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**Name and type of the disease-causing agent (e.g. SARS CoV-2, virus)**

Leishmaniasis is a parasitic protozoan. Human infection is caused by more than 20 species, including *L. donovani*, *L. infantum*, *L. mexicana*, *L. amazonensis*, *L. venezuelensis*, etc.

**Explain Transmission Classification (e.g. direct anthroponosis)**

Leishmaniasis is mostly transmitted through direct zoonosis. The disease is transferred to humans and other animals through the bite of an infected female phlebotomine sandflies.

However, leishmaniasis can be transmitted through indirect anthroponosis as well, such as in the case of *L*.*donovani.* The disease can be transmitted from human to sand fly to human.

**Description of Infection (i.e. how it impacts the human body)**

Leishmaniasis can affect people in many different ways:

1. Silent infection
   1. the infection does not cause a disease
2. Cutaneous leishmaniasis (the most common)
   1. The infected person develops skin sores, a few weeks or months after infection
   2. The skin sores will start out as nodules or papules, and can eventually develop into ulcers
   3. If these sores develop in places such as arms or legs, it can cause swollen glands (lymph glands)
   4. These sores are usually not painful but they can be in some cases
3. VIsceral leishmaniasis
   1. The infected person develops VIsceral leishmaniasis months (or sometimes years) after infection
   2. Effects the internal organs such as liver or bone marrow
   3. Causes swelling of the liver or bone marrow, leukopenia, thrombocytopenia, anemia
   4. Can also develop fevers and cause weight loss
   5. Can be life threatening
4. Mucosal leishmaniasis (rare)
   1. Develops from certain species of leishmaniasis that cause cutaneous leishmaniasis in Latin America
   2. The sores spread from the skin to the mucous membranes in the nose, throat or mouth

**Description of Treatment**

There are several types of treatment for Leishmaniasis depending on the location of infection. Different species and strains of *Leishmania* respond differently to different types of medication.

For visceral(internal) leishmaniasis In India, South America, and the Mediterranean, an antifungal medication known as Amphotericin B is injected intravenously. This cure is highly effective for such strains, curing 95% of all instances with only one dose. Paromomycin and pentavalent antimonials are used in Africa.

For cutaneous(skin) leishmaniasis, there is not much evidence of effective treatments, and are highly strain dependent. Paromomycin, an antimicrobial, can be applied to the skin with some effects. Other antifungal medications such as fluconazole or itraconazole can be taken orally in some specific strains.

**Relative Contagiousness and Mortality**

There are an estimated 700 000 to 1 million new cases annually. While many people are infected by the parasite, only small amounts of people infected will develop the disease. Moreover, transmission of Leishmaniasis requires being bitten by an infected sandfly, which makes this disease less infectious. This disease has a reproduction number of 0.7, which makes this disease unlikely to spread quickly.

Leishmaniasis, especially the visceral type has a high death rate of 90% if left untreated. However, most cases are of the cutaneous type, which is significantly less fatal. According to data from the WHO, Leishmaniasis has a real fatality rate closer to 7%, since the cutaneous type is far less fatal and people do seek treatment. Around 13 000 people die of this disease every year.

**Global Status (where and how common)**

Leishmaniasis is an ancient disease, it was considered to have originated from the Palaearctic, Neotropical and supercontinental. Ancient literature and data suggest that leishmaniasis was already common in ancient times. In the early 20th century, it was discovered that leishmaniasis parasites and sand flies had vectors of transmission. More recently, the Syrian civil war and refugee crisis have shown that leishmaniasis epidemics can occur at any time in conflict areas and in regions where the disease was previously endemic.

**Predict the impact of Global Climate Change on the disease**

Climate change can have a big impact on how Leishmaniasis spreads. Changes to temperature and humidity can affect the distribution of the parasite-carrying host, with even small changes to temperature can cause transmission of parasites to new areas which were not previously affected. Furthermore, famine, drought and flood can cause large number of people to move to areas affected by Leishmaniasis, further increasing the transmission of the disease.