

Leishmaniasis 2

Clinical Parasitology & Entomology

FACTM Pt 1

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Study materials

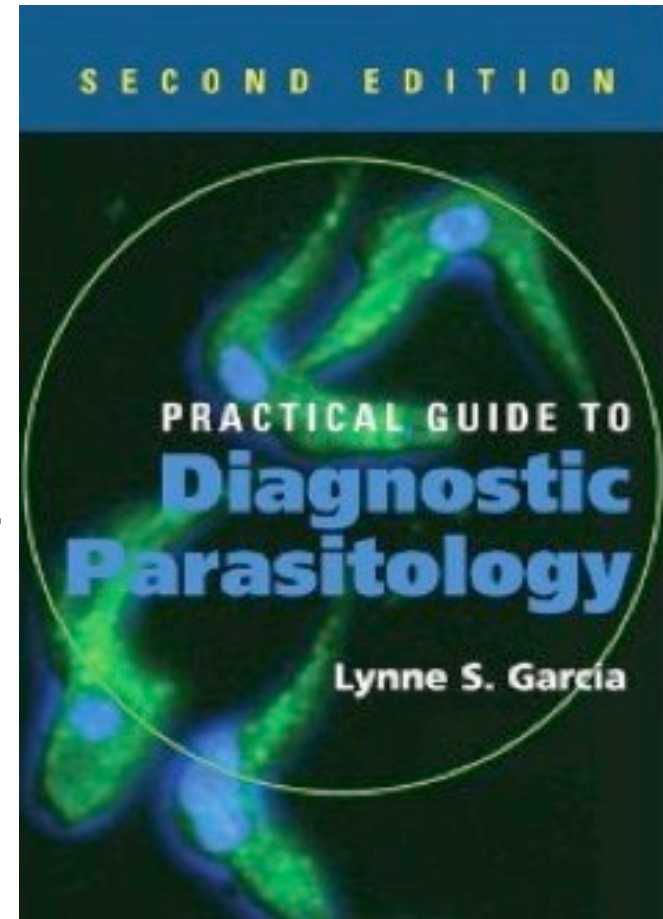
LEISMANIASIS 1
LEISMANIASIS 2

Practical Guide to Diagnostic Parasitology.
2nd Edition, Garcia LS. 2009. ASM Press.

Medical Entomology for Students.
4th Edition, Service M. 2008. Cambridge.

Blog <http://micrognome.priobe.net>

Web www.priobe.net



Leishmania

Protozoan

Apicomplexan

Kinetoplastida

2 subgenera:

- I Leishmania e.g. *L. donovani*, *L. infantum*, *L. tropica*, *L. mexicana* (Old & New World)
 - II Viannia e.g. *L. brasiliensis*, *L. guyanensis* (New World only)
- Many other species grouped together in series of complexes
 - Adansonian system



Life cycle

Stages; dimorphic

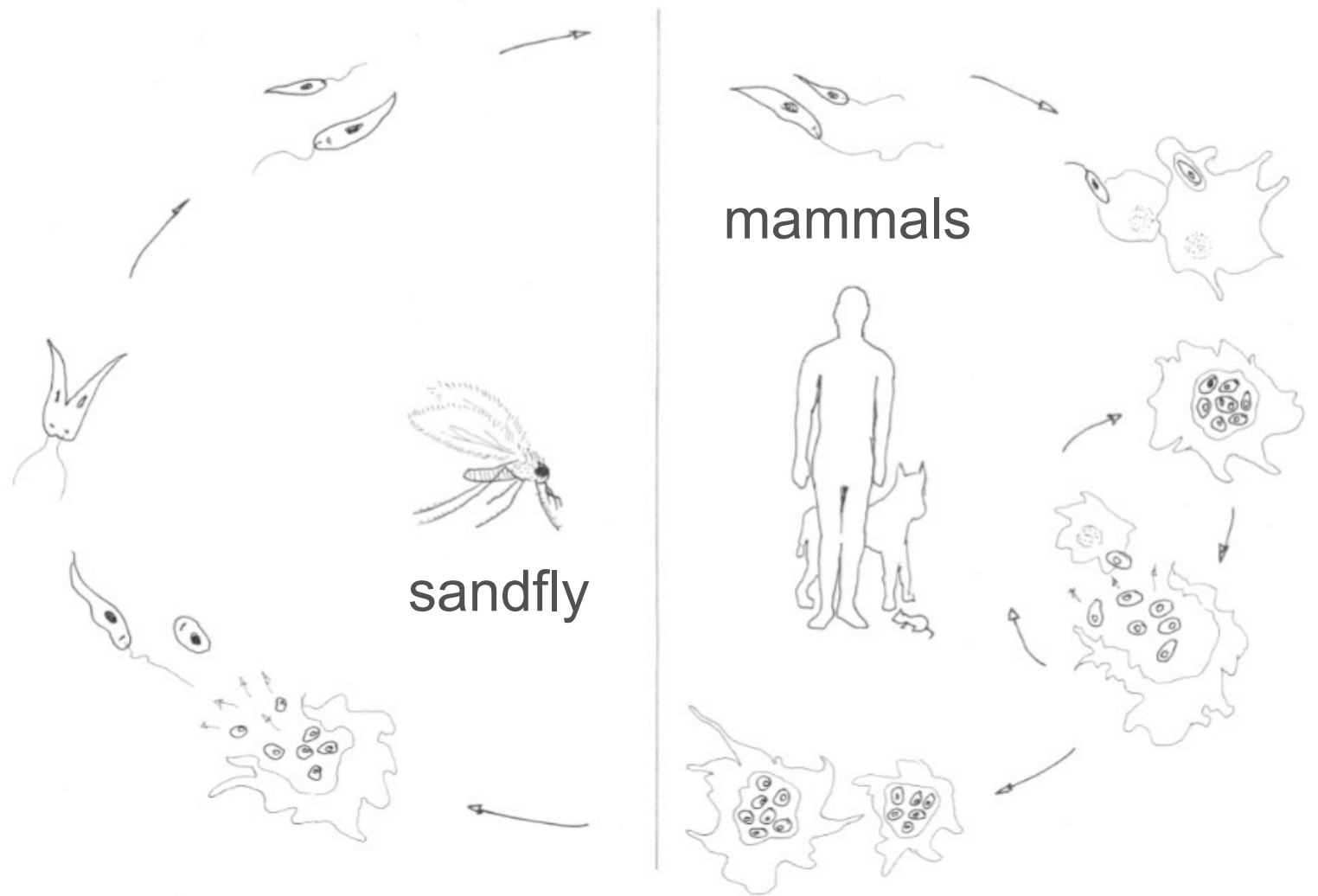
- (metacyclic) **promastigote**, elongated, anterior flagellum, kinetoplast, infective stage
- **amastigote**, rounded, 2-6µm, kinetoplast, internal flagellum, inside parasitophorous vacuole in mammalian macrophage



