PATHOGENESIS OF CAMPYLOBACTER JEJUNI ENTERITIS HISTOPATHOLOGICAL AND ELECTRON MICROSCOPY CHANGES

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Objective: To understand the aspects of pathogenesis of enteritis caused by Campylobacter jejuni.

Introduction: In the last 15-20 years there was a steady increase in number of thermophilic Campylobacter isolates especially C. jejuni biotype 1 around the world and from different animal species. A majority of the clinically isolated C. jejuni from cases of gastroenteritis disorders, main factors claimed to play a role in the pathogenesis of this enteropathogen are the invasive ability and toxin production (Cytotoxin, enterotoxin).

Methods: Experimentally infected animal model to show the histopathological and deeper the electronmicroscopical changes can result from this infection using 30 white Swiss mice (already checked clear from any enteropathogen) were divided into five groups (6 animals each) first two groups infected using C. jejuni biotype 1 with two different doses of the bacteria $1 \times 10^4$ CFU/gram of feed and same dose per ml of drinking water while the other two groups were infected with $1 \times 10^8$ CFU/gram feed and ml water and the last group isolated as a control group. Clinical signs clearly apparent and indicative for the case and 1 animal selected randomly for sampling, small and large intestine and liver on intervals 1, 2, 3, 4 and 5 days post infection.

Results: There was a remarkable changes in the first two days starting with mild to moderate loosing of the epithelial layer of intestine in various locations and infiltration of neutrophils and sever congestion of the hepatic sinusoids due to the toxin effect, while in the specimens collected in the days 3, 4 and 5 there was a severe changes including extensive infiltration of the mucosa and submucosa with mononuclear cells (lymphocyte and macrophages) and elongation of microvilli, using a special staining technique (Brown & Brenns Stain) shows the presence of C. jejuni colonies invading and colonizing the submucosal layer (bright orange colonies with the spiral shape).

Conclusion: The Electron microscope sections stained with silver and toludine blue showed clearly the unique seagull wing shape of the organism in the epithelia of the intestine and the organism in the beginning of tissue invasion attaching its flagella to the out epithelial layer.

The result obtained showing the significant roll played by the two factors invasion and colonization and toxin production in the pathogenesis of C. jejuni.