The abdominal incisions were closed and the pigs maintained as a group with routine care and feed. Piglets were electrically and manually nursed at 3-4 hr post-surgery. Contents of each colonic segment were cultured for enteric bacterial pathogens and assessed for T. hovysenteriae. Tissue specimens from each segment were fixed in formalin and processed routinely to produce hematoxylin-eosin stained slides for histopathologic examination.

Results. Group I: The piglets are normally for 36 to 48 hours post-surgery, after which they gradually deteriorate with mild dehydration, depression, and abdominal distention at time of euthanasia (72 hrs.).

Cytologic changes included marked distention of the small intestine and colon proximal to the ligation. With the exception of three piglets, each segment (No. 5) of the colon inoculated with T. hovysenteriae was markedly distended with greenish fluid. The three non-inoculated segments had accidentally had the T. hovysenteriae inoculum injected into the mesentry instead of the colon lumen. The luma of segments 30 through 4 were similar, being dry with desiccated muscle and feces. The success appeared normal. Other than the T. hovysenteriae isolated from the 30-3 segments, no pathogens were isolated on bacteriologic culture.

Microscopic examination of each colonic segment inoculated with T. hovysenteriae revealed moderate to marked distention of the glandular crypts with mucus material. There were focal sites of epithelial erosion and a slight to moderate increase in cellularity of the lamina propria. Occasionally there was a surface exudate comprised of mucose, and leukocytes. Although the segments which received the T. hovysenteriae contained significant changes which included slighty diluted crypts and a mild increase in lamina propria cellularity, these segments did not differ significantly from the segments which were blank (no inoculum).

Group II: Four of the 5 piglets survived the surgery without complications. Each segment receiving toxin had gross characteristics similar to the ligation-inoculated segments in Group I piglets, i.e. dilated mucosa and feces. Minimal changes were noted for pathogenic organisms. Microscopically, the colonic mucosa of all segments was essentially the same as described in Group I.

Conclusions. Toxin in two isolates of T. hovysenteriae failed to produce pathologic changes when applied in vivo to the colonic mucosa of conventional piglets. In vitro of the colitis developed in T. hovysenteriae inoculated, pathogenic pigs (Lysen, et al., 1980). The failure of the direct application of toxin to produce lesions in this study may have been related to: a) inadequate toxin concentration in the inoculum, b) direction of the toxin by-concentrate of the colonic segment resulting in low levels of toxin at the tissue level, c) interference with chemotactic bacteria or other material in the mixture and/or d) non-susceptibility of the conventional pig to T. hovysenteriae toxin.