Histopathologic evaluation of enzootic pneumonia in Korean swine farms

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INTRODUCTION

Mycoplasma hyopneumoniae (Mhyo) is a very small bacterial pathogen in the class Mollicutes and lacks a cell wall. Mhyo is recognized as the primary agent of enzootic pneumonia (EP) of pigs. Mhyo is also considered to be one of the agents causing porcine respiratory disease complex (PRDC)[1]. The purpose of this study was to evaluate the histopathologic lesions of enzootic pneumonia caused by *M. hyopneumoniae* in Korean swine farms.

MATERIALS AND METHODS

A total of 30 pigs from 12 swine farms were included in this study. All farms had quite good pig performance but were Mhyo positive by serology and/or PCR from nasal swabs and did not vaccinate for Mhyo[2]. The 30 pigs for necropsy were selected from the age group where positive nasal swabs were detected. After the gross examination, lung samples were taken from consolidation lesions of cranioventral lobes. Half of each lung sample was fixed in 10% neutral buffered formalin and the other half was frozen and investigated by PCR for Mhyo. After the fixation, the lung samples were processed routinely for histopathologic analysis and sections were stained hematoxylin and eosin (H&E) stain. Lung sections were examined under light microscopy and graded (Table 1).

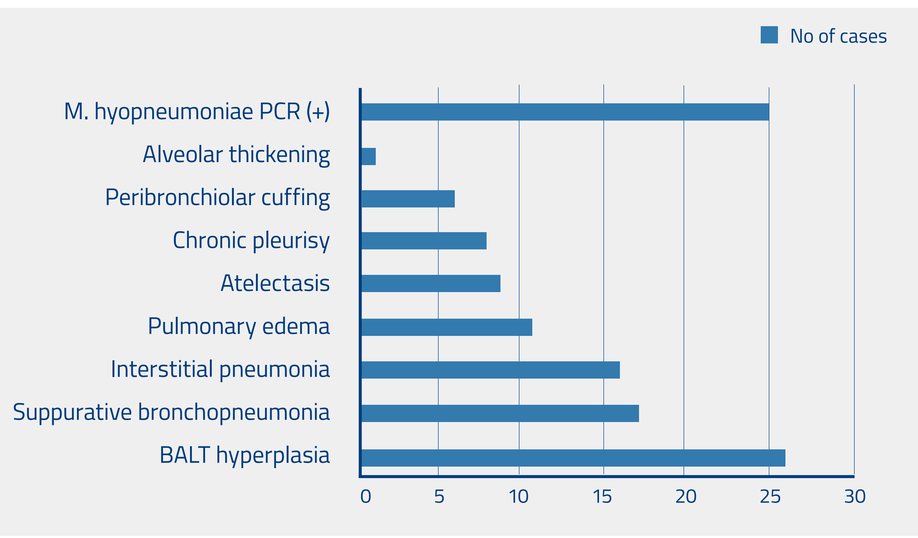
Table 1: Mhyo associated histopathologic evaluation according to Hansen et al.[3]

Score	Histopathologic features
0	No lesions associated with Mhyo infection
1	Mild diffuse infiltration of lymphocytes in the peribronchial, peribronchiolar, and perivascualr cuffing
2	Moderate diffuse infiltration of lymphocytes and/or presence of few lymphoid nodules in the peribronchial, peribronchiolar, and perivascular regions
3	Marked increase in the number of lymphoid nodules
4	Extensive number of lymphoid follicles including marked obliteration of bronchioles affecting most of lung sections

RESULTS

Histopathologically, the main microscopic findings of lung samples were BALT hyperplasia (86.7%). Suppurative bronchopneumonia and interstitial pneumonia were observed in 17 pigs (56.7%) and 16 pigs (53.3%), respectively. Based on the PCR, Mhyo antigens were detected in 25 pigs (83.3%, Figure 1).

Figure 1: Histopathologic findings in the lung samples.



Varying scores of lung lesions associated with Mhyo infection were observed (Table 2). The total mean score of lung lesions in the 12 swine farms was 2.4.

Table 1: Result of histopathologic grading associated with Mhyo infection in 30 pigs

Farm	No. of pigs per each score/No. of tested pigs					Mean Score
	0	1	2	3	4	
A	0/2	0/2	1/2	1/2	0/2	2.5
B	0/2	1/2	0/2	1/2	0/2	2.0
C	0/2	0/2	2/2	0/2	0/2	2.0
D	0/2	0/2	1/2	0/2	1/2	3.0
E	0/3	1/3	2/3	0/3	0/3	1.7
F	0/3	0/3	2/3	1/3	0/3	2.3
G	0/2	0/2	2/2	0/2	0/2	2.0
H	0/3	0/3	3/3	0/3	0/3	2.0
I	0/2	0/2	0/2	2/2	0/2	3.0
J	1/2	0/2	0/2	0/2	1/2	2.0
K	0/3	0/3	0/3	3/3	0/3	3.0
L	0/4	0/4	1/4	2/4	1/4	3.0
Total mean score						**2.4**

DISCUSSION AND CONCLUSION

In this study, most of the examined pigs showed Mhyo infection and BALT hyperplasia was the most common microscopic finding in EP. The result of histopathologic grading analysis suggested that EP might be a widespread respiratory problem in Korea.

REFERENCES

1. Ross RF. Diseases of swine, 8th ed. 1999, 495 – 509.
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3. Hansen MS et al., 2010, J Comp Path, 143:120 – 131.