

*Worth knowing about*



**ResPig**

*Breathe better. Grow better.*

***Mycoplasma***  
*(mycoplasmal pneumonia)*



## Introduction

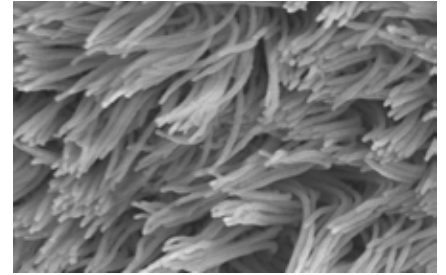
*Mycoplasma hyopneumonia*, also known as mycoplasmal pneumonia, is a type of pneumonia that occurs in finishers. In uncomplicated cases, the course of the infection is mild and, apart from a light cough, often goes unnoticed.

*Mycoplasma hyopneumonia* is the most widespread respiratory disease agent in pigs, and it is estimated to be present in all conventional herds. It is also estimated that around 1 in 4 pigs slaughtered in Denmark has or has had a type of pneumonia in which mycoplasmae play a considerable role<sup>1</sup>.

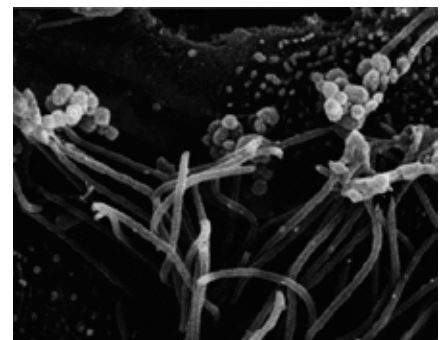
The cause of mycoplasmal pneumonia is *Mycoplasma hyopneumoniae*, which is a bacteria that only attacks pigs. The bacteria attacks the lungs and the upper respiratory tracts by adhering to the cilia in the respiratory tracts.

The function of cilia is to carry away all mucus and dust which enters the lungs. When mycoplasma adheres to the cilia, these become paralysed, and mucus mixed with bacteria can get further down into the lungs. This leads to a further weakening of the respiratory tracts' defence against other germs and viruses.

SPF herds are free from mycoplasmal pneumonia, but 50% of all SPF herds are reinfected with *Mycoplasma hyopneumoniae*<sup>2</sup>.



Cilia before infection



Cilia after infection

## Symptoms

It may be three weeks from the time when the pig is infected before the symptoms of the disease show, but the germ may well be present in the herd for a longer period before symptoms occur.

### Cough

A typical symptom of uncomplicated *Mycoplasma pneumonia* is when pigs have a dry and severe cough, but eat normally and have a normal temperature. They may, however, have varying degrees of breathing difficulties if they are chased up. In light cases, a cough is the only symptom.

### Reduced daily gain

It is possible for the uncomplicated *Mycoplasma* infection to be present in the herd without being noticed. However, it will appear from the production report since the disease is almost bound to influence the daily gain and feed consumption.

## ***Complications in connection with mycoplasmal pneumonia***

Mycoplasma respiratory infections typically pave the way for other infectors. These infections can make the disease worse by leading to complicated pneumonia, which gives pigs a fever, reduced eating, troubled breathing at rest, and increased morbidity and mortality in general.

The most common complication is caused by the bacteria *Pasteurella multocida*, which can only infect the lungs if they have already been damaged by a germ like *Mycoplasma hyopneumoniae*. In Denmark, *M. hyopneumoniae* is regarded as the most important precursor of *Pasteurella multocida*.

The presence of Mycoplasma can also increase the susceptibility of the lungs to viral pneumonia and it can make PRRS and PCV2 infections worse. If the pig at the same time is infected with Glässer, Staphylococci, Streptococci and/or Bordetella<sup>3</sup>, the mycoplasmal infection may be worsened.

## ***Infection spread***

Mycoplasma pneumonia rather easily spreads with the wind, especially in a cool and humid climate. It is assumed that the infection is able to spread across several miles. The introduction of infected, symptom-free pigs into a herd is another important way, in which the infection is spread. A pig can be infected for a long time before onset of symptoms.

