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Necrotic enteritis in pigs naturally affected with porcine circovirus type 2

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Introduction

Post weaning wasting syndrome (PMWS) was the first described syndrome associated with PCV2 and it is characterized by wasting, weight loss, respiratory or intestinal lesions (3). PCV2 antigen was detected in different intestinal cell types of affected pigs (1,2), as well as in feces (4), these evidences suggests a role of PCV2 in diarrhea in PMWS affected pigs. In some cases of PCV2 associated enteritis, mucosae necrosis was reported with variable intensity (2). The objective of the present study was to analyze cases of necrotic enteritis and the presence of PCV2 in those lesions.

Materials and Methods

Intestinal samples from 73 swine with necrotic enteritis submitted to the laboratory of Veterinary Pathology of Federal University of Rio Grande do Sul (UFRGS) from 2005 to 2006 were fixed in 10% neutral-buffered formalin, routinely processed to histopathology and stained with hematoxylin and eosin. Growing-finishing pigs with age ranging from 45 to 120 days were originated from herds with a history of wasting and diarrhea.

Sections were processed for immunohistochemistry (IHC) using anti-PCV2 polyclonal antibody. Selected sections were also tested by IHC against *Lawsonia intracellularis* and *Brachyspira* spp. Double IHC for simultaneous demonstration of PCV2 and cytokeratin was applied with diaminobenzidine and alkaline phosphatase as chromogens, respectively.

Intestinal fragments of 40 cases were submitted for bacteriological examinations.

Results

Reddening of the intestinal mucosa with ulcerative necrotic changes mainly located in the colon was the main macroscopical lesion. Mesenteric edema and large intestinal content ranging from pasty to aqueous were additional findings. Mucosal necrosis ranged from superficial erosive to extensive coagulative with full-thickness involvement of the mucosa. Mixed

infiltrate with histiocytic and neutrophils were observed within the mucosa.

Giant cells and intracytoplasmatic inclusion bodies were predominantly located in the Peyer's patches. Necrosis of the cryptal epithelium was a common finding with dilatation of the crypts and necrotic debris in the cryptal lumen.

Anti-PCV2 antigen was observed in 63 of the 73 tested samples in histiocytes as well as in epithelial cells and cellular debris in the cryptal lumen.

Salmonella spp. was isolated in 26 samples and *Escherichia coli* in 1. IHC against *Brachyspira* spp and *Lawsonia intracellularis* were positive in 2 and 3 samples respectively. In 35 cases of necrotic enteritis PCV2 was the sole pathogen observed and in 28 cases it appeared together with a bacterial agent. Only 10 samples of necrotic enteritis showed IHC negative for PCV2.

Discussion

Immunohistological findings suggests that PCV2 may act as a primary agent of necrotic enteritis in swine. Salmonella spp. was the main bacterial agent found in association with PCV2, however, bacteriological isolation do not represent a positive diagnostic for Salmonella infection, since this pathogen can be isolated from pigs without enteric disease. The present study highlights the importance of PCV2 as an intestinal pathogen to be considered in cases of necrotic enteritis in swine.

References

- 1 - Kim, J., Ha, Y., Jung, K., Choi, C., Chae, C. Enteritis associated with porcine circovirus 2 in pigs. 2004. **The Canadian Journal of Veterinary Research.** 68:218-221.
- 2 - Jensen T.K., Vigre H., Svensmark B. & Bille-Hansen V. 2006. Distinction between porcine circovirus type 2 enteritis and porcine proliferative enteropathy caused by *Lawsonia intracellularis*. *J. Comp. Pathol.* 135:176-182.
- 3 - Segalés, J., Allan, G. M., Domingo, M. 2005. Porcine circovirus diseases. **Animal Health Research Reviews.** 6(2): 119-142.
- 4 - Yang, J. S., Song, D. S., Kim, S. Y., Lyoo, K. S., Park, B. K. 2003. Detection of porcine circovirus type 2 in feces of pigs with or without enteric disease by polymerase chain reaction. **J. Vet. Diagn. Invest.** 15:369-373.