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TITLE

SOLUBLE SCHISTOSOMA MANSONI EGG ANTIGENS INDUCE PATHOPHYSIOLOGICAL CHANGES IN MURINE MODELS

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ABSTRACT

During *Schistosoma mansoni* infection, the parasite's eggs are retained in organs such as the liver, spleen and intestine, causing an inflammatory response through the formation of schistosomal granulomas. In previous studies, our research group used murine models to characterize the main pathophysiological changes associated with schistosomal granulomas, emphasizing that soluble egg antigens (SEA) may be critical in modulating these pathophysiological changes. To investigate this hypothesis, *Schistosoma mansoni* eggs were isolated from the liver of previously infected mice and used in the SEA extraction and purification protocol. SEA was injected into two groups of mice daily for four consecutive days at doses of 10 and 20 µg, and they were sacrificed 24 h after the last injection. In two other groups, we performed a single injection at a dose of 80 µg, and one group was sacrificed 24 and the other 96 h after the single injection. Livers, kidneys, spleens, and intestines were collected for histological analysis for all groups. Histological analysis of the liver using HE staining showed acute liver lesions, with intense intracytoplasmic vacuolization of the hepatocytes, with macrogoticular steatosis. We also noticed evidence of increased accumulation of blood in the hepatic canaliculi, which could be stasis and some hemorrhagic foci. To analyze the deposits of hepatic glycogen, we used PAS staining. This showed that there was a marked reduction in glycogen deposits in the cytoplasm of the hepatocytes. In the analysis of the histological slides of the kidneys using HE staining, we observed degradation of the renal ducts, renal stasis and hemorrhagic foci, typical features of renal lesions. Using PERLS staining, we observed imbalances in iron deposits in the spleen and liver. We noticed an accumulation of splenic iron, as well as a positive correlation between the dose of SEA injected and the amount of hemosiderin accumulated, suggesting an increase in erythrocyte death. When analyzing the histological sections of the livers, we observed an increase in iron accumulation in the hepatocytes of zones one, two and three. We also observed positive iron deposits by Kupffer cells according to the doses of SEA. No significant morphological changes were observed in the intestine. No macroscopic changes were observed in the material collected from these animals during necropsy. We can conclude that the total SEA of *Schistosoma mansoni* has various toxic and immunogenic components that induce pathophysiological changes in organs such as the liver and spleen.

KEYWORDS

Soluble Egg Antigens; *Schistosoma mansoni*; Schistosomal Granulom; SEA

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