Trypanosoma cruzi
Morphology

• Spindle-shaped, about 20 microns in length in the peripheral blood.
• In tissue, a leishmanial form, 1.5-4 microns in diameter
• Both forms have nucleus and a kinetoplast
Life Cycle

- Reservoirs are various animals including armadillos with trypanosomes in the bloodstream → ingested by a tratomid or cone-nosed bug → undergo transformation → infective stage → excreted in feces → contaminates bite site or adjacent mucous membranes → both trypanosomal and leishmanial stages → the latter causing the damage and inflammatory response, the former available for hematogenous spread to other tissues and for uptake by the vector
Triatomine Bug Stages

1. Triatomine bug takes a blood meal (passes metacyclic trypomastigotes in feces, trypomastigotes enter bite wound or mucosal membranes, such as the conjunctiva)

2. Metacyclic trypomastigotes penetrate various cells at bite wound site. Inside cells they transform into amastigotes.

3. Amastigotes multiply by binary fission in cells of infected tissues.

4. Intracellular amastigotes transform into trypomastigotes, then burst out of the cell and enter the bloodstream.

5. Triatomine bug takes a blood meal (trypomastigotes ingested)

6. Epimastigotes in midgut

7. Multiply in midgut

8. Metacyclic trypomastigotes in hindgut

Human Stages

= Infective Stage
= Diagnostic Stage

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

- Mexico
- Central and South America
Diagnosis

• In acute stage: finding of parasites in blood

• In chronic stage: Usually serology required, occasionally parasites seen in blood
  – Xenodiagnosis occasionally employed
symptomatology

• Acute:
  – Myocarditis
  – Encephalitis
  – Local swelling at inoculation site (dhagoma) if periorbital, called Romana’s sign

• Chronic:
  – Cardiomyopathy with conduction disturbances
  – Megacolon
  – Megaesophagus
  – Occasionally mega bronchus, megaureter, and megabiliary tract
Treatment

• Acute:
  – Lampit (an aminoquinoline) available from the Center for Disease Control, Atlanta, Georgia

• Chronic:
  – Symptomatic and supportive
Prevention

• Vector control
• Improved housing
• Avoid transfusion from potentially infected individuals (blood can be treated by addition of gentian violet to equal 1% of total volume)