

Triatoma dimidiata feces naturally contaminated with Trypanosoma cruzi : Inflammatory response at the inoculation site

Victor Monteon¹, Sergio Escobar-Laines², Carlos Ramírez-Sarmiento¹, Verónica Macedo³,
and Floribeth León Pérez⁴

¹Universidad Autonoma de Campeche Centro de Investigaciones Historicas y Sociales

²Gobierno del Estado de Campeche

³Secretaria de Salud de Campeche

⁴Universidad Autonoma de Campeche Facultad de Odontologia

August 14, 2023

Abstract

Aim: Natural transmission of *Trypanosoma cruzi* occurs when infected hematophagous deposit feces contaminated with metacyclic trypomastigotes on injured skin or mucosa. To study the inflammatory response at the inoculation site, dissemination of parasites, Th cell subtypes at the local lymph nodes and myocarditis mice were exposed to *Triatoma dimidiata* naturally contaminated with *Trypanosoma cruzi*. **Methods and results:** Mice were intradermal inoculated with *T. dimidiata* feces containing metacyclic trypomastigotes or were previously immunized with feces without metacyclic trypomastigotes and analyzed from 15 minutes to 3 months after inoculation. Parasites remained at the inoculation site until 20 days after inoculation but disappeared early in pre-immunized mice that presented with edema and collagen fragmentation as early as 15 minutes after being challenged with metacyclic trypomastigotes. The Th2 subpopulation dominated in the first week in mice infected with feces containing metacyclic trypomastigotes, whereas Th1 and Th17 populations dominated in the challenged mice population. Similarly in heart tissue, intense myocarditis and remodeling, with faster clearance of amastigotes was observed in mice previously immunized with *Triatoma dimidiata* feces. Furthermore, immune cell-types, Th1 and Th17, predominated after 20 days post-infection in all experimental groups. **Conclusions:** Previous exposure with *Triatoma dimidiata* feces prior to infection with metacyclic trypomastigotes favors parasitic dissemination and early induction of Th1 and Th17 subpopulations with lower parasitism in heart tissue but does not ameliorate inflammation and tissue damage which is accompanied with Th1/Th17 and Treg profile.

Hosted file

Intradermally inoculation of feces Agosto 2023.docx available at <https://authorea.com/users/652191/articles/659841-triatoma-dimidiata-feces-naturally-contaminated-with-trypanosoma-cruzi-inflammatory-response-at-the-inoculation-site>