DEMONSTRATION OF A NEW CAMPYLOBACTER SPECIES IN LESIONS OF PROLIFERATIVE ENTERITIS IN SWINE.

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Campylobacter sputorum ss mucosalis (CSM), a vibrio-shaped bacterium, has been shown to be an intracellular organism found in epithelial cells of mucosa of the ileum of swine with lesions of proliferative enteritis (PE). Challenge experiments using pure cultures of CSM have not consistently reproduced PE.

Three strains of CSM and three strains of a previously undescribed organism, Campylobacter hyointestinalis (CHI) were injected into rabbits to produce antisera for each species. Specificity of antisera produced was demonstrated using microtiter-agglutination and indirect fluorescent antibody (FA) tests.

Ileal tissues of swine with and without lesions of PE were frozen and cut into 4 micron thick sections. FA staining was performed using either CHI or CSM anti-sera, then stained with fluorescein isothiocynate labeled goat anti-rabbit IgG.

Microtiter-agglutination and FA staining of bacterial smears showed that CHI and CSM did not cross react and could be differentiated by either test. FA examination showed the bacteria to be curved rods with distinct green fluorescence.

Polar flagella were occasionally seen. Morphology of CHI and CSM were similar. Preparations stained with pre-immune rabbit sera did not show fluorescence.

Examination of sections of ileum from 29 pigs with histologic lesions of PE showed CHI in all 29 and CSM in 24. CHI was found in [illegible] luminal exudate, necrotic debris, mucosal epithelium, lamina propria and cryptal glands in high numbers and broadly distributed. Fluorescence was concentrated in the apical cytoplasm of proliferating cryptal epithelial cells.

Fluorescence produced by CSM antisera was less common than CHI and limited to lesions in focal areas of the upper mucosa. CSM was more common in superficial mucosa and in necrotic debris and less common in cryptal epithelial cells.

FA examination of ileal tissues from 13 swine without lesions of PE revealed no evidence of CSM or CHI.

Conclusion:

The above findings indicate the possibility of Campylobacter hyointestinalis as being an important organism in the pathogenesis of porcine proliferative enteritis.

Selected references: Chang, K., Kurtz, H.J., Ward, G.E., and Gebhart, C.J.; 1981, Proc 62nd Conf. Res. Workers in An. Dis., Chicago, IL, USA; Gebhart, C.J., Kurtz, H.J. and Ward, G.E., 1981, Proc. 62nd Conf. Res. Workers An. Dis., Chicago, IL, USA; Kurtz, H.J., Soto, J., and McAllister, J.S., International Pig Vet. Soc. Congress, 1980, Copenhagen, Denmark; Lawson, G. H.K., Rowland, A.C. and Roberts, L., Res. Vet. Sci., 1977, 23:378; Soto, J.A.: Ph.D. Thesis, 1979, University of Minnesota, USA.