

33 H. (PG). Quantification of ultrastructural changes in the large intestinal microvasculature of monkeys infected with Shiga toxin producing E. Coli

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Ultramicroscopic changes indicative of reversible endothelial cell damage are commonly observed in large intestinal microvasculature of monkeys infected with Shiga toxin producing Escherichia coli (STEC). 0157:H7 strain 84-01. The aim of this study

was to quantify two of these changes: 1) endothelial cell swelling; and 2) ruffling of luminal surface membrane. Capillary profiles from the ascending, mid and descending colon, of monkeys sacrificed at 24 hours, 3 days and 12 days post infection, and 1 control monkey were studied. Electron micrographs of 24 capillaries from the control monkey and 35 capillaries from STEC infected monkeys were selected. These electron micrographs were digitized and the following measurements were made on the images using a program written in JAVA" 1) Length of the inner perimeter (P1); 2) length of the outer perimeter (P2); 3) Luminal area (a1); and 4) capillary wall area (a2) Using these measurements in standard mathematical formulae and estimated ruffling of the inner and outer membranes and thickness of the endothelial cells. The findings showed that the inner membrane was ruffled ($p < 0.05$) and endothelial cells were thickened ($p < 0.05$) in STEC infected monkeys.