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Experimental Heterophyiasis: Histopathological & Immunological Study

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Abstract

The present study was conducted to evaluate the effect of immunosuppression on the course of infection, the extraintestinal pathological changes and the immune complexes deposits in kidneys and brain tissues with *Heterophyes heterophyes* infection in mice. Seventy Swiss albino mice were divided into four groups; G (I) 30 immunocompetent infected mice, G (II) 30 immunosuppressed by cyclophosphamide, infected mice and G (III) 5 non-infected immunocompetent control mice and G (IV) 5 immunosuppressed non-infected. Groups I & II were infected with 300 metacercariae / mouse orally. Two weeks post infection (p.i.) 5 animals from each group were sacrificed at 14, 16, 18, 21, 25 and 28 days p.i., and the kidneys and brain were processed for tissue digestion with KOH and histopathological and immunofluorescence examination. The adult worms were counted by mucosal scraping of the intestines. The result of this study showed that the adult worm count was higher in G (II) and G (I). The kidneys of G (I) mice showed mild congestion of the glomeruli with lymphoid aggregates. While in G (II) mice, the glomeruli showed variation in size with mild thickening of their walls and the blood vessels showed moderate congestion with mild thickening of their walls. The brain in G (I) mice showed capillary haemorrhage with focal accumulation of endotheliocytes and histiocytes in a frame work of connective tissue. While in G (II) mice, the brain showed congestion, oedema and hypercellularity. In addition, gliosis accompanied with increased vascularity and endothelial hyperplasia was also observed. No adults or ova were detected by KOH digestion of the brains and kidneys. Mild immune complex deposits were detected from the 3rd week p.i. in G (I). The immunofluorescence reaction become moderate at the 4th week p.i. While in G (II) the immunofluorescence reaction was mild two weeks p.i. and became moderate at the 3rd week p.i. These results proved that the *H. Heterophyes* antigen or immune complex deposits were detected in the kidneys and brain of infected mice. These deposits play an important role in the histopathological changes in the kidneys and brain of infected animals.