

Morphological study of the jejunal and ileal Peyer's patches of three-month old calves

ABSTRACT

The current study was conducted with the aim to describe the light and electron microscopic features of jejunal and ileal Peyer's patches of three-month old calves. The samples of jejunum and ileum portion of small intestine of three-month old calves were taken and processed for light microscopic, scanning electron microscopy and transmission electron microscopy examinations. Histologically, jejunal Peyer's patches were characterized by pear-shaped lymphoid follicles with large dome and interfollicular area. Ileal Peyer's patches were composed of long sac like follicles with poor developed interfollicular area and an inconspicuous corona. The Follicle Associated Epithelium (FAE) is composed of absorptive epithelial cells or enterocytes and intraepithelial lymphocytes but lack of goblet cells and specialized cells or membranous cells (M cell). The jejunal Peyer's patches consist more intraepithelial lymphocytes than that of the ileal Peyer's patches. The number of intraepithelial lymphocyte was significantly higher ($p < 0.05$) in villi than those of crypts. Most of the intraepithelial lymphocytes were found in the subnuclear position below the nuclear level of the enterocytes. Electron microscopic examination revealed that the FAE of jejunal Peyer's patches had scattered membranous cells or microfolds (M cells). M cells of jejunal Peyer's patches were columnar shaped with luminal surface that bulged toward the intestinal lumen. M cells of dome epithelium of small intestine in calves were covered by blunt microvilli that were irregular, short and thick. These microvilli differed from microvilli of absorptive epithelial cells (enterocytes). Membranous bound particles were found in the dome epithelium of jejunal and ileal Peyer's patches.

Keyword: Morphology; Jejunal and ileal Peyer's patches; Intraepithelial lymphocytes; Calves