

Leishmaniasis

Description

Leishmaniasis is a protozoan parasitic disease transmitted by predominantly night-biting sandflies. There are three forms of leishmaniasis – *cutaneous*, *mucocutaneous* and *visceral* – with a wide range of clinical symptoms.

Cutaneous Leishmaniasis

This form of the disease produces a large number of skin ulcers on exposed parts of the body, for example the face and legs. These lesions can leave the patient seriously disabled and prone to infection and scarring. Lesions can heal spontaneously after a month or so or last for up to a year. The stigma caused by the lesions can lead to social exclusion and prejudice particularly for women.

Mucocutaneous Leishmaniasis

This rarer form of leishmaniasis leads to partial or total disfigurement of the mucous membranes of the nose, mouth and throat cavities and surrounding tissues.

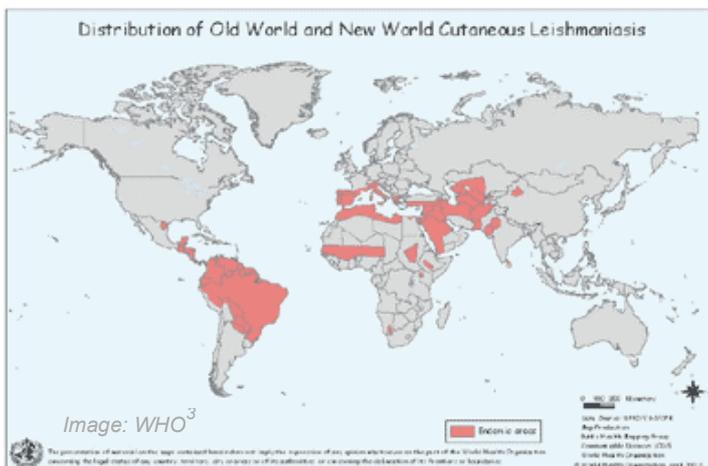
Visceral Leishmaniasis (Kala Azar)

This is a chronic disease characterized by irregular bouts of fever, substantial weight loss, swelling of the spleen and liver, and anaemia (occasionally serious). There are few effective drugs available to treat it, and the fatality rate in developing countries can be as high as 100% within 2 years.¹

Distribution

Leishmaniasis is found in parts of about 88 countries, threatening 350 million people. Most countries are in the tropics and subtropics. The settings in which leishmaniasis is found range from rain forests in Central and South America to deserts in West Asia.

More than 90% of cutaneous leishmaniasis cases occur in Iran, Afghanistan, Syria, Saudi Arabia, Brazil and Peru.² More than 90% of the world's cases of visceral leishmaniasis are in India, Bangladesh, Nepal, Sudan, and Brazil.



The number of new cases of cutaneous leishmaniasis each year in the world is thought to be about 1.5 million. The number of new cases of visceral leishmaniasis is thought to be about 500,000.⁴

Causative Agent and Transmission

This is a parasitic infection caused by a protozoan of the genus *Leishmania*. There are up to 24 different species. Different species cause different clinical forms of the disease in various parts of the world. It is transmitted by a bite from a female phlebotomine sandfly. There are about 1000 different species of sandfly of which around 70 can transmit the disease. The sandfly bites a human or other infected mammal and is itself infected. The protozoan multiplies in the insect vector and is then inoculated into another mammal recipient.⁵



The female sandfly lays its eggs in the burrows of certain rodents, the bark of old trees, ruined buildings, cracks in house walls, animal shelters and in household rubbish, as it is in such environments that the larvae will find the organic matter, heat and humidity which are necessary for their development.⁶

¹ World Health Organisation Factsheet http://www.who.int/leishmaniasis/disease_epidemiology/en/index.html

² World Health Organisation Tropical Disease Research Neglected Diseases <http://www.who.int/trd/diseases/leish/diseaseinfo.htm>

³ World Health Organisation Essential Maps http://www.who.int/leishmaniasis/leishmaniasis_maps/en/index.html

⁴ US Center for Disease Control Department for Parasitic Disease http://www.cdc.gov/ncidod/d/dp/parasites/leishmania/factsheet_leishmaniasis.htm

Sandflies are only about one-third the size of typical mosquitoes. They are usually most active in twilight, evening, and night time hours (from dusk to dawn). Sandflies are less active during the hottest time of the day, however, they will bite if they are disturbed, such as when a person brushes up against the trunk of a tree where they are resting.

