

Examination of ilea collected at slaughter for diagnosing porcine proliferative enteritis (PPE) in an early infected finisher herd



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INTRODUCTION

PPE is caused by *Lawsonia intracellularis* (*Li*). Often the disease progresses subclinically, which makes it hard to prove the role of *Li* as cause for poor pig performance. Producers are hesitant to sacrifice pigs without severe clinical signs for diagnostic purposes. The objective of this study was to investigate if ilea collected at slaughter could be a useful specimen to support PPE diagnostics.

MATERIALS AND METHODS

A herd suffering from PPE in the first weeks of finishing (12-16 weeks of age) was selected. From a batch of 240 slaughter pigs 100 blood samples were taken for serology at exsanguination, 60 ilea were collected after evisceration. Ilea, stored individually on ice, were transported to a necropsy room for further analysis, including macroscopy, weighing (10 cm of the mid-section), histology, IHC and Li-qPCR.

RESULTS

Of the blood samples 97% were positive for *Li*-antibodies. Histological findings indicated presence of ileitis in 50% of the ilea, of which 95% were IHC-positive, some ilea shown in figure 1. From the histological negative samples, only 1 sample (3%) was IHC-positive. *Li* genome equivalents (GE) were found by qPCR in 97% of the tissue samples. IHC and qPCR results were correlated. The IHC-positive samples had higher average amounts of *Li* present compared to IHC-negative samples: 10.7 log GE/ml vs 7.3 log GE/ml ($P < 0.001$). There was no correlation between ileal weights and histological findings. Macroscopy had a poor sensitivity and specificity (58% and 64% respectively) when compared to IHC (table 1). Macroscopically judgement of thickened ilea can lead to false conclusions as can be seen from figure 2.

Figure 1. Different ilea. Outer left A: Proliferative ileitis, multifocal, moderate to severe, IHC +; B: eosinophilic ileitis, mild gait hyperplasia, IHC +; C: without lesions; D: reduced number of goblet cells, increased mitosis and apoptosis, IHC -.

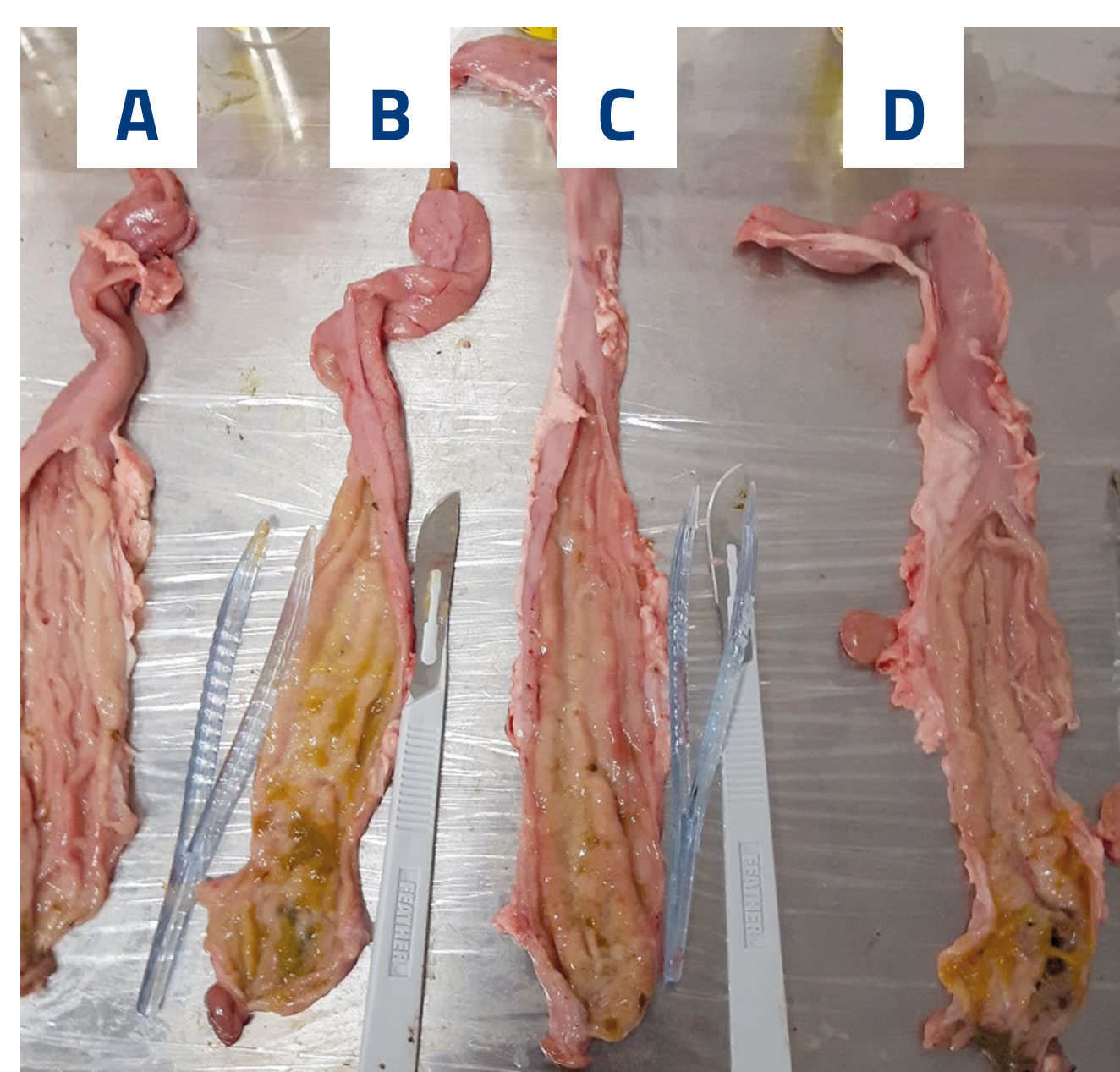


Figure 2. Ileum with macroscopically severe thickened appearance of the mucosa. Ileum was histological without lesions, IHC negative, and had low amounts of *Lawsonia intracellularis*. Thickening was probably due to post mortal contractions of the tunica muscularis.



Table 1. Cross table of the immuno histo chemistry results compared to the macroscopic evaluation of ilea at slaughter for the presence of ileitis. Macroscopy of ilea at slaughter is a very poor indicator of ileitis with a sensitivity of 58% and a specificity of 64%.

Macroscopy	Immuno histo chemistry		
	Positive	Negative	total
Positive	18	10	28
Negative	13	18	31
total	31	28	

CONCLUSIONS AND DISCUSSION

Investigation of ilea collected at slaughter can be useful to diagnose PPE without sacrificing pigs. Typical histological lesions were detected and IHC testing was positive in a significant number of samples from a herd infected with *Li* in the first weeks of finishing. QPCR tissue levels correlated well with histology/IHC. It has to be noted that the study was done in a herd not vaccinating against PPE. Further studies are necessary to judge the full potential of qPCR, both in vaccinated and non-vaccinated pigs.

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