Of 288 sick and emaciated dogs from homesteads in the Machakos District of Kenya, where human kalaazar cases exist, 2 were found to be infected with Leishmania. The leishmanial strain isolated from one of the dogs was characterized enzymologically and serologically and found to be identical with strains isolated from human kala-azar cases and Phlebotomus martini. The case for the involvement of dogs in the spread of human visceral leishmaniasis is supported by the fact that dog isolates came from dogs belonging to homesteads where human cases existed.ADDITIONAL ABSTRACT:Two of 288 sick and emaciated dogs from homesteads in the Machakos District of Kenya, where human kala-azar cases existed, were found to be infected with leishmaniasis. The leishmanial strain isolated from one of the dogs was characterised enzymologically and serologically and found to be identical with strains isolated from human kala-azar cases and Phlebotomus martini Parr. The significance of these findings is discussed in terms of the general epidemiology of visceral leishmaniasis in Kenya.ADDITIONAL ABSTRACT: Two of 288 sick and emaciated dogs from homesteads in the Machakos District of Kenya, where human kala-azar cases existed, were found to be infected with leishmaniasis. The leishmanial strain isolated from one of the dogs was characterised enzymologically and serologically and found to be identical with strains isolated from human kala-azar cases and Phlebotomus martini Parr. The significance of these findings is discussed in terms of the general epidemiology of visceral leishmaniasis in Kenya.