Trypanosoma gambiense and rhodesiense
Morphology

- Polymorphic spindle-shaped trypanosome measuring 14-33 microns in length
Life Cycle

- Vertebrate hosts → trypanosomes in blood, lymph nodes, spleen, and cerebrospinal fluid → those in blood ingested by tsetse fly → reproduce in gut → migrate to salivary glands → infective trypanosomes develop → inoculated into bite site of vertebrate host → multiplication occurs at bite site → dissemination to other parts of the body
Tsetse fly Stages

1. Tsetse fly takes a blood meal (injects metacyclic trypomastigotes)

2. Injected metacyclic trypomastigotes transform into bloodstream trypomastigotes, which are carried to other sites.

3. Trypomastigotes multiply by binary fission in various body fluids, e.g., blood, lymph, and spinal fluid.

4. Trypomastigotes in blood

5. Tsetse fly takes a blood meal (bloodstream trypomastigotes are ingested)


7. Procyclic trypomastigotes leave the midgut and transform into epimastigotes.

8. Epimastigotes multiply in salivary gland. They transform into metacyclic trypomastigotes.

Human Stages

i = Infective Stage

d = Diagnostic Stage

CDC
SAFER • HEALTHIER • PEOPLE™

http://www.dpd.cdc.gov/dpdx
Epidemiology

- Endemic zone in tropical Africa basically between 20 degree latitude north and south of equator
- There is some overlap east-west with both species, *gambiense* predominating in the western portion but occurring in some sections of the eastern portion
- *rhodesiense* is found only in the eastern portion
Diagnosis

• Demonstration of parasite in blood
• Lymph node aspiration
• Bone marrow examination
• Cerebrospinal fluid
• Serology used mainly for epidemiological studies
Symptomatology

• Acute Stage:
  – Asymptomatic
  – Fever
  – Chills headache
  – Anorexia

• Second Stage:
  – Asymptomatic or relapses with symptoms found in first stage
- Third Stage:
  - Fever
  - Lymphadenopathy (especially posterior cervical triangle, Winterbottom’s sign)
  - Hepatosplenomegaly
  - Headache
  - Joint pains
  - Cramps
  - Weakness
  - Swelling of hands, legs and eyes
  - Erythematous rash
  - Asymptomatic periods followed by
    - Dyspnea
    - Cardiac pain
    - Disturbed vision
    - Nephritis
    - Dysmenorrhea
    - Asthenia
    - Invasion of the central nervous system leading to:
      - Severe headache
      - Mental dullness
      - Apathy
      - Muscle spasms
      - Irritability
      - Stiffness of the neck
      - Flaccid or spastic paralysis
      - Eventually continuous sleeping
      - Coma
      - Convulsions
      - Death
Treatment

- Tryparsamide (only in *gambiense*)
- Suramin
- Pentamidine isethionate
- Melarsoprol
- berenil
Prevention

• Vector control