Leishmania, Types, Leishmaniasis, Treatment!!

LEISHMANIA

The genus Leishmania comprises of a number of species all of which are morphologically similar, but differ clinically, biologically and serologically. In recent years, many strains and species of Leishmania have been characterised on the basis of isoenzymes kinetoplast DNA (k DNA).

TYPES OF LEISHMANIA

1. Leishmania tropica

   It produces coetaneous leishmaniasis which is characterized by skin lesion. Infected macrophages congaing amastigotes are found primarily at the site of infection around the sores. The sores are characterized by an elevated rim encircling the lesion.

2. Leishmania braziliensis

   It produces mucocutaneous leishmaniasis, characterized by lesion near mucosal membranes. The initial site if infection is a small red papule that ulcerates in a few weeks. The lesion is flat. Infection of ear, nose, mouth area lead to degeneration of the cartilage and soft tissues, resulting in disfigurement.
3. **Leishmania donovani**

In 1990, sir William Leishman observed this parasite in spleen smears of a soldier who had died of ‘kala azar’. It produces visceral leishmaniasis. Symptoms include fever, enlargement of spleen and liver, weakness and progressive emaciation. The disease is often fatal without treatment, but survivors often develop immunity.

**MORPHOLOGY (Leishmania donovani)**

The parasite exists in two forms

1. The amastigote form in man and other mammals.
2. Promastigote form in the sand fly.

**LIFE CYCLE (Leishmania donovani)**

1. All Leishmania pass their life cycle in two hosts.
   - Definitive host: Man or other mammal.
Intermediate host: Sand fly.

2. Human macrophages containing amastigotes are ingested by sand fly.
3. Amastigotes differentiate in fly gut to promastigotes.
4. When fly bites, promastigotes enter blood and engulfed by macrophages and formed amastigotes.
5. This can infect other reticuloendothelial cells, especially in spleen and liver.

**LEISHMANIASIS**

Leishmaniasis is the collective name for a number of diseases caused by protozoan flagellates of genous *Leishmania*, which have diverse clinical manifestation.

**TYPES OF LEISHMANIASIS**

1. **VISCERAL LEISHMANIASIS**

India, Kenya-Leishmania donovani
South Europe, North Africa-Leishmania infantum
America-Leishmania chagasi.

**SYMPTOMS**
- Irregular bouts of fever
- Substantial weight loss
- Swelling of the spleen and liver

2. **CUTANEOUS LEISHMANIASIS**:

America- Leishmania tropica mexicana, Leishmania braziliensis and Leishmania amazonensis.

**SYMPTOMS**

- Skin ulcer on the exposed parts of the body, such as the face, arms and legs.

3. **MUCOCUTANEOUS LEISHMANIASIS**

America-Leishmania braziliensis

Old world-Leishmania aethiopica

**SYMPTOMS**

- Mucous membranes of the nose
- Mouth and throat cavity.

**LEISHMANIASIS TREATMENT**

- The treatment of leishmaniasis depends on the form of
the disease (cutaneous, mucocutaneous, visceral) and may be in the form of tablets or injections.

- Cutaneous leishmaniasis some times heals on its own and may not require treatment.
- Liposomal amphotericin –B is a drag of leishmaniasis.
- Pentostam is an alternative therapy.
- The potential visceral infection suggest possible patients be referred to the Leishmania Treatment Centre at WRAMC for maximal diagnostic efficiency.

This is the general notes on Leishmania and Leishmaniasis

Thank you.