

## Research paper 31

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## Immunopathology of cutaneous leishmaniasis in a cohort of Sri Lankan patients

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**Introduction and objectives:** *Leishmania donovani* is the causative organism of leishmaniasis in Sri Lanka. An understanding of the immune mechanisms required for the control of infection within the tissue microenvironment is a key factor for developing vaccines and therapeutics. Studies on the immunopathology of leishmaniasis due to *L. donovani* are limited. The objective of this study was to describe the immunopathological characteristics of cutaneous leishmaniasis in a cohort of Sri Lankan patients.

**Methodology:** Fifty skin biopsies of cutaneous leishmaniasis confirmed by detection of organisms by histology, culture, slit-skin smear and/or polymerase chain reaction were reviewed. The inflammatory infiltrate was characterised by immunohistochemical staining for CD4, CD8, CD20 and CD68. Associations between immunohistochemical staining patterns and the parasitic load and patterns of inflammation were determined.

**Results:** The majority of biopsies showed a CD8+/CD4- T lymphocyte predominant infiltrate (84%, n=42). A CD68 predominant infiltrate was seen in 16% (n=8). The mean percentage of CD8+, CD4+, CD20+, and CD68+ inflammatory cells in the biopsies were 56.1% (SD=16.5%), 2.6% (SD=4.5%), 12.3% (SD=10.9%) and 25.7% (SD=15.8%) respectively. There was no association between the predominant inflammatory cell and the degree of inflammation ( $p=0.173$ ), presence of high RPI(0.922), MRI( $p=0.367$ ) or presence of granuloma(0.247).

**Discussion and conclusion:** Skin biopsies from cutaneous leishmaniasis due to *L. donovani* infection showed a CD8+/CD4- predominant infiltrate. This is similar to the findings of studies on cutaneous leishmaniasis due to some other species and it suggests that the cytotoxic T cell response plays a role in infections due to *L. donovani*.

**Keywords:** cutaneous leishmaniasis, pathology, immune response

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