, such as sulfathiazole, sulfamethazine, penicillin, streptomycin, Aureomycin, and Terramycin, became available, all of them were used either singly or in various combinations. Because pasteurellosis is so often associated with other diseases, it is quite likely that the best results will be secured with combinations of drugs and antibiotics, which are effective against both pasteurellosis and its associated diseases.

Milk fever in sows includes several conditions that occur shortly after farrowing. Veterinarians generally agree that it is not the same condition that is observed often in cows after calving.

One form of milk fever that occurs in sows is believed to be caused by a parathyroid dysfunction. It is called parturient hypocalcemia. It is a result of a reduction of the blood calcium below normal at farrowing time.

Sows may be attacked within a few hours of farrowing. The appetite and milk secretion fall off, and the sow appears to be restless. Later she lies down. She may get up and make some convulsive movements around the pen before she goes down again and passes into coma.

Treatment consists in injecting under the skin a solution of calcium and magnesium chloride with glucose.

Hypopituitarism is sometimes called milk fever, but it does not have the symptoms of milk fever. It is caused by improper functioning of the pituitary gland. It may occur within 3 days after farrowing.

The characteristic symptoms are lack of appetite, constipation, and a high temperature. Affected animals lie down and are reluctant to move. If they are forced to their feet, they soon lie down again and seem to be stiff in the joints. The mammary glands may be swollen; little or no milk can be pressed from the teats.

Treatment consists in the injection of pituitary extract. The mammary gland should be massaged well to assist a return of the milk flow. The milk flow will return in a short time if there are no complications.

A lack of enough minerals, especially calcium, in the rations of brood...
sows often leads to a condition like milk fever. Most sows are not fed enough minerals during gestation and lactation. When the demand for calcium increases with the milk flow, the body becomes depleted in 1 to 2 weeks after farrowing. The milk flow may gradually become less or may stop in a few days. The sow loses her appetite, refuses to nurse the pigs, and cannot stand. She may linger a while and then die unless calcium is supplied.

MASTITIS, also known as garget, is an inflammation of the mammary glands or udder. The most common cause is the invasion of the glandular tissue by bacteria. The organisms enter through the opening in the teats or through cuts and abrasions. The organisms most often found in this condition are Actinomyces (which also infect cattle), Streptococci (also found in cattle), and Actinobacillus.

The symptoms may be a local reaction or a general disturbance of the system resulting in loss of appetite, rise of temperature, and possibly constipation. The inflamed udder becomes swollen, hot, and painful. The sow, because of intense pain, often refuses to let the pigs suckle. The milk may be stringy and clumpy or may be absent.

Prevention is important. Proper care and feeding of sows just before and after farrowing lessens the possibility of infection.

Sows should not be kept in muddy barnyards or in places where stones, rubbish, and straw might harbor the infective organisms and cause injury to the mammary glands.

The udder should be washed thoroughly before moving the sow to clean, dry, farrowing quarters that have been disinfected and bedded.

Reduction in the quantity of feed, especially proteins, and the use of molasses and antibiotics will prevent the development of predisposing factors. Treatment with penicillin has been successful. Hypodermic injections of penicillin and hot applications have given the best results.

Paralysis in swine is commonly called posterior paralysis. It covers all conditions from leg weakness to complete loss of function in the hind quarters. The causes are varied and often obscure but may be included mostly under infectious diseases, nutritional deficiencies, mineral poisons, and mechanical injury.

Such infectious diseases as hog cholera, erysipelas, rabies, and tetanus, or lockjaw, in their late stages may cause paralysis. In most instances, however, a diagnosis can be made before the paralytic stage develops.

LISTERIOSIS, an infectious disease that commonly results in paralysis, is hard to diagnose. The infectious organism, *Listeria monocytogenes*, may cause sporadic outbreaks anywhere in the United States. Swine of all ages are susceptible. The method of transmission has not been discovered.

A central nervous infection causes incoordination, stilted gait, and dragging of the hind legs. A queer, stilted gait of the front legs is evident before the hind quarters become paralyzed. Ten to 20 percent of the herd may be infected. The highest mortality is in suckling pigs.

