Department of Primary Industries
primefact

Mycoplasmal pneumonia in pigs

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Animal Biosecurity & Welfare

Introduction

Mycoplasmal pneumonia in pigs is a respiratory disease that is caused by *Mycoplasma hyopneumoniae.* This organism predisposes pigs to secondary infections of the lung with bacteria including *Pasteurella multocida*, *Streptococcus suis*, *Haemophilus parasuis* and *Actinobacillus pleuropneumoniae*.

Mycoplasma hyopneumoniae infection alone causes relatively mild disease in the absence of environmental stressors, but when complicated by secondary bacterial invaders the resultant disease can cause obvious clinical disease and severe production losses in intensively reared pigs. This disease complex is referred to as enzootic pneumonia (EP).

Mycoplasma hyopneumoniae and EP are widespread in pig populations and endemic in most pig herds around the world. Although infected sows can transmit infection to their offspring this is less important than other sources of infection. Transmission is most common between finisher or older grower pigs to younger grower or weaner pigs.

Clinical signs

Mycoplasmal pneumonia and EP usually have an incubation period of 2 to 8 weeks before clinical signs are seen, but this may extend even longer.

Clinical signs of infection only appear in lactating sows and piglets if disease is introduced into a naïve herd for the first time.

Acute disease is usually only seen in new breakdowns of disease in naïve herds.

Clinical signs are more pronounced if EP occurs, in which case acute disease signs may include:

- prolonged, non-productive cough
- respiratory distress
- fever
- high mortality rate across all ages

Chronic disease is the more normal clinical picture when the organism has been present in the pig herd for a long time.

Maternal antibody is passed from sows to piglets and passive immunity protects piglets for 7 to 12 weeks after which clinical signs start to appear including:

- prolonged, non-productive cough
- heavy breathing (‘thumps’)
- reduced growth rates
- 30% to 70% of pigs with lung lesions at slaughter

Contributing factors

Mycoplasma hyopneumoniae is often introduced into a pig herd by carrier pigs showing no apparent clinical signs. Windborne aerosol transmission is also possible over long distances (3 kilometres or more) with the right climatic conditions.

Increased clinical disease is associated with the following:

- overcrowding
- continuous flow production systems
- concurrent diseases
- < 3 m^3 air space per pig
- < 0.7 m^2 floor space per pig
- poor air flow in pig housing
- variable temperatures
- poor insulation
- variable wind speeds and chilling
- high levels of carbon dioxide and ammonia in pig housing
- pig movement, stress and mixing
- poor nutrition
- dietary changes at susceptible times

Diagnosis

Mycoplasmal pneumonia and EP are often suspected if the clinical picture is one of coughing grower/finisher pigs with low mortality.

At the abattoir, the lungs of individual pigs are scored for the amount of damage in each lung lobe. A total score out of fifty five is then awarded to each pig. An average lung score is then calculated for the herd.

