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CAMPYLOBACTER INFECTION IN INTESTINAL ORGAN CULTURES

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ABSTRACT

Six different media (T199 medium , T199 + 10% foetal calf serum , T8 medium, T8 + 10% foetal calf serum, RPMI medium and RPMI + 10% foetal calf serum) were tested for their ability to maintain foetal lamb intestine in organ culture. T199 medium + 10% foetal calf serum was chosen because it gave more consistent results in maintaining the foetal intestine for a period of six days in culture.

Two groups of foetal lamb intestine were cultured, a control group and a group infected with Campylobacter jejuni. The effects of the microorganisms on the intestinal culture were assessed at 6 hours, 13 hours and 15 hours post-culture.

Light, Transmission and Scanning Electron Microscopy were used to study the pathogenicity of C.jejuni at the cellular level. Light microscopic studies showed that C.jejuni were attached and colonised the tips of the villi and the crypt epithelium of the intestinal cultures at 6 hours, 13 hours and 15 hours. The epithelial cells showed marked necrosis at the tips of the villi. The microorganisms also invaded the cytoplasm of epithelial cells of the villi and the intestinal crypt.

Transmission Electron Microscopy revealed degeneration of the microvilli in the infected cultures. The microorganisms were found attached to the tips of the microvilli of the villous epithelial cells by pilus-like structure. Microorganisms were present within phagolysosomes of macrophages in the lamina propria. Various cytoplasmic changes were observed at 6, 13 and 15 hours post-infection.

Scanning Electron Microscopy confirmed the different changes in the morphology of the infected epithelial cells. The microorganisms were observed adhering to the surface of the epithelial cells at 6 , 13 and 15 hours post-culture.

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