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Popular Article

## Diseases in Pigs: Causes and its Prevention and Control

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### Abstract

Diseases in pigs are very common where unhygienic management and proper health care is not adopted. A variety of diseases (Virus, bacteria and parasite) and disorders affects pigs that resulted in economic losses through sub-optimal growth rates. Among the various diseases of pig's viral infection, wound and maggot infestation causes a great loss to the farmers. The maggot infestations are very prevalent in tropical India during premonsoon and monsoon season. The risk factors for setting of diseases are varied in outdoor and confined pigs and mostly dependent on environments and management practices.

### Introduction

There are several factors that can contribute to the deterioration of a pig's health. Illnesses and diseases frequently happen when a pig experiences stress, has a poor diet, is exposed to other pigs that are ill, consumes contaminated food or water, or is housed in an inappropriate environment (i.e., too hot, unsanitary) (Patra *et al.*, 2014). Some common diseases are pneumonia, pseudo rabies (mad itch) and swine dysentery. Swine can also have external parasites such as lice and mange mites or internal parasites that live inside the pig's body (Turton, 2001). Similar to humans, swine need to have some basic living standards met in order to stay healthy. Having the right diet is crucial to a pig's health. A pig that is malnourished is more vulnerable to disease. The immune system of a malnourished animal has a harder time fighting off pathogens (e.g., disease-causing bacteria or viruses) than that of a well-nourished animal, so disease is more likely to take over the underfed pig's body and bring about still more health problems. A healthy diet can prevent myriad diseases. In addition, the practice of good hygiene can prevent a health disaster. By keeping the pig's environment, food and water as clean as possible, you cut down the chances that bacteria or other pathogens will thrive. Maintenance of the correct temperature in a pig's environment contributes significantly to its health. Overheating can cause dehydration and heatstroke-which can result in death. If kept in too cold an environment, a pig

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can become ill or, in extreme cases, get frostbite and die. Housing the pig in a low-stress environment is a way of protecting its health. Stressors vary, but a few examples are excess noise and crowded conditions-too many pigs housed in too small an area. When a pig is scared or stressed, its activity level and appetite will probably change. Though there are many diseases and illnesses that can attack swine, the farmer who care for them can take an active role in disease prevention simply by monitoring their pigs on a daily basis (Cargill and Davies, 1999; Chakrabarti, 2016). There are several indicators that farmer can watch for: the quality of the feces, the pig's activity level, its appetite and its skin.

### **Different Types of Diseases**

Like any animal, a pig can be affected by many diseases. Listed below are a few diseases that pigs may face.

#### **1. Pseudorabies or Aujeszky's Disease**

- This is a contagious disease caused by herpes virus. This virus causes reproductive and severe neurological disease, inflammation of the brain, spinal cord, and also respiratory tract infection. It can be spread directly from animal to animal or by means of other inanimate objects such as clothing and feed.
- ❖ Young piglets may show fever, muscle twitching, convulsions, paralysis and the usual result is death.
- Adolescent pigs show respiratory signs such as coughing and sneezing but death is much less likely.
- In adults, reproductive problems such as stillbirth and giving birth to weak piglets may result.
- ❖ Diagnosis of Aujeszky's disease can be confirmed by isolating the virus from the oropharyngeal fluid, nasal fluid (swabs) or tonsil swabs from living pigs, or from samples of dead pigs or following the presentation of clinical signs such as encephalitis in pigs.
- ❖ There is no specific treatment for this viral disease, so prevention of the disease (i.e., by means of vaccination or strict sanitation) is essential. This disease has been eradicated by slaughtering herds containing infected animals or by vaccinating herds to reduce disease and then slaughtering pigs with antibody to wild type virus. Wind can spread virus for 2-17 km on land and 70 km over water, so eradication is best carried out on an area basis.

#### **2. Swine Dysentery**

- This is caused by *Brachyspira hyodysenteriae* bacteria and affects mostly post-weaning pigs. The bacteria can be transmitted through pig-to-pig contact or on feces, clothing, or on other animals (i.e., rats and mice).
- ❖ Diarrhea, loss of coordination, dehydration and weakness. Although swine dysentery may result in death if left untreated
- ❖ Diagnosis of this disease often can be made on the basis of clinical signs and typical gross



lesions. *Brachyspira hyodysenteriae* often can be cultured and identified from rectal swabs or colonic scrapings from acutely affected, unmedicated pigs

- ❖ Antimicrobials are an effective treatment for swine dysentery if started early, proper treatment that includes disinfecting the area can restore the pig's health.