The disease can hardly be distinguished clinically from a deficiency of calcium and vitamin A. Therefore a laboratory test of affected animals has to be made for an accurate diagnosis. The infective organism localizes in the medullary part of the central nervous system.

We know of no specific treatment for listeriosis.

Paralysis commonly follows a long period of nutritional deficiencies, particularly a shortage of calcium. The relationship among calcium, phosphorus, and vitamin D, however, is complex and the three items must be considered together. Paralysis is observed oftener in sows than in younger stock.

Sufficient mineral may be fed the sows before the breeding period, but the extra demand for calcium during pregnancy and after farrowing may
mean that the calcium has to be taken out of the bones to supply the demand for milk. The result then is a softening of the bones, or osteomalacia, and paralysis. That condition may occur any time during the lactation period, depending on the amount of calcium supplied in the feed. When the supply of calcium is quite short, paralysis may occur about 2 weeks after farrowing.

The sow goes off feed, the milk flow stops, and she lies down most of the time. In a day or so the sow cannot stand at all and dies in a short time. Secondary infection often is the immediate cause of death.

A postmortem examination will show that the liver is light in color and brittle, the spleen may be enlarged and congested, and the kidney may have a parboiled appearance. Congestion may be observed in other organs. The ribs will be soft—they can be cut with a knife and will bend almost double before breaking, instead of snapping, as a normal rib does.

No treatment is effective after the sow goes down. Sows that show uneasiness or difficulty in standing should be given an injection of calcium gluconate. The entire herd should be fed molasses and calcium, which can be readily utilized by the body. Vitamin D should be increased in the ration, especially in winter.

Avitaminosis A, which is due to too little vitamin A, may lead to paralysis. An important function of vitamin A is to keep the surface tissues of the body’s mucous membranes healthy so that they will resist bacterial infection. A shortage of the vitamin changes and weakens the tissues so that bacteria can invade the body and the animal is subject especially to respiratory ailments. It is evident therefore that many other symptoms may be observed before paralysis occurs and the true cause of the paralysis will not be determined. The head may be carried tilted to one side because of infection in the middle ear. Night blindness, a weaving gait of the posterior parts, and a stunted growth precede paralysis.

Paralysis is caused by nerve degeneration in parts of the spinal cord, and in the sciatic and femoral nerves.

Vitamin A is supplied in green feeds, yellow corn, and well-cured alfalfa hay. Dehydrated alfalfa leaf meal is a good source of vitamin A.

Large amounts of mineral poisons may cause paralysis. Generally speaking, hogs get those substances—arsenic, lead, and coal tar pitch—only accidentally.

Mechanical injury, which may cause paralysis of the hind legs in shipping hogs, is not uncommon, because large hogs are inclined to be weak in the loins, and a blow there may cause them to go down. The hind legs may spread apart when a hog slips on a slick floor or concrete. Paralysis of pigs in feed lots is often caused by butting or pawing by cattle.

**Swinepox**, an acute infectious disease, affects swine of all ages. The pox lesions, like those of pox diseases of other animals, form on the skin.

The first signs of the disease usually are reddened, round areas, about one-fourth to one-third inch in diameter. The spots progress through the common stages of pox lesions, first as pustules and vesicles and then in a few days as scabs, which may drop off in several days.

Sometimes one finds symptoms of fever, poor appetite, diarrhea, and depression, but in such cases many pox lesions may be scattered over many areas of skin and the symptoms may be due to coexisting or secondary infections.

Swinepox is caused by a pox virus that is thought to affect only swine. The disease is not generally considered as being transmitted from animal to animal by contact, but it is easily carried from affected pigs to unaffected pigs by lice.

Swine that recover from the disease are immune to further attacks.

Swine are not susceptible to the viruses causing pox in other species of animals except vaccinia virus, the
virus used for vaccination against smallpox. Vaccinia virus produces a
disease with skin lesions in pigs much like those produced by swinepox virus.
The outstanding differences are the
more superficial location of the pox
lesions and their earlier disappearance.
Swine that recover from vaccinia in-
fec tion are permanently immune to
that disease but remain susceptible to
swinepox. Swine that are immune to
swinepox are still susceptible to vac-
cinia.
No medicinal treatment is known for
swinepox.
Good care and general sanitary
measures are recommended for con-
trolling the disease and preventing
complications.

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