EFFECT OF VISCERAL LEISHMANIASIS ON HUMORAL IMMUNITY: PARASITES HOPPING ON THE B CELL TRAIN

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Despite the distinctive significance of B cells in protective immunity and vaccine development for many infectious diseases, their role during intracellular parasitoses is often underexplored. This is also the case for the lethal protozoan disease, visceral leishmaniasis (VL), where the contribution of B cells is largely overlooked. To date, no effective human vaccines are available for VL, underscoring the complexity of the required protective immune response and knowledge gaps in the host-parasite interaction. Information obtained for African trypanosomes demonstrates that related parasites can impair B cell development and vaccine memory.

In this study, *Leishmania infantum* infection in BALB/c mice was found to increase B cell progenitors in the bone marrow and all B cell subtypes analysed in the spleen. This is in line with the clinical manifestation of polyclonal hypergammaglobulinemia and the occurrence of autoantibodies. Using immunization against a fluorescent heterologous antigen it was shown that infection does not impair immune memory, which is reassuring for vaccination campaigns in VL endemic areas. Interestingly, flow cytometric and microscopic examination identified attachment of viable amastigotes to B cells of the bone marrow and spleen, increasing the numbers of activated lysosomes. These extracellularly attached amastigotes could be transferred to infect macrophages.

We speculate that *Leishmania* parasites can hijack B cells to distribute throughout the host body using the hemolymphatic system. Although the underlying interactions and *in vivo* spreading remain to be uncovered, these observations demonstrate that B cells should not be overlooked during VL.

Keywords: visceral leishmaniasis, B cells, humoral immunity

Funding source: Fonds Wetenschappelijk Onderzoek (FWO), Flanders, Belgium