SILENT INVASION: HOW TRICHURIS ALTERS THE GUT FROM EARLY INFECTION TO CHRONIC DISEASE

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The dissemination of neglected diseases and their impacts make the continuous study of pathogens essential to ensuring public health. Trichuriasis is a neglected intestinal parasitosis caused by the soil-transmitted helminth (STH) *Trichuris* spp. In the chronic phase, it leads to systemic changes and severe damage to intestinal tissue due to the presence of the parasite and the process of bacterial translocation. However, little is known about when these changes begin and which larval stage they are associated with. Seeking to elucidate this issue, this study aims to track alterations in the cecum during the development of trichuriasis and determine the period in which bacterial translocation occurs in association with the larval stage in a low-parasitic-load infection. Additionally, we will analyze whether the parasite remained inserted in the intestinal mucosa throughout the infection's development. To investigate this, we infected C57BL/6 mice (CEUA 059/2018) with a low dose (50 eggs) and *Swiss* mice infected with high dose (150 eggs). We performed histopathological analysis, SEM, and FISH of the cecum, from larval hatching and mucosal penetration to the presence of the adult worm, based on the following time points: 90 min, 10, 17, 22, and 35 days post-infection (d.p.i.). Our results show that at 10 d.p.i., L2 already causes lesions in the intestinal mucosa. At 17 d.p.i., we found bacteria adhered to the parasite's cuticle, inside the tunnel formed by L3 in the mucosa, and invading the intestinal submucosa. Additionally, we observed that L3 emerges from the mucosa, exposing its anterior region and stylet, suggesting a sewing-like movement as it migrates through the intestine. Histopathological changes in the cecum intensify at 22 and 35 d.p.i., even in a low-dose infection. These findings associated with changes in immunology responses in different tissues may redefine the life cycle of *Trichuris* spp. and pave the way for new therapeutic approaches.

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