PATHOLOGY AND DISSEMINATION OF ENCEPHALITOZOOON INTESTINALIS IN GNOTOBIOTIC PIGLETS

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ABSTRACT

The pathology and dissemination of Encephalitozoon intestinalis, an opportunistic infection occasionally associated with AIDS patients, was studied using gnotobiotic piglets as a possible animal model for human infections. Piglets were separated (n=3-4) into control (C), infected (I), and immunosuppressed/infected (S/I) groups and were maintained under germfree conditions. Piglets in the S/I group received 15 mg/Kg Cyclosporine oral solution and 25 mg/Kg Methylprednisolone acetate intramuscularly daily starting at 2 days. At day 3, each piglet from the infected and S/I groups were inoculated with approximately 0.75 X 10^6 E. intestinalis spores. Various tissues were harvested 3-4 weeks post-infection and processed for histological examination and PCR analysis. DNA was extracted in a bead beater with ceramic beads and purified with Qiagen’s DNeasy plant tissue kit. PCR was performed using E. intestinalis specific primers. The 127bp product was visualized on a 3% agarose gel. Not all of the samples have been analyzed yet, but patterns are emerging. At 5 days post infection, PCR results from fecal samples showed that 2 of 4 piglets from the infected group were shedding E. intestinalis spores; whereas, all 4 control piglets were PCR negative. Some of the tissues (e.g. ileum, lung and brain) from the S/I piglets tested PCR positive for E. intestinalis. Thus far, E. intestinalis had not been found in histological sections of the S/I tissues. These findings indicate that E. intestinalis was infectious to gnotobiotic piglets even without immunosuppression and extraintestinal infections of E. intestinalis could be found in immunosuppressed piglets. Thus gnotobiotic piglets may be used as a large animal model for studying human E. intestinalis in further studies.