



Facts about leishmaniasis

Factsheet



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Leishmaniasis is a tropical/sub-tropical disease caused by *Leishmania* protozoa, which is spread by the bite of infected sandflies.

There are several different forms of leishmaniasis in people. Cutaneous leishmaniasis causes skin sores which are often self-healing within a few months, but which may leave ugly scars; it occurs worldwide, including the Mediterranean coast. Visceral leishmaniasis causes systemic disease, presenting with fever, malaise, weight loss and anaemia, swelling of the spleen, liver and lymph nodes; most of the cases reported worldwide occur in Bangladesh, Brazil, India, Nepal and Sudan.

No vaccines or drugs to prevent infection are available. The best way for travellers to prevent infection is to protect themselves from sandfly bites.

Name and nature of infecting organism

Leishmaniasis (or 'leishmaniosis') is a group of tropical/sub-tropical infectious diseases of mammals caused by *Leishmania* protozoa. At least 20 species infect humans: *Leishmania donovani* and *L. infantum* cause acute visceral disease worldwide, excluding South-East Asia and Oceania; *L. major* and *L. tropica* cause most chronic cutaneous leishmaniasis in Europe, Asia and Africa, and chronic cutaneous and mucocutaneous leishmaniasis are caused by *L. amazonensis*, *L. mexicana*, *L. braziliensis*, *L. guyanensis* and *L. peruviana* in the Americas.

Most foci of fatal visceral leishmaniasis occur in India, neighbouring Bangladesh and Nepal, or Sudan and neighbouring Ethiopia and Kenya, where 'Kala-azar' is caused by *L. donovani*. In north-east Brazil and parts of Central America, 'infantile visceral leishmaniasis' is caused by *L. infantum*. The Mediterranean Basin and the adjoining Middle East are still endemic for visceral leishmaniasis caused by *L. infantum*, but 'infantile visceral leishmaniasis' is much less of a public health problem than it was up to the 1950s. This might be explained by a number of factors, including better nutrition, coincidental control of sandflies, and improved housing. However, the appearance of HIV/*Leishmania* co-infections illustrated the constant threat posed by having many asymptomatic carriers in southern Europe.

There are only two transmission cycles endemic in Europe: visceral and cutaneous human leishmaniasis caused by *Leishmania infantum* throughout the Mediterranean region, and cutaneous human leishmaniasis caused by *Leishmania tropica*, which sporadically occurs in Greece and probably in neighbouring countries. Many human leishmaniasis cases in the EU are imported, after travel to tropical countries.

Clinical features

The incubation period varies from about 10 days to several months. Human leishmaniasis may manifest single or multiple skin lesions, often self-healing within a few months but leaving unsightly scars. Hosts develop acquired immunity through cellular and humoral responses, but infection can spread through the lymphatic and vascular system and produce more lesions in the skin (cutaneous, diffuse cutaneous leishmaniasis), the mucosa (mucocutaneous leishmaniasis) and invade the spleen, liver and bone marrow (visceral leishmaniasis). Common symptoms are fever, malaise, weight loss and anaemia, with swelling of the spleen, liver and lymph nodes in visceral human leishmaniasis.

Without treatment, most patients with the visceral disease will die and those with diffuse cutaneous and mucocutaneous disease can suffer long infections associated with secondary life-threatening infections. Treatment should be considered even for self-healing cutaneous leishmaniasis, because of the disfiguring scars.

Transmission

Reservoir

Leishmaniasis is a mammalian disease. Zoonotic reservoir hosts include rodents (*L. major*, *L. amazonensis*, *L. mexicana*, *L. braziliensis*), marsupials (*L. amazonensis*, *L. mexicana*, *L. braziliensis*), edentates and monkeys (*L. braziliensis*), and canids (*L. infantum*).

The domestic dog is the only reservoir host of major veterinary importance.

Transmission mode

Transmission is usually by bite of haematophagous females of some sandfly species of the genera *Phlebotomus* (Europe, Asia and Africa) and *Lutzomyia* (Americas). The female sandfly ingests *Leishmania* amastigotes when she takes a blood meal and, if of a permissive species, transmits the infective metacyclic stages at a subsequent blood meal.

L. infantum can be transmitted from mother to child, female dog to puppy and by shared syringes.

Risk groups

There are no specific risk groups for leishmania infections.

Prevention measures

While there is a high risk of cutaneous leishmaniasis caused by *L. tropica* emerging in southern Europe as a result of the abundance of vectors, the risk is lower for visceral leishmaniasis caused by *L. donovani* because vectors are absent. Prevention of emergence depends on efficient surveillance and prompt treatment of all human leishmaniasis infections.

To reduce bites of peridomestic vectors, insecticide-treated nets and topically applied insecticides can be used. Dog collars impregnated with deltamethrin are used to control the infection of reservoir dogs.

Diagnosis

The diagnosis of leishmaniasis is mainly based on symptoms, the microscopic identification of the parasites in Giemsa-stained smears of tissue or fluid (from lesions, bone marrow, spleen), and serology.

Management and treatment

Pentavalent antimonials were for a long time the first-choice drugs for leishmaniasis, and remain so in many endemic tropical countries, partly because of the production of generic drugs. In some regions, mainly where resistance has developed, miltefosine, paramycin and liposomal amphotericin B are gradually replacing the antimonials.

The aim is to develop combination therapy to prevent the emergence of resistance to new drugs.

Key areas of uncertainty

The significance of alternative modes of transmission like syringe sharing or mother-to-child transmission needs further investigation, especially for assessing the potential emergence of leishmaniasis in northern Europe. The availability of an effective vaccine for human leishmaniasis would allow an immunisation strategy for rural Mediterranean populations. Finally, better predictive modelling of disease transmission is needed.

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