### 3. Classical swine fever or Hog cholera

- It is a contagious viral disease of domestic and wild swine. It is caused by a virus of the genus Pestivirus of the family Flaviviridae. The most common method of transmission is through direct contact between healthy swine and those infected with CSF virus. CSF virus can survive in pork and processed pork products for months when meat is refrigerated and for years when it is frozen. Pigs can become infected by eating CSF- infected pork meat or products.
- ❖ In the acute form of the disease, in all age groups, there is fever, huddling of sick animals, loss of appetite, dullness, weakness, conjunctivitis, constipation followed by diarrhoea and an unsteady gait. Several days after the onset of clinical signs, the ears, abdomen and inner thighs may show a purple discoloration. Animals with acute disease die within 1-2 weeks. Severe cases of the disease appear very similar to African swine fever.
- With low virulence strains, the only expression may be poor reproductive performance and the birth of piglets with neurologic defects such as congenital tremor.
- ❖ Diagnosis is based on clinical signs, serology, virus isolation and PCR.
- ❖ There is no specific treatment for this swine fever viral disease. Affected pigs must be slaughtered and the carcasses buried or incinerated. The first barrier to prevent an outbreak of CSF is to apply strict and rigorous sanitary prophylaxis.

### 4. Swine Influenza (Swine Flu)

- Swine influenza is a highly contagious respiratory disease that results from infection with Influenza-A virus (IAV) and it can be transmitted to humans.
- ❖ IAV causes respiratory disease characterized by sneezing, coughing, mucous nasal discharge, anorexia, depression, fever and lethargy. Fever in pregnant sows may lead to abortion.
- ❖ IAV is primarily diagnosed by detecting the influenza virus by RT-PCR, virus isolation, and occasionally by detecting antibodies against IAV in unvaccinated animals. Virus can be isolated from nasal and oral secretions in the febrile phase, from affected lung tissue in the early acute stage, or from udder wipes collected from sows with infected suckling piglets.
- ❖ There is no effective treatment for this disease, although antimicrobials may reduce secondary bacterial infections and antipyretics may provide symptomatic relief. Expectorants also may help relieve signs in severely affected herds.
- ❖ Vaccination and strict import controls are the only specific preventive measures. Sow vaccination either prefarrowing or the entire herd at once (mass vaccination) are the most



common vaccination protocols. Sow vaccination attempts to maximize the transfer of maternal immunity to the progeny.

- ❖ Good management practices, such as strict all-in/all-out procedures; limiting movement of pigs and sows within farrowing rooms and between pens, rooms and barns; and freedom from stress, particularly due to crowding and dust, help reduce transmission and losses.

## 5. Mycoplasma Pneumonia

- Mycoplasma hyopneumoniae causes mycoplasmal pneumonia in pigs. It is sometimes referred to as enzootic pneumonia. It is very contagious and can be transmitted through the air, but can also be transmitted as a result of poor management, such as poor water flow, dusty feed and drafty conditions.
- Pigs of all ages are susceptible, but within a herd, pigs are colonized in the first few weeks of life either by their dam or by other young pigs after mixing. Transmission to suckling piglets can occur from sows of all parities but is most prevalent in first-parity (gilt) litters.
- ❖ Nonproductive coughing is the most common sign of mycoplasmal pneumonia and is most obvious when pigs are roused. In endemically infected herds, morbidity is high, but clinical signs may be minimal and mortality is low. Average daily weight gain and days to market weight are common production parameters negatively affected.
- ❖ Diagnosis is based on clinical, histopathologic findings and PCR assay test. On gross examination, areas of affected lungs are gray or purple, most commonly in the apical and cardiac lobes, and consolidated.
- ❖ Antibiotics can be given to minimize the effects but vaccination and proper management practices are more efficient.

## 6. Foot and Mouth Disease

- This disease is caused by Aphthovirus and it is very contagious because it can easily spread via the wind and can infect many animals.
- ❖ Infected animals will show signs of lameness and blisters or vesicles around the mouth and snout area and around the legs and hooves. They are inactive and are usually lying down.
- ❖ There is currently no cure for the disease. Infected animals should be euthanized in order to prevent spread of the disease. The best way to prevent the spread of this disease to minimize the amount of outside exposure, disinfect all equipment and clothing that may be in contact with your pigs, and keep the facility and the pig's living area clean and disinfected.

