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Promastigote existence in infected lesions of cutaneous leishmaniasis

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Leishmaniasis is an endemic parasitic disease in 88 countries. It is widely distributed throughout the world, caused by vector-borne, obligate, intracellular hemoflagellates of the genus *Leishmania*. The parasite continues its life cycle transforming to promastigote in the mid gut of the sand fly vector and is transmitted to the human host in the form of promastigote via the bite of the sand fly. Other less encountered forms of transmission are because of a laboratory accident, direct person-to-person transmission, organ transplant and blood transfusion. There is evidence that leishmaniasis may be transmitted either in utero or during the peripartum period. The promastigote form is considered the primary organism of disease transmission between the vector and the host. By not having a chance to continue its life cycle and transform into promastigote within the vector sand fly when considering the many different routes of transmission other than the sand fly bites, it is reasonable to assume an alternative possible existence of the promastigote form of the parasite in the infected lesion of cutaneous leishmaniasis in human host. The information presented indicates that a real transformation of amastigote to promastigote form occurs within the human host cutaneous lesion in the extracellular fluid after the macrophage membrane eruption and the amastigote release. New techniques are recommended for future studies to confirm these findings including real-time polymerase chain reaction (PCR) and applying the immunohistochemistry techniques using a novel monoclonal antibody (mAb) against the parasite flagellate (promastigote form) cell wall component.

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