Vector – *Phlebotomus*, *Lutzomyia* spp. (Sand flies)
Injection during blood feed of adult female



Life cycle



Lab methods

Microscopy

- samples
- touch prep

Culture

- Prior disinfection
- Growth on NNN medium

NATs

Spleen, bone marrow, node Bx

Skin Bx

Blood

Other tissues



Antiparasitic agents

Authorised use

- liposomal amphotericin

Demonstrated efficacy

- pentavalent antimonials
 - Na stibogluconate
 - Meglumine
- Melfosine
- Fluconazole



Sand flies

- *Phlebotomus*
- *Lutzomyia*
- Habitat
- Distribution
- Regional vectors



Sandfly features

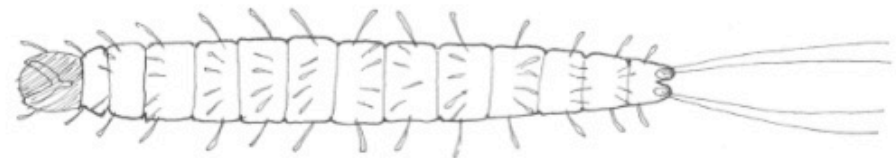
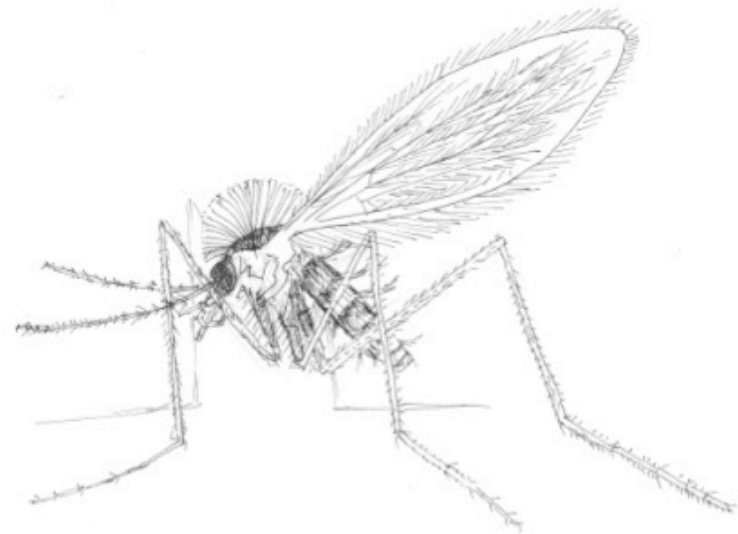
Adults: bite at or after dusk,
weak fliers, circa 100m, exophilic

- Small size, 1.5-3.5 mm
- Hairy
- Large black eyes
- Stilt-like legs
- Lozenge-shaped wings at 40° angle
- Twice branching wing vein #2

Eggs: mosaic pattern

Larvae: 4 instars, matchstick hairs,
caudal bristles

Pupae



Countermeasures

- **Reservoirs:** mammalian host – humans, dogs, rodents (11 eco-epidemiological systems)
- **Vectors:** clothing, repellent, bed nets, insecticide



Emerging issues

- New agents of VL
- New biology
- Genome
- Taxonomy

