

# Leishmaniasis

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- Leishmaniasis are group of protozoal diseases caused by parasites of the genus leishmania and are transmitted to the man by the bite of the female phlebotomine sand fly. They are responsible for various syndromes in human, those include Kala Azar (Visceral leishmaniasis VL), Cutaneous leishmaniasis CL, mucocutaneous leishmaniasis MCL, others zoonotic, arthropodic ...etc. Cutaneous leishmaniasis also called oriental sore, Baghdad boil, Delhi boil, Halab boil, sister...etc.

- **World Occurrence:**

- Cutaneous leishmaniasis occurs in dry, semi desert rural areas of central Asia, Middle East, north and west Africa, and in Ethiopia, Kenya. Endemic foci are also found in central and south America. Most cases occur in Afghanistan, Brazil, Iran, Peru, Saudi Arabia, Iraq, Syria (except Australia).
- Leishmaniasis is endemic in 88 countries, the overall prevalence is 13 million cases and the population at risk is 350 million. Incidence is 1.8 million / year newly reported cases.
- There is an increasing number all over the world, and a more wider geographical distribution. Economic and demographic circumstances contribute to increased prevalence (agro-industrial projects, immigration, unplanned urbanization, environmental changes).

- **Age Distribution:**

- It affect all age groups, including infants below one years of age, peak 5-9 years.

- **History:**

It was highly endemic in Iraq, Baghdad rural areas.

Cutaneous leishmaniasis are as follows:

*Leshmania tropica* minor which is responsible for urban infection.

*Leshmania tropica* major which causes lesions in rural areas.

Cutaneous leishmaniasis lesion is typical boil like lesion will heal without treatment in about a year. At always leave an ugly cribriform scar.

The natural history of cutaneous leishmaniasis:

Inoculation of *leishmania tropica* by sand fly bite      boil like nodule in the skin (relatively painless)      ulcerates with or without crusting sheals      depressed scar.

- **Sex Distribution:** Males twice than females.

- **Socioeconomic:**

Immigrants, laborers, tourists, more in the debilitating poor communities, people working in farms, mining, fishing. This due to overcrowding, ill ventilation and accumulation of organic matter. The attack of Kala Azar and Cutaneous leishmaniasis give long lasting immunity.

- **Environmental:**

It is confined to the plains, epidemics occur in November (winter time) and April (spring time) after rainfall seasons (long incubation period).

Rural area: wet type. Urban area: dry type.

- **Vector:**
- Sandfly, *phlebotomas papatasi* and *phlebotomas serganti*, they breed in cracks and crevices in the soil and buildings, tree holes, caves .. etc.
- It's of nocturnal activity and only the females bite.
- **Reservoir:**

Dogs (4-10 % carriers in previous USSR), gerbils (80-95 % carriers), juckles, foxes, rodents and other mammals.
- **Incubation Period:** 1-4 months (range from 10 days to 2 years).

- **Infectious Agent:**

Leishmania are intracellular parasites, 19 types are associated with human infection, with no cross immunity to one another.

- *Leishmania donovani* is the causative agent of Kala Azar.
- *Leishmania tropica* is the causative agent of Cutaneous Leishmaniasis.
- *Leishmania braziliensis* is the causative agent of Mucocutaneous Leishmaniasis.

The life cycle is completed in two different hosts, vertebrate (amastigote form what is called leishmania bodies), and insect (flagellate promastigote).

- **Mode Of Transmission:**

- 1) By vector the disease is transmitted.
- 2) By contamination of the bite wound or contact when the insect is crushed during the act of feeding. After the infective blood meal, the sand fly become infective in 6-9 days.
- 3) Man to man is frequent except in Indians.
- 4) Other modes of transmission by blood transfusion, contact inoculation and sexual intercourse.



- **Clinical Features:**

Cutaneous Leishmaniasis is characterized by painful ulcers in the parts of the body exposed to sand fly bites e.g. legs, arms and face.

- **Diagnosis:**

1. Parasitological diagnosis: demonstration of LD bodies in aspirate from skin lesion or in blood film, and culture of the isolate.
2. Serological: HAG, CF, ELISA, DAT, IFAT (the best).
3. Leishmania test: it's the skin reaction test of a preparation of washed promastigotes of leishmania as intradermal injection in the forearm and examined after 48-72 hours, an induration of 5 mm and more is considered positive. The test is usually positive after 4-6 weeks after onset of the case of Cutaneous Leishmaniasis.
4. Haematological findings: on Kala Azar.

- **Prevention & Control:**
- **1. Control of the reservoir:**
- **Man:**

By house to house visits, mass survey, case detection and treatment with penta valent antimony compounds. Penta valent antimony compounds are the main stay of the treatment but they are largely unsatisfactory.

Intralesional injections of sodium stibogluconate (pentostam) or N-Methyl glucamin antimonite (glucantime) once a week will make the sore heal quicker than it would be otherwise. This is unpleasant for patients and since many of them will be children, it's not very practical.