Pathogenesis

With notable exceptions, the form (visceral, cutaneous, mucocutaneous) and severity of disease is a function of the infecting *Leishmania* species together with host genetics and consequent inflammatory and immune responses. It has become evident from genetic and immunological studies that the various members of the genus *Leishmania* differ in aspects of their 'approach' to the host immune system. The complexities of these interactions are just beginning to be appreciated, and this is important for the development of a vaccine against leishmaniasis.⁷

Symptoms

Cutaneous Leishmaniasis

- One or more skin sores that can vary in appearance (round, crater-like, nodule or papular) which may or may not be painful
- May spontaneously heal in weeks or may be present for years
- The incubation period is from one week to many months

Visceral Leishmaniasis

- Fever
- Weight loss
- Enlargement of the spleen and liver
- Anaemia
- Many infections are subclinical
- Fatal if untreated
- The incubation period is typically 2-6 months, but can be 10 days to many years⁸

Treatment

If bitten by sandflies in previous weeks or months and symptoms develop, a tropical diseases specialist should be consulted to confirm diagnosis. The first line treatments for Leishmaniasis are antimonials. Treatment may be administered via oral, intravenous or topical medications. Complications occur if the patient is coinfecting with HIV, or is immunosuppressed.

Risk to Travellers

Travellers of all ages are at risk for leishmaniasis if they live in or travel to leishmaniasis-endemic areas. Leishmaniasis usually is more common in rural than urban areas, but it is found in the outskirts of some cities. In the Old World, transmission of a particular species of the parasite (*Leishmania tropica*) that usually causes cutaneous leishmaniasis is common in some urban areas (e.g., Kabul, Afghanistan and Baghdad, Iraq). Adventure travellers, NGO volunteers, missionaries, ornithologists, and other persons who do research outdoors at night, and soldiers are examples of those who might have an increased risk for leishmaniasis, especially the cutaneous form. Even those with short stays in leishmaniasis-endemic areas can become infected.

Control and Prevention

No vaccines or drugs for preventing infections are currently available. Therefore prevention measures rely on not being bitten. Being so small and noiseless, the presence of sandflies may be underestimated.

- Avoid being outdoors between dawn and dusk, bearing in mind if disturbed, sandflies may bite during the day
- Wear long sleeves and trousers and use insect repellent (30% DEET) on all exposed skin and under the edges of clothing
- Sleep under an insecticide treated bednet, in a room with window screens and using a knock-down spray
 - sandflies are small enough to get through the holes in most netting however they are less likely to do so if it is treated with permethrin
- Sleep raised off the ground on a bed or in a hammock
- Avoid camping near to known habitats for sandflies such as animal burrows



⁶ World Health Organisation Factsheet http://www.who.int/leishmaniasis/disease_epidemiology/en/index.html

US Center for Disease Control Yellow Book <http://www2.ncid.cdc.gov/travel/yb/utills/ybGet.asp?section=dis&obj=leishmaniasis.htm>

National Travel Health Network and Centre <http://www.nathnac.org/pro/factsheets/leishmaniasis.htm#sign>

⁷ Colmenares M, Kar S, Goldsmith-Pestana K, McMahon-Pratt D. Mechanisms of pathogenesis: differences amongst *Leishmania* species. *Trans R Soc Trop Med Hyg*. 2002 Apr;96 Suppl 1:S3-7.