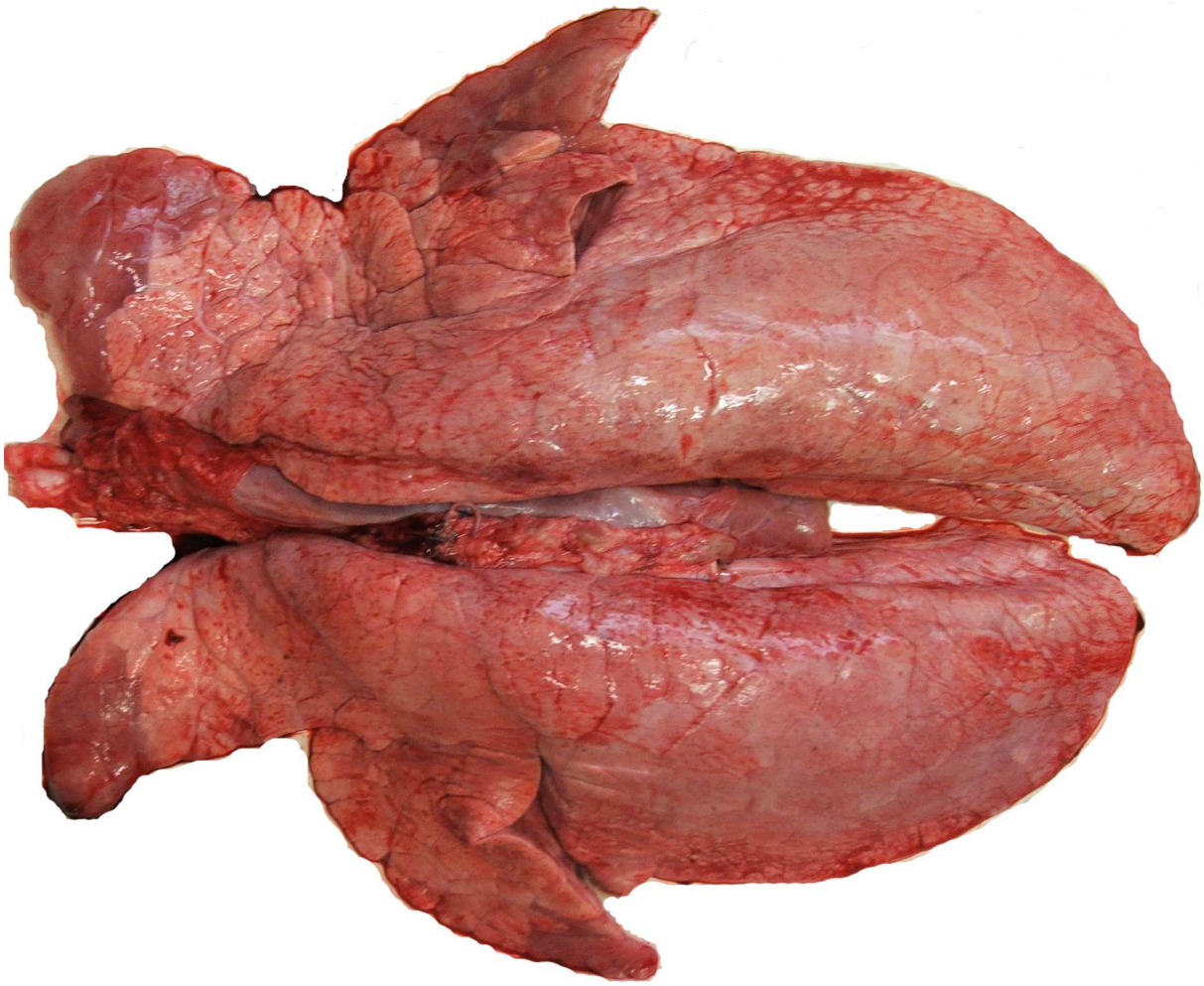
At slaughter or post-mortem examination, typical gross lesions include well demarcated dark consolidated areas, particularly in the apical and cardiac lung lobes. Lung lesions become more widespread as disease progresses, but do not extend to the upper areas of the diaphragmatic lobe unless complicated by organisms such as *Actinobacillus pleuropneumoniae.*

In complicated infections where *Pasteurella multocida*, *Haemophilus parasuis* or *Actinobacillus pleuropneumoniae* occur, pleurisy and pericarditis may complicate the gross appearance of the lungs at necropsy. Lymph node enlargement and a catarrhal exudate in the bronchial tree often accompany these lesions, especially if EP occurs.

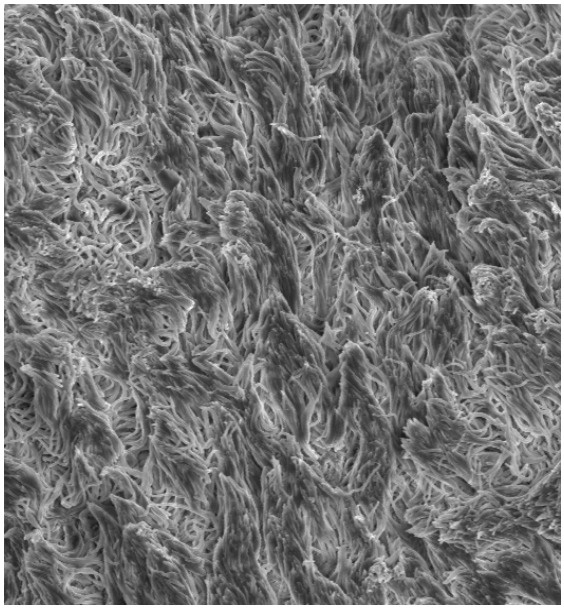
Microscopically, there is a lymphocytic infiltration around the bronchioles and blood vessels known as ‘cuffing’. Severity of the microscopic lesions and increasing neutrophil presence is seen with secondary pathogens.

