Leishmaniasis

Leishmaniasis is a protozoan disease caused by flagellate parasites that belong to genus *Leishmania*..

The disease is transmitted by the phlebotomous sandfly vectors

Four different clinical forms of the disease do exist:

- The Visceral form, which is often fatal if untreated,
- The muco-cutaneous form which is a mutilating disease
- The diffuse form which is disabling
- The cutaneous form which can result in an unaesthetic stigma if multiple lesions occur.

Visceral (VL)



Phlebotomine sandfly, the vector.



Distribution of Leishmaniasis: it occurs in 88 countries, mostly in developing countries.

Epidemiology of Leishmaniasis

Twenty (20) Leishmania species are known to affect humans

About 30 different sandfly species have been identified as vectors for the disease.

Factors that favor increased occurrence of the disease

Worldwide the disease is on the increase mainly due to behavioural and environmental changes such as;

- Development of new settlements,
- Intrusion into primary forest (deforestation)
- Massive rural to urban migration
- Fast and unplanned urbanization
- Building of dams and new irrigation schemes.
- Malnutrition and immunosuppression due to HIV co-infection also have important roles.

Organs/tissues affected

- Liver/spleen: (cause enlargement of the liver.
- Bone marrow:
- Organisms can also be identified in the lung,
- skin,
- digestive tract
- pancreas,
- heart,
- larynx,
- kidney.

Diversity of habitats endemic for the cutaneous leishmaniases

The distribution of the disease is dependent on the distribution and abundance of the sandfly vector, which in turn is strongly dependent on environmental factors.

Sandflies: *Lutzomyia* in the New world and *Phlebotomine* in the old world. and, hence, leishmaniasis, can be found in urban (B: Kabul, Afghanistan) or rural areas, in deserts, agricultural areas (C: coffee plantations in Colombia), or tropical rainforests, or below sea level or at high altitudes

MICROBIOLOGY

Protozoan parasite, HIV increases risk of visceral (hepatosplenic and bone marrow) disease,opportunistic cutaneous or mucocutaneous disease. Second most common opportunitistic infection.tissue protozoan in HIV after *Toxoplasma gondii*.

Transmitted by sand fly vectors. Also shared needles among IDUs, primarily in endemic urban settings.

Forms: visceral leishmaniasis: *L. donovani(Asia), L. infantum*(southern Europe, Mediterranean), L. chagasi(Brazil).

Cutaneous leishmaniasis: *L. major and L. tropica*(Old World), L. *mexicana, L. amazonensis, L. peruviana, L. guyanensis*(New World), *L. (viania) braziliensis*(cutaneous and mucocutaneous)

Amastigote forms seen within macrophages; flagellated promastigote forms seen in cultures, transmitted from insect vector.

CLINICAL

Visceral leishmaniasis (VL) as an opportunitistic infection in HIV/AIDS occurs due to decreased T cell immunity associated with progressive HIV infection, 75% with CD4 <200, only 5% with CD4 >500.

Particular risk groups include IDUs in southern Europe (needle sharing); residents of or from endemic areas of India, Brazil, Sudan, where agents of visceral leishmaniasis present.

Syndrome of hepatosplenomegaly, pancytopenia, skin hyperpigmentation (variable); nutritional *wasting*, bacterial superinfections may be cause of death. Cutaneous lesions more common in HIV-related disease.

Relapse after treatment common in AIDS and other severe immunocompromising conditions (corticosteroids, organ transplantation); May occur mos to yrs after leaving endemic region where initial infection occurred.

Cutaneous leishmaniasis not generally considered to be an HIV-related opportunitistic infection.

Dx: Giemsa or DFA stain of splenic or bone marrow aspirate with demonstration of parasites (amastigotes) within macrophages (method of choice) .

Dx: pts with suspected VL, examine peripheral or buffy coat sample prior to invasive procedure in advanced AIDS pts, as up to 50% have evidence of visible amastigotes seen within monocytes.

Dx: Serologic testing of HIV-related visceral leishmaniasis less sensitive than in non-AIDS.

Need tofrom (similar sized intra-macrophage organism but has a pseudocapsule surrounding it), visualize rod-shaped kinetoplast in Leishmania.

Up to 10% of HIV+ pts with amastigotes seen on peripheral smear may be asymptomatic.

Mortality 10-20% of AIDS pts with VL in first episode; 60% alive at 1 yr.

Treatment:

Response may vary depending on infecting organism, host and locale of acquisition. Recommend consulting with expert knowledgeable in management of leishmaniasis.







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