The alternative is to give the antimony by injection (sodium stibogluconate 200 mg/kg body weight IM or IV daily until the sore heals about 10-30 days). For most patients it's probably easier to leave it heal on its own.

- **Animal**
- By taking appropriate measures against dogs and rodents through control programs.

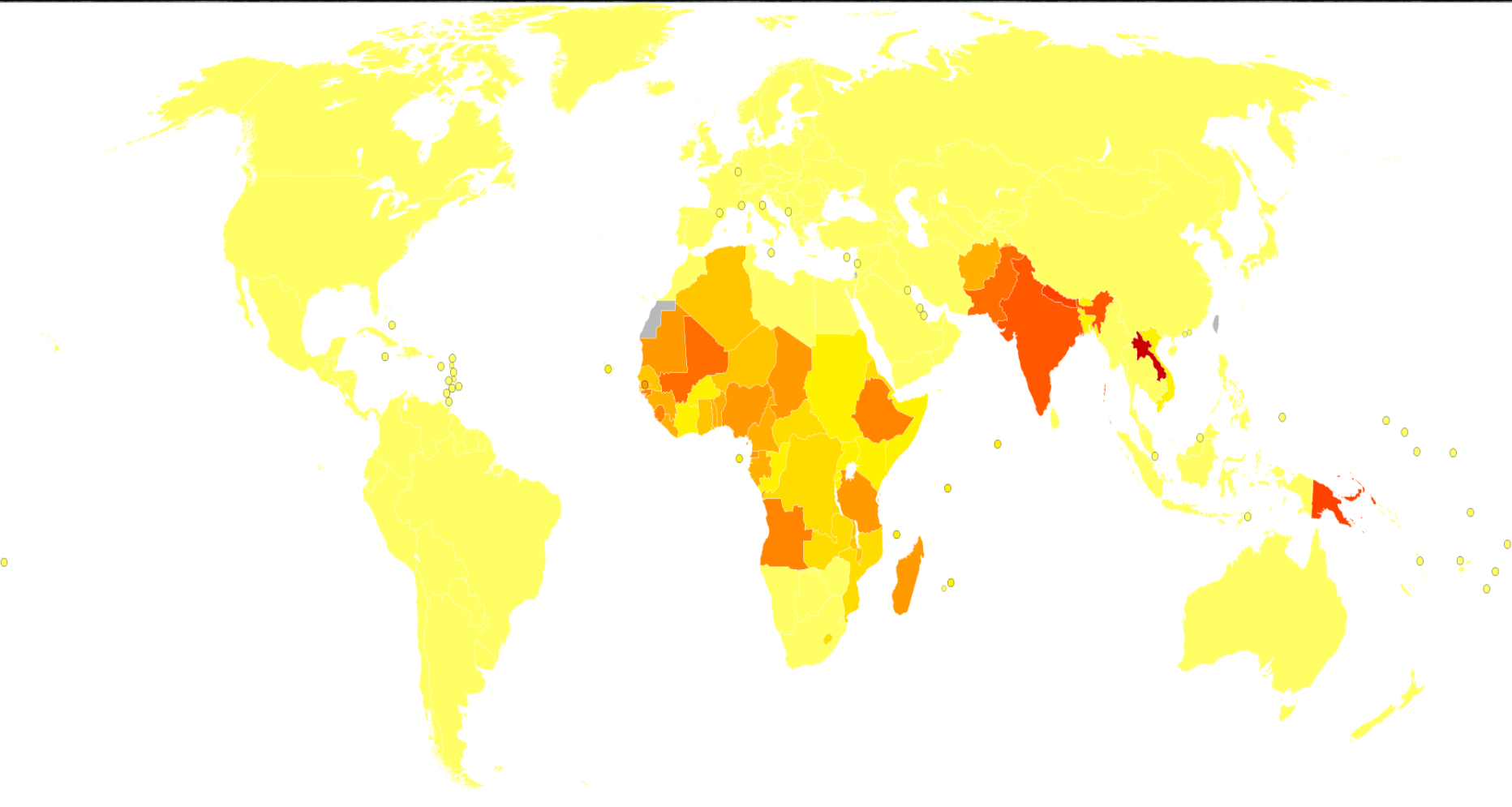
- **2. Control of the vector (sand fly):**
- DDT, spraying human dwellings, animal shelters and all other resting places up to 6 feet height from floor level at regular interval.
- **3. Sanitation measures:**
- Elimination of breeding places (cracks in the mud or stone walls, rodent burrows, firewood, bricks or rubbish around houses).
- Locating cattle and poultry sheds at a fair distance from human dwellings.
- Improvement of housing and general sanitation.
- Application of wire screen on windows.

- **4. Personal prophylaxis:**

By health education, use of personal protective measures such as avoiding sleeping on the floor, use nets around beds, using insects repellents e.g. lotions, creams and sticks.

- **5. Vaccination:**

By *leishmania mexicana* is very important to establish immunity.



Leishmaniasis world map from WHO

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