Another important reason why the infection is spread is that it may take a long time from the time when the pig catches the infection to the time when it begins to show symptoms. That is why new pigs that are healthy-looking but actually infected with *Mycoplasma hyopneumoniae* can spread the infection to other herds.

## ***Diagnosis***

Diagnosing mycoplasma pneumonia requires careful examination of the pigs. The symptoms are often weak, and the only things to arouse suspicion are coughing, reduced daily gain and increased feed consumption. Usually, only SPF herds are examined, since the disease is assumed to be present in the majority of all other herds. However, it is important to know whether the disease is active or dormant.



### **Blood tests**

A diagnosis can be made by submitting lungs or blood samples for laboratory testing. Blood tests are an exact and sensitive type of method, and there is no doubt that a herd is infected if the blood tests are positive.

### **Extended Health Control**

In order to estimate the extent of the disease in a herd, extended health control (EHC) is a possibility in slaughterhouses or laboratories. The EHC examination is recommended for three deliveries of 20-30 finishers.

### **Autopsy**

When an autopsy is performed on a pig in the acute stage of the disease, changes can be seen in certain areas of the lungs (see photo), where the affected areas are condensed and have a reddish-bluish colour. At the chronic stage, the areas are more greyish. If the lung is cut open, the changes in the lung tissue are visible and mucus and greyish-yellowish pus can be seen.

Clear symptoms of pneumonia like forced breathing, fever or reduced eating may indicate complicated pneumonia. In this case, samples should be submitted for laboratory testing in order to determine the presence of other bacteria that work together with *Mycoplasma hyopneumoniae* and in order to make a resistance test.



*Forandringer i hjerte- og spidselapperne på grund Mycoplasma-infektion.*

## **Treatment and prevention**

For the pig to survive, it is rarely necessary to treat the uncomplicated mycoplasmal pneumonia (*Mycoplasma*) – the pigs will cough but they usually recover from the infection untreated. In order to improve the pig's daily gain and general welfare, antibiotic treatment against mycoplasmae is a good idea. In case of bacterial complication (complicated pneumonia), the pigs must be treated in consultation with the herd's veterinarian.

### **Prevention of mycoplasma**

- Eradication of disease either through SPF or through culling
- Reorganisation of operations into e.g. all-in all-out and/or multisite
- Vaccination
- Reduction of herd density



## Financial consequences

Although the presence of mycoplasmal pneumonia (mycoplasma) may not be visible, the disease may well have severe financial consequences for the herd. On average, the pigs grow 25 grams less per day for every 10% of the lung that is affected. However, as with other infections, the financial loss depends on a variety of factors.

### Prevention of mycoplasma

- Housing lay-out
- Environment
- Division of different age groups
- Herd density
- Stress
- Other diseases
- Management
- Medication

## Vaccination

Vaccination against mycoplasmal pneumonia is possible. The vaccines can be used for piglets or weaners. The vaccination programme must be adapted to the individual herd in consultation with the veterinarian so that the planning of the programme can take into account where and when the disease occurs in the herd. In order to determine this, blood samples can be taken from pigs in different age groups. These samples are tested for antibodies against mycoplasma, and from the results can be determined the time of infection.

Vaccination against mycoplasmal pneumonia typically halves the number of pigs that develop common pneumonia, and the daily gain typically increases by 10 to 40 grams, depending on the herd. Vaccination also decreases the risk of complications related to mycoplasma, such as complicated pneumonia, which is caused by the germ *Pasteurella multocida*.

### Sources:

- 1 Pilegård Larsen, L & Bækbo, P. (2005). Sundhed & sygdom hos svin. Landbrugsforlaget. 288 pp.
- 2 Årsberetning 2006-2007 for SPF-Danmark
- 3 Citat: S.H. Done 2005 og D. Maes, 2004
- 4 P. Bækbo et al. 2006 meddelelse nr. 761