

A REEVALUATION OF THE ROLE OF MYCOPLASMA SUIPNEUMONIAE S.
HYOPNEUMONIAE IN REGARD TO SWINE HERD HEALTH.

Per Madsen

Veterinary Department, Danish Co-operative Bacon Factories,
Axelborg - Axeltovej 3, 1609 Copenhagen V, DK - Denmark

Enzootic Pneumonia (EP) in pigs caused by Mycoplasma suis pneumoniae s. hyopneumoniae is regarded as one of the most widespread and costliest diseases of swine. Subsequently all SPF-programmes in various countries have been primarily aimed at Enzootic Pneumonia. In Denmark an SPF-programme was started in 1970 after 5 years trials with SPF-pigs (1).

Transmission experiment.

Also in 1970 a transmission experiment with Mycoplasma suis pneumoniae was performed on 88 SPF-pigs in order to 1) establish the pathogenicity of a Danish isolate of M.suip. under field conditions, 2) investigate the spreading of infection from one animal to another, 3) gain some common knowledge of the clinical features of non-complicated cases of EP and 4) refine the laboratory diagnostic methods.

20 ten weeks old SPF-pigs were inoculated intranasally with a broth culture of M. suip. (My 570) containing $0,5 \times 10^7$ i.o. per ml. - approx. 250 ml in all. The 20 pigs were placed in two pens: 12 + 8.

5 days post inoculationem (p.i.) 16 SPF-pigs were transferred to the unit with the inoculated pigs and placed in two pens (8 pigs per pen) 3,2 m from the two pens with the inoculated pigs. 20 days p.i. another 4 SPF-pigs were transferred to the pen with 8 inoculated pigs.

Coughing started in one of the inoculated pigs 5 days p.i. and 16 pigs (out of 20) coughed/had coughed 15 days p.i., and all 20 within 30 days p.i.

Coughing among the 20 in-contact pigs started in two pigs 7 days after transfer to the infected unit. Another 10 pigs coughed/had coughed 7 weeks after exposure to the infected pigs. 3 pigs did not cough before they were killed or slaughtered.

None of the pigs had symptoms of pneumonia. Temperature was taken of all pigs daily, but none had fever.

There was no coughing or symptoms of pneumonia in the control group.

The pigs were bled and weighed weekly. the first 6 weeks; thereafter every fortnight. Blood samples were tested for CF-antibodies (2) and IFA- og IHA-antibodies.

The infected pigs had higher daily weight gain (782 g) than the control pigs (757 g).

The pigs were killed during the trial or at 85 kg live-weight and all lungs were examined for M.suip. by cultivation (3) and lungs with lesions also by immunofluorescence technique (4). 15 of 32 infected pigs had lung lesions. M.suip. was cultured from the lungs of 17 pigs (3 without lesions), and IPT was positive on lung lesions from 11 pigs, negative on lung lesions from 4 pigs.

There were neither lung lesions nor M. suip. in lungs from the control pigs.

SPF-herds reinfected with M.suip.

Since 1970 reinfections have been recorded in 316 SPF-herds, of which 237 pigs = 75% have been reinfected with M.suip. Until 1973 all M.suip.-reinfected herds were restocked, but in 1973 the Sow Research Station "Sjælland III" became reinfected, and because of long term trials it was not restocked. Contrary to the reinfection in Reading (5), very little impact was recorded in "Sjælland III".

This changed our attitude to the disease and restocking of reinfected herds was only done in breeding and multiplying herds. Recently it was decided to accept SPF-herds reinfected with M. suip. These herds are controlled as SPF-herds but categorized as MS-herds (Mycoplasma reinfected-SPF-herds, or Minimal Sickness herds).

A questionnaire has been sent to 85 MS-herds, but full replies from 16 herds only could be used to compare production results before and after reinfection.

	before re-infection	after re-infection
pigs, number	10.500	11.929
daily weight gain, g.	656	628 ^{x)}
FE _g /kg gain	3,09	3,08
% pleurisy	0,7	2,0

x) significant P = 0,05

A 4,3% reduction in daily gain and unchanged feed:gain ratio does not warrant restocking.

Conclusions:

A transmission experiment with Mycoplasma suis pneumoniae in 88 SPF-pigs proved that EP (M.suip.-infection) was transmitted to in-contact pigs, but no clinical cases of pneumonia occurred.

The control group did not expose any signs of M.suip.-infection but had lower daily gain than the infected group.

The Danish SPF-programme has now been operating for 12 years. The reinfection rate has been approx. 4% per year. EP (M.suip.-infection) accounts for 75% of the reinfections.

The role of Mycoplasma suis pneumoniae as a swine-specific pathogene has been overestimated. Enzootic Pneumonia (M.suip.-infection) should not be included in an SPF-programme.

Selected references:

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