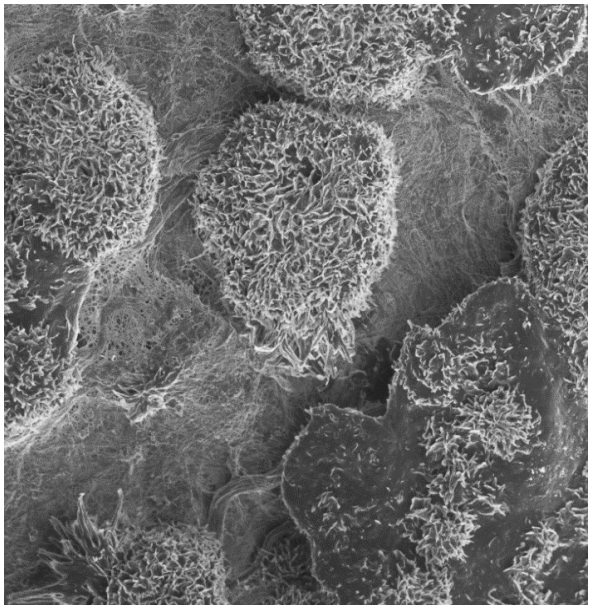
Although characteristic, these pathological lesions are not specific to mycoplasmal pneumonia or EP. Culture is required for a definitive diagnosis; further identification and species characterisation requires PCR. Further information is available at http://www.dpi.nsw.gov.au/about-us/services/laboratory-services/veterinary/mycoplasma.

Classic plum coloured lesions on the cardiac and apical lobes as a result of *Mycoplasma hyopneumoniae* infection: photo courtesy of C. Jenkins



Scanning electron microscope images of tracheal tissue from a vaccinated pig (left) and an unvaccinated pig (right) that demonstrates the extent of cilial loss after infection with *Mycoplasma hyopneumoniae:* images courtesy of C. Jenkins





Control

Vaccination is the most effective and common method of controlling clinical disease, minimising the severity of EP and reducing transmission of *Mycoplasma hyopneumoniae*.

Young piglets should be vaccinated as per vaccine manufacturer's instructions and in consultation with your veterinarian.

Maintain a broad parity breeding herd because sows > parity 2 are more immune than parity 1 sows and pass on better immunity to their piglets.

How do I maintain a *Mycoplasma hyopneumoniae*-free herd?

Location, regional pig density and topography are all important in maintaining a *Mycoplasma hyopneumoniae*-free herd.

Piggeries that are 3 kilometres+ away from other piggeries in a low pig dense area with screening trees/hills have a greater chance of remaining *Mycoplasma hyopneumoniae*-free. However, overseas evidence indicates that *Mycoplasma hyopneumoniae* can travel 9 kilometres on wind currents.

Pig herds should ideally be 'closed', introducing new genetics only by artificial insemination or embryo transfer. If new breeding pigs are introduced, purchase only *Mycoplasma hyopneumoniae*-free pigs from a reputable supplier and, if possible, from only one source every time.

Introduced pigs should be isolated for a minimum of 6 weeks in facilities at least 1 kilometre (and preferably further) away from the main herd. Ensure that the donor herd has maintained *Mycoplasma hyopneumoniae*-free status before moving introduced pigs into the main herd.

How do I eradicate *Mycoplasma hyopneumoniae* from my herd?

A partial depopulation is preferred by many producers in order to maintain good genetics and minimise production disruptions/costs.

Mycoplasma hyopneumoniae eradication is feasible and highly successful (>90%) with partial depopulations, but it is essential to plan carefully in consultation with a veterinarian and consider what other diseases can be reasonably expected to be eradicated at the same time to improve the disease status and performance of the herd.

Pigs < 10 months of age are often found to be highly infectious, shedding high levels of the organism and are resistant to treatment so these pigs should be destocked from the piggery during the eradication program.

Pigs > 10 months of age generally have built up high levels of immunity against *Mycoplasma hyopneumoniae* and shedding of the organism is low so these pigs can remain on the piggery during the eradication program. These pigs should be medicated in-feed with tiamulin or a combination of tiamulin/chlortetracycline for 2 weeks.

A period of 2 weeks with no farrowings should coincide with the in-feed medication period and all pens should be cleaned and disinfected.

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