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

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

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

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

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

Examination of sections of ileal tissues from 29 pigs with histologic lesions of PE showed CJM in all 29 and CPI in 10. CPI was found in villous tips, lamina propria, and crypt epithelium. Lamina propria and crypt epithelium in pig ileum were stained with fluorescence was concentrated in the apical cytoplasm of proliferating crypt epithelial cells.

Fluorescence produced by CJM antisera was less common than CPI and limited to lesions in focal areas of the upper mucosa. CJM was more common in superficial lesions and norectic debris and less common in crypt epithelial cells.

IFA examination of ileal tissues from 12 swine without lesions of PE revealed no evidence of CJM or CPI.

Conclusion:

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