## 7. Gastric Ulcers

- This disease causes damage of the stomach lining.
- ❖ Signs are vary depending on the type of pig and the severity of the disease. General signs include vomiting, loss of appetite, weight loss, pale skin, teeth grinding, lack of energy and dark



colored droppings. The ulcers can occur if there is a lack of essential nutrients in the diet. Certain types of foods can also cause ulcers. Stress can also cause gastric ulcers.

- ❖ To prevent this disease, feed pigs a well-balanced diet and maintain a clean and stress-free environment.

#### 8. Erysipelas (Diamond skin disease)

- ❖ Erysipelas or diamond skin disease of pigs can kill the animals. This is an infection of the pig's body which produces recognizable discoloration on the pig's body. These are reddish diamond-shaped areas on the skin or the animal may have a purplish color to the head and ears. Pigs with erysipelas have a high temperature and do not take feed; they squeal if touched. The animal can die from an acute infection or in chronic cases the animal survives but suffers from swollen joints and lameness.
- ❖ Erysipelas is treated by using the penicillin antibiotics. Animals can be vaccinated against the disease.

#### 9. Internal parasites

- Pigs can be infected with a number of different roundworms. These can result in poor weight gain in adults. In young pigs, infection with roundworms can cause diarrhoea, weight loss, lung problems and death. Worms from pigs can cause disease in human.
- ❖ Roundworm infection
- Pigs can be infected with a number of different round worms. People who keep pigs can notice large roundworms, 25 - 40 cm long in the animal's dung.
- ❖ In pigs 2 to 5 months old, the worms cause diarrhea, weight loss and lung problems. The young worm lives in the liver and lungs before passing into the intestine. The damage to the lungs can allow germs to attack and cause coughing and lung infections. The young pig can die. The worm in the liver of young and adult pigs causes white spots (milk spot) to develop. Such a liver should not be eaten by humans.
- ❖ Infected pigs are easily treated by dosing with a suitable treatment, e.g. piperazine. The pregnant sow should be treated before giving birth or she will pass on infection to her litter. One female worm will produce a million eggs a day which pass out in the dung. These eggs infect new hosts and can stay in the ground or the pigsty for up to 5 years.
- ❖ The pigsty, shelter or pen should be cleaned out and the walls and floor treated with caustic soda which is left for 2 - 3 days before washing it off. If infected pigs have been kept out in a field, the land should be ploughed and used for a crop, or as grazing for other animals, before pigs are put back on it.

#### 10. External parasites

- ❖ Mite infestation (Mange)



- Mange is caused by infestation with mites and results in thickening and crusting of the skin. The mites can be transmitted not only from pig to pig but also from pigs to humans. The activity of the mites burrowing into the skin makes the pig scratch and the wounds caused can become infected with germs. The affected area of skin becomes dry and leathery, and as the pig rubs its body against objects to relieve itchiness the skin may become raw. Mange occurs around the head, ears, legs and tail but will spread over the body if not treated. Infected swine may also have a reduced growth rate. Mange mites may result in the pig's death if not treated.
- ❖ Mange mites may result in the pig's death if not treated. Mange can be treated with proper medication. It can be controlled by spraying, dipping or painting the infected areas with a suitable preparation. The pen and shelter should also be thoroughly cleaned out and washed down. Treatment should be repeated after 2 weeks. After working with mange pigs, wash hands thoroughly and wash clothing too.
- ❖ Lice infestation
- Pigs can suffer from infection with dark colored lice which can be seen on the animal's body. The lice feed on the skin and irritate the pig which will scratch and can cause wounds which become infected.
- ❖ Treatment involves spraying with coumaphos and cleaning the areas where the animals are kept.
- ❖ Tick infestation
- ❖ Pigs can be attacked by some ticks which take blood. The ticks may carry other infections to the animals.
- ❖ Treatment can be carried out by spraying with a suitable permethrin based compounds or by removing the ticks by hand or by touching them with kerosene or a lighted cigarette. Affected pens should be thoroughly cleaned.

## **Conclusion**

The best solution to swine diseases is prevention. Measures to take to decrease the risk of infection include:

- Routine health procedures, which include vaccination, monitoring on a regular basis, and feed additives to ensure that no nutrient is deficient
- When bringing home a new pig, making sure the pig has a complete check up and is infection-free
- Always wash hands before and after handling pigs
- Maintaining a clean and well-managed environment for pigs
- Pigs are prone to stress that may be caused when you vaccinate, change the pig's environment, or add a new pig. When pigs are stressed, they eat less, grow slower and are more susceptible to diseases. Therefore, it is important to try to minimize or avoid stress in a pig.



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