

Documents

Alkazmi, L.M.M.^{a b}, Dehlawi, M.S.^{a c}, Behnke, J.M.^a

The effect of the hookworm *Ancylostoma ceylanicum* on the mucosal architecture of the small intestine in hamsters
(2006) *Journal of Helminthology*, 80 (4), pp. 397-407. Cited 3 times.

^a School of Biology, University of Nottingham, University Park, Nottingham, NG7 2RD, United Kingdom

^b Biology Department, Faculty of Applied Sciences, Umm Al-Qura University, Makkah, Saudi Arabia

^c Department of Biological Sciences, King Abdul Aziz University, Jeddah, Saudi Arabia

Abstract

Hookworms are known to cause marked changes to the intestinal mucosa, especially in relation to erosion of the villi. However, since the development of enteropathy has not been examined thoroughly through quantitative experiments on infected animals, the results of experiments conducted in hamsters infected with *Ancylostoma ceylanicum* are reported. Changes to intestinal architecture were first apparent between 12 and 14 days after infection, and then increased in intensity for 3-4 weeks, persisting for as long as worms were present (> 63 days). Following infection, the height of villi declined from a mean of 1002 μm in naïve controls to less than 200 μm and as low as 18 μm in one case. The depth of the crypts of Lieberkuhn increased from a baseline value of 166 μm in naïve controls to in excess of 600 μm within 6 weeks of infection. Mitotic figures had a baseline value of 5.5 per villus-crypt unit, and this rose to in excess of 25 in some experiments. Changes were dependent on the intensity of the parasite burden on day 20, but by 30 days after infection changes in all three values were maximal and density-dependent relationships were no longer clearly apparent. Villus height and crypt depth returned to near normal values within a week of the removal of worms, although group means for both remained different from naïve controls for at least 3 weeks after treatment. Cellular division, as reflected in numbers of mitotic figures, stayed elevated for over 5 weeks after removal of worms. The results suggest that enteropathy in hookworm infections stems from a combination of intestinal immune responses and from the grazing activities of the adult worms on the mucosal surface, but is not sufficient per se for expulsion of this parasite.

Document Type: Article

Source: Scopus

About Scopus

[What is Scopus](#)
[Content coverage](#)
[What do users think](#)
[Latest](#)
[Tutorials](#)

Contact and Support

[Contact and support](#)
[Live Chat](#)

About Elsevier

[About Elsevier](#)
[About SciVerse](#)
[About SciVal](#)
[Terms and Conditions](#)
[Privacy Policy](#)

